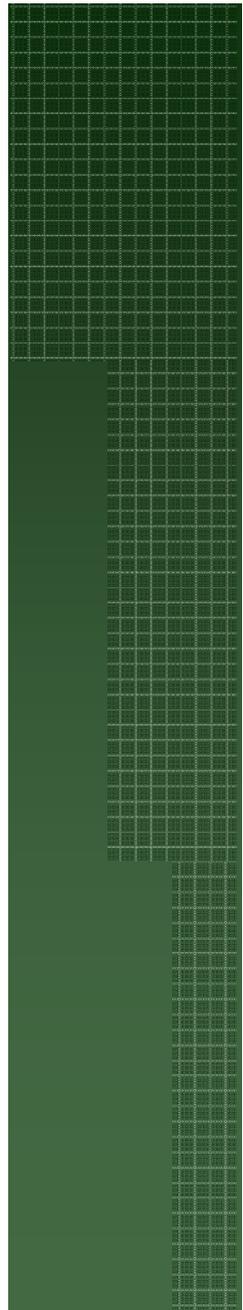


**APPENDIX A**  
**PUBLIC INVOLVEMENT**



***Summary of Comments Received and Responses /  
Actions***

**Table A1. Summary of General Comments Received During Long Range Transportation Plan Update**

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments</b>			
	Public	Expand the proposed 12th St. bike route from Bis. Expwy. up to Ave B by extended the route east to 15 St then North up to Divide Ave. and stop.	This comment was incorporated into the recommended LRTP.
	Public / Bicycle Advocacy Group	Concerns with safety on proposed on-street route for 12th Street.	12th Street removed from the recommended list. LRTP is recommending a Pedestrian / Bike Master Plan be completed, including implementation plan for on-street routes.
	Public	The north-south bike route on 28th St from Bis. Expwy. up to Ave D is good. Why not continue this route up 28th St. north to tie into the Sleepy Hollow bike path, or just continue along that road.	Extending the 26th St bike route further north would require some extreme grades for bicyclists - with grades at 10%. This extension is not included in the recommended LRTP, but might be included in Bike Master Plan.
	Public	Extend the proposed north-south bike route on 5th St as a separated bike path along the west side of the mall either through the parking lot or along the edge of it, then end the path at the 3rd St intersection with Expwy.	Suggestion will be noted and should be considered in more detailed Bicycle and Pedestrian Master Plan. As commenter noted, agreement with mall to use their property would be required.
	Public	There should be a sidewalk added on the east side of the mall along 9th St where there currently is not one.	Suggestion is noted, and will be passed along to Bismarck Engineering.
	Public	Desire to use abandoned rail line and bridge north of Lincoln Road as a rails to trail project for connection to Bismarck / recreation.	This trail is in the recommended LRTP.
	Public	Resident of Crested Butte Addition concerned that Highway 1804 might be widened and speeds might be increased, based on word of mouth related to Northwest Subarea Study; also concerned about neighborhood access to 1804.	No widening or speed limit increases planned. Bridge to Mandan (Northern River Crossing) is beyond the 2035 timeframe. It is assumed that as more development occurs, there will be additional neighborhood access to the south and 57th Avenue.
	Public / Bicycle Advocacy Group	Consider linking the trail from Pioneer Park to the Tyler Parkway trail.	There is potential to widen the existing sidewalk along Burnt Boat. However, conflicts include light poles adjacent to sidewalk and concerns about cultural resources in area.
	Public / Bicycle Advocacy Group	Consider linking 10th Ave SW to 2nd Street in Mandan.	These are low volume streets (800 to 2400 vehicles a day) so a bike route would likely work here. Some short grades on 2nd St (3-6%) Will add to LRTP recommendations.
	Public	Add new interchange at 52nd / I-94	This was an alternative that we looked at. The interchange would have constructability issues due to the landfill / grades at I-94, and was dropped from further consideration.
	Public	12th Street as an improved north-south corridor through: changing intersection controls, removing one side of on-street parking.	Several similar improvements were considered for 12th Street in the alternatives analysis. Concerns for neighborhood impacts with parking removal.
	Public	Need an overpass / exit at 71st/Highway 1804 and US 83	An interchange at US 83/Hwy 1804 was considered. It did not make the fundable list of recommended projects through 2035, but corridor preservation will be recommended.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments (continued)</b>			
	Public	Signals on Expressway, Main, 9th St, 7th St and State Street/US 83 need to be synchronized.	The City recently implemented improved corridor timings / "synchronization" in the State Street and Bismarck Expressway corridors. It is anticipated that more corridors will have similar signal timing improvements in the future.
	Public	Consider adding ramps at Collins Ave / I-94.	LRTP update looked at adding an interchange at Collins Ave. Collins is located less than a mile from Sunset Ave and Mandan Ave, too close for a standalone interchange to meet FHWA spacing guidelines.
	Lincoln Planning Commission	Can we consider a roundabout at 52nd Street / Lincoln Road? Difficulty turning onto Lincoln Road throughout Lincoln.	Recommendation will be adjusted to reflect intersection / access improvements along Lincoln Road and a corridor completed (potentially including roundabout) to determine details of each access.
	Public / Stakeholder Issue	Improve Highway 10 connection to I-94.	Alternatives were developed that included improved connectivity in this area. Not part of recommended plan.
	Public / Stakeholder Issue	Desire to extend 37th St.	Northwest Mandan grid improvements were considered; not part of recommended plan. Some will be developer-funded as development occurs.
	Public / Stakeholder Issue	Desire for south Missouri River crossing.	Included as an alternative, not part of recommended 2035 LRTP.
	Public / Stakeholder Issue	Speeding concerns on 7th / 9th.	Arterial roadways posted at 25 mph. Enforcement concern passed on to Bismarck Police.
	Public / Stakeholder Issue	Safety and congestion along Highway 10.	Improvements were included in recommended LRTP.
	Public / Stakeholder Issue	Concerns with safety, turning traffic and no shoulders along Lincoln Road.	Improvements were included in recommended LRTP - recommended corridor study in near future as well.
	Public / Stakeholder Issue	Limited shoulders along Business Loop 94 in Morton County west of Mandan.	Rehabilitation project. Forwarded comment to NDDOT staff.
	Public / Stakeholder Issue	Desire to divert heavy trucks from Main Street.	Beltway concept was considered in alternatives analysis, not part of recommended LRTP.
	Public / Stakeholder Issue	Desire to extend Divide Avenue.	In current TIP.
	Public / Stakeholder Issue	Pedestrian crossing conflicts with Bismarck Expressway traffic.	LRTP recommends pedestrian crossing enhancements; recently implemented signal optimization in corridor accommodates pedestrian crossing, more time given to crossing at 3rd Street.
	Public / Stakeholder Issue	Improve Highway 6 connection to I-94.	Significant residential impacts with direct connection. Morton County beltway concept provides Highway 6 to I-94 connection; not on funded LRTP list.
	Public / Stakeholder Issue	Desire for 24th Avenue interstate access.	Part of the Morton County beltway alternative - not in funded 2035 LRTP, but preserve corridor.
	Public / Stakeholder Issue	Desire for Collins Avenue interchange.	This was considered; located less than 1 mi from Sunset Ave and Mandan Ave, likely to close for approval. Potential impacts to development near I-94 / Collins Ave.
	Public / Stakeholder Issue	I-94/I-194 safety concerns between Mandan Avenue and McKenzie Dr.	Improvement projects along I-94/I-194 part of recommended LRTP.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments (continued)</b>			
	Public / Stakeholder Issue	Intersection safety concerns at 43rd Ave / Centennial.	Improvements including addition of turn lanes included in recommended LRTP.
	Bismarck Airport	Preserve right-of-way for north and south Missouri River crossings.	Corridor preservation elements will be added into the final LRTP document.
	Bismarck Airport	Airport requests that Burleigh Beltway alignment is retained. Comment also notes that Airport Master Plan shows a direct connection between the National Guard Building and Beltway.	Beltway (project #2) is included as a recommended LRTP project. Text will be added to recommendations referring to Airport Master Plan, funding for airport roadway projects will not be from FHWA / FTA sources.
	Public / Stakeholder Issue	Intersection safety concerns at Tyler Parkway / Century Avenue.	Several alternatives investigated in area to relieve traffic / realign intersection. LRTP assumes some NW Subarea Study improvements. Crash rate lower than region average.
	Public / Stakeholder Issue	19th/Divide bicycle safety concerns.	On-street bicycle routes provide alternatives to this corridor.
	NDDOT	Page 91 - Why isn't project 21 a short-range project? Wouldn't this alleviate some of the delays we are currently seeing for a relatively low cost?	The recommended projects were prioritized against one another by the MPO TAC and anticipated funding levels were evaluated by period. The projects selected ahead of it reflected a higher priority / need.
	Burleigh County Planning Commission	Commissioner Schwab felt that widening Centennial Road to a 5-lane roadway between Jericho Road and 71st Avenue should be given priority over beltway / 66th Street improvements.	Improvements are included in the corridor of concern: widening Centennial Rd between Jericho Ro and 71st Ave to 3-lanes is recommended in 5 to 15 years. The current 2010-2013 TIP includes a 5-lane widening of Centennial between Jericho Road and I-94. This is not the last time the MPO will review the corridor - if anticipated growth in the corridor changes, recommendations will be re-evaluated.
	Burleigh County Planning Commission	Mayor Warford wanted to make sure study team reviewed the available right-of-way (ROW) in the Centennial Road corridor so that a 5-lane roadway could be constructed north of Jericho Road in the future if needed.	Study team reviewed the information available; north of Calgary there is 150' roadway ROW available, south of Calgary there is 120' to 130' ROW. Sufficient ROW should be present for the recommended 3-lane rural (ditches) cross-section or a 5-lane urban roadway section.
	Lincoln City Commission	LRTP does not assume enough future households in Lincoln corporate city limits.	Upon receiving input from the Commission, LRTP study team presented a revised allocation of 2035 households in the Lincoln area, that included some additional local housing growth beyond what was initially anticipated, and moved household growth within Lincoln area.
	Public	Desire for a roadway connection between Bismarck and Lincoln along abandoned Rail Line.	Lincoln Connector Study reviewed this alternative and found significant impacts to the Apple Creek floodway and substantial right-of-way acquisition. Burleigh County favors improving existing system to address future mobility needs in Lincoln area.
	Lincoln City Commission	Issues / concerns with flooding and access to Lincoln.	Burleigh County engineer echoed concerns; changes made on Lincoln Rd in effort to keep it open during Spring flooding. Improvements to 66th and Apple Creek Rd should focus on providing a reliable flood-event route.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Subarea Mobility Comments</b>			
	Public	Increased bike traffic between Bismarck and Lincoln. Need for trails / bike lanes / paved shoulders for bicycle safety.	Recommendations are included for bike trails connecting Lincoln to Bismarck and trails along Bismarck Expressway to improve regional trail connectivity to southeast Bismarck.
	Public / Stakeholder Issue	I-94 crossing desired west of Mandan.	Alternatives were developed that included this crossing.
	Public / Stakeholder Issue	Look for a river crossing farther north.	Discussions included a crossing farther north. Northern River Crossing study inputs and process were confirmed, no river crossing was included in the recommended plan.
	Public / Stakeholder Issue	Lack of West Bismarck access to west Main / Memorial Highway	Concepts were included in West Side Study, but neighborhood impacts were identified.
	Public / Stakeholder Issue	Improve northwest Bismarck connectivity.	Recommendations assume improvements to this area are made, contingent on outcome of NW Subarea study.
	Public / Stakeholder Issue	Desire for improved north Mandan subarea access to Mandan.	Alternative was developed for this issue - constructability issues.
	Public / Stakeholder Issue	Desire for improved Lincoln connectivity to Bismarck.	Confirmed the findings of the Lincoln-Bismarck Connector Study, recommend improvements to 66th Street, grade separation with railroad and Improvements to Apple Creek Road.
	Public / Stakeholder Issue	Desire for improved access to BSC and Community Bowl.	Alternatives for connections via Schafer Street and across I-94 were considered. Potential for impacts to neighborhoods and Fraine Barracks.
	Public / Stakeholder Issue	Lincoln transit service desired.	Included in Transit portion of recommended plan.
	Public / Stakeholder Issue	U of Mary transit service desired.	Included in Transit portion of recommended plan.
	Public / Stakeholder Issue	North-South discontinuities throughout Bismarck.	Several multimodal improvements were included that would address this issue.
	Public / Stakeholder Issue	More Heart River bridges desired southwest of Mandan.	Considered; need by 2035 not identified.
	Public / Stakeholder Issue	Improve southeast Mandan east-west connectivity.	McKenzie Road extension is part of recommended LRTP.
	Lincoln City Commission	Concerns regarding Bismarck Airport expansion, and impacts to adjacent roadway system (particularly Airport Road).	Concerns were passed along to Airport, including the long-term timing of LRTP-proposed improvements 48th Street south of the airport. The Airport has no timeline for runway expansion, but stressed that it is committed to working with NDDOT, Burleigh County and Lincoln to plan for a concept that retains Lincoln's access.
	Lincoln City Commission	Desire for a state road through Lincoln.	Beyond scope of LRTP. NDDOT was forwarded this desire (District Office and Planning and Programming Division received).
	Lincoln City Commission	Not enough transportation investment associated with Lincoln in the LRTP.	Lincoln-Bismarck connector recommendations improve mobility / connectivity / safety for Lincoln commuters, the Burleigh County beltway concept provides enhanced regional mobility for Lincoln residents, improvements along Lincoln Road addresses congestion and safety concerns.
	Lincoln City Commission	Desire for identified LRTP transportation improvements to occur in a shorter time period.	The majority of the identified Lincoln improvements are in the short and mid-term. Limited funds do not allow for every project in region to be constructed in the near term.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>General Regionwide Comments</b>			
	Public / Stakeholder Issue	Concern about traffic impacts from new Bismarck elementary school.	Several improvements to roadway, trail and transit system recommended in the area.
	Public / Stakeholder Issue	Concern about truck traffic increases with NPCC.	Beltway concept in LRTP, improvements to Bismarck Expressway and I-94 ramps address regional truck traffic access to / from NPCC.
	Public / Stakeholder Issue	Concern about traffic impacts from new Mandan middle school.	Improvements to adjacent roadways included in LRTP.
	Public / Stakeholder Issue	Improve rural fire access to University of Mary.	Burleigh County beltway concept recommended would provide improved access.
	Public / Stakeholder Issue	Habitat / cultural resource concerns in Burnt Boat Drive / Golf Drive area.	Detailed NW Subarea Study will provide more corridor-specific analysis. Concern will be passed along to study team.
	Public	Allow more unprotected left turns at signals throughout the area.	There are engineering standards related to traffic flow and safety for when protected lefts are and are not implemented at an intersection. This suggestion will be forwarded on to Engineering departments.
	Public	Improve traffic flow at intersections across the area by removing on-street parking adjacent to the intersection and restriping for turn lanes.	There were several of these intersection improvements recommended throughout the study area.
	NDDOT	Concerns with interstate congestion. Interstate system is intended for interstate travel, and the arterial system should be improved to support local travel. Also concerned with congestion on US 83.	LRTP recommends improvements to multiple arterial corridors that support I-94 (Divide Ave, Century Ave, 43rd Ave, Division St, Old Red Trail). No congestion is anticipated on the interstate system through 2035. Improvements to US 83 and parallel arterials (Washington St, Centennial, 66th St) support North-South mobility and address US 83 congestion.

## ***Summary of Public Outreach Efforts***

## *Bismarck-Mandan MPO Long Range Transportation Plan Community Committee Meeting*

The Community Committee's first meeting was held on July 29, 2008, but don't worry if you were not able to attend as the meeting material can be found at the Bismarck-Mandan Long Range Transportation Plan (LRTP) website:

*www.bis-manplan2009.com in the Community Committee area.*

*We welcome your participation on the Community Committee to help provide feedback throughout the plan development. Please review the goals and objectives materials, which are available at the website, as they will be the topic of our August 18 meeting.*

**Please complete the Comments Questionnaire and allocation of transportation funding survey. Download the survey from the website, fill it out and mail it to Ben Ehreth, Bismarck-Mandan MPO, 221 N 5<sup>th</sup> St, P.O. Box 5503, Bismarck, ND 58506**

*For more information about the plan, visit:  
[www.bis-manplan2009.com](http://www.bis-manplan2009.com)*

*August 18, 2008 Meeting Topic*  
*Long Range Transportation Plan*  
*Goals and Objectives*

The LRTP goals and objectives can be found on the Community Committee section of the website (Newsletter #2)

**Thank You**

If you have any questions, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan  
Long Range Transportation Plan  
2035**

*Bismarck-Mandan MPO Long Range Transportation Plan  
Community Committee Meeting*

As a member of the Community Committee, you are invited to the committee's third Long Range Transportation Plan Update meeting. The meeting will be held Tuesday, December 16 at 11:00 AM at the Bis-Man Transit building, 3750 East Rosser, Bismarck. We anticipate the meeting will last 60 to 90 minutes, and lunch will be provided. Meeting materials are available at the LRTP website: [www.bis-manplan2009.com](http://www.bis-manplan2009.com) in the Community Committee area.

A box lunch will be provided. If you would like a box lunch, please RSVP by December 12 to Jason Carbee at: [Jason\\_Carbee@URSCorp.com](mailto:Jason_Carbee@URSCorp.com) or at (402) 952-2506.

For more information about the plan, visit: [www.bis-manplan2009.com](http://www.bis-manplan2009.com)

December 16, 2008 Meeting Topics

- 2008-2035 Development – Where and How Much
- Alternatives Analysis Process

Meeting materials will be available soon at the Community Committee section of the website (Newsletters #3 and #4)

Thank You

If you have any questions, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan MPO Long Range  
Transportation Plan  
Community Committee Meeting**

December 16, 2008  
Bis-Man Transit  
3750 East Rosser  
Meeting Room  
11:00 AM to 12:30 PM

STAMP



**Bismarck-Mandan  
Long Range Transportation Plan  
2035**

**Bismarck-Mandan MPO  
City-County Office Building**  
221 North 5<sup>th</sup> Street  
Bismarck, ND 58506

[WWW.BISMARCK.ORG](http://WWW.BISMARCK.ORG)



*Bismarck-Mandan MPO Long Range Transportation Plan  
Community Committee Meeting*

The fourth meeting of the Community Committee for the Bismarck - Mandan Long Range Transportation Plan will be held Wednesday, May 20 at 11:30 AM at the Morton Mandan Public Library, 609 West Main St, Mandan. We anticipate the meeting will last about one hour or so, and lunch will be provided. Meeting materials will be provided at the meeting, and are currently available at the LRTP website: [www.bis-manplan2009.com/PDFs/2035Traffic.pdf](http://www.bis-manplan2009.com/PDFs/2035Traffic.pdf) [www.bis-manplan2009.com/PDFs/Alternatives1.pdf](http://www.bis-manplan2009.com/PDFs/Alternatives1.pdf)

A box lunch will be provided. If you would like a box lunch, please RSVP by May 18 to Jason Carbee at: [Jason\\_Carbee@URSCorp.com](mailto:Jason_Carbee@URSCorp.com) or at (402) 952-2506.

For more information about the plan, visit: [www.bis-manplan2009.com](http://www.bis-manplan2009.com)

May 20, 2009 Meeting Focus

- Transportation Alternatives Reviewed to Address Current / Future Needs – First Iteration
- Second Iteration Overview

In addition to the project website documents provided at the left, Newsletter #5 will be available soon at the Community Committee section of the website.

Thank You

If you have any questions, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan MPO Long Range  
Transportation Plan  
Community Committee Meeting**

May 20, 2009  
Morton Mandan Library  
609 West Main St  
11:30 AM to 12:30 PM

STAMP



Bismarck-Mandan  
Long Range Transportation Plan  
2035

**Bismarck-Mandan MPO  
City-County Office Building**  
221 North 5<sup>th</sup> Street  
Bismarck, ND 58506

WWW.BISMARCK.ORG



# *Bismarck-Mandan MPO Long Range Transportation Plan Community Committee Meeting*

The sixth meeting of the Community Committee for the Bismarck - Mandan Long Range Transportation Plan will be held Thursday, November 12 at 11:30 AM at the Bis-Man Transit building, 3750 East Rosser, Bismarck. We anticipate the meeting will last about 60 to 90 minutes and lunch will be provided. A draft Transportation Plan document has been completed since our last meeting. At the November meeting we will discuss the draft and the recommended 2035 multimodal project list. Executive Summaries will be provided at the meeting, and the full draft Plan document is available at: [www.bis-manplan2009.com/draftLRTP.html](http://www.bis-manplan2009.com/draftLRTP.html)

We will provide a box lunch if you RSVP by November 10 to Jason Carbee at: [Jason\\_Carbee@URSCorp.com](mailto:Jason_Carbee@URSCorp.com) or at (402) 952-2506.

For more information about the plan, visit: [www.bis-manplan2009.com](http://www.bis-manplan2009.com)

## November 12, 2009 Meeting Focus

- Provide an overview of the draft LRTP document.
- Summarize the draft recommended multimodal project list, 2009 to 2035.
- Get your feedback.

**Thank You**

If you have any questions, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan  
Long Range Transportation Plan  
2035**



"Ben Ehreth" <bjehreth@nd.gov>  
09/15/2009 03:38 PM

To "Mark Liebig" <liebigs@bis.midco.net>  
cc <Jason\_Carbee@URSCorp.com>, <ssaunder@nd.gov>  
bcc  
Subject Draft Trails and On-Street Bicycle Facilities Proposed for  
Bismarck-Mandan MPO Long Range Transportation Plan

History: This message has been replied to and forwarded.

Hello Mark,

Please find attached the draft map of the proposed trails and on-street bicycle facilities for the Bismarck-Mandan MPO Long Range Transportation Plan. The trails and on-street bicycle facilities were based on input from the Bismarck and Mandan Parks and Recreation Departments and the Bismarck-Mandan Bicycle Commuter Group. Please review and if you feel it is appropriate please forward to the Bismarck-Mandan Bicycle Commuter Group, as well as, the North Dakota Cycling Federation list serve.

Following is an explanation of the items in the legend:

<u>Label</u>	<u>Description</u>	
Bike Lane		<i>Striped</i>
<i>Bike Lane</i>		
Bike Route		<i>Signed</i>
<i>Bike Route (perhaps would include markings and "Share the Road" signage)</i>		
Existing		<i>Existing</i>
<i>multi-use trails</i>		
TIP		
<i>Transportation Improvement Program (Trails where funding has been identified and will be constructed within the next 4 years)</i>		
Recommended Future (Funded)		<i>Multi-use</i>
<i>trails beyond the next 4 years where funding is estimated to be available over the next 20 years for construction</i>		
Illustrative (not Funded)		<i>Trails to</i>
<i>consider for the future however there would likely not be adequate funding available to construct within the next 20 years</i>		

Please provide comments regarding the proposed trails and on-street facilities to me by Friday October 2, 2009. Comments can be provided via e-mail, telephone, hard copy mail, or by meeting with me in person. Following is my contact information:

Ben Ehreth  
Planner  
Bismarck-Mandan Metropolitan Planning Organization  
221 North 5<sup>th</sup> Street  
Bismarck, ND 58506-5503  
Phone: (701) 355-1850

e-mail: bjehreth@nd.gov

Perhaps there are trails or on-street facilities which are not identified and should be or perhaps there are trails or on-street facilities which are currently identified and shouldn't be.

Please let me know if you have any questions or issues with the attachment.

Thanks,  
Ben

**Ben Ehreth, AICP**

Planner

Bismarck-Mandan, Metropolitan Planning Organization

221 North 5th Street

P.O. Box 5503

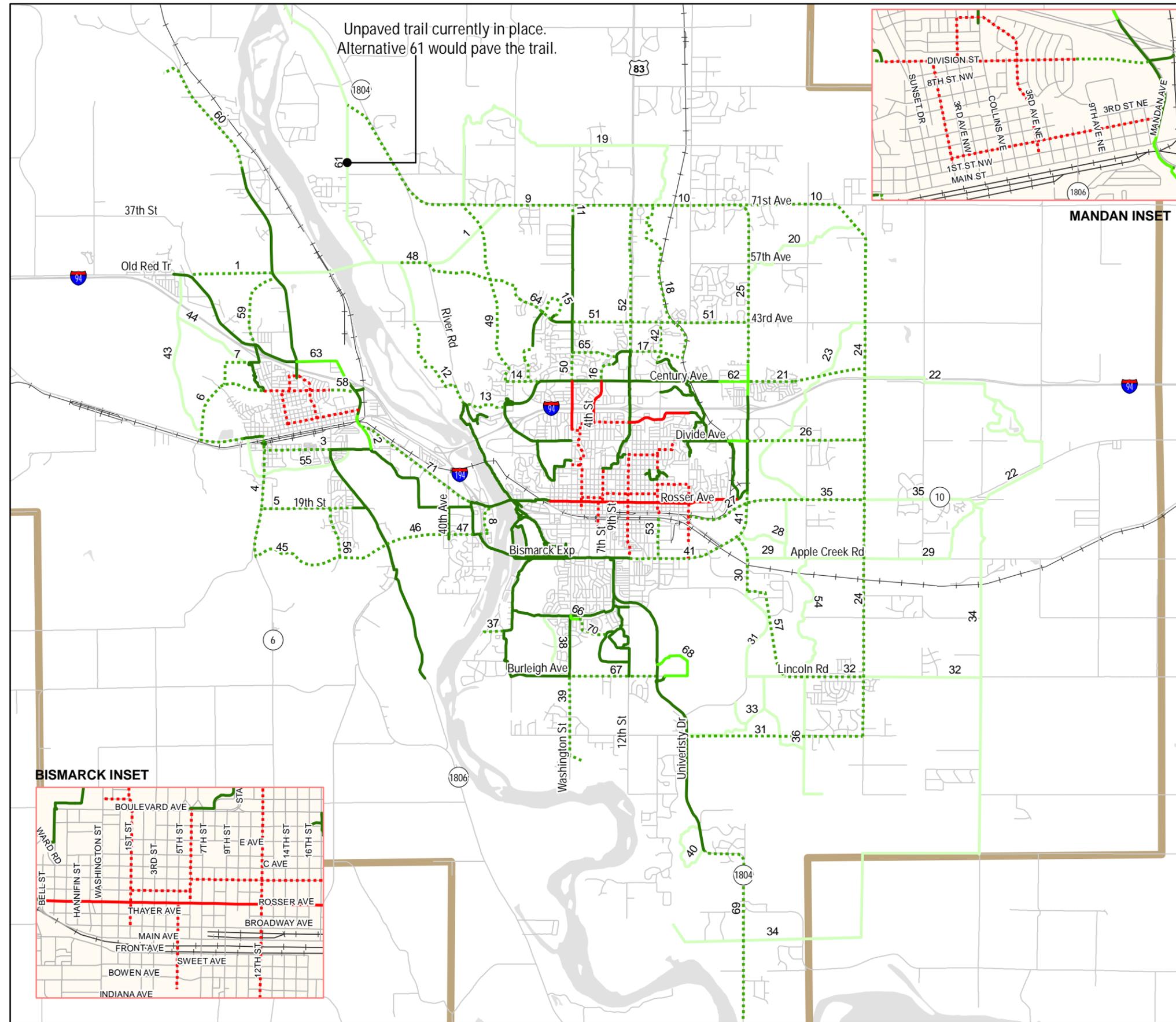
Bismarck, ND 58506-5503

Phone: 701-355-1850

Fax: 701-222-6450



Draft NonMotorized Projects Combined.pdf



Legend

Draft On Street Bike Routes

- Bike Lanes
- Bike Route

Draft Recommended Trails

- Existing
- TIP
- Recommended Future (Funded)
- Illustrative (not Funded)

**12** Trail Alternative ID

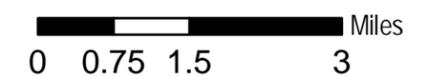


Figure 1. Draft Recommended Trail Projects and Draft On-Street Bicycle Facilities



**07-25-2008: news-local**

## **MOP seeking public input**

Bismarck and Mandan residents and businesses are being urged to participate in the Metropolitan Planning Organization's public hearings to update the long range transportation plan.

There are two meetings. One is from 6:30 to 8 p.m. Wednesday at the Mandan City Commission chambers, 205 Second Ave. NW, and the other is from 6:30 to 8 p.m. Thursday at the Public Works Building, 601 S. 26th St., Bismarck.

Earlier this spring the MPO initiated the 18-month process of updating the 2030 plan to 2035.

This revamp helps identify and prioritize what the transportation needs are of the communities for not only automotive means, but all modes of transportation except aerial, said Ben Ehreth, MPO transportation planner.

"If there are bicyclists and they have issues with that too," he said. "This is definitely a meeting where we would like to hear those concerns."

Since the process began, the MOP has identified some issues, but said the meetings are important for citizens to identify more issues the MOP may not be aware of yet.

Although the meetings are a federal requirement in order to get federal aid, Ehreth said they would likely hold them anyway because the input is so valuable.

- Chris Rosacker



**08-28-2009: news-local**

## **Public input sought on long-range transportation plan**

Two public input meetings will be held - Monday in Bismarck and Tuesday in Mandan - to seek comments on roadway, trail and transit bus system improvements to be included in the regional long-range transportation plan for the period through 2035. The plan covers urban and rural areas of Morton and Burleigh counties, including Bismarck, Mandan and Lincoln. Broad public input is now needed for the plan that includes recommendations for specific roadway, trail and transit improvement projects needed between now and 2035.

The Bismarck meeting is from 6:30 to 8 p.m. Monday in the Tom Baker Room at the City-County Building, 221 N. Fifth St. The Bismarck meeting will be shown live on Dakota Community Access TV channel 2, and viewers can call in their questions during the telecast at 333-9648.

The Mandan meeting runs from 5:30 to 7 p.m. Tuesday in the Commission Room at the Morton County Courthouse, 210 Second Ave. N.W.

Questions and comments for both meetings may be e-mailed to [bill\\_troe@urscopr.com](mailto:bill_troe@urscopr.com); or mailed to Ben Ereth, Bismarck-Mandan MPO, 221 N Fifth St., Bismarck, N.D. 58506.

The Bismarck-Mandan Metropolitan Planning Organization is responsible for updating the transportation plan every five years, which allows for the planning process to be sensitive to changes in the local and regional economy and transportation system needs, and to support the vision for the area.

Visit the long-range plan Web site at [www.bis-manplan2009.com](http://www.bis-manplan2009.com) for maps and descriptions of the preliminary recommendations.



## Comments wanted on long range plan

By LEANN ECKROTH Bismarck Tribune | Posted: Tuesday, November 24, 2009 2:00 am

Comments are being taken through noon Monday on a 25-year study that serves as a blueprint to local cities' transportation needs.

The Bismarck-Mandan Long Range Transportation Plan seeks to name short-term needs up to five years, medium-term needs of six to 15 years and long-term needs of 16 years and beyond.

It lists existing and proposed travel projects from 2009 to 2035. The plan addresses the Bismarck-Mandan Metropolitan Planning Organization area of Bismarck, Lincoln, Mandan, and portions of Burleigh and Morton counties.

Ben Ehreth, planner for the MPO, said current and projected population estimates are used to identify areas where future transportation deficiencies may develop. It also uses previous planning studies, traffic counts, crash history, and public input in its development.

It covers needs for motorists, pedestrians, cyclists, freight shippers, and transit users. It suggests improvement projects for various users within the metro area.

Ehreth said data collected helps government entities budget for future projects. If a roadway project adds capacity to a corridor and will use federal transportation dollars it must be identified in the long range plan. To receive federal funding, the document must be updated once every five years.

"It provides the community an opportunity to identify what transportation challenges and opportunities may lay ahead, re-examine its values related to urban travel and development patterns and state how they think their transportation system should look and function in the future," Ehreth said.

He said regional beltway concepts have been developed from earlier plans.

The plan under review outlines reconstruction and widening of Century Avenue and Centennial Road in 2011, Divide Avenue and Volk Drive to Bismarck Expressway in 2013, and portions of the beltway on the 66th Street and I-94 interchange from 2025 to 2035.

To receive federal transportation funds, the plan must be updated every five years.

The consultant, URS out of Omaha, Neb., has worked on the \$250,000 plan for the MPO since April 2008. The MPO funds about 80 percent of the \$250,000 study and 20 percent is paid by the Bismarck, Lincoln, Mandan, and Burleigh and Morton counties

After Monday, the document will be presented to the planning commissions of each entity and their commissions.

The Bismarck-Mandan MPO Policy Board has the final vote on whether to adopt it. The joint board consists of local mayors and county commissioners.

Ehreth said there has been little public input about the study. "The Lincoln Planning commission did voice some concerns regarding the intersection of Lincoln Road and 52nd Street," he said.

The long range plan can be viewed at the project Web site at: [www.bis-manplan2009.com](http://www.bis-manplan2009.com). A hard copy of the document also will be available for review at :

n Community Development Department, City-County Office Building, 221 N. Fifth St. Bismarck.

n Bismarck Public Library, 515 N. Fifth St.

n Morton-Mandan Public Library, 609 W. Main St. in Mandan.

(Reach reporter LeAnn Eckroth at 250-8264 or [leann.eckroth@bismarcktribune.com](mailto:leann.eckroth@bismarcktribune.com))

## Public Information Meeting 2035 Long Range Transportation Plan

Every five years the Bismarck-Mandan MPO is responsible for working with the residents and businesses within the Burleigh and Morton County areas and state and federal agencies to update the long range transportation plan (LRTP). Earlier this spring the MPO initiated the 18 month process of updating the 2030 plan to 2035.

The MPO is committed to engaging as many residents and business interests as possible in the plan update, because the more input that is received the more the transportation system will reflect the needs of the community. Residents and business interests can get involved and obtain information by:

- Visiting the LRTP website ([www.bis-manplan2009.com](http://www.bis-manplan2009.com)).
- Attending public information meetings to be held throughout the plan update.
- Visiting with staff from the MPO.
- Inviting representatives from the MPO to make a presentation to your organization.

A public meeting on the 2009 plan update will be held in Bismarck on the following date:

August 18, 2008  
Tom Baker Room  
City-County Office Building  
221 North 5<sup>th</sup> Street  
Bismarck  
6:30 PM to 8:00 PM

Topics to be covered as part of the meeting include:

- What studies has the MPO completed over the last five years and what were the addressed issues.
- Overview of the steps included in updating the plan.
- Suggested ways of keeping up to date on progress.

Those in attendance will be asked to provide input on what they see as outstanding transportation issues (roads, transit and trails).

For More Information Call:  
Ben Ehreth, MPO Transportation Planner  
355-1850  
[bjehreth@nd.gov](mailto:bjehreth@nd.gov)

## Public Information Meeting 2035 Long Range Transportation Plan

Are you interested in learning about future transportation projects recommended for the Bismarck-Mandan area? Would you like to have a say in how the future transportation system could be developed? We would like your input.

The Bismarck-Mandan MPO is currently working with the residents and businesses within Burleigh and Morton Counties and consulting with state and federal agencies to update the region's Long Range Transportation Plan (LRTP). As a part of that update, the MPO is committed to engaging as many residents and business interests as possible in the plan update. Get involved and obtain information by:

- Visiting the LRTP website ([www.bis-manplan2009.com](http://www.bis-manplan2009.com)).
- Attending public information meetings.
- Visiting with staff from the MPO.
- Inviting representatives from the MPO to make a presentation to your organization.

The third series of 2009-2035 plan update public meetings will be held in Bismarck and Mandan on the following dates:

August 31, 2009  
City / County Building  
Tom Baker Room  
221 North 5th St  
Bismarck  
6:30 PM to 8:00 PM

September 1, 2009  
Morton County Commission  
Room  
210 2nd Ave NW  
Mandan  
5:30 PM to 7:00 PM

August 31, 2009  
Televised Transportation Plan Presentation  
Community Access TV (Cable Channel 2)  
Beginning at 6:30 PM

During the broadcast, ask questions / provide feedback at:  
701-333-9648 or [Bill\\_Troe@URSCorp.com](mailto:Bill_Troe@URSCorp.com)

Topics to be covered as part of the meetings include:

- The range of transportation improvements being considered to address transportation issues / deficiencies.
- Potential packages of roadway, transit and bicycle / pedestrian improvements that are being evaluated for inclusion in the 2035 Transportation Plan.
- Draft estimates of alternative project costs and transportation funding levels through 2035.

This is your chance to provide input on the future Bismarck-Mandan system of roads, transit routes and trails.

For More Information Call:  
Ben Ehreth, MPO Transportation Planner  
355-1850  
[bjehreth@nd.gov](mailto:bjehreth@nd.gov)

2035  
2008



## ***Detailed Documentation of Comments Received***

# Bismarck-Mandan

## METROPOLITAN PLANNING ORGANIZATION



P.O. Box 5503 • 221 North 5th Street  
Bismarck, North Dakota 58506  
Telephone 701 355 1840  
TDD Dial 711  
Fax 701 222 6450  
Email cobplan@state.nd.us  
Web www.bismarck.org

February 11, 2010

Lincoln City Commission  
City of Lincoln  
74 Santee Road  
Lincoln, ND 58504-9180

Dear Sir or Madam:

The Lincoln City Commission held a public hearing for the Bismarck-Mandan Metropolitan Planning Organization 2010-2035 Long Range Transportation Plan (LRTP) in conjunction with the regularly scheduled meeting on February 4, 2010. At that meeting questions and/or concerns were raised regarding the document. At that time the Lincoln City Commission made a motion to continue the public hearing on February 11, 2010 so the MPO could address the questions and/or concerns. The MPO has confirmed with Commissioner Urlacher the questions/concerns raised. The MPO feels it has addressed the questions/concerns raised as requested by the Lincoln City Commission. Attached is supporting documentation which addresses the questions and/or concerns of the Lincoln City Commission. In addition to the attached documentation a preface to the LRTP will be added which indicates the comments/concerns voiced by all of the MPO member jurisdiction commissions and a description of how the comments/concerns were addressed. A representative from the Bismarck-Mandan MPO, as well as, a representative from the URS Corporation (the consulting firm selected to develop the LRTP) will be available to address the questions/concerns in person at the February 11, 2010 Lincoln City Commission meeting.

Please contact me if you have any questions related to this issue.

Sincerely,

Ben Ehreth, AICP  
Bismarck-Mandan MPO Planner

ATTCH:       **Exhibit A** – E-mail correspondence confirming the Lincoln City Commission issues  
                  **Exhibit B** – E-mail correspondence from the Burleigh County Engineer related to the Lincoln City Commission issues  
                  **Exhibit C** – E-mail correspondence from NDDOT confirming the receipt of input related to a State Highway connecting the City of Lincoln  
                  **Exhibit D** – E-mail correspondence to the Manager of the Bismarck Airport related to the concerns of future Bismarck Airport Expansion and associated memorandum  
                  **Exhibit E** – Proposed amendments to the LRTP Household Growth and Existing Land Use Maps per the recommendations of the Lincoln City Commission and the Consulting Engineer for the City of Lincoln

## Ben Ehreth

---

**From:** steveurl@bis.midco.net  
**Sent:** Tuesday, February 09, 2010 8:57 AM  
**To:** Ben Ehreth  
**Subject:** Re: Lincoln City Commission Comments Related to the Bismarck-Mandan MPO Long Range Transportation Plan

Ben this looks good;

The Road along the old railroad tracks is just an option that was suggested for a possible road way.

Other than that it looks good, I did not hear back from Brad yet, if he has anything I will forward to you. As of now this looks like all requests have been covered.

thanks,  
Steve

Quoting Ben Ehreth <[bjehreth@nd.gov](mailto:bjehreth@nd.gov)>:

> Hello Steve,

>

>

>

> Please find following the Lincoln City Commission remaining concerns  
> as I understand them:

>

>

>

> . **1.** Not enough future households programed within and immediately  
> surrounding Lincoln

>

> . **2.** Desire for a roadway connection between Bismarck and Lincoln along  
> abandoned Rail Line - (Comment from Public)

>

> . **3.** Concerns regarding airport expansion

>

> . **4.** Desire for a state road through Lincoln

>

> . **5.** Desire for identified Long Range Transportation Plan (LRTP)  
> transportation improvements to occur in a shorter time period

>

> . **6.** Issues of flooding and access to Lincoln

>

> . **7.** Consideration of future growth along Lincoln Road

>

> . **8.** Desire to update maps associated with the LRTP to reflect more  
> appropriate projected growth within and immediately surrounding  
> Lincoln

>

> . **9.** Request to consider (in the future) additional residential  
> developments which will occur surrounding Lincoln

>

>  
>  
> Please let me know if changes need to be made to the above issues as I  
> have stated them. Also If you could provide the letter you referenced  
> today it can be incorporated as part of the public comment for the LRTP.

>  
>  
>  
> Please let me know if you have any questions.

>  
>  
>  
> Thanks,

> Ben

>  
>  
>  
> Ben Ehreth, AICP

> Planner

> Bismarck-Mandan, Metropolitan Planning Organization

>  
> 221 North 5th Street

>  
> P.O. Box 5503

>  
> Bismarck, ND 58506-5503

>  
> Phone: 701-355-1850

>  
> Fax: 701-222-6450

>  
>  
>  
>  
>

## Ben Ehreth

---

**From:** Urlacher, Steven SFC NGND [steven.urlacher@us.army.mil]  
**Sent:** Tuesday, February 09, 2010 12:41 PM  
**To:** bjehe@nd.gov  
**Subject:** FW: LRTP Comments (UNCLASSIFIED)  
**Attachments:** 100209 LRTP Comments.pdf

Classification: UNCLASSIFIED  
Caveats: NONE

Ben,

Here is some more stuff I did get from Brad.

Do you think I left the questions where left open ended?

If you need more specifics, let me know.

Steve

Classification: UNCLASSIFIED  
Caveats: NONE

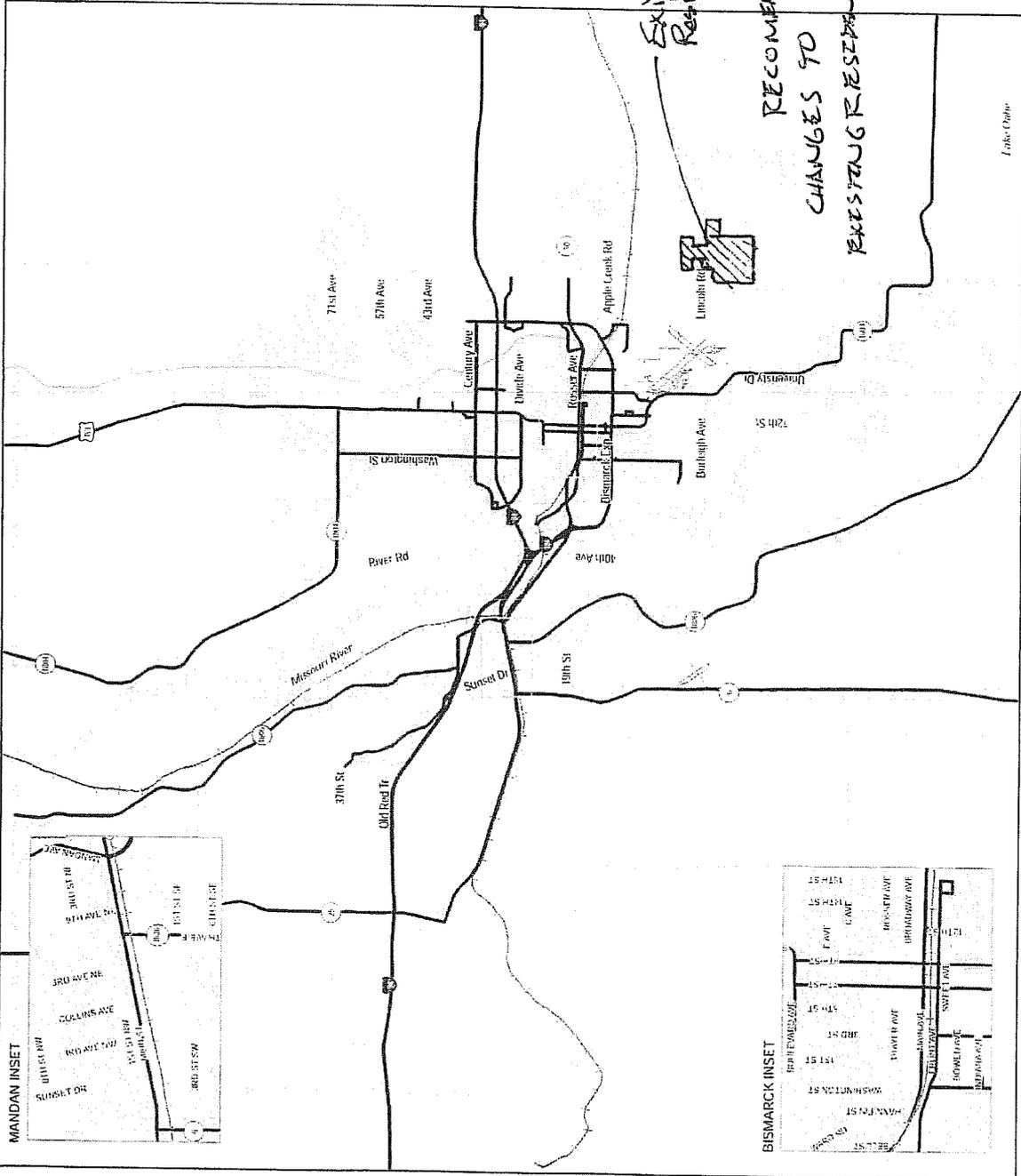




- Legend**
- Truck Routes
  - Truck Route
  - Rail Lines
  - BNSF
  - DMVW
  - Residential Land Use
  - Existing Residential



Figure 15. Existing Residential Land Uses in Relation to Rail and Truck Routes



*Existing Residential*  
**RECOMMEND CHANGES TO EXISTING RESIDENTIAL**

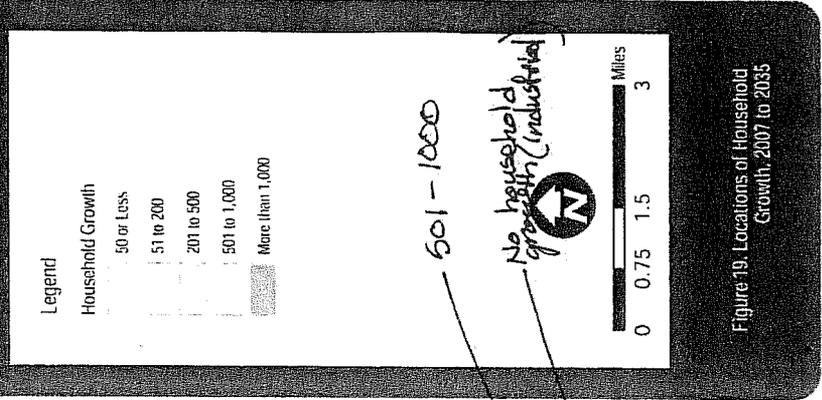
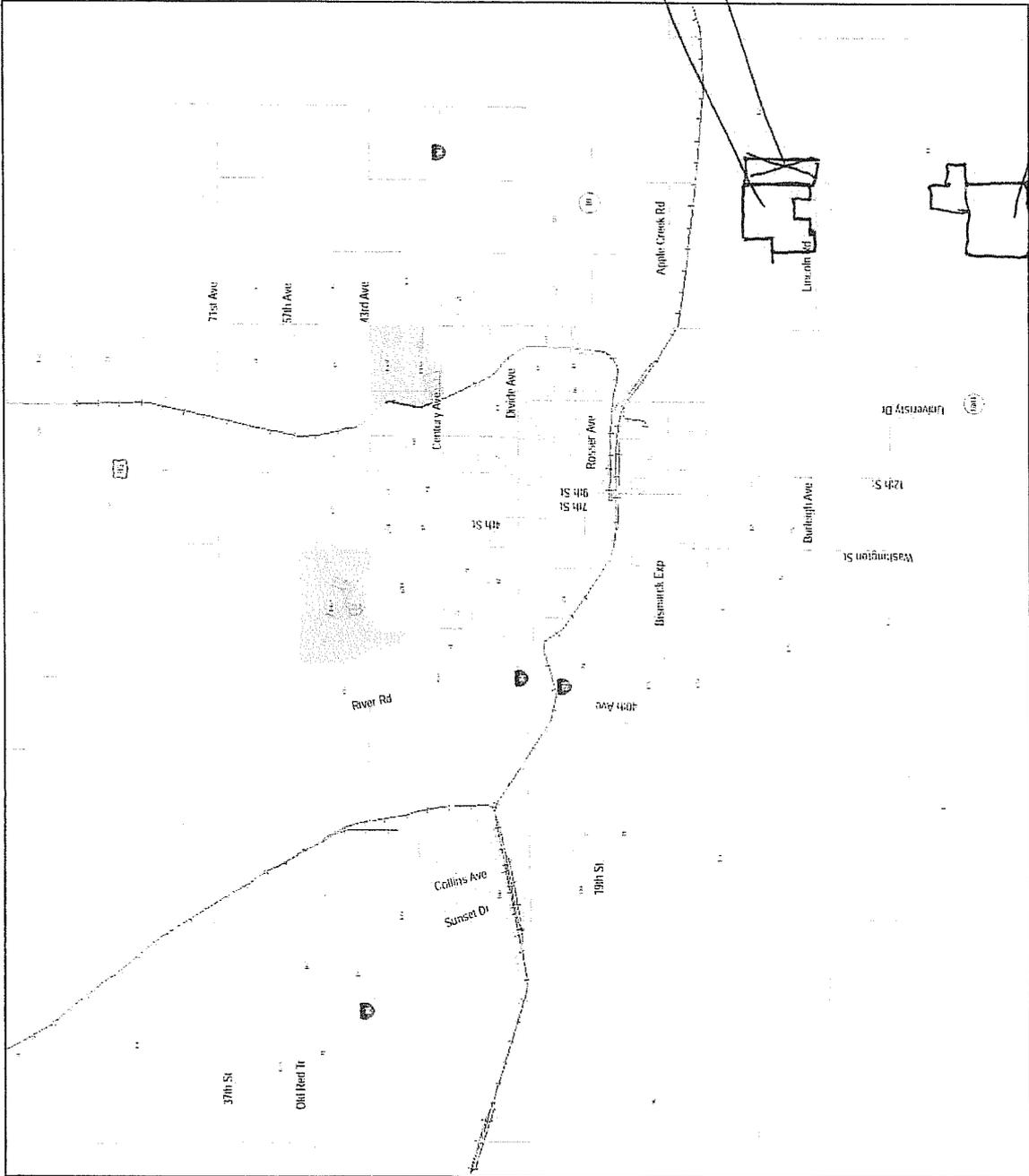


Figure 19. Locations of Household Growth, 2007 to 2035



CORRECTIONS TO 2035  
HOUSEHOLD GROWTH SUGGESTED  
BY LINCOLN CONSULTING ENGINEER



**Legend**

In 2010-2013 Transportation Improvement Program

Recommended Project Implementation Timeframe

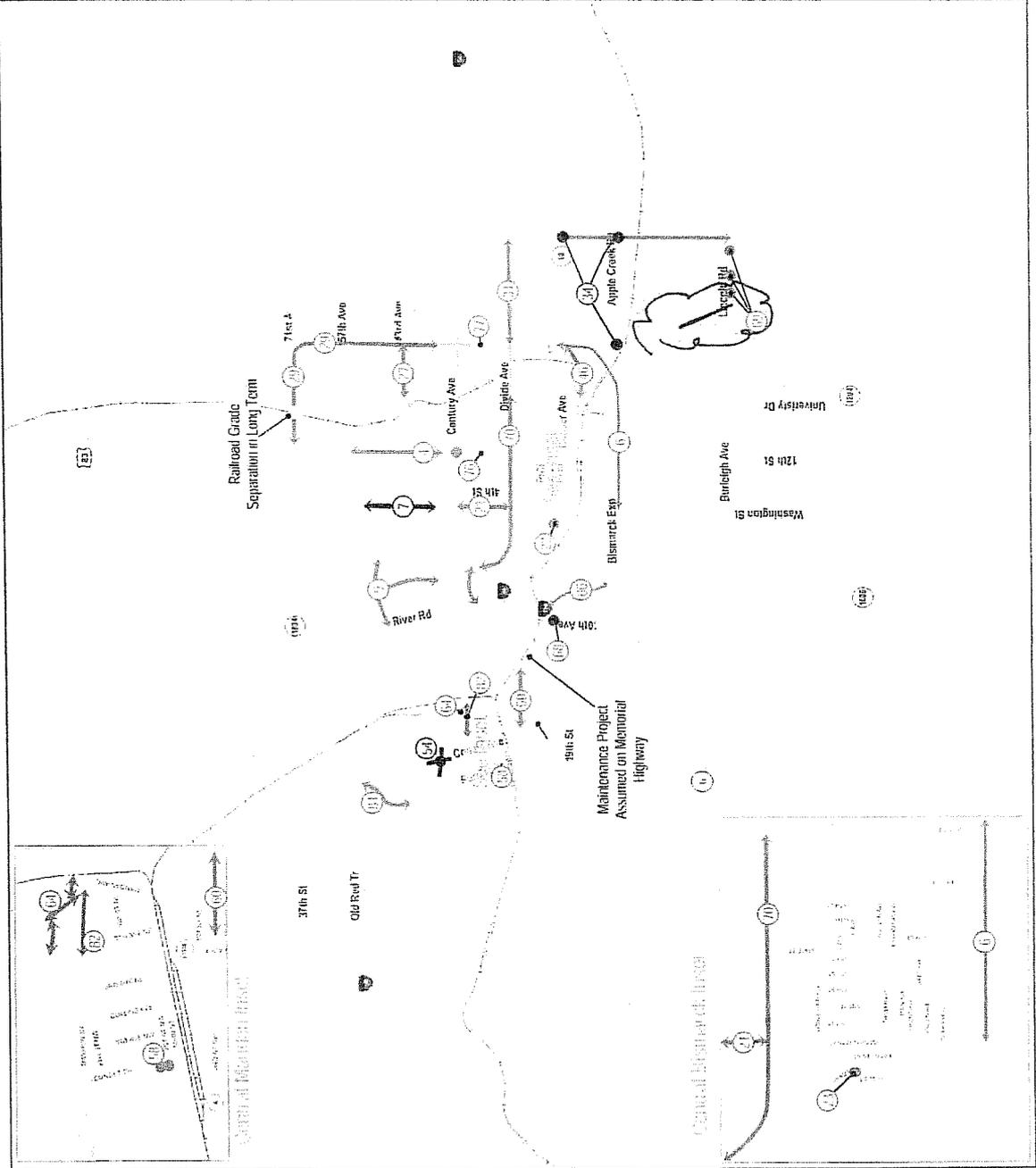
- Short - Term Improvement (2009-2014)
- Mid - Term Improvement (2015-2024)
- Long - Term Improvement (2025-2035)

0 1 2 4 Miles

Figure 27: Draft Roadway Implementation Phasing, 2035 Bismarck-Mandan LRTP



December 7, 2009



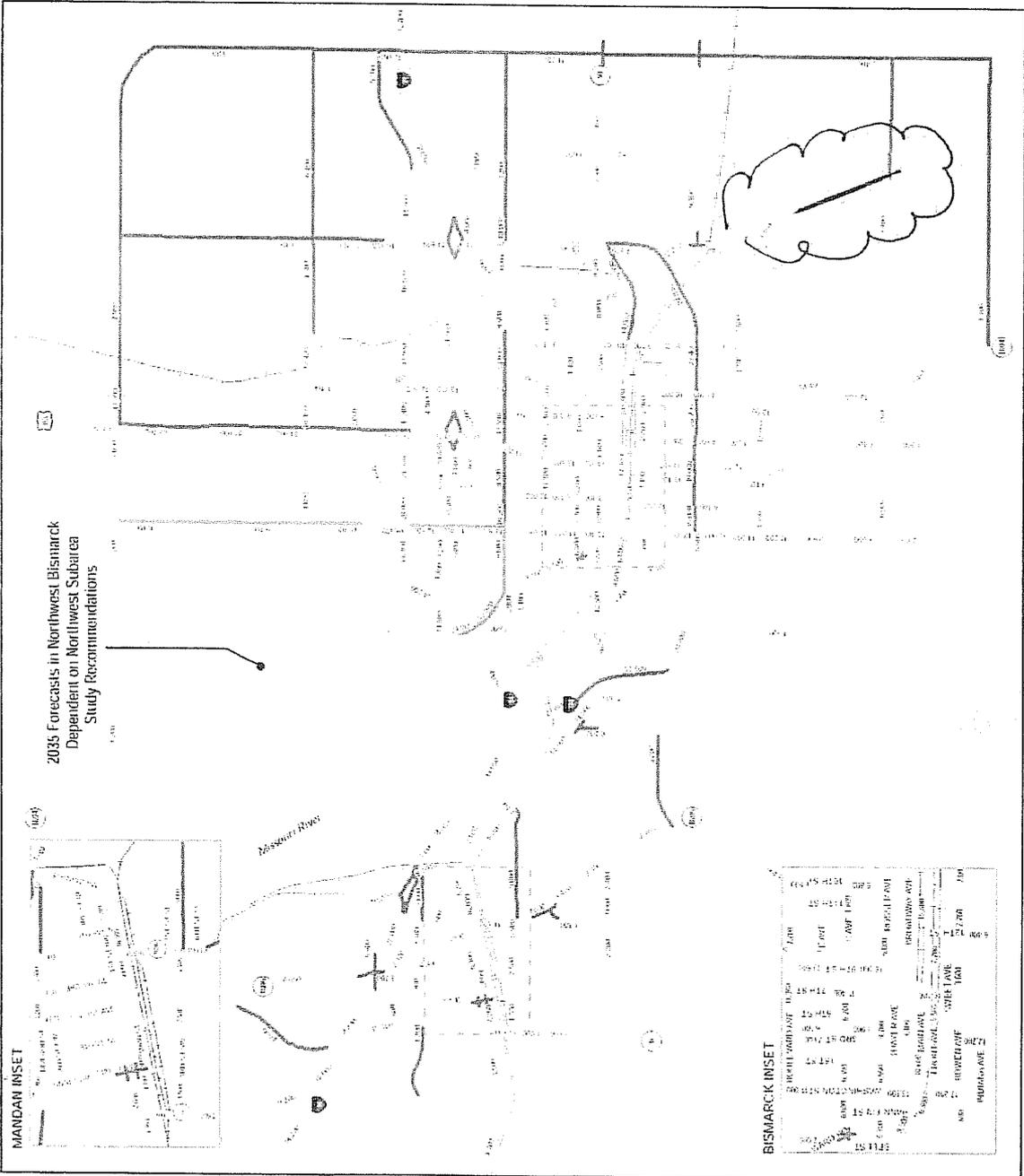


**Legend**

- 2035 Daily Traffic Forecast
- L RTP Recommended
- Roadway Projects



**Figure 28. 2035 Daily Traffic Forecasts  
Recommended Network Scenario**



## Ben Ehreth

---

**From:** Hall, Marcus J. [mahall@nd.gov]  
**Sent:** Tuesday, February 09, 2010 4:46 PM  
**To:** Ehreth, Ben J.  
**Cc:** Doug Schonert (dschoner@century21morrison.com)  
**Subject:** RE: Lincoln City Commission Comments Related to the Bismarck-Mandan MPO Long Range Transportation Plan  
**Attachments:** 2010 Priority List.xlsx

Ben,

Please feel free to share this e-mail with the Lincoln City Commission. I will focus my comments on the roadway items and leave the other items (future households, growth, additional residential developments...) to the planners.

1) Desire for a roadway connection between Bismarck and Lincoln along abandoned Rail Line.  
Answer: I have reviewed the "Lincoln to Bismarck Roadway Connection" study and agree with their recommendation that "...it has become apparent that the overall solution may not be one route, but improvements to the overall transportation system." It is my opinion that the existing transportation system (with a few improvements) will be able to handle future increases in traffic. I believe that we should focus our resources on improvements to the existing system. With that in mind I have included the Burleigh County 2010 project priority list. You can see from this list that Burleigh County is committed to doing projects that help connect the Bismarck and Lincoln areas.

2) Concerns regarding airport expansion.

Answer: I too am concern about the airport expansion and what it will do to Airway Avenue. Over the next few years we will all need to stay on top of this project to ensure that the needs of the area residents (and not just the airport) are meet.

3) Desire for a state road through Lincoln.

Answer: I agree that we should have a state highway going to Lincoln. However, I believe that it will be some time before this takes place. To me the most obvious route is to create a new highway (Highway 1804 B) from the intersection of State Highway 83 and 71st Ave NE, east to 66th St NE, south to 48th Ave SE, west back to SH 1804 (The Beltway).

4) Desire for identified Long Range Transportation Plan (LRTP) transportation improvements to occur in a shorter time period.

Answer: I would love to move these projects forward in a shorter time period. However, we only have so much money, engineering design capacity, and contractor capacity in the area and therefore we will need to focus on the projects that do the most good for the area in the shortest amount of time.

5) Issues of flooding and access to Lincoln.

Answer: After last year this became one of my biggest concerns. We have made some changes out on Lincoln Road that we believe will keep the road passable this next spring. In addition, we need to focus on improving both 66th Street and Apple Creek Road to ensure that we keep two routes between Bismarck and Lincoln open at all times.

I hope that this answers your questions regarding the area transportation system. Burleigh County is committed to improving our system of roadways and I look forward to working with the City of Lincoln to achieve our goals.

Marcus J. Hall P.E.  
Burleigh County Engineer

Exhibit B

701-221-6870

-----Original Message-----

From: Ben Ehreth [mailto:bjehreth@nd.gov]

Sent: Tuesday, February 09, 2010 9:08 AM

To: Hall, Marcus J.

Subject: FW: Lincoln City Commission Comments Related to the Bismarck-Mandan MPO Long Range Transportation Plan

Hello Marcus,

In the following e-mail string are the concerns identified from the Lincoln City Commission. Please feel free to comment on any or all of the items. Any insight you could provide from the Burleigh County Perspective related to the roadway connection along the abandoned railroad corridor and the flooding and associated access issues would be greatly appreciated. If you like you could respond via e-mail then I could have your responses available for the meeting on Thursday.

Please let me know if you have any questions.

Thanks,

Ben

-----Original Message-----

From: steveurl@bis.midco.net [mailto:steveurl@bis.midco.net]

Sent: Tuesday, February 09, 2010 8:57 AM

To: Ben Ehreth

Subject: Re: Lincoln City Commission Comments Related to the Bismarck-Mandan MPO Long Range Transportation Plan

Ben this looks good;

The Road along the old railroad tracks is just an option that was suggested for a possible road way.

Other than that it looks good, I did not hear back from Brad yet, if he has anything I will forward to you. As of now this looks like all requests have been covered.

thanks,

Steve

Quoting Ben Ehreth <bjehreth@nd.gov>:

> Hello Steve,

>

>

>

> Please find following the Lincoln City Commission remaining concerns

> as I understand them:

>

>

>

> . Not enough future households programed within and immediately

> surrounding Lincoln

## 2010 BURLEIGH COUNTY PROJECT PRIORITY LIST

Approved 1/20/2010

RANK	PROJECT DESCRIPTION	PROJECT #	LENGTH	CONTRACTOR	FUNDING SOURCE	COST TO "COUNTY WORK" LINE ITEM	TOTAL COST
1	Replace culvert in Tavis Road Causeway	0002	0.1 mi	Out for Bids	Burleigh County and Bismarck	\$440,000	\$560,000
2	Extend the Tavis Road Project to include raising the grade from causeway to Larson Road	0017	0.32 mi	Out for Bids	Lincoln Township	\$0	\$300,000
3	Raise the grade of Larson Road from Whisper Drive to Tavis Road	0005	0.28 mi	Out for Bids	Lincoln Township	\$0	\$250,000
4	Reconstruction of 158th St NE (Menoken Access Road) from CR 10 to I-94	0001	1.0 mi	Out for Bids	Burleigh County	\$1,000,000	\$1,000,000
5	Reconstruction of 149th Avenue NW from State Highway 1804 to Sundown Acres	0024	1.5 mi	Out for Bids	Riverview Township & Burleigh County	\$750,000	\$1,500,000
6	Combine the existing Wilton and Regan garages into a new garage in the greater Wilton area	0014	N.A.	Out for Bids	Burleigh County	\$750,000	\$750,000
7	Construction of 52nd Street NE from 43rd Ave NE to 57th Ave NE	0003	1.0 mi	Burleigh County	Hay Creek Township	\$0	\$100,000
8	Micro surfacing of Airway Ave from Yegen Road to State Highway 1804	0018	3.0 mi	Out for Bids	Burleigh County	\$120,000	\$120,000
9	Township Paving Participation	N.A.	0 to 3 miles	Out for Bids	Burleigh County and Others	\$200,000	\$400,000
10	Replace Box Culvert on 145th Street SE - 1/3 mile north of 76th Ave SE	0007	N.A.	Burleigh County	Burleigh County	\$10,000	\$50,000
11	Replace Bridge 117-43 on 89th Ave SE - 1/4 mile east of 106th Street SE	0006	N.A.	Burleigh County	Burleigh County	\$125,000	\$200,000
12	Replace Box Culvert on 184th Street NE - 1/2 mile north of 136th Ave NE	0008	N.A.	Burleigh County	Burleigh County	\$10,000	\$30,000
13	Reconstruction of the intersection of 43rd Avenue NE and Centennial Road	0019	.75 mi	Out for Bids	Burleigh County	\$1,000,000	\$1,000,000
14	Reconstruction of the intersections throughout the county to improve safety	0021	N.A.	Burleigh County	Burleigh County	\$250,000	\$500,000
					TOTAL for 2010 =	\$4,655,000	\$6,760,000



	<b>Long range project that should be considered in the next 7 to 25 years</b>										
28	Improve alignment of Yegen Rd @ Anderson Western Corner	0010	0.1 mi	Out for Bids	Burleigh County and Bismarck	\$200,000	\$200,000				\$200,000
29	Reconstruction of 66th Street SE from Lincoln Road to the Railroad tracks.	0028	1.75 mi	Out for Bids	Burleigh County	\$1,500,000	\$1,500,000				\$1,500,000
30	Reconstruction of 71st Avenue NE from Centennial Road to 66th Street NE.	0016	2.00 mi	Out for Bids	Burleigh County	\$3,500,000	\$3,500,000				\$3,500,000
31	Reconstruction of 66th Street NE from 71st Avenue NE to 43rd Avenue NE.	0029	2.00 mi	Out for Bids	Burleigh County	\$3,000,000	\$3,000,000				\$3,000,000
32	Construction of Century Avenue to 66th Street NE and 66th Street NE from Century Avenue to 43rd Avenue NE	0030	2.00 mi	Out for Bids	Burleigh County	\$3,000,000	\$3,000,000				\$3,000,000
33	Reconstruction of 66th Street NE from County Highway 10 to Divide Avenue	0031	1.00 mi	Out for Bids	Burleigh County	\$1,500,000	\$1,500,000				\$1,500,000
34	Construction of 48th Avenue SE from State Highway 1804 to 66th Street SE, and 66th Street SE from 48th Avenue SE to Lincoln Road	0032	4.00 mi	Out for Bids	Burleigh County	\$6,000,000	\$6,000,000				\$6,000,000
35	Construction of an Interchange of 66th Street NE and I94 and portions of 66th Street NE to meet the interchange.	0033	1.0 mi	Out for Bids	Federal and Burleigh County	\$7,000,000	\$7,000,000				\$7,000,000
					TOTAL for the next 7 to 25 years =	\$25,700,000	\$25,700,000				\$25,700,000
					GRAND TOTAL =	\$48,908,000	\$48,908,000				\$53,973,000

## Ben Ehreth

---

**From:** Hanson, Stacey M. [smhanson@nd.gov]  
**Sent:** Wednesday, February 10, 2010 9:17 AM  
**To:** Ehreth, Ben J.  
**Cc:** Hokenstad, Carl D.; Bill\_Troe@URSCorp.com; Jason\_Carbee@URSCorp.com  
**Subject:** RE: Bismarck-Mandan MPO LRTP Public Comments

Ben:

Thank you for sharing the input you received from the Lincoln City Commission. I will share your email with our District Office and our Planning & Programming Division so that they are also aware of the input you received.

Thanks!

Stacey M. Hanson, PE  
*Interim Assistant Local Government Engineer*  
North Dakota Department of Transportation  
608 East Boulevard Avenue  
Bismarck ND 58505  
office phone: 701-328-4469  
cell phone: 701-527-8879  
fax: 701-328-0310  
[smhanson@nd.gov](mailto:smhanson@nd.gov)

---

**From:** Ben Ehreth [mailto:bjehreth@nd.gov]  
**Sent:** Tuesday, February 09, 2010 12:40 PM  
**To:** Hanson, Stacey M.  
**Cc:** Hokenstad, Carl D.; Bill\_Troe@URSCorp.com; Jason\_Carbee@URSCorp.com  
**Subject:** Bismarck-Mandan MPO LRTP Public Comments

Hello Stacey,

Last week we had a public meeting at the Lincoln City Commission Meeting related to the Bismarck-Mandan Long Range Transportation Plan (LRTP). A comment was voiced regarding a desire for a state highway to have direct access to Lincoln. Since this item is beyond the scope of the LRTP I am forwarding the concern on to you so you are aware of the concerns voiced by the Lincoln City Commission.

Please let me know if you have any questions.

Thanks,  
Ben

**Ben Ehreth, AICP**  
Planner  
Bismarck-Mandan, Metropolitan Planning Organization  
221 North 5th Street  
P.O. Box 5503  
Bismarck, ND 58506-5503  
Phone: 701-355-1850  
Fax: 701-222-6450

Exhibit C

## Ben Ehreth

---

**From:** Ben Ehreth [bjehreth@nd.gov]  
**Sent:** Tuesday, February 09, 2010 9:27 AM  
**To:** 'ghaug@state.nd.us'  
**Cc:** Carl Hokenstad; 'Bill\_Troe@URSCorp.com'; 'Jason\_Carbee@URSCorp.com'  
**Subject:** Bismarck-Mandan MPO LRTP Public Comments

Hello Greg,

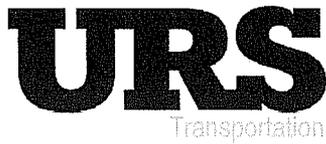
Last week we had a public meeting at the Lincoln City Commission Meeting related to the Bismarck-Mandan Long Range Transportation Plan (LRTP). A comment was voiced regarding the possible airport expansion and concerns regarding limiting access to ND Highway 1804 if the southern portion of Airway Avenue is eliminated. The LRTP does indicate a connecton from 66<sup>th</sup> Street to ND Highway 1804 however it is in the Long Term period of projects. I could not speak from the Airports perspective on the timing of the Airport expansion. Since this item to a certain extent may be beyond the scope of the LRTP I am forwarding the concern on to you so you are aware of the concerns voiced by the Lincoln City Commission.

Please let me know if you have any questions.

Thanks,  
Ben

### **Ben Ehreth, AICP**

Planner  
Bismarck-Mandan, Metropolitan Planning Organization  
221 North 5th Street  
P.O. Box 5503  
Bismarck, ND 58506-5503  
Phone: 701-355-1850  
Fax: 701-222-6450



## MEMORANDUM

**William Troe, AICP**  
**Vice President**  
12120 Shamrock Plaza  
Suite 300  
Omaha, NE 68154  
(402) 334-8181  
(402) 334-1984 (Fax)

---

**To: Mr. Ben Ehreth, AICP**  
**Transportation Planner**  
**Bismarck-Mandan MPO**  
**221 N. 5th St**  
**Bismarck, ND 58506-5503**

**Date:** February 11, 2010

**Subject: Follow-Up Conversation with Greg Haug – Bismarck Airport – Regarding Extension of Runway 31 and Impacts to Airway Avenue (Phone Conversation on February 10, 2010)**

---

### ***BACKGROUND***

The current Bismarck Airport Master Plan contains a proposal for vacating a portion of Airway Avenue south of Lincoln Road to accommodate the 1,206 foot extension of Runway 31 to the southeast. The runway extension proposal is to allow the airport to accommodate larger, heavier long range **cargo planes** that could be using the airport in the future if the NPCC operations result in attracting manufacturing that:

- Is highly time sensitive to either inbound or outbound material/products.
- Includes higher dollar, smaller sized products that are better transported via plane than rail or truck.
- Brings in materials or ships out products from/to longer distances that are more cost effectively served by air service rather than rail and/or truck.

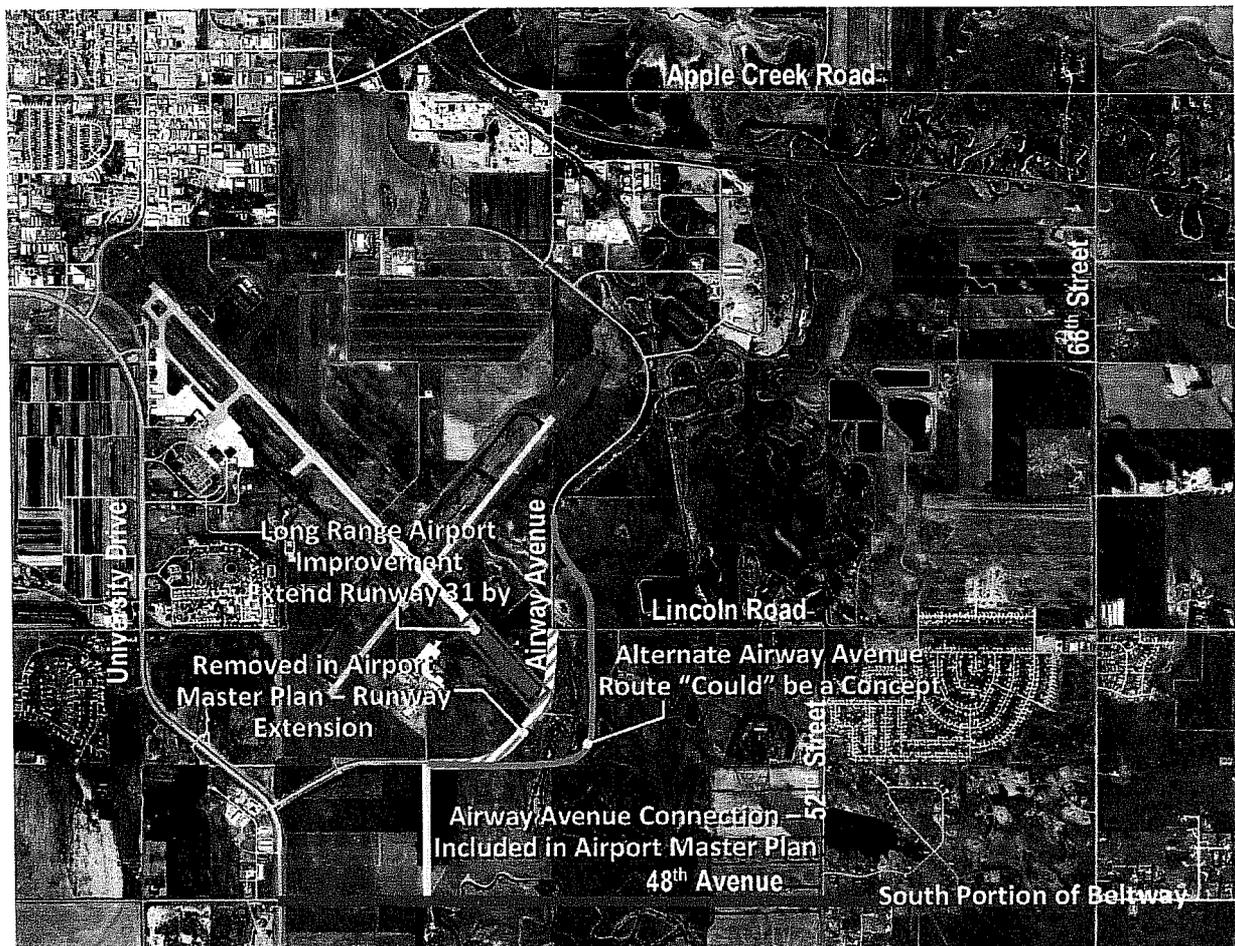
Presently, most of the manufacturing activity at the NPCC is supported by rail and truck hauling. No opportunity that matches the definition of a heavier cargo, longer haul business has been identified, nor is that specific type of manufacturer being specifically targeted by NPCC management. Thus, the need to extend Runway 31 is not imminent and additional action by the airport **would not** occur until such a time that an opportunity has been identified. Including the Runway 31 extension concept in the master plan serves the purpose of identifying changes to the infrastructure in the immediately adjacent area that are associated with an airport improvement that would be needed to support a future economic development opportunity for the airport. If a manufacturer that requires long haul, heavier cargo movement were to be interested in locating in the NPCC and if a runway of longer than Runway 31 were needed, the opportunity to serve

the new manufacturer would not be attained until improvements as identified were completed. If economic developers in the area (principally at the NPCC) do not pursue and attract a long haul, time sensitive product opportunity, there is no need to extend Runway 31 or vacate Airway Avenue. The current Runway 31 can accommodate aircraft up to a DC-10, which seats 250 passengers (more than 100 more seats than the largest commercial aircraft presently flown in and out of Bismarck) and is presently used by Federal Express. Thus, commercial passenger travel will not likely be the driver for a runway extension.

The airport has not:

- Determined a design concept for a runway extension.
- Initiated the environmental review/clearances that would be required to implement a Runway 31 extension and Airway Avenue vacation.
- Identified a funding source, or sources, for implementation of a Runway 31 extension.

To reflect the infancy of the Runway 31 extension concept, it is listed as a longer range element of the airport master plan improvements.



## ***REVIEW OF THE CURRENT UNDERSTANDING OF AIRPORT ASSUMPTIONS***

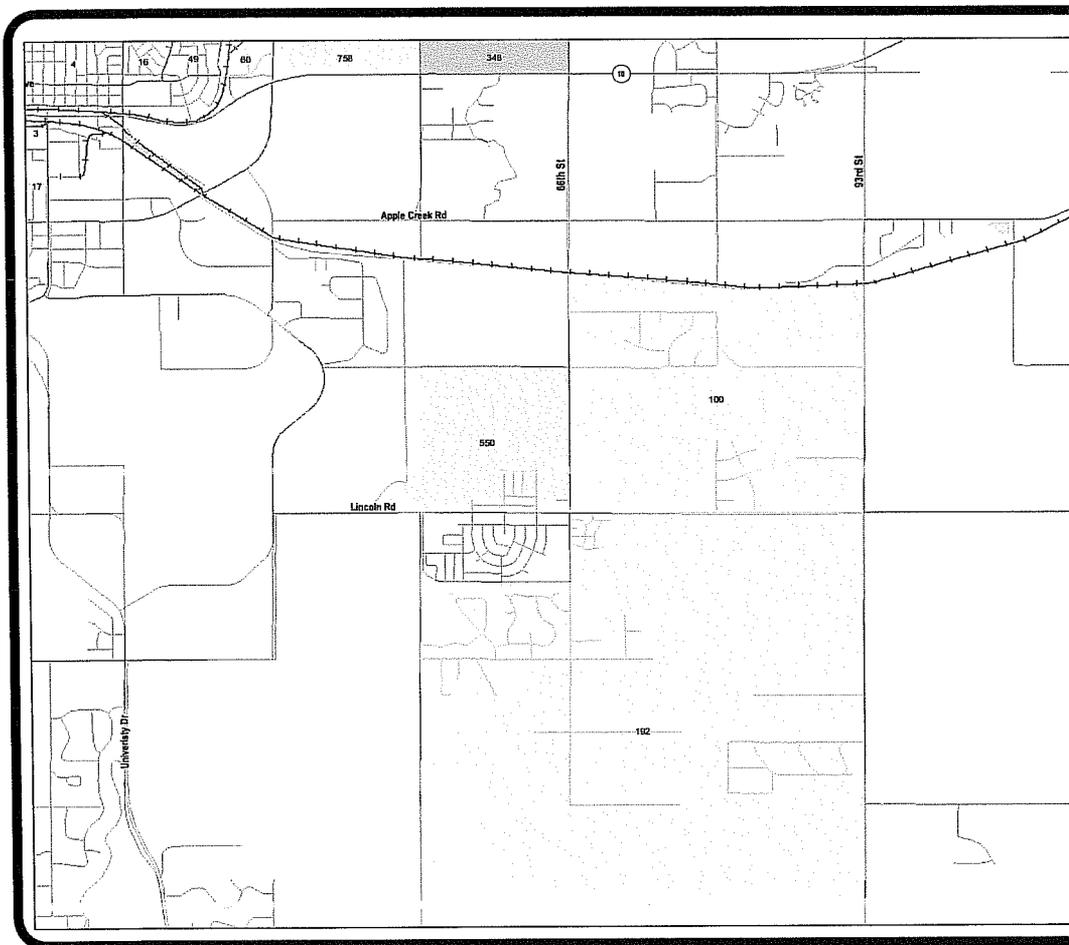
The airport has assumed that if a portion of Airway Avenue is vacated for extension of Runway 31 that a “connector” roadway would be provided from the current Airway Avenue to 48<sup>th</sup> Avenue. The 48<sup>th</sup> Avenue South extension has been assumed by the airport as a future part of the proposed Beltway, not a specific element of their master plan improvements. The airport has assumed participation in development of an access mitigation plan associated with extension of Runway 31 and vacation of Airway Avenue, but has not assumed that 48<sup>th</sup> Avenue improvements would be funded through federal or local airport funding sources. The airport is committed to working with the NDDOT, Burleigh County and Lincoln in preparation of a concept and funding plan for roadway improvements to retain Lincoln Road access to ND 1804.

The off-airport roadway modifications included in the airport master plan that are associated with the Runway 31 extension assume that 48<sup>th</sup> Street would be in place. If 48<sup>th</sup> Street (i.e. the south leg of the Beltway) were not in place, or if the Beltway were to be eliminated in the future, the airport would be open to considering other concepts that would retain the Airway Avenue access around the runway extension (the general idea of a retained connection is shown in the attached figure).

## ***CLOSING***

As the airport master plan includes the Runway 31 extension as a longer term improvement and as the need for the runway extension is associated with landing a manufacturing opportunity that has not been identified and is not being actively marketed by the airport itself, the timing of the south segment of the Beltway (Long Term) in the LRTP being complete along 48<sup>th</sup> Street is likely consistent with the assumptions for the need to vacate Airway Avenue (to extend Runway 31).

If you require additional information about the area, please give me a call at 402-952-2522.



**Bismarck-Mandan**  
METROPOLITAN PLANNING ORGANIZATION

**Bismarck-Mandan**  
Long Range Transportation Plan - 2035

**Legend**  
Proposed Lincoln Adjustments  
2007-2035 Housing Growth

- 50 or Less
- 51 to 200
- ▨ 201 to 500
- ▨ 501 to 1,000
- ▨ More than 1,000

N

0 0.25 0.5 1 Miles



February 11, 2010



**Legend**

- Truck Routes**
- Truck Route
- Rail Lines**
- BNSF
- DMW
- Residential Land Use**
- Existing Residential

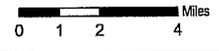
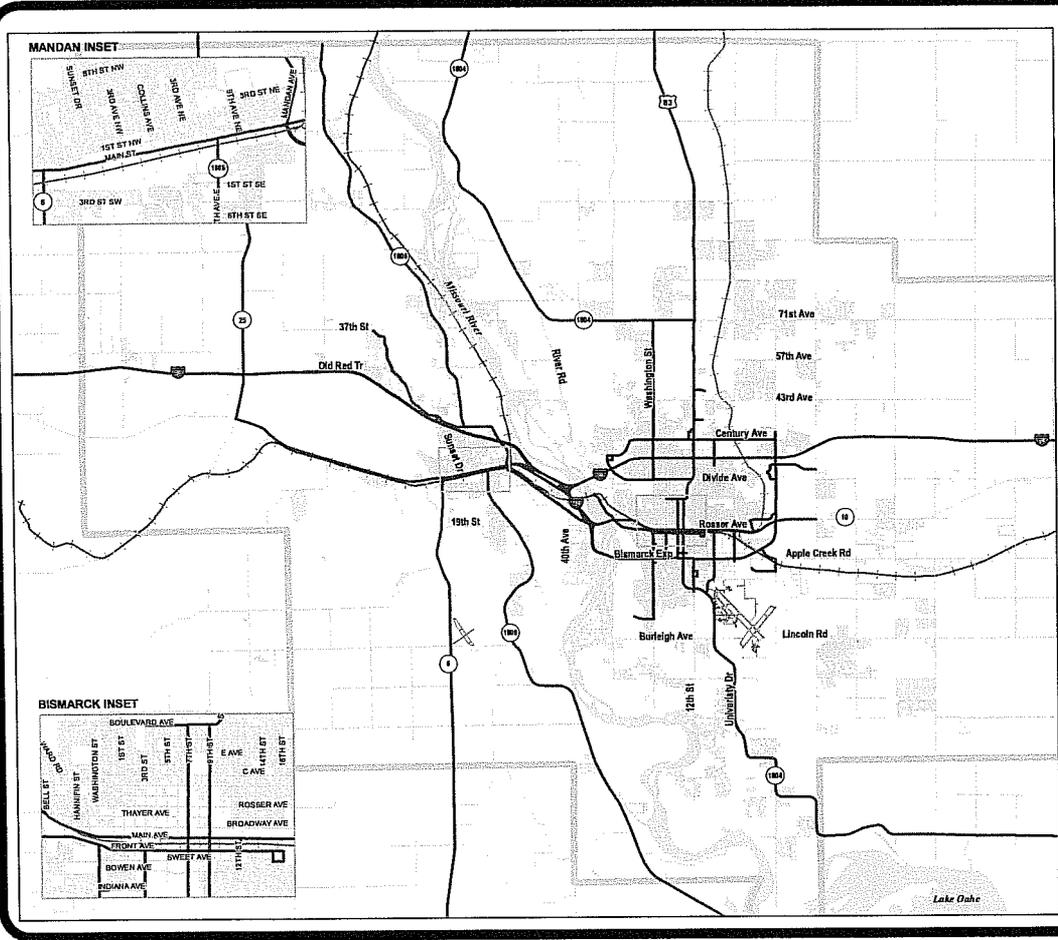
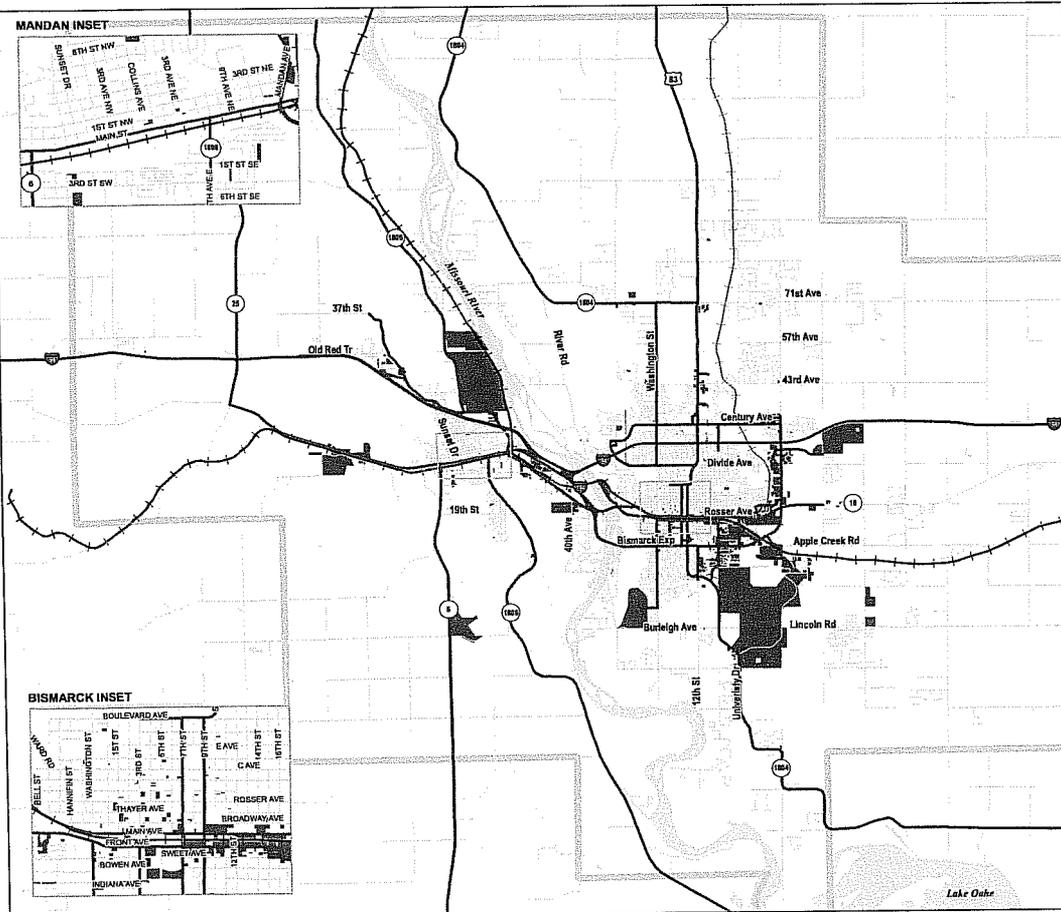


Figure 15. Existing Residential Land Uses in Relation to Rail and Truck Routes



February 10, 2010





**Legend**

**Truck Routes**  
Truck Route

**Rail Lines**  
BNSF  
DMW

**Industrial Land Use**  
Existing Industrial



0 1 2 4 Miles

Figure 14. Existing Industrial Land Uses in Relation to Rail and Truck Routes



## MEMORANDUM

**William Troe, AICP**  
**Vice President**  
12120 Shamrock Plaza  
Suite 300  
Omaha, NE 68154  
(402) 334-8181  
(402) 334-1984 (Fax)

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**To: Mr. Ben Ehreth, AICP**  
**Transportation Planner**  
**Bismarck-Mandan MPO**  
**221 N. 5th St**  
**Bismarck, ND 58506-5503**

**Date:** January 25, 2010

**Subject: Burleigh County Planning Commission LRTP Comment Follow Up**

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### ***BACKGROUND***

At the second round of presentations of the Draft Long Range Transportation Plan (LRTP) to the Burleigh County Planning Commission on January 13, 2010, the following comments and suggestions were made regarding the LRTP:

- Commissioner Schwab stated his preference that the recommended Centennial Road improvements from Jericho Road to 71<sup>st</sup> Avenue should be construction of a 5-lane roadway. Commissioner Schwab noted that the reasons for this were:
  - Current safety and congestion concerns along Centennial.
  - Development that results in increased traffic will occur along Centennial Road much sooner than development impacting traffic on 66<sup>th</sup> Street north of I-94.
  - His belief that the 66<sup>th</sup> Street improvements, part of the eastern section of the Beltway concept, will provide little traffic diversion benefit to Centennial Road.
- Mayor Warford wanted to make sure that the recommendations along Centennial Road from Jericho Street to the north should provide for adequate right-of-way (ROW) to accommodate a 5-lane cross section at some point in the future. While the roadway improvement recommendations through the 2035 planning horizon suggest a three-lane section, it is not too early also to consider an even further out horizon that reflects even more traffic than in the 2035 analysis.

### ***RESPONSE TO 5-LANE CENTENNIAL ROAD IMPROVEMENT SUGGESTION***

In the recommended improvement plan, adding the continuous left-turn lane to Centennial Road

north of Jericho Road to 71<sup>st</sup> Avenue has been placed in the mid-term period, which is in the 5 to 15 years into the future time frame. Most of the recommended improvements included in the LRTP that are not in the current 2010-2013 Transportation Improvement Program (TIP) will fall into mid-term period at the earliest, as the next 4-years of roadway improvements and associated funding have already been designated by the NDDOT and MPO member jurisdictions through 2013. The safety and congestion improvement to widen Centennial Road to a 3-lane roadway was identified through the LRTP process as a priority during the public involvement process, the technical analyses completed as a part of the LRTP and in workshops with the MPO TAC. Placing the 3-lane Centennial Road project is a recognition of the safety, congestion and development concerns raised by Commissioner Schwab.

As Jason Carbee noted at the January 13 commission meeting, the current Bismarck-Mandan Transportation Improvement Program includes a project to widen Centennial Road to 5-lanes south of Jericho Road to I-94, likely in the 2011-2012 time frame. In the LRTP, improvements to 66<sup>th</sup> Street are split into the area south of I-94 to Lincoln Road and north of I-94 to 71<sup>st</sup> Avenue. Improvements to 66<sup>th</sup> Street between Lincoln Road and Highway 10 are also recommended for the mid-term period. The section north of Highway 10, including the I-94 interchange, has been identified for the long-term period (15 to 25 years into the future). Thus, from a timing and prioritization perspective, the recommendations in the plan as presented are consistent with Commissioner Schwab's concerns. The LRTP process evaluated, but did not place a 5-lane segment north of the Jericho Road on the prioritized, funded roadway project list through 2035.

This is not the last time that the MPO will be looking at Centennial Road north of I-94 and evaluating the type of roadway corridor improvements for which we should be planning. The Long Range Transportation Plan is updated every five years, and if development patterns / growth pressures change in the next few years, the amount of future development growth assumed in the corridor will be revisited. Thus, over time the timing and nature of the recommended improvements for the Centennial Road corridor may change.

### ***RESPONSE TO CENTENNIAL ROAD FIVE-LANE RIGHT-OF-WAY PRESERVATION COMMENT***

The recommendations in the LRTP provide for a three-lane rural section along Centennial Road from Jericho Road through 71<sup>st</sup> Avenue. From Centennial Road through US 83, the recommended section along 71<sup>st</sup> Avenue is also three-lanes. The LRTP recommendations are consistent with the findings of the Centennial Road-71<sup>st</sup> Avenue Corridor Study. Centennial Road and 71<sup>st</sup> Avenue ROW north of Calgary Road is presently approximately 150 feet, while south of Calgary Road roadway ROW ranges between 120 and 130 feet. The roads are fairly well centered within the Centennial Road ROW. The recommended three-lane section and detached multiuse path designed as a rural section (ditches) would be accommodated within the present ROW. As was concluded in the Centennial Road-71<sup>st</sup> Avenue Corridor Study, a 5-lane rural section with a detached trail would require a minimum of approximately 175 feet of ROW width. Along 71<sup>st</sup> Avenue, as it is a part of the Beltway concept, 200 feet of ROW is desired, but as a compromise

to resolve the potential for adjacent development impacts, it was recommended that in developed areas the 200 foot desired width be narrowed to 175 feet.

If the desire is to provide for a rural, 5-lane section and the detached multi-use trail concept on Centennial Road, an additional 25 feet of ROW width would need to be established along the Centennial Road corridor north of Jericho Road. Prior to making this change to the LRTP, a decision as to whether an urban or rural section would be proposed for Centennial Road north of Jericho Road. If the recommendation is for an urban section, which is consistent with the proposed section improvements south of Jericho Road, the five-lane section and detached trail could be accommodated within the existing 120 to 150 feet of ROW width.

Traffic demand consistent with the need for a five-lane section on Centennial Road would likely exist only if the area to the north of Century Avenue develops at urban densities, which also assumes that the area to 71<sup>st</sup> Avenue is likely annexed into the city. If the area is annexed into the city, there is a greater likelihood that the future recommended section would be an urban section. Again, an urban, 5-lane section and detached multi-use trail could be accommodated within the present 120 to 150 feet of right-of-way width.

## ***CLOSING***

Based on the information in the current recommended plan and the assumption of an urban section along Centennial Road when a 5-lane section is needed (which using current development assumptions would be some time after 2035), no changes are needed to the document as it has been presented.

The comments noted in this memorandum will be added to the public comment record for the LRTP update, and will be included in the document appendix. If you require additional information about this plan, please give me a call at 402-952-2522.



## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

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**To: Ben Ehreth**

**Date:** December 21, 2009

**Subject: 2009-2035 Bismarck-Mandan Long-Range Transportation Plan  
Summary of Proposed Revisions to October 2009 Draft Document**

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Since the Draft Long Range Transportation Plan (LRTP) document was released for comment and review in October, there have been several comments, suggestions and questions raised by the public, stakeholders and agencies. There have been several minor revisions and additions to the Final LRTP document based on these comments. The purpose of this memorandum is to briefly outline the most significant revisions between the October 2009 Draft and the December 2009 Final LRTP. The most significant changes are:

- **Inclusion of an Environmental Justice Section:** Environmental justice refers to treating all people equally, regardless of race, ethnicity or income in terms of the natural and built environment. This section was added to describe and illustrate the locations of proposed projects in relation to areas of poverty, non-white and Latino / Hispanic populations. This was added to address a comment from FHWA and NDDOT.
- **Recommendations for Corridor Preservation:** There were regionally significant alternatives that were not included in the fundable, recommended transportation plan, but they should have right-of-way preserved for when they are eventually constructed. Thus, although they are not planned for construction by 2035, a recommendation to preserve the necessary corridors for implementation was added to the 2009-2035 document. Additionally, some of the recommended LRTP projects will require right-of-way acquisition, and for those projects corridor preservation should occur prior to project construction. A figure showing these corridors will be included in the Final document.
- **Removed Functional Classification Recommendations:** During the October MPO Technical Advisory Committee meeting, it was decided that the current functional classification system was not consistent between the rural and urban systems, and included some gaps. The result of the discussion was that there should be a comprehensive functional classification study for the metropolitan area, and any corridor-specific recommendations made in the LRTP would be premature. Thus, the discussion of future roadway functional classification and Figure 29 were removed from the December version of the draft LRTP document.

- **Recommended Plan Traffic Forecasts / Operations:** The draft LRTP document illustrated 2035 traffic conditions, with future traffic volume forecasts and operations / levels of service, if no transportation improvements were made beyond those included in the 2010-2013 Transportation Improvement Program (which is referred to as the 2035 Existing-plus-Committed Network). It was determined that it would be beneficial if the Final LRTP provided a figure representing 2035 traffic conditions, with the recommended roadway network improvements in place.
- **Minor revisions to the Non-Motorized Recommended Improvements:** Additional comments were received from bicycle user groups and Bismarck Parks and Recreation department related to the non-motorized recommendation included in Figure 28:
  - **Bike Route Adjustments:** Based on bicycle user group comments, one on-street bicycle route was dropped (12<sup>th</sup> Street between Rosser Avenue and Bismarck Expressway) and one on-street route was added (a connection between 10<sup>th</sup> Avenue West and 2<sup>nd</sup> Street North in Mandan).
  - **Trail Adjustments:** Two of the recommended trails had recently been constructed (Burleigh Avenue and Valley Drive), and did not need to be included in the recommended plan. One of the trails shown as already in place had not yet been constructed (Riverwood Road to Burleigh Avenue connection). This trail was added to the list as a short-range recommended project, consistent with Bismarck Parks and Recreation.
- **Minor revision to the Roadway Recommended Improvements:** At the Lincoln Planning Commission meeting in November, there were discussions about different potential improvements in the Lincoln Road corridor, including the concept of a roundabout at 52<sup>nd</sup> Street / Lincoln Road. The LRTP recommendations for Lincoln road were adjusted to reflect that:
  - A Lincoln Road Corridor Study should be completed
  - The recommendation in the LRTP reflects more general intersection improvements, contingent upon the findings of the corridor study.

A summary matrix of the comments we have received on the October draft document is provided in Table 1. A summary matrix all of the general comments received over the course of the study are provided in Table 2. Each matrix categorizes generally what type of comment each was, where the comment originated, and the study team action / response to the comment.

If you have any questions on this, please contact Jason at (402) 952-2506.

**Table 1. Summary of Comments Received on October Draft of Long Range Transportation Plan**

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Draft LRTP Content Comments</b>			
	MPO Technical Advisory Committee	The recommendations for future functional classification may be premature, as there needs to be more consistency between urban and rural classifications on the current system.	Recommended functional classification has been removed from the document. The LRTP will recommend that a regional functional classification study be undertaken.
	Public / Bicycle Advocacy Group	Trail on 19th Street between Capitol and Century not shown.	Added to figure.
	Bismarck Parks and Recreation	Accommodate Northwest Subarea Study Trails / make consistent with LRTP.	LRTP will indicate that NW Subarea trails are still being finalized, that some improvements are assumed. Roadway improvement costs assume adjacent trail construction.
	NDDOT	Please describe the extension of transit from residential growth areas to employment growth areas.	A more complete description was added to the report text.
	NDDOT	Where is a future river crossing outlined in this plan? The location should be kept in mind for corridor preservation as the area develops over time.	Corridor preservation elements will be added into the final LRTP document.
	NDDOT / FHWA	Need an overlay / map of the projects with respect to environmental justice areas.	Environmental justice write-up and maps will be added.
	NDDOT	Consultation with resource agencies should be described in the report.	It is included in "Environmental Mitigation and Consultation" chapter. References to this chapter will be included earlier in report.
	NDDOT	Can percent trucks be included in the Daily Traffic Volumes in Figure 6?	Available truck data from NDDOT website will be added.
	NDDOT	Are there any vehicle / trail accident rates for at-grade rail crossings? This would be good data to have for projecting future safety improvements at these locations.	There have been 3 auto-train property-damage crashes between 2005 and 2007 at three different crossings (all in Bismarck): 3rd St / BNSF, 26th St / BNSF, Railroad Ave / DMVW Stub. None in Morton County evaluation area. Low incidence for estimating a "rate" with confidence.
	NDDOT	Were building permit trends part of the discussions with staff when coming up with the development concept?	Building permits are part of what staff base their growth allocation assumptions on.
	NDDOT	In the bullet list on page 85, is serviceability a considered element, and / or should it be?	Text was modified to reflect that serviceability / traffic operations level of service was considered in developing the bullet list.
	NDDOT	Can projections of future use or ridership be generated for Table 10?	No, the Bismarck-Mandan travel model does person vehicle trips only - no transit forecasting tools are available.
	NDDOT	Page 103 - Are there any planning processes that can be undertaken to develop a more proactive (planning processes) approach to ease truck volumes on non-truck route corridors?	The document will add text that addresses this.
	NDDOT	On page 104 regarding "ITS Elements of the Plan", how were assumptions on system compatibility arrived at?	ITS elements cited here are from the Bismarck-Mandan ITS Architecture report. This paragraph was worded in a confusing way, sentences were rewritten to clarify.
	NDDOT	Are there city ordinances (particularly for the traffic noise item) that come into play for the planning process (in terms of environmental mitigation)?	There are pertinent ordinances related to traffic noise. This information has been added to the document.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Draft LRTP Content Comments (continued)</b>			
	NDDOT	The lead-in discussion on page 59 of how the growth rate projections were developed was very good.	Noted.
	FHWA	Need a statement about preparing the document using Federal dollars inside the front cover.	FHWA-supplied example was incorporated into updated draft.
	FHWA	Pages 6-10 - I like how the plan lists the 8 planning factors and how the plan addresses each of them.	Noted.
	FHWA	Figure 2 - some of the lettering in the diagram is difficult to read.	It was fixed for the updated draft.
	FHWA	Page 18 - 96% auto / truck trips. What percentage are the other modes?	Added a graphic and text to describe this.
	FHWA	Figure 6 - The traffic volumes are difficult to read where they overlap a street name, particularly in the insets.	Fixed the overlaps and label placement for the update draft in a single figure.
	FHWA	Figure 8 - Should probably indicate in the legend that the LOS shown is "Peak Hour" LOS, not all the time LOS.	Note has been added to the updated figure.
	FHWA	Figure 9 - Need to define MEV. Be careful that street names are not blocked by crash dots.	MEV defined on map and added to glossary. Labels have been adjusted.
	FHWA	Isn't 2008 transit ridership available for CAT and Bis-Man transit?	Ridership for both systems was recently received and has been added to the updated draft.
	FHWA	Why does the intercity bus photo show a Trailways bus when there is no mention of Trailways in the text?	Rimrock Stages is also known as Rimrock Trailways. Text has been modified to clarify this.
	FHWA	Page 50 - Should the reference to Figure 13 actually be to Figure 14 or 15?	Yes, Figure 14. It has been fixed for the updated draft.
	FHWA	Page 50 - Is the bullet on "7th / 9th from Avenue B through Divide Avenue" correct?	No, it should read "7th / 9th from Avenue B through Boulevard Avenue". It has been updated.
	FHWA	Page 51 - The first and second bullets refer to 71st Avenue North. Shouldn't this just be 71st Avenue?	"North" has been removed from references to 71st Ave.
	FHWA	The discussion on housing, employment and traffic forecasts is rather technical. It should be in plain English for the audience.	It has been revised in an attempt to make it more readable / accessible to the general public.
	FHWA	You reference a traffic analysis zone, but do not define it or say why you are using it over census divisions.	It has been defined in the text, and an explanation of how it fits with the travel model has been added.
	FHWA	Page 67 - What is meant by "Upgrade Divide Avenue from Volk St through Bismarck Expressway?"	The TIP project description has been revised to include a more complete description.
	FHWA	Pages 76-77 (in "Alternatives Analysis" chapter) please indicate where you will discuss the recommendations.	A reference to the "Recommended Transportation Plan" chapter has been added to the Alternatives Analysis chapter.
	FHWA	Page 81 - You mention "the rule" addressing YOE dollars. Please note what the rule and citation is.	Citation to FHWA and FTA Statewide and Metropolitan Planning Rule (72 Fed. Reg. 7224) has been added.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Draft LRTP Content Comments (continued)</b>			
	FHWA	Page 87 - Please make sure that the discussion of Interstate Maintenance (IM) Funds has been revised per our conversation on October 19, 2009.	Revisions were made, clarifying that the interstate projects we are assuming are eligible for IM funds are reconstruction projects, not "expansion" projects.
	FHWA	Table 5 - Where are all of the other project numbers?	The projects numbers that are not included in the recommended plan Table 5 are those that were evaluated in the Alternatives Analysis, but not included in the final plan. A footnote has been added to clarify. Rather than renumbering the recommended plan projects, we wanted to keep the original alternatives numbering system for consistency.
	FHWA	Page 87 - Suggest last paragraph be moved to same page as Table 6 to be more connected to its explanation.	Referencing text to Table 6 has been moved per comment.
	FHWA	Page 93 - Seventh line from the bottom - "Trail years"?	Text has been corrected.
	FHWA	Collins Road? Or Collins Avenue?	Collins Avenue - it has been fixed.
	FHWA	Page 104 - Disconnect / unfinished sentence in the second ITS paragraph.	The paragraph has been revised.
	FHWA	Is the functional class recommendation consistent with the functional classification update plans for Bismarck and Mandan?	The map and references to future functional classification recommendations have been removed from the document. The upcoming functional classification plan update for Bismarck and Mandan will guide.
	FHWA	Page 113 - Not sure archeological sites should be identified on this map!	The archeological sites were removed as soon as comment was received.

**Table 2. Summary of General Comments Received During Long Range Transportation Plan Update**

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments</b>			
	Public	Expand the proposed 12th St. bike route from Bis. Expwy. up to Ave B by extended the route east to 15 St then North up to Divide Ave. and stop.	This comment was incorporated into the recommended LRTP.
	Public / Bicycle Advocacy Group	Concerns with safety on proposed on-street route for 12th Street.	12th Street removed from the recommended list. LRTP is recommending a Pedestrian / Bike Master Plan be completed, including implementation plan for on-street routes.
	Public	The north-south bike route on 28th St from Bis. Expwy. up to Ave D is good. Why not continue this route up 28th St. north to tie into the Sleepy Hollow bike path, or just continue along that road.	Extending the 26th St bike route further north would require some extreme grades for bicyclists - with grades at 10%. This extension is not included in the recommended LRTP, but might be included in Bike Master Plan.
	Public	Extend the proposed north-south bike route on 5th St as a separated bike path along the west side of the mall either through the parking lot or along the edge of it, then end the path at the 3rd St intersection with Expwy.	Suggestion will be noted and should be considered in more detailed Bicycle and Pedestrian Master Plan. As commenter noted, agreement with mall to use their property would be required.
	Public	There should be a sidewalk added on the east side of the mall along 9th St where there currently is not one.	Suggestion is noted, and will be passed along to Bismarck Engineering.
	Public	Desire to use abandoned rail line and bridge north of Lincoln Road as a rails to trail project for connection to Bismarck / recreation.	This trail is in the recommended LRTP.
	Public	Resident of Crested Butte Addition concerned that Highway 1804 might be widened and speeds might be increased, based on word of mouth related to Northwest Subarea Study; also concerned about neighborhood access to 1804.	No widening or speed limit increases planned. Bridge to Mandan (Northern River Crossing) is beyond the 2035 timeframe. It is assumed that as more development occurs, there will be additional neighborhood access to the south and 57th Avenue.
	Public / Bicycle Advocacy Group	Consider linking the trail from Pioneer Park to the Tyler Parkway trail.	There is potential to widen the existing sidewalk along Burnt Boat, some light poles are in place adjacent to sidewalk and concerns about cultural resources in this area.
	Public / Bicycle Advocacy Group	Consider linking 10th Ave SW to 2nd Street in Mandan.	These are low volume streets (800 to 2400 vehicles a day) so a bike route would likely work here. Some short grades on 2nd St (3-6%) Will add to LRTP recommendations.
	Public	Add new interchange at 52nd / I-94	This was an alternative that we looked at. The interchange would have constructability issues due to the landfill / grades at I-94, and was dropped from further consideration.
	Public	12th Street as an improved north-south corridor through: changing intersection controls, removing one side of on-street parking.	Several similar improvements were considered for 12th Street in the alternatives analysis. Concerns for neighborhood impacts with parking removal.
	Public	Need an overpass / exit at 71st/Highway 1804 and US 83	An interchange at US 83/Hwy 1804 was considered. It did not make the fundable list of recommended projects through 2035, but corridor preservation will be recommended.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments (continued)</b>			
	Public	Signals on Expressway, Main, 9th St, 7th St and State Street/US 83 need to be synchronized.	The City recently implemented improved corridor timings / "synchronization" in the State Street and Bismarck Expressway corridors. It is anticipated that more corridors will have similar signal timing improvements in the future.
	Public	Consider adding ramps at Collins Ave / I-94.	LRTP update looked at adding an interchange at Collins Ave. Collins is located less than a mile from Sunset Ave and Mandan Ave, too close for a standalone interchange to meet FHWA spacing guidelines.
	Lincoln Planning Commission	Can we consider a roundabout at 52nd Street / Lincoln Road? Difficulty turning onto Lincoln Road throughout Lincoln.	Recommendation will be adjusted to reflect intersection / access improvements along Lincoln Road and a corridor completed (potentially including roundabout) to determine details of each access.
	Public / Stakeholder Issue	Improve Highway 10 connection to I-94.	Alternatives were developed that included improved connectivity in this area. Not part of recommended plan.
	Public / Stakeholder Issue	Desire to extend 37th St.	Northwest Mandan grid improvements were considered; not part of recommended plan. Some will be developer-funded as development occurs.
	Public / Stakeholder Issue	Desire for south Missouri River crossing.	Included as an alternative, not part of recommended 2035 LRTP.
	Public / Stakeholder Issue	Speeding concerns on 7th / 9th.	Arterial roadways posted at 25 mph. Enforcement concern passed on to Bismarck Police.
	Public / Stakeholder Issue	Safety and congestion along Highway 10.	Improvements were included in recommended LRTP.
	Public / Stakeholder Issue	Concerns with safety, turning traffic and no shoulders along Lincoln Road.	Improvements were included in recommended LRTP - recommended corridor study in near future as well.
	Public / Stakeholder Issue	Limited shoulders along Business Loop 94 in Morton County west of Mandan.	Rehabilitation project. Forwarded comment to NDDOT staff.
	Public / Stakeholder Issue	Desire to divert heavy trucks from Main Street.	Beltway concept was considered in alternatives analysis, not part of recommended LRTP.
	Public / Stakeholder Issue	Desire to extend Divide Avenue.	In current TIP.
	Public / Stakeholder Issue	Pedestrian crossing conflicts with Bismarck Expressway traffic.	LRTP recommends pedestrian crossing enhancements; recently implemented signal optimization in corridor accommodates pedestrian crossing, more time given to crossing at 3rd Street.
	Public / Stakeholder Issue	Improve Highway 6 connection to I-94.	Significant residential impacts with direct connection. Morton County beltway concept provides Highway 6 to I-94 connection; not on funded LRTP list.
	Public / Stakeholder Issue	Desire for 24th Avenue interstate access.	Part of the Morton County beltway alternative - not in funded 2035 LRTP, but preserve corridor.
	Public / Stakeholder Issue	Desire for Collins Avenue interchange.	This was considered; located less than 1 mi from Sunset Ave and Mandan Ave, likely to close for approval. Potential impacts to development near I-94 / Collins Ave.
	Public / Stakeholder Issue	I-94/I-194 safety concerns between Mandan Avenue and McKenzie Dr.	Improvement projects along I-94/I-194 part of recommended LRTP.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>Project / Corridor Specific Comments (continued)</b>			
	Public / Stakeholder Issue	Intersection safety concerns at 43rd Ave / Centennial.	Improvements including addition of turn lanes included in recommended LRTP.
	Bismarck Airport	Preserve right-of-way for north and south Missouri River crossings.	Corridor preservation elements will be added into the final LRTP document.
	Bismarck Airport	Airport requests that Burleigh Beltway alignment is retained. Comment also notes that Airport Master Plan shows a direct connection between the National Guard Building and Beltway.	Beltway (project #2) is included as a recommended LRTP project. Text will be added to recommendations referring to Airport Master Plan, funding for airport roadway projects will not be from FHWA / FTA sources.
	Public / Stakeholder Issue	Intersection safety concerns at Tyler Parkway / Century Avenue.	Several alternatives investigated in area to relieve traffic / realign intersection. LRTP assumes some NW Subarea Study improvements. Crash rate lower than region average.
	Public / Stakeholder Issue	19th/Divide bicycle safety concerns.	On-street bicycle routes provide alternatives to this corridor.
	NDDOT	Page 91 - Why isn't project 21 a short-range project? Wouldn't this alleviate some of the delays we are currently seeing for a relatively low cost?	The recommended projects were prioritized against one another by the MPO TAC and anticipated funding levels were evaluated by period. The projects selected ahead of it reflected a higher priority / need.
<b>Subarea Mobility Comments</b>			
	Public	Increased bike traffic between Bismarck and Lincoln. Need for trails / bike lanes / paved shoulders for bicycle safety.	Recommendations are included for bike trails connecting Lincoln to Bismarck and trails along Bismarck Expressway to improve regional trail connectivity to southeast Bismarck.
	Public / Stakeholder Issue	I-94 crossing desired west of Mandan.	Alternatives were developed that included this crossing.
	Public / Stakeholder Issue	Look for a river crossing farther north.	Discussions included a crossing farther north. Northern River Crossing study inputs and process were confirmed, no river crossing was included in the recommended plan.
	Public / Stakeholder Issue	Lack of West Bismarck access to west Main / Memorial Highway	Concepts were included in West Side Study, but neighborhood impacts were identified.
	Public / Stakeholder Issue	Improve northwest Bismarck connectivity.	Recommendations assume improvements to this area are made, contingent on outcome of NW Subarea study.
	Public / Stakeholder Issue	Desire for improved north Mandan subarea access to Mandan.	Alternative was developed for this issue - constructability issues.
	Public / Stakeholder Issue	Desire for improved Lincoln connectivity to Bismarck.	Confirmed the findings of the Lincoln-Bismarck Connector Study, recommend improvements to 66th Street, grade separation with railroad and improvements to Apple Creek Road.
	Public / Stakeholder Issue	Desire for improved access to BSC and Community Bowl.	Alternatives for connections via Schafer Street and across I-94 were considered. Potential for impacts to neighborhoods and Fraine Barracks.
	Public / Stakeholder Issue	Lincoln transit service desired.	Included in Transit portion of recommended plan.
	Public / Stakeholder Issue	U of Mary transit service desired.	Included in Transit portion of recommended plan.
	Public / Stakeholder Issue	North-South discontinuities throughout Bismarck.	Several multimodal improvements were included that would address this issue.
	Public / Stakeholder Issue	More Heart River bridges desired southwest of Mandan.	Considered; need by 2035 not identified.
	Public / Stakeholder Issue	Improve southeast Mandan east-west connectivity.	McKenzie Road extension is part of recommended LRTP.

Type of Comment	Comment Origin	Comment Content	Study Team Response / Action
<b>General Regionwide Comments</b>			
	Public / Stakeholder Issue	Concern about traffic impacts from new Bismarck elementary school.	Several improvements to roadway, trail and transit system recommended in the area.
	Public / Stakeholder Issue	Concern about truck traffic increases with NPCC.	Beltway concept in LRTP, improvements to Bismarck Expressway and I-94 ramps address regional truck traffic access to / from NPCC.
	Public / Stakeholder Issue	Concern about traffic impacts from new Mandan middle school.	Improvements to adjacent roadways included in LRTP.
	Public / Stakeholder Issue	Improve rural fire access to University of Mary.	Burleigh County beltway concept recommended would provide improved access.
	Public / Stakeholder Issue	Habitat / cultural resource concerns in Burnt Boat Drive / Golf Drive area.	Detailed NW Subarea Study will provide more corridor-specific analysis. Concern will be passed along to study team.
	Public	Allow more unprotected left turns at signals throughout the area.	There are engineering standards related to traffic flow and safety for when protected lefts are and are not implemented at an intersection. This suggestion will be forwarded on to Engineering departments.
	Public	Improve traffic flow at intersections across the area by removing on-street parking adjacent to the intersection and restriping for turn lanes.	There were several of these intersection improvements recommended throughout the study area.



"Ben Ehreth" <bjehreth@nd.gov>

07/10/2008 10:23 AM

To <Bill\_Troe@URSCorp.com>,  
<Jason\_Carbee@URSCorp.com>

cc

bcc

Subject

Greetings,

Following is a message regarding a question of a potential multi-use trail on Lincoln Road to University Drive. In the previous Long Range Transportation Plan identified a combination of suggested and future trails in the subject location. Please consider this comment in the development of the LRTP.

Thanks,

Ben

**From:** Dale Heinert [mailto:dheinert@nd.gov]

**Sent:** Thursday, July 10, 2008 9:03 AM

**To:** 'Mark and/or Susan Liebig'

**Cc:** 'Ben Ehreth'; Berg, Mark

**Subject:** RE: Lincoln route...

Mark:

I forwarded your message to MPO and City of Bismarck Traffic Engineer for their input and documentation of the need. The sudden rise in usage by bikes is quicker than any funding sources for trails, shoulder widenings, etc I am sure. I have heard nothing about trails to Lincoln. Since this is outside of Bismarck Parks jurisdiction they probably have little interest in this unless another entity sponsors like City of Lincoln, State or County. In a more distant future the airport may expand its south runway moving the major roads around some and at that time trails may enter into the equation.

Hope this helps some.

Dale

---

**From:** Mark and/or Susan Liebig [mailto:liebigs@bis.midco.net]

**Sent:** Monday, July 07, 2008 9:47 PM

**To:** dheinert

**Subject:** Fw: Lincoln route...

Dale,

Hello. Hope you're having a good summer.

Regarding the message below... Do you know of any near-term efforts to widen any of the roads she mentions? Any plans for a bike trail? I'm guessing 'no' to both questions, but it never hurts to ask.

Thanks in advance,

Mark

----- Original Message -----

**From:** [Holly Carlson](#)

**To:** [liebig@bis.midco.net](mailto:liebig@bis.midco.net)

**Sent:** Monday, July 07, 2008 7:20 AM

**Subject:** Lincoln route...

Mark,

We've lived in Lincoln since 1996, and have noticed a big increase in bike traffic from here to Bismarck - especially this year. Do you know if the DOT or Parks and Rec have any plans in the near future for a bike path along Lincoln Road to University Road, or along 66th Street to Old Highway 10? With no shoulders along these roads or bike paths, it's getting down right dangerous for cyclists and motorists alike. Our 17 year old daughter would like to bike to town to save gas (she goes to school and has 2 part time jobs), but we've really discouraged it since we don't feel it's safe.

Are you the person to contact on this?

Holly

[nsac2@bis.midco.net](mailto:nsac2@bis.midco.net)



Bismarck-Mandan  
Long Range Transportation Plan  
2035

**Bismarck-Mandan Long Range Transportation Plan**  
July 30/31, 2008

As part of the public outreach program for updating the long range transportation plan, we are interested in gathering input from the community on issues, potential solutions and stakeholder preferences for the modes and types of programs for focusing improvement dollars. We request that you take a few minutes to answer the following questions about the transportation system. *(Feel free to use the back or add additional pages)*

- 1. What do you think are the most significant transportation problems/issues in the area?

~~1008~~ - Poorly maintained roads  
- High use roads are not enough lanes  
- Signal lights

- 2. What do you think are the most promising solutions to the transportation problems listed?

- identify signal light that need protected left turns.

**If you had a \$100 to spend on transportation related improvements in the Bismarck-Mandan area, how would you allocate your funds among the following categories:**

Maintenance -	\$ <u>40</u>
Multi-Use Trails Expansion -	\$ _____
On-Street Pedestrian/Bike System Expansion -	\$ _____
Expansion of the Transit System -	\$ _____
Roadway Improvements/Expansion -	\$ <u>40</u>
Other - <u>Traffic signals</u>	\$ <u>20</u>
Other- _____	\$ _____

---

**TOTAL** **\$100**

**1. What do you think are the most significant transportation problems/issues in the area?**

From listening to discussion at the last meeting, and from reading comments on the Tribune, there seems to be concerns about the traffic near the new school in Mandan, with the school and all the businesses on Old Red Trail that employ quite a number of people. I think this problem needs to surface first, people are getting all excited about the traffic and school hasn't started, and people haven't had time to find routes to the school away from the main traffic yet. I also think people forget that school starts after 8am, so by 8:40 or so, when buses and parents are driving to the school, much of the "rush hour traffic" would be over. So I don't see this as an immediate concern, but it may be congested in the future.

**2. What do you think are the most promising solutions to the transportation problems listed?**

As I stated, the problem has to surface first. The concerns I have read are based on what if's and speculation as to what it will be like. Currently there is a four way stop there, so maybe all that would need to be in place would be a traffic light, but all that remains to be seen. Kids will get to the school via buses and parents, and hopefully the school system will promote the CAT as I believe they are trying to get a route up there. That alone would reduce traffic if parents take the time to plan the routes for their kids. At least it isn't like the high school where 70% of the kids drive, each in their own car.

**3. If you had a \$100 to spend on transportation related improvements in the Bismarck-Mandan area, how would you allocate your funds among the following categories (Total Allocation Should Sum to 100):**

Maintenance (Roads/Transit/Trails)	<input type="text"/>
Multi-use Trail Expansion	<input type="text"/>
On-street Pedestrian/Bike System Expansion	<input type="text"/>
Expand Transit (Hours/Days/Frequency/Area)	\$75
Roadway Improvement/Expansion	<input type="text"/>
Develop Carpool/Vanpool Programs	\$25
Other (List in Answer Box Plus Dollar Amount Allocated)	<input type="text"/>
Other (List in Answer Box Plus Dollar Amount Allocated)	<input type="text"/>

Done

Survey Powered by:  
**SurveyMonkey.com**  
"Surveys Made Simple."

Greetings,

In the following e-mail string are some comments for consideration regarding the proposed Trails and On-street Bicycle Facilities for the Bismarck-Mandan MPO LRTP.

Please let me know if you have any questions.

Thanks,  
Ben

---

**From:** S. Ulvestad [mailto:slulvestad@yahoo.com]  
**Sent:** Monday, September 28, 2009 12:41 PM  
**To:** Ben Ehreth  
**Subject:** Fw: Draft Trails and On-Street Bicycle Facilities Proposed for the Bismarck-Mandan MPO Long Range Transportation Plan

Ben thanks for the opportunity to comment.

Proposed map comments:

1. The north-south bike route on 12th St. from Bis. Expy. up to Ave B is good. From that point the route should go east to 15 St then North up to Divide Ave. and stop.
2. The north-south bike route on 28th St from Bis. Expy. up to Ave D is good. Why not continue this route up 28th St. north to tie into the Sleepy Hollow bike path, or just continue along that road.
3. We may have talked about this at the last commuter meeting. But there is a north south bike route on 5th St that stops at the mall. I know it is private property but I would love to see a bike path along the west side of the mall either through the parking lot or along the edge of it- that is separate from car traffic, the parking lot is a mess to try to bike through, then end the path at the 3rd St intersection with Expy.
4. I know it is not a bike path issue but there is no sidewalk on the east side of the mall along 9th St. this is really needed also.

Spencer

---

**From:** BokKat [mailto:bobkat@btinet.net]  
**Sent:** Wednesday, September 23, 2009 9:03 PM  
**To:** Liebig Family  
**Subject:** Re: Draft Trails and On-Street Bicycle Facilities Proposed for the Bismarck-Mandan MPO Long Range Transportation Plan

Mark, one thing I'd like to see (partly for my own hedonistic use) would be to have the county park board think about approaching the developers of the land straight north of Lincoln, especially including the old rail line that starts by Heartland Feed store and continues SE - actually all the way to Linton and parts beyond.

I spoke to the realtor/developer of this land a year or so ago and he was very interested in donating the old rail line and bridge for a short rails to trail project tht would also provide a nice nature walk across Apple Creek. (the trestle is still there and fully funtional)

This woudl not be a road project, but perhaps the County Park board might be interested. I'm not sure if it is the city or county who might have jurisdicion here.

Even the first short section to Yegan Road/Lincoln Road would perfectly link up to the trail along Hay creek and would also interface with all the roads and trails south of Bismarck and West of the airport.

If you want to put a bug or suggestion in someone's ear, go right ahead. This is the sort of project that would keep on giving a lot of benefit for Bismarck/Lincoln for many, many years.

Sincerely Bob Scarlett/Kathy Schaan (we live a couple miles east of Lincoln on Lincoln Road.)



"Ben Ehreth" <bjehreth@nd.gov>

10/28/2009 03:01 PM

To <Jason\_Carbee@URSCorp.com>

cc

bcc

Subject FW: Bismarck-Mandan MPO Draft Long Range  
Transportation Plan

**From:** Ben Ehreth [mailto:bjehreth@nd.gov]

**Sent:** Wednesday, October 28, 2009 8:05 AM

**To:** 'robinw.bisman@midconetwork.com'; 'liebigs@bis.midco.net'; 'gstockert@nd.gov'; 'sneu@bisparcs.org'; 'rstaiger@bmda.org'; 'lynn.liebfried@bnsf.com'; 'gerry.foell@bia.gov'; 'msenger@nd.gov'; 'mgunsch@houstonengineering.com'; 'info@bismarckmandan.com'; 'Larry.Squires@dot.gov'; 'fpind@frontierprecision.com'; 'ckulas@state.nd.us'; 'lcrdc@lewisandclarkrdc.org'; 'mandanparksinfo@gmail.com'; 'tlapp@nd.gov'; 'dglatt@nd.gov'; 'ndgf@nd.gov'; 'emurphy@nd.gov'; 'parkrec@nd.gov'; 'histsoc@nd.gov'; 'smhanson@nd.gov'; 'jolson@nd.gov'; 'ndwf@ndwf.org'; 'jtomanek@nd.gov'; 'scott.hochhalter@ndsu.edu'; 'roadsbia@stellarnet.com'; 'swc@nd.gov'; 'valberts@mhanation.com'; 'mwellsjr.@mhanation.com'; 'daniel.e.cimarosti@usace.army.mil'; 'missouririverfishandwildlife@fws.gov'; 'gjwiche@usgs.gov'; 'paul\_johnson@bismarckschools.org'; 'timatk@bis.midco.net'; 'g david@nd.gov'; 'lfoolbea@nd.gov'; 'skilde@nd.gov'; 'kglatt@nd.gov'; 'dbechtel@cityofmandan.com'; 'ptrauger@nd.gov'; 'ndaero@nd.gov'; 'pwenger@nd.gov'; 'ndgf@nd.gov'; 'jwebb@nd.gov'; 'smhanson@nd.gov'; 'szainhofsky@nd.gov'; 'kline@fmmetrocog.org'; 'ehaugen@grandforksgov.com'

**Cc:** 'Steve Saunders'; Carl Hokenstad

**Subject:** Bismarck-Mandan MPO Draft Long Range Transportation Plan

Greetings,

The Bismarck-Mandan Metropolitan Planning Organization (MPO) is updating its Long Range Transportation Plan (LRTP). The LRTP is the guiding document for transportation in the Bismarck-Mandan area. With the exception of air travel the document considers all modes of transportation significant to the Bismarck-Mandan area.

We have completed a Draft of the *2009-2035 Bismarck-Mandan LRTP* document, including a draft recommended fundable multimodal transportation improvement list for the 2009 to 2035 period. We have initiated the 30-day review period, as outlined in our approved Public Participation Plan. Public comment on the Draft of the 2009-2035 Bismarck-Mandan LRTP will be accepted until November 30, 2009. Over the review period, we are soliciting comments from the public and stakeholders regarding the plan recommendations.

We are inviting you to review and comment on the draft LRTP content. The LRTP document is available at the project website at: [www.bis-manplan2009.com/draftLRTP.html](http://www.bis-manplan2009.com/draftLRTP.html).

If you are unable to review the entire document within the designated review period, we would appreciate it if you could provide comment on the Recommended Projects Chapter.

A hard copy of the document is available for review at the Bismarck-Mandan MPO offices located at:

City-County Office Building  
221 North 5th Street  
Bismarck, ND 58506

Your organization has also been mailed a letter asking for your review. If you have any questions or would like to submit comments, please contact me.

Thanks,

Ben

**Ben Ehreth, AICP**

Planner

Bismarck-Mandan, Metropolitan Planning Organization

221 North 5th Street

P.O. Box 5503

Bismarck, ND 58506-5503

Phone: 701-355-1850

Fax: 701-222-6450



"Ben Ehreth" <bjehreth@nd.gov>

11/04/2009 10:57 AM

To ""Steve Saunders" <ssaunder@nd.gov>, "Carl Hokenstad" <chokenst@nd.gov>, <Bill\_Troe@URSCorp.com>, <Jason\_Carbee@URSCorp.com>

cc

bcc

Subject: Lincoln Planning Commission Input

Greetings,

There was significant discussion about possible issues associated with the intersection of Lincoln Road and 52 Street expressed by the Lincoln Planning Commission last night (11/3/2009). The concerns seemed to focus on the difficulty (at times) of westbound traffic from 52<sup>nd</sup> Street onto Lincoln Road. It was suggested by various Planning Commissioners and a Burleigh County Commissioner who was in the audience that perhaps a roundabout could be a possible solution. While a roundabout may be a viable option I'm not sure we have all the information necessary to say definitively that this option should be included within the LRTP. In a separate conversation Marcus Hall expressed concerns over the intersection of Lincoln Road and 66<sup>th</sup> Street.

In talking with Marcus it appeared there would be some interest in pursuing a corridor study on Lincoln Road to address the aforementioned issues as well as some other concerns. In an effort to address the comments from the Lincoln Planning Commission meeting following are some possible options to consider:

- Perhaps the LRTP could recommend that the MPO move forward with a corridor study on Lincoln Road to identify if issues actually exist at the subject intersections and what the solutions could be.
- Additionally, within the LRTP list of Recommended Roadway Projects would it also be possible to identify a range of options to address potential issues at the subject intersections such as roundabout, traffic signals, or other possible solutions?

I anticipate this issue will likely be a question which comes up at the November 12, 2009 Burleigh County Commission Meeting so we may want to be prepared with how we are going to address the concerns.

Thanks,  
Ben

**Ben Ehreth, AICP**

Planner

Bismarck-Mandan, Metropolitan Planning Organization

221 North 5th Street

P.O. Box 5503

Bismarck, ND 58506-5503

Phone: 701-355-1850

Fax: 701-222-6450



"Ben Ehreth" <bjehreth@nd.gov>

11/30/2009 07:53 AM

To <Bill\_Troe@URSCorp.com>,  
<Jason\_Carbee@URSCorp.com>

cc

bcc

Subject FW: Bismarck-Mandan MPO Draft Long Range  
Transportation Plan

Greetings,

Following are comments on the LRTP.

Thanks,  
Ben

**From:** Liebig Family [mailto:liebig@bis.midco.net]

**Sent:** Wednesday, November 25, 2009 9:28 PM

**To:** 'Ben Ehreth'

**Subject:** RE: Bismarck-Mandan MPO Draft Long Range Transportation Plan

Ben,

First off, I apologize for not making the meeting on the 12th. I was giving a presentation that same morning for Pulse USA and the program was 30 minutes behind schedule when I arrived at 9:30a.m. By the time of my talk (10:30), they were 45 minutes behind. I didn't finish until noon, then they wanted me to stay for lunch. Needless to say, my morning didn't go as planned. As for the meeting on the 19th, my daughter's band concert fell on the same night.

Anyhow, I've been carrying around the trail map from the proposed transportation plan since September and have yet to get my comments to you. Well, for whatever they're worth, here they are...

1. Overall, I'm happy with what's proposed.
2. One bit of concern I have is with the proposed 12th street bike route (between Expressway and roughly Front St.). This is a narrow road, with slope, significant traffic, and with on-street parking. I'm not sure how suitable it'll be for a bike route. I wonder if a better option would be turn onto Arbor Ave and head west to 8th, take 8th to Bowen, and then Bowen to 5th (which would join with another proposed bike route). It's not an ideal solution, but it may be safer.
3. I believe there is a trail on 19th St. between Capitol Ave and Century. It is not shown on the map.
4. There may be value in formally linking the paved trail coming out of Pioneer Park (i.e., the nasty, steep trail) to the trail that runs adjacent to Tyler Parkway. Currently, there is a gap between the two on the map, yet this short stretch of road (Burnt Boat Road) receives significant bicycle traffic.
5. In Mandan, please consider linking the route on 10th Ave SW with the route on 2nd St (I think). They are separated by only a few blocks, so a connection makes good sense.

Thanks for everything you've done to move this process along. If you have any questions or concerns with what I've shared, please don't hesitate to contact me. I will be in town all of next week (amazing!).

Best wishes for an enjoyable Thanksgiving weekend,

Mark

**From:** Ben Ehreth [mailto:bjehreth@nd.gov]

**Sent:** Wednesday, October 28, 2009 8:05 AM

**To:** robinw.bisman@midconetwork.com; liebig@bis.midco.net; gstockert@nd.gov; sneu@bisparks.org; rstaiger@bmda.org; lynn.liebfried@bnsf.com; gerry.foell@bia.gov; msenger@nd.gov; mgunsch@houstonengineering.com; info@bismarckmandan.com; Larry.Squires@dot.gov; fpind@frontierprecision.com; ckulas@state.nd.us; lcrdc@lewisandclarkrdc.org; mandanparksinfo@gmail.com; tlapp@nd.gov; dglatt@nd.gov; ndgf@nd.gov; emurphy@nd.gov; parkrec@nd.gov; histsoc@nd.gov; smhanson@nd.gov; jolson@nd.gov; ndwf@ndwf.org; jtomanek@nd.gov; scott.hochhalter@ndsu.edu; roadsbia@stellarnet.com; swc@nd.gov; valberts@mhanation.com; 'mwellsjr.@mhanation.com'; daniel.e.cimarosti@usace.army.mil; missouririverfishandwildlife@fws.gov; gjwiche@usgs.gov; paul\_johnson@bismarckschools.org; timatk@bis.midco.net; g david@nd.gov; lfoolbea@nd.gov; skilde@nd.gov; kg latt@nd.gov; dbechtel@cityofmandan.com; ptrauger@nd.gov; ndaero@nd.gov; pwenger@nd.gov; ndgf@nd.gov; jwebb@nd.gov; smhanson@nd.gov; szainhofsky@nd.gov; kline@fmmetrocog.org; eh augen@grandforksgov.com

**Cc:** 'Steve Saunders'; Carl Hokenstad

**Subject:** Bismarck-Mandan MPO Draft Long Range Transportation Plan

Greetings,

The Bismarck-Mandan Metropolitan Planning Organization (MPO) is updating its Long Range Transportation Plan (LRTP). The LRTP is the guiding document for transportation in the Bismarck-Mandan area. With the exception of air travel the document considers all modes of transportation significant to the Bismarck-Mandan area.

We have completed a Draft of the *2009-2035 Bismarck-Mandan LRTP* document, including a draft recommended fundable multimodal transportation improvement list for the 2009 to 2035 period. We have initiated the 30-day review period, as outlined in our approved Public Participation Plan. Public comment on the Draft of the 2009-2035 Bismarck-Mandan LRTP will be accepted until November 30, 2009. Over the review period, we are soliciting comments from the public and stakeholders regarding the plan recommendations.

We are inviting you to review and comment on the draft LRTP content. The LRTP document is available at the project website at: [www.bis-manplan2009.com/draftLRTP.html](http://www.bis-manplan2009.com/draftLRTP.html).

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City-County Office Building  
221 North 5th Street  
Bismarck, ND 58506

Your organization has also been mailed a letter asking for your review. If you have any questions or would like to submit comments, please contact me.

Thanks,

Ben

**Ben Ehreth, AICP**

Planner  
Bismarck-Mandan, Metropolitan Planning Organization  
221 North 5th Street  
P.O. Box 5503  
Bismarck, ND 58506-5503  
Phone: 701-355-1850  
Fax: 701-222-6450



"Danielson, Oren GRE-CC"  
<ODanielson@GREnergy.com>

11/27/2009 12:03 PM

To "bjehreth@nd.gov" <bjehreth@nd.gov>

cc "ssaunder@nd.gov" <ssaunder@nd.gov>,  
"bill\_troe@urscorp.com" <bill\_troe@urscorp.com>,  
"jason\_carbee@urscorp.com"

bcc

Subject Irtp

Sir,

I'm the gentleman that left a message on your phone. My name is Oren Danielson; I have been a resident of Bismarck about 31 years; my phone number is; 400-6774; my mailing address is; 1300 Nth 11<sup>th</sup> St, Bismarck; I'm a shift worker out of town and travel Bismarck's streets at all hours of the day. I do not claim to have any answers, the following are merely suggestions of items that I feel could help to flow traffic.

1. East of Bismarck, there is what I believe to be a potential new exit that could help with traffic concerns on the Expressway/71<sup>st</sup> street area and help the residents of Lincoln. 52nd St (the north/south road to the dump grounds) dead ends at the dump grounds. East Century Ave dead ends very near I-94 in this area. An angled overpass with on/off ramps could be constructed and connect these two roadways.
2. 12<sup>th</sup> Street south of Main Street has protected intersections all the way south to University Dr. North of Main Street, none of the intersections are protected except for stop signs on 12<sup>th</sup> at Broadway, Rosser, Ave C, Boulevard and of course at State Street. The rest of the crossing streets should be signed to stop for 12<sup>th</sup> street traffic. Also, one-side-of-street parking is in place between Broadway and Rosser. This was a very good idea. This one-side-of-street parking should be implemented through to Ave C. I would also suggest giving consideration to using for parking the side of the street providing the least amount of parking possibly even changing the side for parking the current one side area. It appears that more parking would be available on the east side of the street, plus the severe dip at Thayer is less severe on the east side of the intersection but would still function well enough as a speed bump to keep traffic speeds low. There is potential here to at least aid in north/south travel with minimal costs.
3. There should be many more unprotected left turns allowed on green lights throughout town. If this works well enough on one of the busiest intersections (if not the busiest) in town (Interstate Ave onto State St/HWY 83) it should certainly be safe enough on intersections with less traffic. I truly believe that waiting at left turns when there is no oncoming traffic is one of the major reasons people run red lights.
4. When the intersection at HWY 83 and 71<sup>st</sup> St/1804 was redone it should have been an overpass/exit. The traffic here during most times of the day is quite high and is going to increase rapidly with growth. Someday this will be an overpass/exit; it's simply a matter of time. The sooner the better.
5. Many of the intersections throughout town could be changed slightly by removing parking near the intersection at all four corners, narrowing the straight-through traffic to one lane leaving the intersection and widening (with striping not physically widening) the approaching lanes to three; left turn, straight and right turn. This would also move traffic better and reduce the waiting at intersections thus reducing the running of red lights.
6. The traffic lights on Expressway, Main, 9<sup>th</sup> St, 7<sup>th</sup> St and especially State Street/HWY 83 need to

be synchronized. Once a vehicle gets on the major north/south artery of Bismarck, that vehicle should only ever be required to stop one time. After that, if travelling the speed limit, all the rest of the lights should allow flow. I feel too much importance is placed on allowing access to the roadway rather than flowing traffic.

7. Serious consideration should be given construction on/off ramps at the overpass on I-94 for Collins Ave.

As our community grows the need for many of these (and other I'm sure) ideas will increase. If I may be blunt, the issue of traffic flow is an area that Bismarck/Mandan needs much improvement and much could be learned from the Fargo area. For being a larger metropolitan area, they seem to have done a better job in planning for the future.

I realize that these issues have been handed to you and I do not wish this to seem in any way that I am critical of you personally. I commend the efforts to improve our conditions. Again, I'm sure people much more qualified than me have been looking at these issues but felt I needed to offer my suggestions in case some of these items have never been considered.

Thank you for your time,

Oren

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# North Dakota Department of Transportation

Francis G. Ziegler, P.E.  
*Director*

John Hoeven  
*Governor*

November 30, 2009

Mr. Carl Hokenstad  
Executive Director  
Bismarck/Mandan MPO  
PO Box 5503  
Bismarck, ND 58506

ATTN: Ben Ehreth

## COMMENTS ON DRAFT LONG RANGE TRANSPORTATION PLAN

Enclosed are the North Dakota Department of Transportation and Federal Highway Administration comments on the draft Long Range Transportation Plan.

### NDDOT Comments

1. Please describe the extension of transit from residential growth areas to employment growth areas.
2. Where is a future river crossing outlined in this plan? The location should be kept in mind for corridor preservation as the area develops over time.
3. Need an overlay/map of the projects with respect to the environmental justice areas.
4. Coordination with resource agencies should be described in the report.
5. Page 91 – Why isn't Project number 21, removing on-street parking and restriping for a center left-turn lane, a short range project? Wouldn't this alleviate some of the delays that we are currently seeing for a relatively low cost?
6. Can the percent trucks be broken out of the Daily Traffic Volumes in Figure 6?  
(It would seem that truck volumes could be very beneficial for planning future roadway improvements, operations, maintenance, and pavement management activities. Also, if coupled with any industrial/commercial growth info within particular areas, freight movement projections could be significant as inputs for corridor/freight corridor planning.)

7. Are there any vehicle/train accident rates known for the at-grade rail crossings listed in Table 4?  
(This could be good data to have for projecting future safety improvements at these locations.)
8. On page 61, "2035 Development Concept Allocation", were building permit trends part of the discussions with planning staff? (If so, it isn't clear how those were used as inputs for future transportation needs projections.)
9. In the bullet list on page 85, is serviceability a considered element, and/or should it be?
10. Can projections of future use or ridership be generated for Table 10? (It would seem that the "aging" population will ultimately create needs for more assisted living facilities, nursing homes, etc, and thereby more transit needs.)
11. Are there any planning processes that can be undertaken to develop a more proactive (planning process) approach to ease truck volumes on non-truck route corridors? (On page 103, the roadway improvements cited in the bullet list at the bottom of the page appear to be reactionary. The sentence at the end of the list seems to indicate that the reactionary processes will simply be continued.)
12. On page 104 regarding "ITS Elements in the Plan", how were assumptions on systems compatibility arrived at?
13. On page 116, are there city ordinances (particularly for the traffic noise item) that come into play for the planning process?
14. The lead-in discussion on page 59 of how the growth rate projections were developed under the "Development Concept Overview" was very good and seems to follow very well the concept of a clear presentation to the general public.

#### FHWA Comments

1. Need a statement about preparing the document using Federal dollars. This should be located inside the front cover. Two examples are:

"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."

"This report was funded in part through grant[s] from the Federal Highway Administration [and Federal Transit Administration], U.S. Department of Transportation. The views and opinions of the authors [or agency] expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation."

2. Pages 6-10 – I like how the plan lists the 8 planning factors and how the plan addresses each of them.
3. Page 10, Figure 2 – Some of the lettering in the diagram is difficult to read.
4. Page 18 – 96% auto/truck trips. What percentage (eg. < 1% walk) are the other modes?
5. Page 25, Figure 6 – The traffic volumes are difficult to read where the volumes overlap a street name. A particular problem with the inset maps. It's also difficult to tell where some of the numbers belong. Eg. 12,300 ADT – is that on Main or Broadway? Likewise, the 13,500 farther east. The insets may require separate larger scale maps. (Eg. Figure 6A, 6B...).
6. Page 29, Figure 8 – Should probably indicate in the legend that the LOS shown is "Peak Hour" LOS, not all the time LOS. Not everyone who may read this document is familiar with how (or when) LOS is evaluated.
7. Page 33, Figure 9 – Need to define MEV. The (too) brief discussion of traffic safety and crash locations does not define the abbreviation. Also need to be careful that street names or numbers are not blocked by the dots (Eg. 7<sup>th</sup> & 9<sup>th</sup> on Bismarck inset).
8. Pages 37-38 – Isn't 2008 ridership available for CAT and Bis-Man Transit?
9. Page 41 – Why does the Intercity bus photo show a Trailways bus when there is no mention of Trailways in the discussion?
10. Page 50 – Should the reference to Figure 13 (line 3) actually be to Figure 14 or 15? Figure 13 is Intercity bus.
11. Page 50 – Is the bullet on "7<sup>th</sup>/9<sup>th</sup> St from Ave B thru Divide Ave" correct? Divide Ave does not connect to 7<sup>th</sup>/9<sup>th</sup>. The one way pair originates or terminates at Boulevard Ave. Divide connects to State St, E Bismarck Expressway, and I-94/Tyler Parkway.
12. Page 51 – The first bullet (and second, too) refer to 71<sup>st</sup> Ave North. Is there a 71<sup>st</sup> Ave N? It doesn't go north-south. The language is confusing. Isn't it just 71<sup>st</sup> Ave? What is the official name?
13. Page 59 – This discussion of housing, employment and traffic forecasts is rather technical. It needs to be written in plain English since people unfamiliar with the technicalities may be reading this.
14. Page 61 – You reference a traffic analysis zone (4<sup>th</sup> paragraph), but do not define it or otherwise say why you are using that over census divisions.
15. Page 67 – What is meant by "Upgrade Divide Ave from Volk St through Bismarck Expressway? Widen? Straighten? Traffic calming? Reconstruct on current footprint?
16. Pages 76-77 – Please indicate where you'll discuss the recommendations. By talking about the screening process, alluding to recommendations and moving on to TDM and not mentioning what is recommended, the reader is left hanging. At least say the recommendations are in Chapter XX.

17. Page 81 – In the third paragraph, you mention “the rule” addressing YOE dollars. Please note what rule and citation so readers know it isn’t an MPO rule or a consultant rule, or something made-up.
18. Page 87 - Please make sure the discussion on IM has been revised per our conversation on October 19, 2009.
19. Page 87 and Table 5 – Where are all the other numbers? 1, 3, 5, etc are missing? Lower priority projects? Already in TIP? Not feasible? Should let people know to avoid confusion or number recommendations consecutively.
20. Page 87 – Suggest last paragraph be moved to same page as Table 6 to be sure explanation is connected to the table. With so many pages between the explanation and table, it’s easy to lose the connection and thus miss-interpret the info in Table 6.
21. Page 93 – Seventh line from the bottom – “Trail years”?
22. Page 92, 103 – Collins Road? Or Collins Ave?
23. Page 104 – There seems to be some disconnect with the second ITS paragraph. Unfinished sentences.
24. Page 109 – Is this functional class recommendation consistent with the functional classification update plans for Bismarck and Mandan? Should this map wait for them to complete their update?
25. Page 113 – Not sure archeological sites should be identified on this map! At any level.

Please revise the plan per the above comments before finalizing the document. If you have any comments or questions, please contact me at (701) 328-4469 or Denny Johnson at (701) 328-2194.



STACEY M. HANSON, P.E. – INTERIM ASSISTANT LOCAL GOVERNMENT ENGINEER

38/smh

c: Stephanie Hickman – FHWA  
Kevin Levi – Bismarck District Engineer



"Ben Ehreth" <bjehreth@nd.gov>

12/23/2009 02:47 PM

To <Jason\_Carbee@URSCorp.com>

cc

bcc

Subject FW: LRTP

**From:** Bill\_Troe@URSCorp.com [mailto:Bill\_Troe@URSCorp.com]

**Sent:** Sunday, November 29, 2009 9:02 PM

**To:** Terry

**Cc:** Bill\_Troe@urscorp.com; bjehreth@nd.gov

**Subject:** Re: LRTP

Terry:

Please see below for responses to your comments/questions:

The NSS and the LRTP are being coordinated in their assumptions on development that influences the transportation system, the level of traffic being projected and the order of magnitude of the project improvement costs. Where they differ is in the level of detail in the analysis. The MPO is managing both jobs (Ben Ehreth is copied here). The NSS was initiated to address more specific questions about how development proposals in that area would affect the transportation network and what roadways would be needed to provide safe and adequate access in the area. The LRTP is more of a general look at the entire MPO area and does not go into as much detail as the NSS relative to specific intersections. The products/recommendations from the NSS will be incorporated into the LRTP when the NSS work is done. The LRTP is presently in a draft form and we have simply set up what we refer to as a placeholder for the NSS recommendations. We try to estimate the general amount of funding required for improvements that we believe will be coming out of the recommended plan for the NSS.

The LRTP and the NSS improvements both assume at some point in the future a new crossing will be needed between Bismarck and Mandan. Both projects/studies assume the same alignment for the arterial corridor and the bridge location. The alignment and bridge location were first developed through the Northern River Crossing study that was done about 6 years ago. The findings were confirmed through the Beltway Study that was finished about a year or so ago. Both of these reports should be available through the MPO website at [www.bismarck.org/MPO](http://www.bismarck.org/MPO), or through Ben. When the northern river crossing is constructed, there will be more traffic on ND 1804 than without it. You can see from the LRTP maps that we are NOT anticipating the crossing before 2035. The cost is very high and the need before that time has not been justified/determined.

Regarding the access to/from 1804 and your subdivision. From the NSS the recommendations include extending Sonora to the south and creating a new route from the ND 1804/15th Street intersection south to Tyler Parkway. Both of these extensions would aid your subdivision access by giving you alternates to 1804 and Washington Street or US 83. The big question is when might these routes be constructed. I will leave that question with Ben Ehreth to answer, but in all likelihood they would be built only as the area to the south and west continue to develop, as the roads would be the developers' responsibility (for the most part anyway). I do not believe that access points between your subdivision and ND 1804 would be closed. The spacing meets the current access control guidelines and occur on the quarter and half sections.

The only plans for ND 1804 in the immediate area is a thin overlay as part of a preventative maintenance project planned for sometime between 2011 and 2013. No added capacity is planned. I will leave the speed limit question to Ben, but I would doubt there is a plan to raise it.

-----"Terry" <program4u@bis.midco.net> wrote: -----

To: <Bill\_Troe@urscorp.com>, <bjehreth@nd.gov>

From: "Terry" <program4u@bis.midco.net>

Date: 11/29/2009 08:10PM

Subject: LRTP

Hello,

I have recently moved to the Crested Butte Addition in North Bismarck, which is just on the south side of 1804, and have several questions/concerns about the Long Range Transportation Plan you are a part of. I have reviewed the website setup for this purpose and the videos, slides, etc. Around July of this year, there was another study I was made aware of termed the Northwest Subarea Study(NSS). Can you tell me, how are the LRTP and Northwest Subarea Study related? How are they different? After reviewing the maps and projects contained in the LRTP, it looks to me like 43<sup>rd</sup> Ave NW and 1804 will both lead to the a new bridge going to Mandan. In the NSS, they have 57<sup>th</sup> Ave NW and 64<sup>th</sup> Ave NW leading west going into 1804. Here is a link for your convenience to review the NSS proposed road map <http://subareastudy.com/wp-content/Ulteig/FutureRoads.pdf>. They also show a proposed road going North on Tyler Parkway going into 15<sup>th</sup> St NW and Sonora Way extending south past 57<sup>th</sup> Ave NW. Are these additional roads from the NSS still possibilities?

Through word of mouth, I heard that there may be plans to widen 1804, which runs on the North side of our development, and make the speed limit 65 miles per hour. Is this a future plan as well?

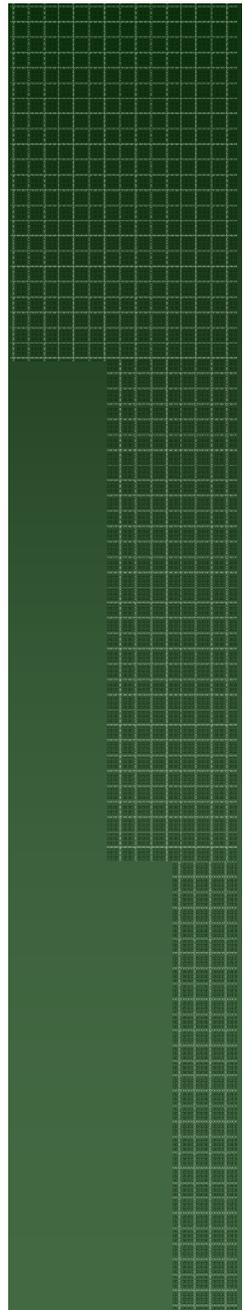
With both of the proposed road maps I have seen so far, and even more so if the speed limits were increased on 1804, my biggest concern is getting out of our development because we have to exit right onto 1804. People are already very aggressive on this road and I feel if there is a new bridge coming from Mandan, the traffic will increase. This really makes me concerned for the safety of getting onto 1804 while exiting our development. Would there be any chance that the north entrances/exits to our development could be closed and south bound roads could be added?

If these questions are easier answered via a phone call, I can be reached at 250-9237.

Thank you,  
Terry

This e-mail and any attachments contain URS Corporation confidential information that may be proprietary or privileged. If you receive this message in error or are not the intended recipient, you should not retain, distribute, disclose or use any of this information and you should destroy the e-mail and any attachments or copies.

**APPENDIX B**  
**ISSUES SYNTHESIS**





## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

---

**To: Bismarck-Mandan MPO TAC**

**Date:** June 6, 2008

**Subject: Draft Summary of Issues from Previous Studies**

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### ***OVERVIEW***

Traditionally the Bismarck-Mandan MPO long range transportation plan development process has begun with a TAC and/or Policy Board workshop to identify current and emerging transportation issues that is then followed with a public meeting to gather additional input. The result of the workshop and public meeting has been a map and description of locations where congestion recurs on a daily basis, potential hazardous intersections or roadway segments, missing trail segments, concerns with various transit services and poor pavement conditions. For the 2009 update, however, the study team has initiated the issues documentation differently than in the past updates by first preparing a summary / synthesis of the numerous transportation studies have been completed in the Bismarck-Mandan-Lincoln region over the past several years. Studies completed cover a range of modes (roadway/ transit/bike and pedestrians) and many different geographic areas through the region. The study team believes it is very important that the 2009 LRTP be the coordination process / document for the broad range of studies that have been completed. As each of the studies completed focused on specific issues or areas, were conducted at different times with, and while considered adjacent areas the goal of each was to provide the locally preferred recommendation for the specific issue. Thus, there may be some inconsistencies between actions recommended for one area relative to another or one mode relative to another. The goal of the 2009 LRTP is to coordinate the inputs, assumptions and recommendations of each of these studies.

The purpose of this memorandum is to provide a preliminary draft of the issues summary from the recently completed studies. Through this "issues synthesis" effort, the Plan update team will to take advantage of all of the work already completed in identifying many of the issues, avoid the potential "issues fatigue" that many in the public may be feeling at this point, and finally to demonstrate to the larger Bismarck-Mandan-Lincoln community that the collective transportation planning community has been listening and acting on what has been heard.

The issues synthesis from other study work is not the end of the issues identification process. Following getting input from TAC members, a revised issues synthesis will be presented to the public at the initial set of public meetings. Through this first public meeting additional input on multi-modal transportation issues across the region will be requested and documented. This will be the public first chance to also see that the MPO is using, to the extent feasible, labor expended

**EXHIBIT A**

on the more focused studies.

The 2030 Long Range Transportation Plan (LRTP) was also a source that was reviewed and summarized. In addition to the 2030 LRTP, other documents included in the issues synthesis were:

- SAFETEA-LU Compliance Transportation Plan Update
- Bismarck-Mandan Expressway Study
- US Highway 83 Corridor Study
- Lincoln / Bismarck Connection Study
- Bismarck-Mandan Transit Development Plan
- Regional Land Use Study
- 71st Avenue-Centennial Road Corridor Study
- Regional North-South Beltway Corridor Study
- Northern Bridge Corridor Study
- Fringe Area Master Plans
- West Side Transportation Study
- Division Street Corridor Study
- 12<sup>th</sup> Street Corridor Study
- River Road Study
- Northern Plains Commerce Center Traffic Impact Study
- Downtown Bismarck Parking Study

### ***SUMMARY OF ISSUES FROM 2030 LRTP***

The current 2030 Long Range Transportation Plan (LRTP) went through a public involvement process that included holding public meetings to gather input on issues and stakeholders had access to a study webpage through which they could provide feedback on the region's multimodal transportation system condition and issues. Public input meetings were held early in the plan update process to provide the opportunity for the public to contribute their issues and concerns related to the transportation system. Figure 1 summarizes the location-specific issues identified in the 2030 LRTP. Issues have been grouped into the following categories:

- Access/Continuity of the present transportation system does not meet the current needs.
- Congestion recurs on a daily basis or during recurring events.
- A sensitive environmental feature limits the potential for transportation system expansion into an area.

- The present non-motorized system (trails/sidewalks) does not reflect the needs.
- Safety issue such as a lack of sight distance, too sharp of a curve, speeds, etc.

Each of the location-specific issues have a corresponding number shown with them on Figure 1, which relates to a description of the issue that is documented in Table 1.

Several of the identified issues collected during the 2030 LRTP involvement process were not location-specific, but rather more general regional concerns. These more general (not location or corridor-specific) concerns which were documented included:

- North-south traffic flow through the urbanized areas is poor.
- At-grade rail crossings do not provide safe, reliable access.
- Opportunity to have scenic byways along Highways 1804 and 1806 should be explored.
- Pavement conditions are poor all over region.
- Additional bikeways along Missouri River are needed.
- The present sidewalk system is often discontinuous and contains facilities of different widths /standards.
- The number of heavy trucks and speeds of vehicles in residential neighborhoods is excessive.
- A beltway should be constructed around Bismarck and Mandan as has been proposed in the past.

### ***SUMMARY OF ISSUES FROM OTHER STUDIES***

The major location-specific issues that gleaned from documents prepared for the other corridor / subarea studies listed above are summarized in Figure 2, with the issue descriptions provided in Table 1. Figure 2 provides two different levels of information:

- First, issues are color-coded based on the general “issue type” (i.e. congestion, safety, access management, etc.).
- Second, an additional color-coding documents the study from which the issue was documented and the general study limits of the area-specific study.

It should be noted that some of the issues raised through the smaller area studies are not documented in Figure 2. Selected issues were not included because they were small-scale and not covered by the regional plan that addresses those projects that would involve federal funds, or were issues that were raised through the area/corridor-specific studies, but were really not related to the transportation system.

The following sub-sections provide a summary of the issues that were not location- or corridor-specific, and are organized by study.

### ***SAFETEA-LU COMPLIANCE UPDATE***

- There is a lack of north–south and east-west bike corridors across Bismarck-Mandan.
- There are no designated on-street bicycle routes.
- There needs to be an increased awareness by drivers of bicyclists; “share the road” signs are needed.
- Established parts of metro area need better bicycle / pedestrian access.
- Ensure that Corps of Engineers is able to maintain access along their key operations routes.
- North-south accessibility is currently difficult for rural fire response.

### ***WEST SIDE STUDY***

- The historical nature of the west side neighborhood should be preserved with implementation of a recommendation.
- If neighborhood streets are converted to one-ways, speed increases would be a concern.
- With the historical district, there would be Environmental Justice concerns with any proposed improvements that go outside the present right-of-way / curblines.
- Alternatives that get the most out of the existing network need to be included in the analysis. One-way routes and small, isolated improvements to existing intersections should be considered before widening.

### ***NORTH-SOUTH BELTWAY STUDY***

- Are the costs of the facility within the funding capacity of the area and what are the sources of funding?
- A primary concern related to any improvements which require a wider right-of-way are adjacent property impacts.
- How would a “beltway” facility impact access to adjacent properties?
- The first action that comes from the study should be to identify and preserve a corridor(s).
- Several comments relate to the beneficial and negative comments regarding the trade-offs associated with corridor location – locating it farther away from the developed area limits impacts, but it also makes a new corridor less desirable to use.

### ***NORTHERN BRIDGE CORRIDOR STUDY***

- There are concerns as to the level of impacts to the social and physical environment of areas that would be next to a proposed corridor.
- There is the need and desire to improve regional mobility / efficiency.
- There are concerns about environmental impacts, including natural resources, traffic noise, cultural resources and aesthetics associated with providing a new corridor.
- There are concerns about travel safety and emergency response times due to a limited transportation network.
- In selecting an alternative, the total capital costs and user costs should be minimized.

### ***I-94 / BISMARCK EXPRESSWAY STUDY***

- Through the study there is the need to address development and traffic volume growth, particularly adjacent to 26<sup>th</sup> Street through Yegan Road.
- Throughout the corridor a minimum quality of operations consistent with the regional level of service C threshold should be maintained.
- Throughout the corridor and in particular along segments in Mandan, safety is a big concern.
- The feasibility of providing sufficient opportunities for pedestrians to navigate and cross the corridor needs to be included in the study.
- Access to the corridor in Mandan for some residents is rather circuitous.

### ***US 83 CORRIDOR STUDY***

- There is a lack of continuous corridors outside the one-mile grid, and even along the one-mile county road grid there are many gaps (lack of continuity other than US 83).
- The current study area collector street system is undersized and has undesirable access for expected future traffic levels.
- A lack of coordination in planning for intersections with collectors, minor arterial and principal arterial corridors has resulted in offset intersections from one side of the road to the other. These offset intersections create safety issues.

### ***REGIONAL FUTURE LAND USE STUDY***

- Concerns about extraterritorial zoning jurisdiction powers.
- Is the scope of the study area was not wide enough?
- Through the process there is a need to promote agricultural preservation.
- There is presently a lack of public access to Missouri River.
- Industrial gateways to the metro area should include setbacks / buffers for aesthetics.
- Access levels between industrial/commercial development areas needs to be enhanced.
- Future parks and open space should be included in the plan.

### ***FRINGE AREA ROAD MASTER PLAN STUDIES***

- There are too many private development direct access points to arterial and collector roadways.
- The present system results in several discontinuities between local roads and adjacent collector roadways.
- The present system results in numerous offsets between roadways of adjoining sections.
- More access needs to be provided between development areas and collector roads.

### ***TRANSIT DEVELOPMENT PLAN***

- Transit routes should be extended to many of the developed areas in the service area.
- Bus route arrival and departure timing at key destinations is a problem. The schedule does not always correspond with key activity times at some destinations.
- The walk distance between many key transit-attracting destinations and designated bus stops is too far.
- To save money, encourage shift from paratransit to CAT fixed-route service.

### ***DIVISION STREET CORRIDOR STUDY***

- There are concerns about the increasing traffic volume on Division Street.
- Will the costs of improvements associated with a recommendation be assessed to the adjacent property owners?
- Input from the public was polarized in that some strongly supported action in the corridor and the level of opposition was equally as strong.

***DOWNTOWN BISMARCK PARKING STUDY***

- The level of Medical Center parking demand that spills over into neighborhoods is unacceptable.
- In isolated locations in downtown there is a parking deficit that should be addressed.
- Downtown parking should be more convenient.

***SUMMARY***

Please try to review the attached map and summary before the June 16-17 meetings and provide any additional input at that time.

At the first round of public meetings, we plan to present the synthesis of issues from the current 2030 LRTP and from other recent studies and provide opportunities to provide further comment on regional transportation system issues.

**TABLE 1. ISSUES IDENTIFIED IN PREVIOUS STUDIES  
 ISSUE LOCATIONS ILLUSTRATED IN FIGURES 1 AND 2**

Issue Location Number	Issue Description	Study where Identified
1	Improve access between neighborhoods along river and roadway system	2005 LRTP
2	Look for a river crossing farther north	2005 LRTP
3	Poor pedestrian crossing connection	2005 LRTP
4	Schafer Street Extension: +Improve connectivity, - Impacts to view	2005 LRTP
5	Potential to add trail parallel to I-94?	2005 LRTP
6	Opportunity for 26th Street Crossing of I-94?	2005 LRTP
7	Improve North-South flow on 12th Street	2005 LRTP
8	Access problems during flooding	2005 LRTP
9	Improve 12th Street South of University	2005 LRTP
10	Preserve old growth forests along Missouri	2005 LRTP
11	Improve access to Mandan Airport	2005 LRTP
12	Find a North-South corridor with less steep grades	2005 LRTP
13	Preserve right-of-way for Highway 6 extension	2005 LRTP
14	I-94 crossing desired	2005 LRTP
15	Consider building trail to Harmon Lake	2005 LRTP
16	Provide river crossing corridor to improve regional connectivity	Northern Bridge Corridor Study
17	Improve corridor to provide sufficient North-South travel	River Road Corridor Study
18	Safety issues	I-94 / Bismarck Expressway Corridor Study
19	No 4th Street continuity north of Calgary	West Side Study
20	Future interchange and timing?	US 83 Study

Issue Location Number	Issue Description	Study where Identified
21	Plan for corridor growth while maintaining: Corridor access, traffic flow, vehicle / pedestrian safety	US 83 Study
22	Improve corridor to reconcile: Safety concerns, truck volumes, corridor access, congestion	71st / Centennial Corridor Study
23	Identify north-south corridors to provide: Truck route, future capacity / connectivity, improved regional mobility	Regional North-South Beltway Corridor Study
24	Overpass desired	Regional North-South Beltway Corridor Study
25	Flooding issues	Regional North-South Beltway Corridor Study
26	Peak hour turns / access difficult	Lincoln / Bismarck Connection Study
27	Improved Lincoln-south Bismarck connection desired (including bike path)	Lincoln / Bismarck Connection Study
28	What are truck flows / volumes to / from NPCC?	Lincoln / Bismarck Connection Study
29	Airway Avenue removal hurts Lincoln access	Lincoln / Bismarck Connection Study
30	Improve corridor to provide better North-South flow	12th Street Corridor Study
31	Need improved east-west access south of Bismarck Expressway?	I-94 / Bismarck Expressway Corridor Study
32	Pedestrian crossing conflicts	I-94 / Bismarck Expressway Corridor Study
33	Impacts / benefits of extended McKenzie corridor	I-94 / Bismarck Expressway Corridor Study
34	Division Street issues: Difficult grades and terrain, 80' right-of-way in developed areas, dense property access	Division Street Corridor Study
35	Unstable / difficult terrain	Regional North-South Beltway Corridor Study
36	Desire for continuous East-West corridor provides: Improved continuity, sufficient long-term capacity, improved grades	Division Street Corridor Study
37	Desired access across I-94	Regional North-South Beltway Corridor Study
38	Known cultural resources in Northern Beltway corridor	Northern Bridge Corridor Study
39	Peak parking difficult at hospitals	Downtown Bismarck Parking Study
40	Railroad and one ways create continuity barrier	West Side Study
41	Provide more direct connection between Main Avenue and northwest Bismarck	West Side Study
42	Indirect neighborhood access to regional system.	I-94 / Bismarck Expressway Corridor Study



**Legend**

25 Issue Location Number

**Issue Type**

- Access/Continuity Issue
- Congestion Issue
- Environmental Issue
- Non-Motorized Issue
- Safety Issue

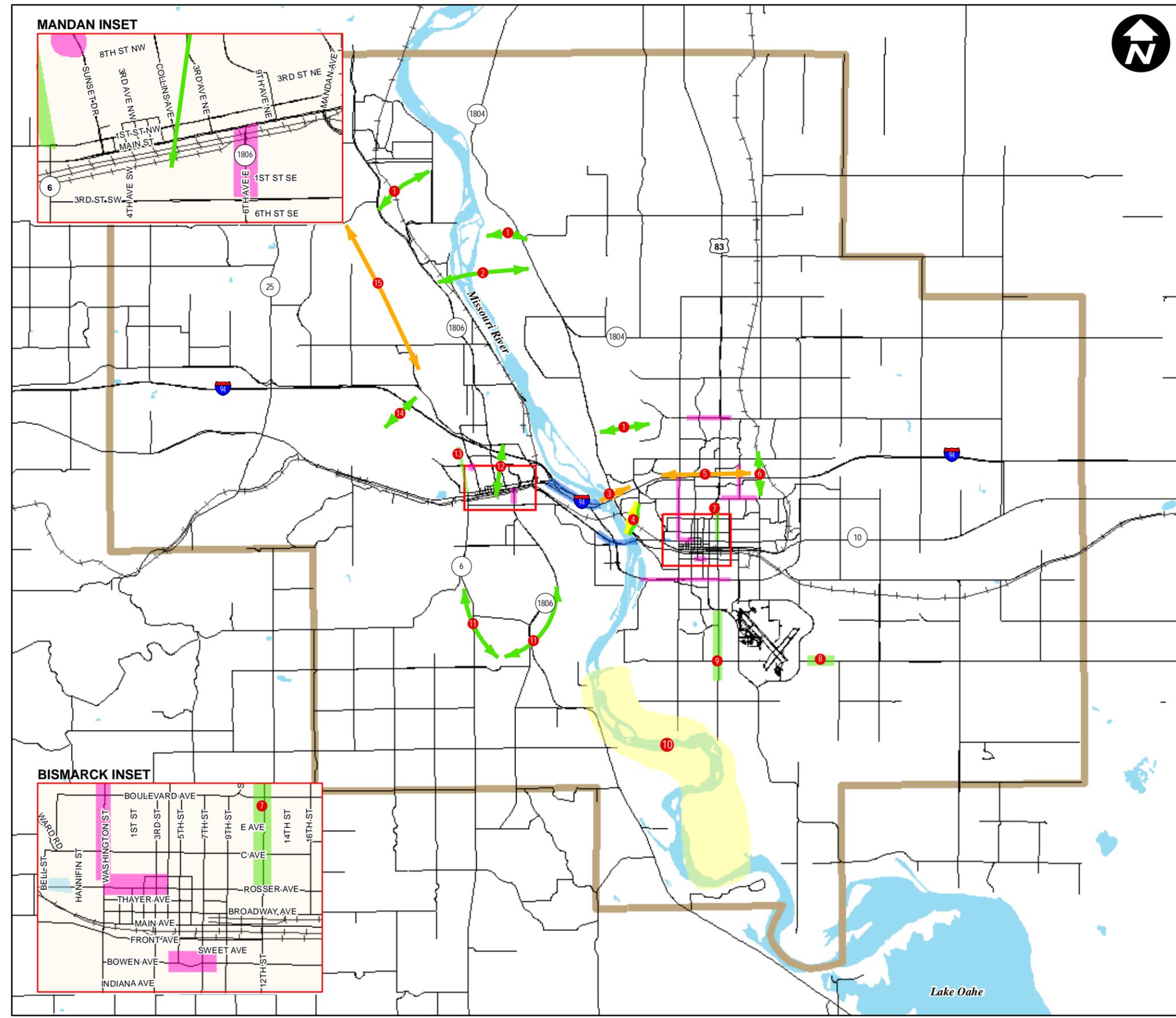


Figure 1. Location Specific Issues Identified in 2030 L RTP



**Legend**

25 Issue Location Number

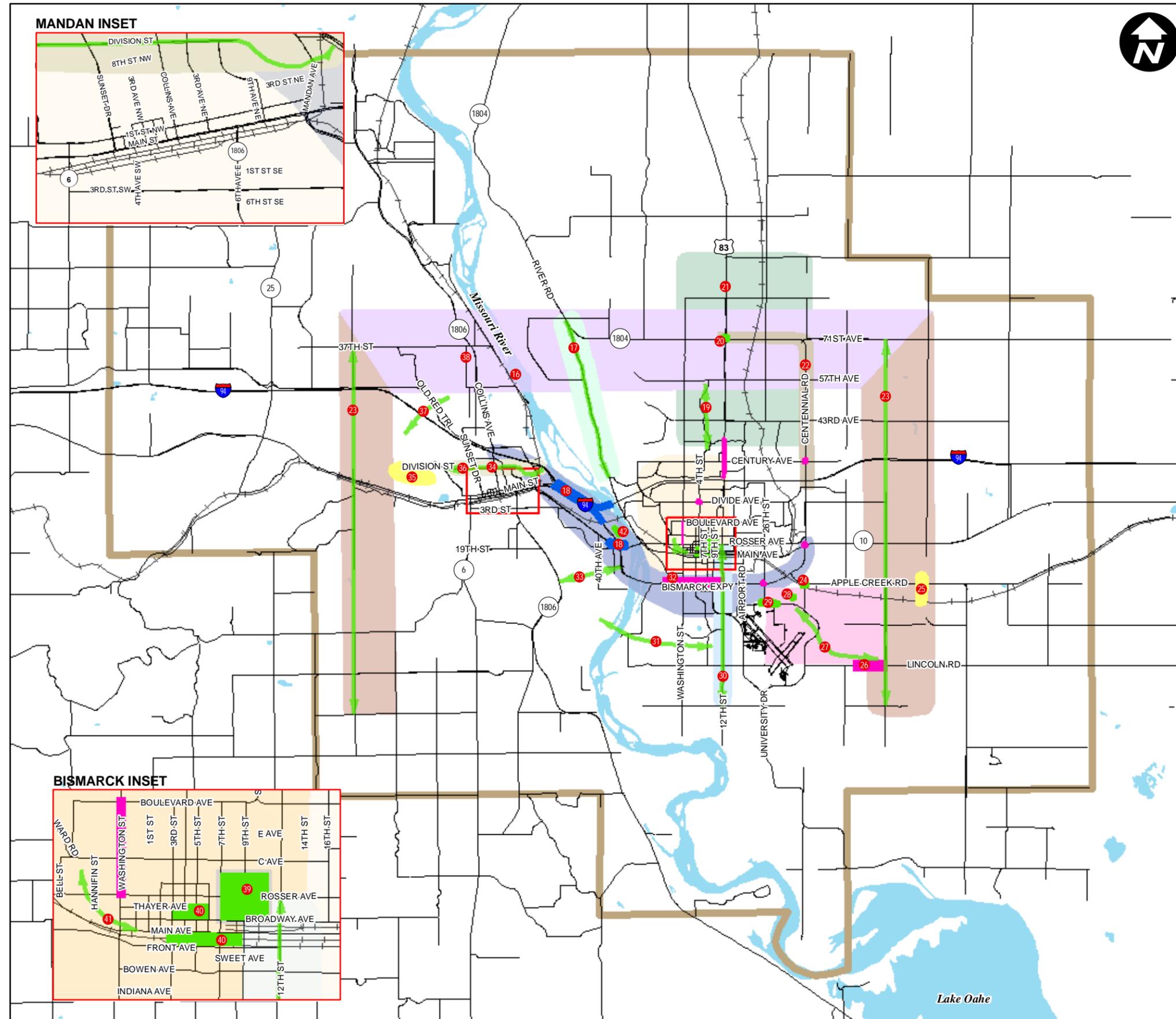
**Issue Type**

- Access/Continuity Issue
- Congestion Issue
- Environmental Issue
- Non-Motorized Issue
- Safety Issue

**Study Areas**

- 12th Street Corridor Study
- 71st-Centennial Corridor
- I-94/Bismarck Expressway Corridor Study
- Division Street Corridor Study
- Downtown Bismarck Parking Study
- Lincoln Connector Study
- N-S Beltway Study
- Northern Bridge Corridor Study
- River Road Corridor Study
- US83 Corridor Study
- West Side Study

Figure 2. Location Specific Issues Identified in Other Regional Transportation Studies





## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

---

**To:** File

**Date:** December 8, 2008

**Subject:** Bismarck-Mandan 2035 Long Range Transportation Plan  
Issues Identified by Community Committee

---

### ***OVERVIEW***

The purpose of this memorandum is to document to file the input received from the 2035 Long Range Transportation Plan (LRTP) Community Committee in regards to transportation issues in the Bismarck-Mandan region. This list was collected over the first three meetings held with the Community Committee, primarily the first meeting.

### ***IDENTIFIED ISSUES***

Those multi-modal issues that were identified by Community Committee members generally fell into one of four different categories:

- *Access / Continuity Issue*, typically identified gaps in the transportation system, locations of indirect travel.
- *Non-Motorized Issue*, including opportunities for improved connections and locations of deficiencies in the bicycle / pedestrian system.
- *Safety Issue*, for all modes of travel.
- *Traffic Generators*, new sources of traffic in the study area.

The committee-identified issues are described in Table 1 and illustrated in Figure 1. The issues in the table have an identifying location number associated with them, which corresponds with the labels provided in Figure 1.

**Table 1. Summary of Community Committee Transportation Issues**

<b>Location Number</b>	<b>Issue Description</b>
1	I-94 crossing desired south of Bismarck-Mandan
2	Look for a river crossing farther north
3	Lack of west Bismarck bicycle access
4	Improve northwest Bismarck connectivity
5	Improve Highway 10 connection to I-94
6	Desire to extend 37th Street
7	Desire for improved subarea access to Mandan
8	Desire for improved Lincoln connectivity to Bismarck
9	Desire for improved access to BSC and bowl
10	Lincoln transit service desired
11	University of Mary transit service desired
12	North-south discontinuities throughout Bismarck
13	More Heart River bridges desired
14	Desire for south river crossing
15	Speeding concerns on 7th Street / 9th Street
16	Concerns with safety and congestion
17	Concerns with safety, turning traffic and no shoulders
18	No shoulders along Highways 10 and 25
19	Desire to divert heavy trucks from Main Street
20	Desire to extend Divide Avenue
21	Pedestrian crossing conflicts with Bismarck Expressway
22	Improve southeast Mandan subarea connectivity
23	Improve Highway 6 connection to I-94
24	Desire for 24th Avenue interstate access
25	Desire for Mandan Avenue interstate access
26	I-94 safety concerns through Mandan
27	43rd Avenue / Centennial Road intersection safety concerns
28	Traffic generated from new elementary school
29	Concern about truck traffic increases with Northern Plains Commerce Center
30	Tyler Parkway / Century Avenue intersection safety concerns
31	Divide Avenue / 19th Street intersection bicycle safety concerns
32	Traffic generated from new middle school
33	Improve rural fire access to University of Mary



Legend

Community Committee Issues

- Access/Continuity Issue
- Non-Motorized Issue
- Safety Issue
- Traffic Generator

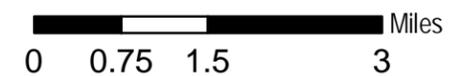
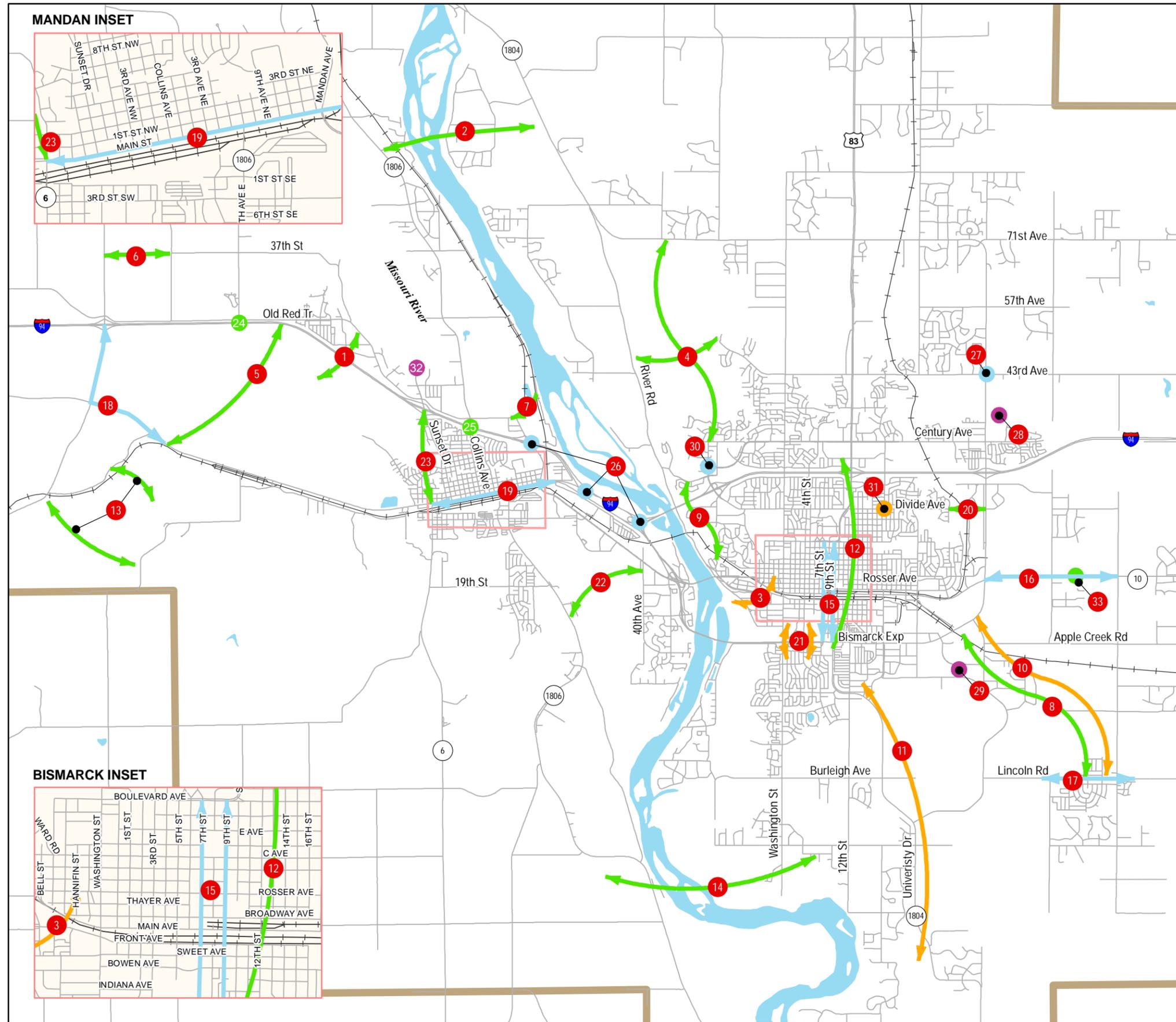
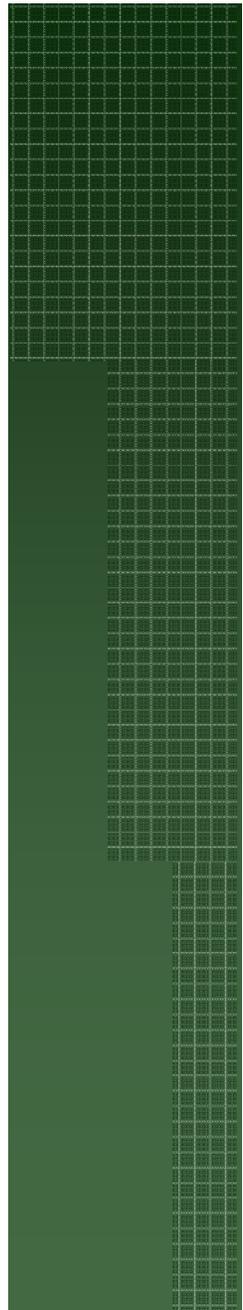


Figure. Community Committee Identified Transportation System Issues



**APPENDIX C**  
**TRAVEL MODEL VALIDATION**





430 IACC Building – Fargo, ND 58105  
Tel 701-231-8058 – Fax 701-231-1945  
[www.ugpti.org](http://www.ugpti.org) – [www.atacenter.org](http://www.atacenter.org)

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# Bismarck Mandan Travel Demand Model Construction and Calibration (2007 Base Case)

Draft Report

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July 2008

Prepared for:  
**Bismarck-Mandan Metropolitan Planning  
Organization**

Prepared by:  
Advanced Traffic Analysis Center  
Upper Great Plains Transportation Institute  
North Dakota State University  
Fargo, North Dakota

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## **1. Introduction**

This memorandum describes the process and methodology used in updating and validating the Bismarck-Mandan (Bis-Man) transportation planning model. The model was updated to support Bismarck-Mandan's long range transportation plan. This reference documents the underlying methodology and assumptions used in each major step within the model.

Travel demand models (TDM) are an important tool used in the transportation planning process to analyze alternative transportation policies and decisions. These models assume that travel demand in an urban area is related to its socioeconomic/land use intensity and characteristics, as well as its transportation supply. These relationships are the basis for developing the TDM.

The process typically involves the development and validation of a base year model that replicates existing traffic levels reasonably using available socioeconomic and land use data. Developing a reasonable base year model is crucial in projecting future transportation demand in the Bis-Man metropolitan area. Model parameters developed in the base year are used to predict future travel patterns based on forecasted future socioeconomic and land use characteristics of the Bis-Man urban area.

The TDM was validated to ensure that its output reflected the metropolitan area's existing traffic level data. All data input data used in the model was either provided by the Bis-Man Metropolitan Planning Organization (MPO) or generated by the Advanced Traffic Analysis Center (ATAC). The model was developed to run in the Citilabs TP+ modeling platform using its CUBE software product.

The process of constructing, calibrating, and validating the Bis-Man TDM consists of seven steps. An overview of these steps is provided below:

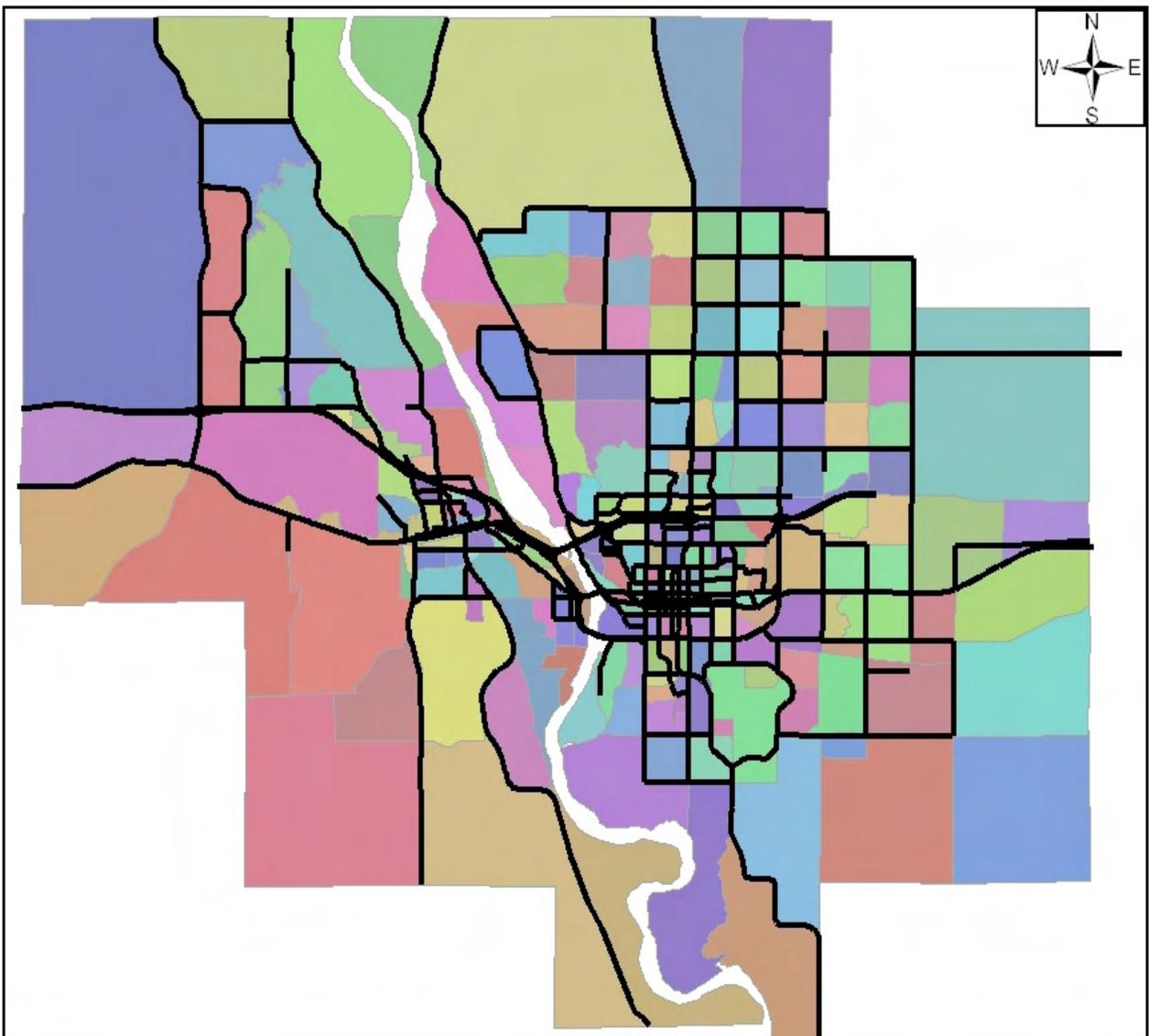
- Data preparation builds the transportation network, traffic analysis zones (TAZ) and socioeconomic data in a Geographic Information Systems (GIS) using ArcGIS. The GIS outputs are then transformed into formats compatible with CUBE and used as inputs to the TDM. Chapter 2 provides a detail description of data preparation.
- Trip generation uses static equations based on vehicle trip rates, employment and household size to compute trips generated for each TAZ. The output is a trip generation table containing the number of trips attracted to and produced by each TAZ. Chapter 3 discusses the trip generation step used in this model.
- Trip distribution pairs trips developed in the previous step to their proper origin-destination (O-D) locations. The output is an O-D matrix containing trip production and attractions between the different TAZs. A description of the trip distribution process is found in Chapter 4.
- Mode Split divides trips between the different transportation modes such as automobiles, transit, commuters etc. A discussion of this component is found in Chapter 5.

- Traffic Assignment is the last step in TDM and assigns the trips to the network links by minimizing travel costs. A further discussion of traffic assignment is found in Chapter six.
- Model Calibration and Validation adjusts the model parameters to replicate reported base year traffic levels and patterns within a reasonable deviation.
- User Guide provides a detailed explanation of the processes involved in executing the Bis-Man travel demand model with the CUBE software. A description of this process is found in Chapter 8.

## 2. Data Preparation

The data preparation step gathers all input data required to develop the model. Several different data including, network data, TAZ data, and socioeconomic data are developed in this step.

The Bis-Man TDM modeled network consists of a link-node system. Nodes represent intersections while links represent actual roadways on the network. The network was updated from the Bis-Man 2000 TDB network to reflect changes made since that time and reflects the 2007 base year (1). The network is first developed as two-way links in GIS and then converted to a format compatible with TP+ as one-way links. All the network variables are assigned generic names that are used throughout the rest of the modeling process. A total of 239 internal and 16 external zones were developed for the 2007 Bis-Man TDM compared to 187 internal used in the 2000 model.



**Figure 2.1. Bismarck-Mandan Transportation Network and TAZs.**

## 2.1 Speed and Capacity Calculations

Representing link capacities accurately is important in the modeling process since link volumes are assigned based on link travel costs (volume to capacity ratios). Link capacities were calculated based on either Highway Capacity Manual (HCM) procedures or the National Cooperative Highway Research Program 365 (NCHRP 365) procedures. The HCM procedure calculates link capacities based on the links functional class, its intersection geometry, and the area in which the facility resides.

For interstate highways, HCM capacities based on the number of lanes and area type (rural or urban) where the facility resides (2). For all other link functional groups, NCHRP 365 capacities based on the number of through lanes, number of turn lanes and the facility type were used, as shown in Table 2.1. (3).

Table 2.1. Modeled Capacities for Bismarck-Mandan Travel Demand Model.

		Capacities (Vehicle/Hour/lane)				
		Functional Class	One Lane	Multi Lane (Per Lane)	Each Additional lane	Each Right Turn Lane
<b>Rural</b>	Interstate	-	1,800	-	-	-
	Non-Interstate	1,500	1,700	-	-	-
<b>Urban</b>	Interstate	-	1,700	-	-	-
	Major Arterial/ Oneway	1,000	-	800	300	75
	Minor Arterial	675	-	600	200	75
	Collectors/ locals	450	-	400	100	75

Speed data was input into the network using a table of values based on the number of lanes, functional class, and area in which the facility resides. The table comprised of average speed values determined through a speed study that was conducted in Bismarck in 2000. The speed study area consisted of links of different number of lanes, functional classes and area types (Figure 2.1.). The study included 20 runs through a 15 mile loop beginning at node one, and ending at node 10. The average speeds from this study were later on used to adjust posted speeds in the calibration step of the model to reflect trip making behavior in the area. Further discussion of global speed adjustment is contained in Chapter 7.0 of this document.

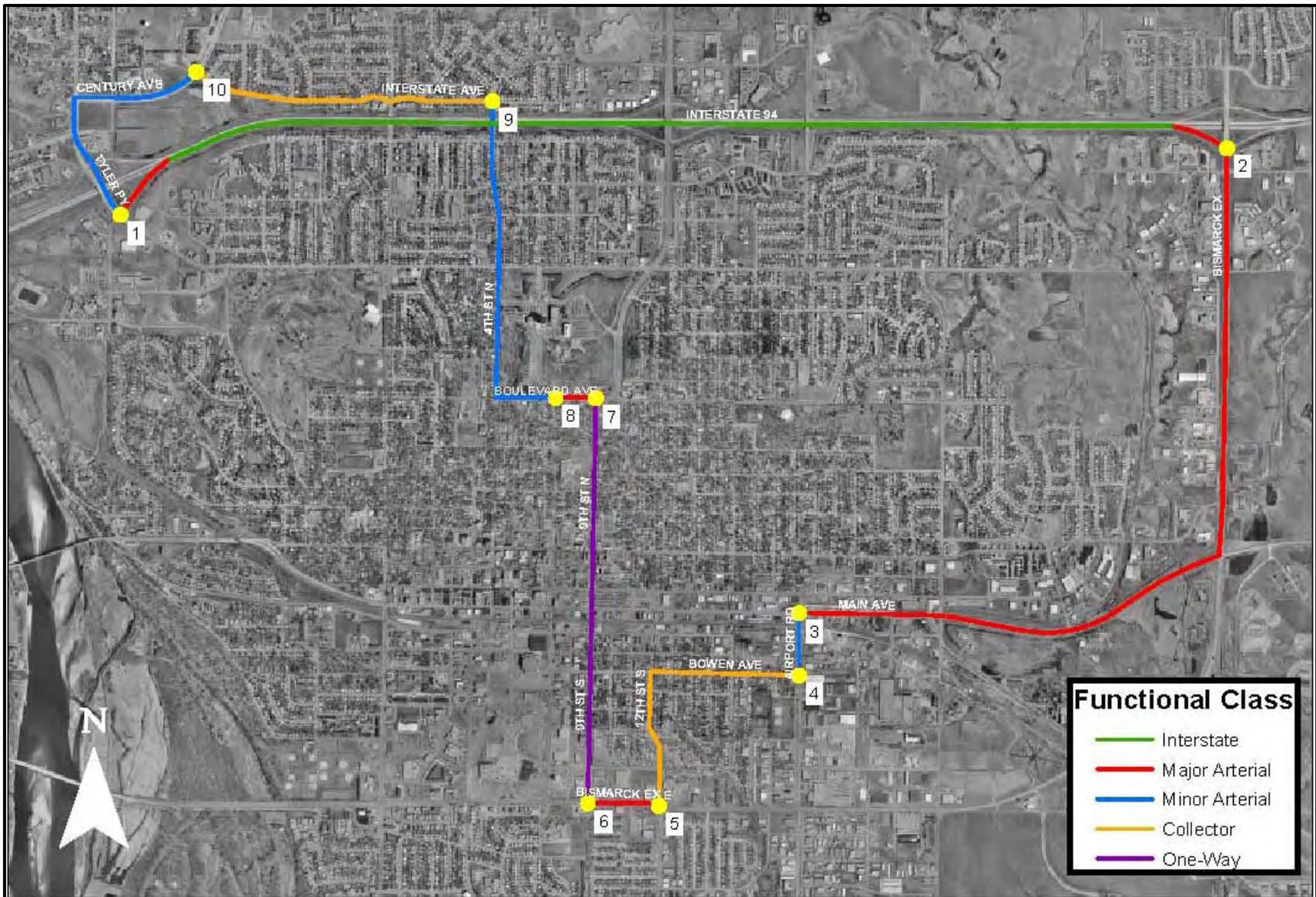


Figure 2.2. Travel Time Study Location.

### **3. Trip Generation**

Trip generation is the next step within the TDM and estimates the intensity and type of trip making activity for each traffic analysis zone (TAZ). Travel demand is assumed to be derived demand, i.e., the demand for travel arises due to the demand for other goods and services. Transportation demand being derived demand forms the basis of developing trip generation equations. Using zonal socioeconomic and land use data/intensity, we can reasonably estimate the average number of trips being attracted or being produced within each TAZ. Trip productions are associated with residential household characteristics such as number of households, average household sizes, income levels and automobile ownership rates. Trip attractions are related to commercial activity within each TAZ and use variables such as number and type of jobs, to estimate the number of trips attracted to that TAZ. The output from this step is a table listing the number of zonal productions and attractions for each trip purpose. The next sections describe the methods and procedures used in the trip generation step for the Bis-Man TDM.

#### **3.1 Production Computation for Internal Zones**

The number of trips produced within each TAZ was estimated by applying a person trip rate to the number of households in the TAZ. The household data consisted of 2007 total number of household/TAZ data compiled by the Bis-Man MPO.

The number of individuals per household influences the number of trips being made by each household. For example, a five person household is expected to make more trips than a one person household. The total number of households/TAZ data were disaggregated to generate persons/household/TAZ data based on 2000 census averages. The following five categories were created from the disaggregation:

- Households consisting of 1 person,
- households consisting of 2 persons,
- households consisting of 3 persons,
- households consisting of 4 persons, and
- households consisting of 5 or more persons.

These five household categories were used to determine the number of trips for three different purposes; home base work (HBW), home based other (HBO), and non home based (NHB) trip productions. The number of trips produced for each purpose per TAZ was found by multiplying the total number of households in each TAZ by the appropriate rates from NCHRP 365 as shown in Table 3.1. These trips produced by each household group were summed together and divided by the appropriate occupancy rates to acquire the HBW, HBO, and NHB vehicle trip productions for each zone.

Table 3.1. Trip Estimation Variables by Urban Size Population of 50,000-199,999

Household (HH) Size	HH in Each HH Category	Average Daily Person Trips Per HH	Average Daily Person Trips By Purpose		
			HBW	HBO	NHB
1	28.0%	3.7	20%	54%	26%
2	34.5%	7.6	22%	54%	24%
3	15.6%	10.6	19%	56%	25%
4	14.0%	13.1	19%	58%	23%
5+	7.9%	16.6	17%	62%	21%

Source: NCHRP 365, Report 365, Table 5 (3).

### 3.2 Attraction Computation for Internal Zones

To calculate internal trip attractions, each TAZ within the planning area is classified as being within a Central Business District (CBD) or a Non-Central Business District (NCBD) area. Trip attraction equations developed in NCHRP 365 were used to determine attractions for each of the three purposes for CBD and NCBD areas.

Table 3.2. Person Trip Attraction Rates

Trip Purpose	CBD Zones	NCBD
<b>HBW</b>	1.45 x TE	1.45 x TE
<b>HBO</b>	2.0 RE + 1.7 SE + 0.5 OE + 0.9 HH	9.0 RE + 1.7 SE + 0.5 OE + 0.9 HH
<b>NHB</b>	1.4 RE + 1.2 SE + 0.5 OE + 0.5 HH	4.1 RE + 1.2 SE + 0.5 OE + 0.5 HH

Source: NCHRP 365, Report 365, Table 8 (3).

Where,

TE = Total Employment

RE = Retail Employment

SE = Service Employment

OE = Other Employment and

HH = Households

### 3.3 University Trip Productions and Attractions

To account for different trip making behaviors for colleges, special trip rates were developed for Bismarck State College and the University of Mary. These rates were based on the available number of parking spots, the percentage of these parking spots available to students and the number of on and off-campus students enrolled in each university. Equations for college trip generation rates were developed by ATAC (Table 3.3.). Trip productions and attractions for the TAZs containing the universities were calculated by multiplying the appropriate rate with the 2007 enrollment for each university.

Table 3.3. University Trip Production and Attraction Rates

<b>Trip Purpose</b>	<b>Rate</b>	<b>Student Residence</b>
HBW Productions	0.32	On Campus
HBO Productions	0.98	On Campus
HNB Productions	0.34	Total Students
HBW Attractions	0.6	Total Students
HBO Attractions	0.88	Total Students
NHB Attractions	0.34	Total Students
NHB Attractions	1.44	Off Campus Students

### 3.4 Airport Trip Generation

To account for trips using the Bismarck Municipal airport, special trip rates were developed to accurately model these trips. For year 2007, the Bismarck Municipal airport had 181,762 enplanements. Daily HBO and NHB trips attracted to the TAZ (160) which contains the Bismarck Municipal Airport were found by dividing the yearly enplanement by 365, and then multiplying by a trip rate obtained from ITE's Trip Generation Manual (4). This trip rate was adjusted until the trip making behavior closely matched the airport's average daily traffic counts.

### 3.5 External Trip Generation

Trip generations for trips with at least one trip end out of the Bismarck-Mandan metropolitan area were calculated differently for internal-internal trips. Trips that pass through the Bis-Man area without stopping are considered as external-external (E-E) trips. These trips are assumed to make up 10% of Interstate and Highway 83 traffic. This percentage is applied to average daily traffic (ADT) volume counts on the links at the external zones for I-94 and Highway 83 to generate E-E trip productions and attractions.

Trip generations for trips that have only one trip end in the study area are calculated using a special methodology. These trips are defined based on whether they originate (productions) or terminate (attractions) in the study area e.g., internal-external (I-E) or external-internal (E-I) trips. To compute these trips, I-E and E-I volumes were set to the traffic volume counts of the link connecting to each of the 16 external TAZs. It was assumed that I-E trips made up 20%, while E-I trips made up 80% of ADT volume counts for each TAZ.

For the 286 interior zones, the I-E productions was simply set to the addition of HBW and HBO production trips that were generated by each zone. Internal-external attractions were set to the sum of HBW and HBO attraction trips generated from the equations described in Table 3.2. A special methodology was used for TAZ 160, which contains Bismarck Municipal Airport, to make this zone more attractive for external zones. An airport survey was conducted to determine the areas that have the most concentration of airport trip generation. This percentage of traffic originating or designating outside the planning region was applied to the airport's I-E productions and attractions.

### 3.6 Balancing Productions and Attractions

The total number of trips produced by households is expected to equal the total number of trips attracted at activity centers. In the TDM process, each production must be matched to an attraction; however, most TDM attractions and productions do not match. This is due primarily to errors arising when estimating total households and jobs and their various characteristics. Trip generation equations also contribute to this imbalance to a lesser extent. To correct for this imbalance, trip attraction and production totals for each purpose are adjusted so they equal each other (Table 3.4.).

Table 3.4. Total Number of Unbalanced Productions and Attractions by Purpose

<b>Trip Purpose</b>	<b>Total Productions</b>	<b>Total Attractions</b>
HBW	62,503	77,639
HBO	178,937	173,164
NHB	73,488	104,614
Internal-External	241,440	259,981

For HBW, HBO, and Internal-External trips, total attractions are scaled to equal total productions. This is because household data is generally assumed to be more accurate than employment data. This is done by dividing the total number of attractions by the total number of productions to generate a control factor. Zonal attractions for each purpose are then multiplied by the control factor to obtain balanced trip productions and attractions (Table 3.5).

NHB and Internal-External (I-E) trips used a different methodology to adjust the productions and attractions. NHB trips were adjusted by averaging the production and attraction trips. It was assumed that for I-E trips, 80% were produced to the external zone while 20% were attracted and IE trips were calibrated to the average daily traffic on each link.

Table 3.5. Total Number of Balanced Productions and Attractions by Purpose

<b>Trip Purpose</b>	<b>Total Productions</b>	<b>Total Attractions</b>
HBW	62,503	62,503
HBO	178,937	178,937
NHB	90,551	90,551
Internal-External	33,180	33,180

#### 4. Trip Distribution

Trip distribution is the second computational step in the travel demand modeling process. This step pairs trip productions to the trip attractions between each zonal pair in order to define a trip. The gravity model was used in the Bis-Man TDM for trip distribution. The gravity model distributes trips between zonal pairs based on the attractiveness (intensity of land use) of each zone and the spatial separation between the zones. Zonal number of trip productions and attractions, friction factors and a socioeconomic (K) factors are the main variables used in the gravity model. The gravity model equation used to distribute trips for this model (equation 4.1)

$$T_{ij} = P_i \left[ \frac{A_j F_{ij} K_{ij}}{\sum A_n F_{in} K_{in}} \right] \quad \text{equation 4.1}$$

Where,

$T_{ij}$  = The number of trips assigned between Zones  $i$  and  $j$ ,

$P_i$  = Number of Productions in Zone  $i$ ,

$A_j$  = Number of Attractions in Zone  $j$ ,

$F_{ij}$  = The Friction Factor, and

$K_{ij}$  = A scaling socioeconomic factor used in calibration to influence specific  $ij$  pairs.

Socioeconomic factors (K factors) are trip distribution factors that adjust total trip distributions between defined regions in the model. K factors are discussed in more detail in chapter 7.

Friction factors used in the Bis-Man TDM are the main independent variable in the gravity model and measure the impedance to travel. The impedance used for all trip purposes was travel time and includes not only the drive time but also the origin, destination, and terminal times. For the initial iteration, free flow travel times are used for calculating impedance. The model is run a second iteration, using output congested speeds from the first iteration. This allows a continuous function for the friction factor without any irregularities. Friction factors make short trips more desirable and the benefit decreases as the trips get longer.

The 2000 Census data (the year with the most recent census information) was used to determine a trip length distribution based on the travel time for work trips. The friction factors were then calibrated until the model was replicating this curve. The NHB trips and HBO trips are estimated at 80% of the length of the average work trip length. Friction factors were calibrated to replicate these shorter trips.

## **5. Mode Split**

Mode choice and mode split models are traditionally used to determine the number of trips using each different mode. Since the area has an extremely low percentage of public transit use, automobiles are the only mode choice in this transportation model.

### **5.1 Origin-Destination Calculations**

Before traffic assignment step can be performed, the daily trips need to have a starting and ending or origin-destination location. This is achieved by added together half of the production attraction matrix and half the transposed production attraction matrix. Using this method, it is assumed that half of the trips go from production to attraction and half of the trips are returning from the attraction back to the production zone.

## 6. Traffic Assignment

Traffic assignment is the last computational step of Bis-Man TDM provides the final output of the modeling process. This output is used to validate the models ability to replicate observed travel in the base year. The user equilibrium traffic assignment method built into TP+ was used for this model. The main assumption of this method is that travelers are rational and will act in a way that minimizes their transportation cost (travel time). This method is an iterative process which converges when no traveler can improve their travel time by changing their path.

The traffic assignment step begins with origin-destination (O-D) matrixes which contain the volumes that are to be assigned to the network. Travel time for the first iteration was set to the free flow travel time for the first iteration while the hourly capacity was multiplied by 7.5 to reflect actual daily capacities in each modeled link.

A capacity constrained function, which approximates the equilibrium of congested travel paths in the network, was used to correctly model the impacts of congestion on travel times. The Bureau of Public Roads (BPR) function was used to account for the reduction in travel speeds caused by congestion (equation 6.1). The BPR function is set up such that as traffic volumes increase, travel speeds decrease, and travel time increases due to increased congestion. The travel time is adjusted between O-D pairs between iterations until there was no available path that could reduce the travel cost between the pairs. If the system has significant congestion, it may be impossible to reach a state of equilibrium.

$$T_t = T_f \times \left( 1 + \alpha \times \left[ \frac{v}{c} \right]^\beta \right) \quad \text{equation 6 .1}$$

Where,

$T_t$  = congested travel time,

$T_f$  = link free-flow travel time,

$v$  = assigned link traffic volumes,

$c$  = link capacities, and

$\alpha, \beta$  = volume/delay coefficients

The output from the trip assignment is modeled traffic volume on each link. To ensure that the model replicates counted ADT reasonably, the model's parameters are adjusted as described in the next chapter.

## 7. Model Calibration and Validation

Calibration is the final step in the development of travel demand models. Figure 7.1. shows the conceptual framework ATAC used in calibrating the Bis-Man TDM. Several criteria discussed in the next sections are used to calibrate and validate TDM.

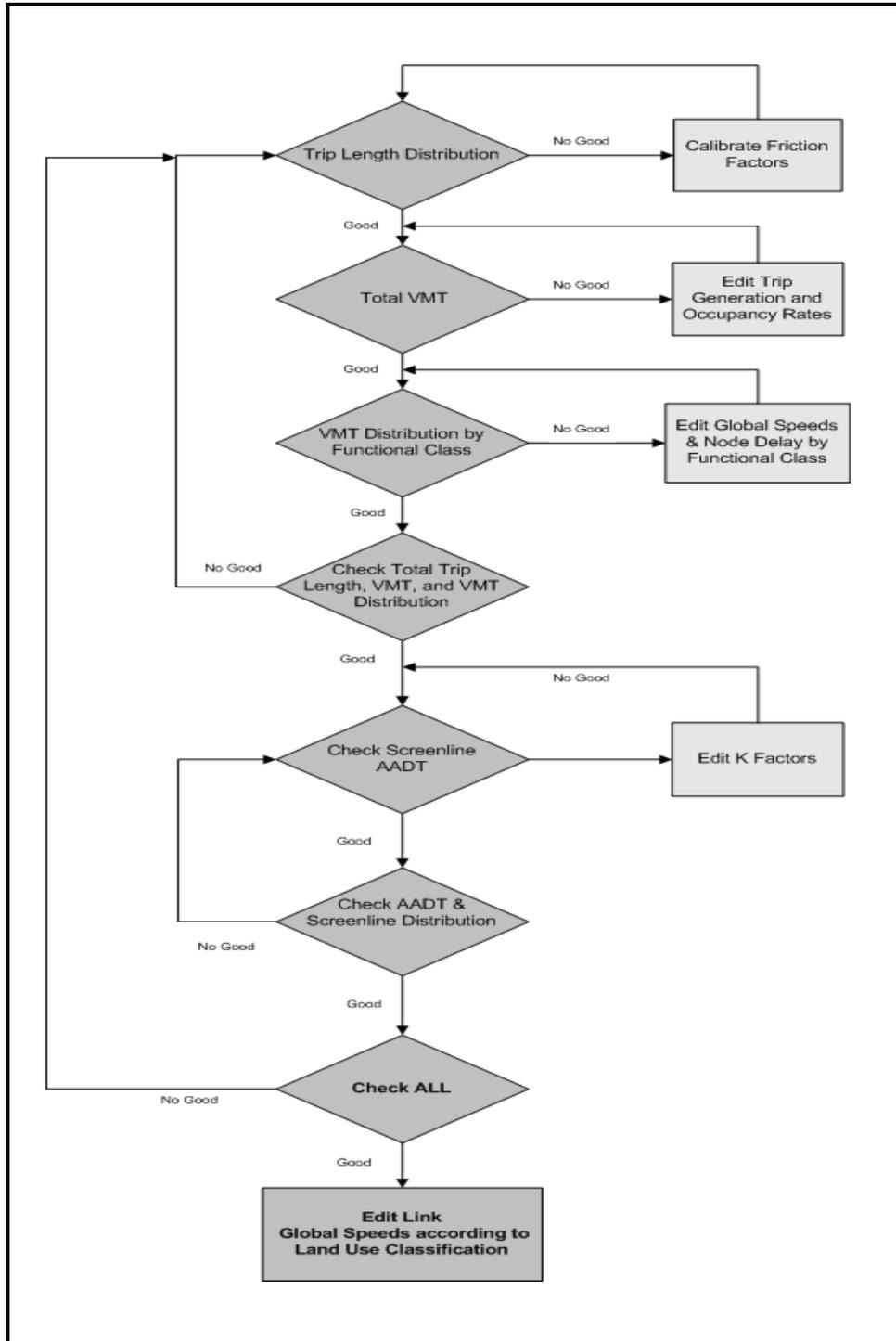


Figure 7.1. Bis-Man TDM Calibration Flow Chart

## 7.1 Trip Length Distribution

The first stage of calibration verifies whether the modeled vehicles trips are similar in length to observed trip lengths made in the area. Information regarding trip lengths for trip times ranging from 0-45 minutes were found using 2000 Census Transportation Planning Package (5). Shorter trips tend to occur more frequently than longer trips; therefore the transportation model needed to represent this trend. ATAC compared the modeled HBW, HBO, and NHB trip lengths to the 2000 Census data. If the modeled trend did not follow the 2000 Census data trend, ATAC adjusted friction factor coefficients until the model resembled, as closely as possible, the 2000 Census data. The targets for the trips were as follows: HBW-100%, HBO-80.0% of the 2000 Census data, and NHB-80.0% of the 2000 Census data. HBO and NHB trips were modeled as 84.3% and 83.5% of the HBW data, respectively (Figure 7.2.).

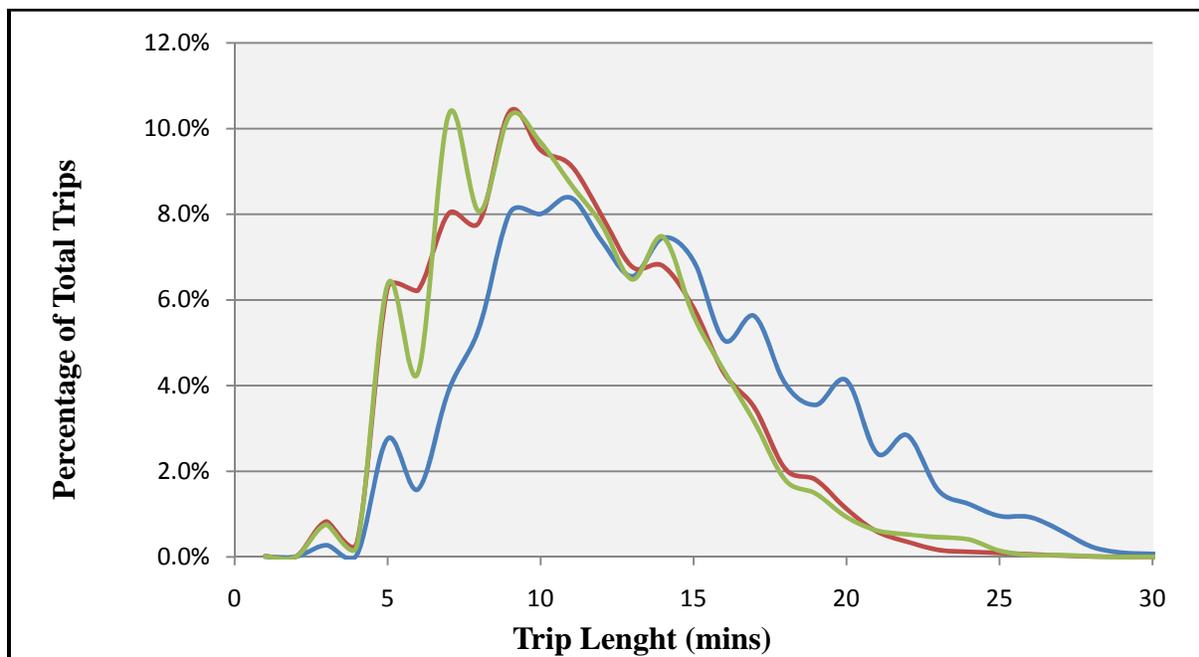


Figure 7.2. Final Trip Length Distribution Graph

## 7.2 Total Vehicle Miles Traveled (VMT)

Vehicle miles traveled (VMT) is the total number of miles traveled by road users. It is a function of the number of trips generated and the length those trips travel between their various O-D pairs. If the values differed between the modeled VMTs and actual values estimated in the field by the North Dakota Department of Transportation (NDDOT), trip generation and occupancy rates were adjusted until the modeled VMT were similar to the NDDOT VMTs. The modeled VMT closely replicate the field VMT data (Table 7.1.).

Table 7.1. VMT Comparison by Jurisdiction

	<b>Reported VMT</b>	<b>Modeled VMT</b>	<b>Difference in VMT</b>	<b>Percent Difference</b>
<b>Bismarck</b>	865,404	831,116	-34,288	-4.1
<b>Mandan</b>	339,784	330,633	-9,151	-2.8

### 7.3 Screenlines

Screenlines are natural and artificial barriers to travel such as rivers and interstates that restrict movements between two regions in the urban area. This restriction causes movement between these two regions to be restricted on certain routes and form an important part in calibrating and validating TDMs. Four screenlines, Interstate 94, Missouri River, the railroad and the downtown cordon area, were used as screenlines for this model. K factors were adjusted accordingly to either increase or decrease modeled volumes on the screenlines to match as closely as possible counted ADT volumes. The goal of this process was to minimize the deviation between modeled screenlines and counts along the screenline.

After achieving an accurate screenline distribution, the calibration process was repeated starting with checking the trip length distribution, until all the successive calibration components were completed. Table 7.2 documents the K factors used in the transportation model and the screenline comparisons between the counted and modeled volumes.

Table 7.2. K Factors and Screenline Comparisons

<b>Screenline</b>	<b>K Factors</b>	<b>Modeled ADT</b>	<b>Counted ADT</b>	<b>ADT Difference</b>	<b>Percent Difference</b>
<b>Railroad</b>	1	151,800	150,175	-1,625	-1.08
<b>Missouri River</b>	0.24	55,600	58,100	2,500	4.30
<b>Interstate 94</b>	1.2	89,200	89,700	500	0.56
<b>Cordon</b>	1.5	202,800	201,325	-1,475	-0.73

### 7.4 Network-wide Adjustment and Validation

The final phase of calibration and validation was to compare the modeled traffic volumes to network links with traffic counts from the field. The goal was to maximize the number of modeled links that replicate observed travel behavior. If modeled network link volumes in a region were found to deviate significantly from field traffic counts, global speeds were adjusted accordingly (increased or decreased) based on the facility types to correct for this deviation. The percentage of links that meet link volume criterion based on functional class are shown in Table 7.3. (6).

Table 7.3. Model Assignment by Facility Type

<b>Functional Class</b>	<b>Above Criteria</b>	<b>Meets Criteria</b>	<b>Below Criteria</b>	<b>Percent Within Criteria</b>	<b>RMSE</b>
<b>Freeway</b>	0	17	0	1	0.148
<b>Major Arterials</b>	10	97	3	88.2	0.286
<b>Minor Arterials</b>	28	140	22	73.7	0.752
<b>Collector</b>	19	112	32	68.7	0.940
<b>Total</b>	57	373	65	75.4	

A comparison of modeled and counted ADTs by volume range was also performed as part of the validation process. North Dakota preset criteria were used to evaluate traffic assignment by volume range. The overall objective is to maximize the number of links that meet the ND preset criteria. The preset criteria were met on 75% of all links in the study area as shown in Table 7.4.

Table 7.4. Model Assignment by Volume Range

<b>Volume Range</b>	<b>Above Criteria</b>	<b>Meets Criteria</b>	<b>Below Criteria</b>	<b>Percent Within Criteria</b>	<b>ND Criteria Percent Deviation</b>
<b>ADT&gt;25,000</b>	0	6	0	100	±22
<b>20,000 to 15,000</b>	3	13	1	76.5	±25
<b>25,000 to 10,000</b>	2	53	16	74.7	±29
<b>10,000 to 5,000</b>	12	122	24	77.2	±36
<b>5,000 to 2,500</b>	16	91	10	75.2	±47
<b>AADT&lt;2500</b>	24	88	14	69.8	±60
<b>Total</b>	57	373	65	75.4	

Deviations between modeled and counted ADTs on each link are another technique used to validate TDMs. Root mean square error (RMSE) is a goodness of fit statistical measure that estimates the difference between predicted and observed values (7). RMSE was the method used to estimate the average variations between ADT counts and modeled volumes for this model. RMSE were calculated by volume class and shown in Table 7.5. RMSE by volume class shows that the model performs within generally accepted limits for all volume ranges.

Table 7.4. Root Mean Square Error Comparison by Volume Range

	Root Mean Square Error	Typical Deviation Limits
<b>AADT&gt;25,000</b>	4.2%	15-20%
<b>10,000 to 25,000</b>	24.4%	25-30%
<b>5,000 to 10,000</b>	32.7%	35-45%
<b>2500 to 5,000</b>	46.6%	45-100%
<b>1,000 to 2,500</b>	88.8%	45-100%
<b>AADT&lt;1000</b>	130.3%	> 100%

Figure 7.3. shows the distribution of the model links by volume range. This graph may be helpful to visually examine that the majority of the modeled links are meeting criteria and it is important to note that outliers are expected.

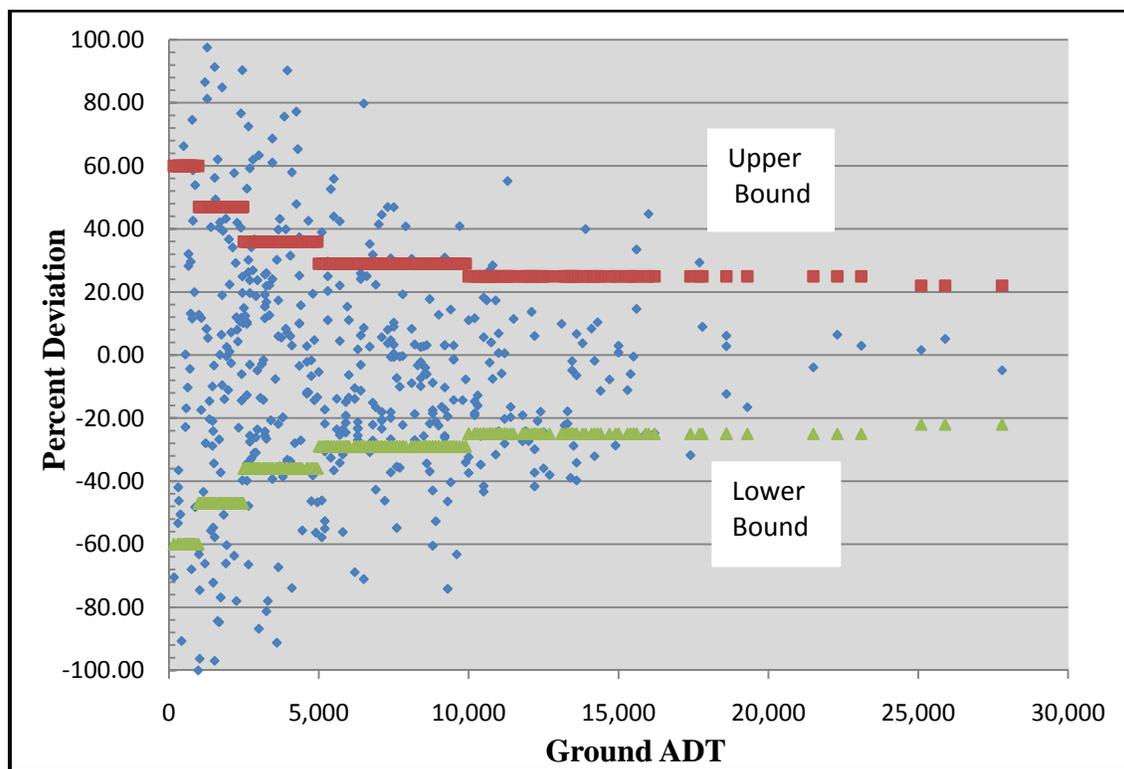
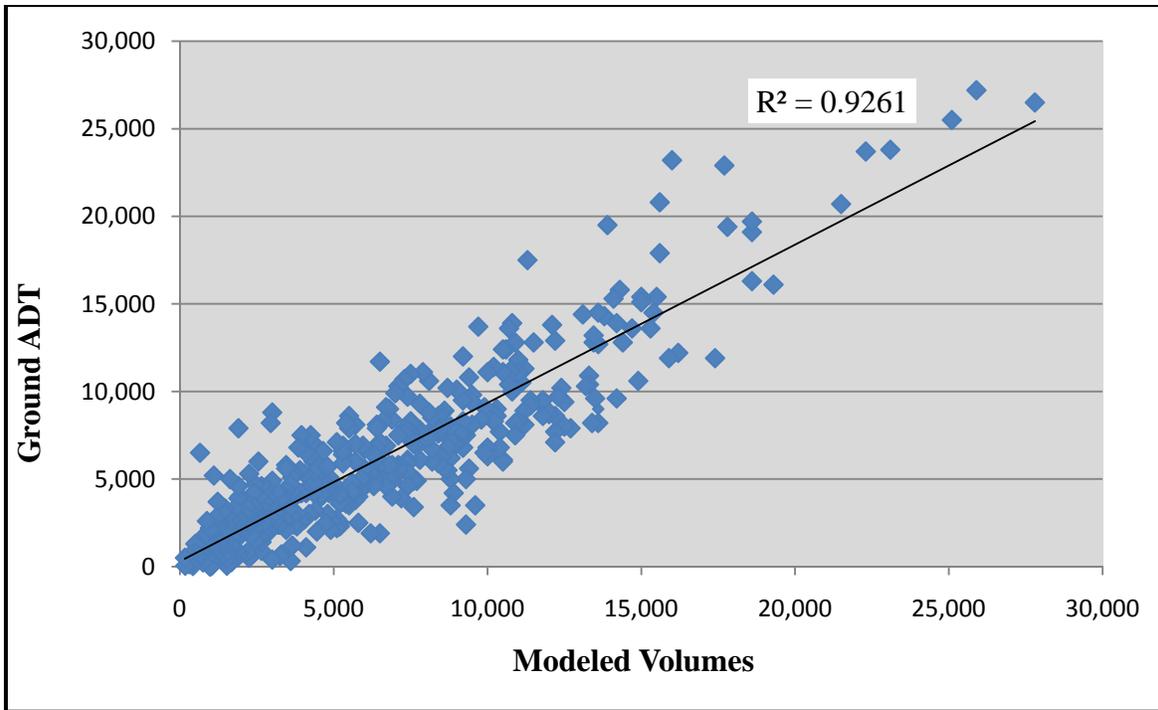


Figure 7.3. Link Distributions by Volume Range

The correlation coefficient between counted and modeled volumes for each link is an important measure of how well the model is replicating existing traffic conditions. The coefficient of determination ( $r^2$ ) is the measure used to quantify this relationship. Guidance published by USDOTs Travel Model Improvement Program suggests  $r^2$  values of at least 0.88 (6). The  $r^2$  value between observed and modeled volumes exceeds this threshold value at 0.92 as shown on the scatter plot in Figure 7.4.



**Figure 7.4. Scatter Plot of Observed ADTs and Modeled Volumes**

## 8. User Guide

This chapter serves as a guide to users that explains the execution process involved in Bismarck-Mandan's travel demand model. The following font style will be used for identification of various model files:

- Model input files: **Bold Characters**
- Model output files: *Italicized & Underlined Characters*

### 8.1 Introduction

Bismarck-Mandan's travel demand model is completely developed within Citilabs' Cube software and is run using Citilabs' TP+ software. CUBE enables the user to view and edit input and output files. Unlike using only TP+, CUBE also allows users the option to organize the model script. ATAC has organized and labeled each major step occurring throughout Bismarck-Mandan's travel demand model. This will help the user of the model to efficiently understand each process involved.

### 8.2 Model Description

Bismarck-Mandan's travel demand model is broken down into three main subgroups, first iteration, final iteration, and final assignment. First iteration uses the input network, TAZ data, job data, and travel time data to direct the following processes:

- Data Preparation
- Trip Generation
- Gravity Model
- Change Production/Attractions to an Origin-Destination Matrix
- First Assignment

During the final iteration a second gravity model is performed and the final production attraction file is changed to an origin destination matrix. Final assignment portion is described in Section 8.6.

### 8.3 Network Construction

The base network has been completely constructed using ESRI's ArcGIS software. Each network file has corresponding point shape files that show the interior Traffic Analysis Zones (TAZ), model nodes, and exterior zones. The network and the point shape files are connected to each other based on the A and B fields which give the names of the important fields in the network file with a corresponding description (Table 8.1.).

Table 8.1. ARCGIS Network Field Variables and Descriptions

Field Name	Description
Name	Specifies the roadway name
Speed	The link posted speed
A	Specifies the link starting node number
B	Specifies the link ending node number
Lanes/R_Lanes	Specifies the number of lanes contained on each link
A_	Identical to the “A” node field. It is used to determine the primary direction in CUBE.
Enabled	This should be left as the default value “True”
Modeled	Separates the roadway links from the pseudo links according to the following code: 0-Modeled Roadway Link 1-Pseudo Link
Direction/R_Direction	Specifies the direction of vehicle travel according to the following code: 2-Eastbound Link 4-Northbound Link 6-Westbound Link 8-Southbound Link
Assigngroup	Link Functional Class according to the following code: 1-Interstate 2-Major Arterial 3-Minor Arterial 4-Collector 5-Pseudo Link 6-One-Way
AreaType	Area Classification where the facility resides according to the following code: 1-Downtown 2- Industrial or Commercial 3- Residential 4-Industrial or Commercial 5-Rural
Oneway_Two	Indicates if the link is a one-way or bi-directional link.
City	Region where the link resides according to the following code: 0-Rural 1-Bismarck 2-Mandan
R_TUR_L /R_TUR_L	Indicates the number of turn lanes at intersection

A network file for the model is generated from an exported base network shape file using TP+ software. The first step in generating the network file is to open the exported shape file in TP+. Next, select “Build Network from Shape” under the “GIS tools” menu. A pop-up window will ask where the new network file should be placed and the file’s name. Name the file and place it into the input folder and click open. After specifying the name and input location, another window will pop open and it will ask to specify values for each field. Table 8.2. serves as a guide for providing the important field values. Once the fields are updated, click “build” and the new network file will be generated.

Table 8.2. Build Network from Shape File Option Values

Field Name	Specified Input Value
A-Node Field Name	A
B-Node Field Name	B
Clear All values in the A-Node and B-Node field first	Box should remain unchecked
1-Way/2-Way Options	Check “Use Indicator Field” Use OneWay_Two.
Add Distance Field	Leave Unchecked
Scale	Leave as default value of 1.0
Do Not Add Distance Field	Leave Checked
Node Grouping Limit	Leave as default value of 1.0
Starting New Node Number	Leave as default number.
Highest Zone Number	300

## 8.4 Folder Structure

A folder system has been established to efficiently organize the input, program, and output files. Each application uses input files found only in the “input” folder and any application, program, or script files used are located in the folder titled “programs”. Once the application has been run, any output files may be retrieved in the “output” folder.

There five main input files are found in the “input” folder and these files are the only ones that may need to be updated to run future travel demand models. The following section will describe how each file was generated and names for each of the necessary input files.

### 8.4.1 Road Network

The base network called **2007basenet.net** allows the user to make changes to the network by changing the links and nodes within CUBE. Link attributes such as area type (areatype), number

of lanes (lanes), or functional class (assigngroup) may be changed for future networks at anytime if needed. By running the model the speed and capacities will be updated. Also a turning movement penalty file, *penalty.pen*, will be created that will allow a more accurate distribution of traffic through the network.

#### **8.4.2 Socioeconomic Data**

The Bismarck-Mandan model area was subdivided into 286 interior Traffic Analysis Zones (TAZ). Currently, 47 of those zones are pseudo zones so that in case there is a need to change the zonal node structure, it could be done without disrupting the node numbers. Socioeconomic data for these zones includes number of households, population, and the number of retail, service, and other jobs located within each in zone. **2007 TAZ DATA.dbf** and **2007PROJECTIONS.dbf** are the two input files that contain the necessary information for the trip generation step. TAZ data, located in **2007 TAZ DATA.dbf**, is used to establish relative variables for each zone. This data will most likely never be changed by the user. The input file **2007PROJECTIONS.dbf** contains the data that must be changed for each forecast year.

#### **8.4.3 External Traffic Analysis Zone (TAZ) Data**

External Traffic Analysis Zones (TAZ) ranging from TAZ 188 to TAZ 203 was established on the exterior of the model. Each of these exterior zones connects to an internal zone and external traffic is input into the network through these links. The amount of traffic generated by each zone is dependent upon the average daily traffic count (ADT) for each roadway. A dbf formatted file named **2007 externalADT.dbf** was created containing each external TAZ number with a corresponding ADT count. This data is used during the Trip Generation process to set the correct internal-external (IE) trips and external to external trips.

#### **8.4.4 Terminal Times**

A terminal time file, **TerminalTimes.dbf**, was established to add in origin, destination, and terminal times to the vehicle travel time file. The total travel time file will be used during the Trip Distribution step to distribute the trips to their proper origin destination (O-D) location.

Program files are the backbone to the model and the “Program” folder files should never be deleted unless the user is certain the files are unnecessary. Output files are described in more detail in Section 8.6.

### **8.5 Key Fields**

The CUBE software also enables the user to establish key parameters used in the model. These key parameters are unique to each scenario and are used to establish locations for file paths or make it convenient to adjust dynamic parameter values. These parameters may be changed or updated on the main CUBE screen and there is no need to change their value in the model code (Table 8.3.).

Table 8.3. Key Fields and their Descriptions

Key Field Name	Description
Scen.Name	Current selected scenario name
Network	Path to input network
TermTimes	Path to Terminal Times DBF
IOPath	The Path to the Working Directory which contain scenarios, input, and output folders
TAZ Data	Path to TAZ data DBF File
TAZ Projection	Path to TAZ Projections DBF File
ExTrips	Path to External Trips DBF File
Thru Trips	The Percent of Thru Trips
Year	Forecast Year
BSC On-Campus Enrollment	List known enrollments
BSC Off-Campus Enrollment	List known enrollments
Enplanements	List known enplanements
Select Link	Enter the TP+ code specifying links, nodes, or zones for the select link analysis see the “HwyLoad Module” in TP+ User Manual
Sub Area	Path to the Sub-Area Network
Total Zones	Enter the Total Number of Zones
Begin_External	Enter the lowest external zone number
Internal_Zones	Enter Highest internal zone number
U of Mary Off-Campus Enrollment	List known enrollments
U of Mary On-Campus Enrollment	List known enrollments

## 8.6 Final Assignment

ATAC has established 4 different model options to simplify the verification of the model results. The model options include: network file, trip length distribution, screenline volumes and vehicle miles traveled. Each option runs the final assignment module but outputs a different text or network files. The following section will describe each of the four options and the output files that are produced in each.

### 8.6.1 Network File

This option outputs a network file named *Loaded.net*. This network file was created using TP+. Table 8.4 shows output field names along with a short description.

### **8.6.2 Trip Length Distribution**

This trip length distribution option allows the user to view a text file that contains the average trip length dependant upon purpose, HBW, HBO, NHB, or internal-external trips. It also contains a trip length distribution breakdown for each purpose over a 45 minute time frame. The *triplength.txt* file can be found in the output folder.

### **8.6.3 Screenlines Volumes**

Screenline distributions are important for the accurate calibration of the travel demand model. Bismarck-Mandan's model used 3 screenlines and one cordon check during the calibration process and these included:

- Missouri River (*SCR\_Missouri.txt*)
- Interstate 94 (*SCR\_I-94.txt*)
- Railroad (*SCR\_Railroad.txt*)
- Downtown Cordon (*SCR\_Cordon.txt*)

The corresponding output files in parenthesis can be found in the output folder. These four files give the name of the link, modeled volume, and a growth percentage. These files will be helpful to quickly view modeled volumes crossing each screenline.

### **8.6.4 Vehicle Miles Traveled (VMT)**

The vehicle miles traveled option outputs a text file named *VMT.txt* to the "output" folder. This file contains information regarding VMT based upon functional class and city.

## **8.7 Conducting a Model Run**

Once the code has been established, the user is ready to run the model. The following is to serve as a guide for developing a new model run.

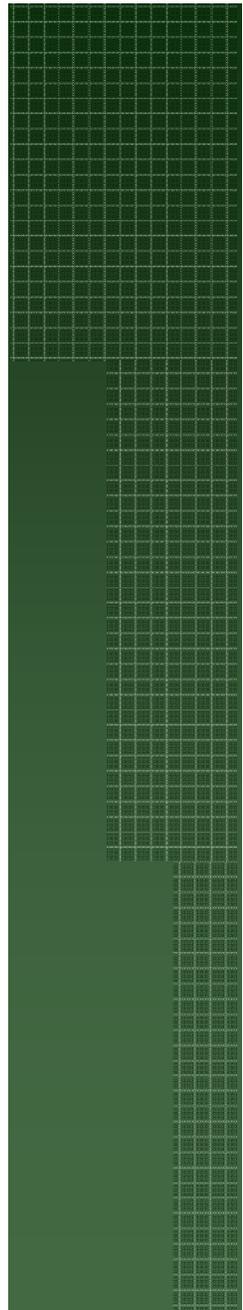
- 1 Create a new Folder for the analysis scenario within the "forecast folder
- 2 Create input and output folders within the scenario window
- 3 Update any necessary input files and save them in the input folder
- 4 Create a new scenario in CUBE
- 5 Double click the new scenario and edit any new key field values
- 6 Select the scenario and double click the "forecast" application
- 7 Set the appropriate execution order for the final assignment
- 8 Double click the scenario to run the model and click "run"

The model will now run and any output files will be available to view once the run has been completed.

## 9. References

1. Advanced Traffic Analysis Center, Upper Great Plains Transportation Institute. (January, 2004). *Bismarck-Mandan Model Construction and Calibration, Technical Documentation*. Fargo, North Dakota.
2. National Research Council, Transportation Research Board. (2000). *Highway Capacity Manual*. Washington D.C.
3. Transportation Research Board. ( 1998). *National Cooperative Highway Research Program Report 365: Travel Estimation Techniques for Urban Planning*. Washington, D.C.
4. Institute of Transportation Engineers. (1997). *Trip Generation*. Washington D.C.
5. U.S. Census Bureau. (July 2003). *Census Transportation Planning Package, CTPP-Part 1-ND Data by Place of Residence for North Dakota*.
6. Barti-Ashman Associates, Inc. (2001). *Model Validation and Reasonable Checking Manual*. Washington D.C.
7. Michel D. Meyer, E. J. (2001). *Urban Transportation Planning a decision oriented approach* ( 2nd edition ed.). New York: McGraw-Hill.

**APPENDIX D**  
**ALTERNATIVES ANALYSIS DOCUMENTATION**





## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

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**To: Ben Ehreth  
Bismarck-Mandan MPO**

**Date: March 10, 2009**

**Subject: Summary of First Level Alternatives to be Considered**

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### ***BACKGROUND***

In anticipation of our March 17, 2009 alternatives screening workshop, the purpose of this memorandum is to provide you the information we will be discussing at the workshop. The information provided in this memorandum includes:

- A regional key map that illustrates the locations of the universe of roadway alternatives.
- A matrix of the alternatives evaluated. Non-roadway (transit and non-motorized) alternatives have a different numbering system, and have a square number identifier ( **1** ) instead of a circled number identifier ( ① ).
- Illustrations of those expansion alternatives which are located in new corridors. These alternatives include potential new roadway corridors to support future land development / growth areas, beltway alignments, river crossing alternatives and I-94 crossing alternatives. The general concept corridors are shown in red lines in those figures.

### ***ALTERNATIVES ANALYSIS WORKSHOP OVERVIEW***

At the March 17 workshop, we will discuss each of the alternatives by issue area. It is our intention that at the workshop we will go through each of the alternatives looking for fatal flaws and ensuring that each is consistent with local plans and policies. In this initial screening, a “fatal flaw” for a project or program would generally fall into one of the following categories:

- The alternative ultimately does not address the intended issue.
- The concept being evaluated results in a substantial impact on the adjacent environment (either built or natural) that cannot be reasonably mitigated.
- The alternative’s cost estimate exceeds or would require a disproportionate amount of the projected transportation improvement budget.
- The concept cannot be reasonably constructed within existing engineering standards or reasonable exceptions to the standards.

Much of the discussion will be centered on the information and alternatives provided in the Table 1 “Initial Alternatives Screening” matrix, and additional information provided by you in the

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Ben Ehreth  
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March 10, 2009

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workshop. The matrix provides a summary of the relative benefits / impacts of each alternative from the three screening perspectives: the social perspective, the environmental perspective and the engineering perspective. The matrix is a work in progress, and will be updated to reflect some additional traffic model runs we are anticipating this week from ATAC and will be updated to reflect the discussions we have at the workshop. Based on the information shared in the workshop, the group will discuss each of the alternatives including assessments of the traffic impacts / operational impacts of alternatives, order-of-magnitude cost estimates and an assessment of the physical impacts to the adjacent area.

It is likely that many of the alternatives presented in the universe of alternatives have fatal flaws, or do not provide the needed transportation service, and will be discarded following the March 17 workshop. It is anticipated that in those locations with multiple concepts identified to address a specified need or issue, the initial screening would reduce the range of potential alternatives to be considered in the Phase 2 screening. It needs to be stressed that just because an alternative is not screened out and discarded in this first workshop, it does not mean that it will necessarily become a recommended component of the LRTP. Concepts that are “promoted” beyond this first, initial screening workshop are those concepts which warrant further review / evaluation and discussion with you at a second screening workshop.

### ***SUMMARY***

Please review information provided in this memorandum in advance of the March 17 workshop. If there are any questions or comments, please contact Bill Troe at (402) 952-2522 or Jason Carbee at (402) 952-2506.



Legend

- Roadway Expansion Alternative
- Roadway Management Alternative
- Development Growth Area
- Concept Illustration Included for Alternative

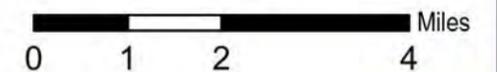


Figure 1. Preliminary Universe of Roadway Alternatives Considered, 2009-2035 LRTP

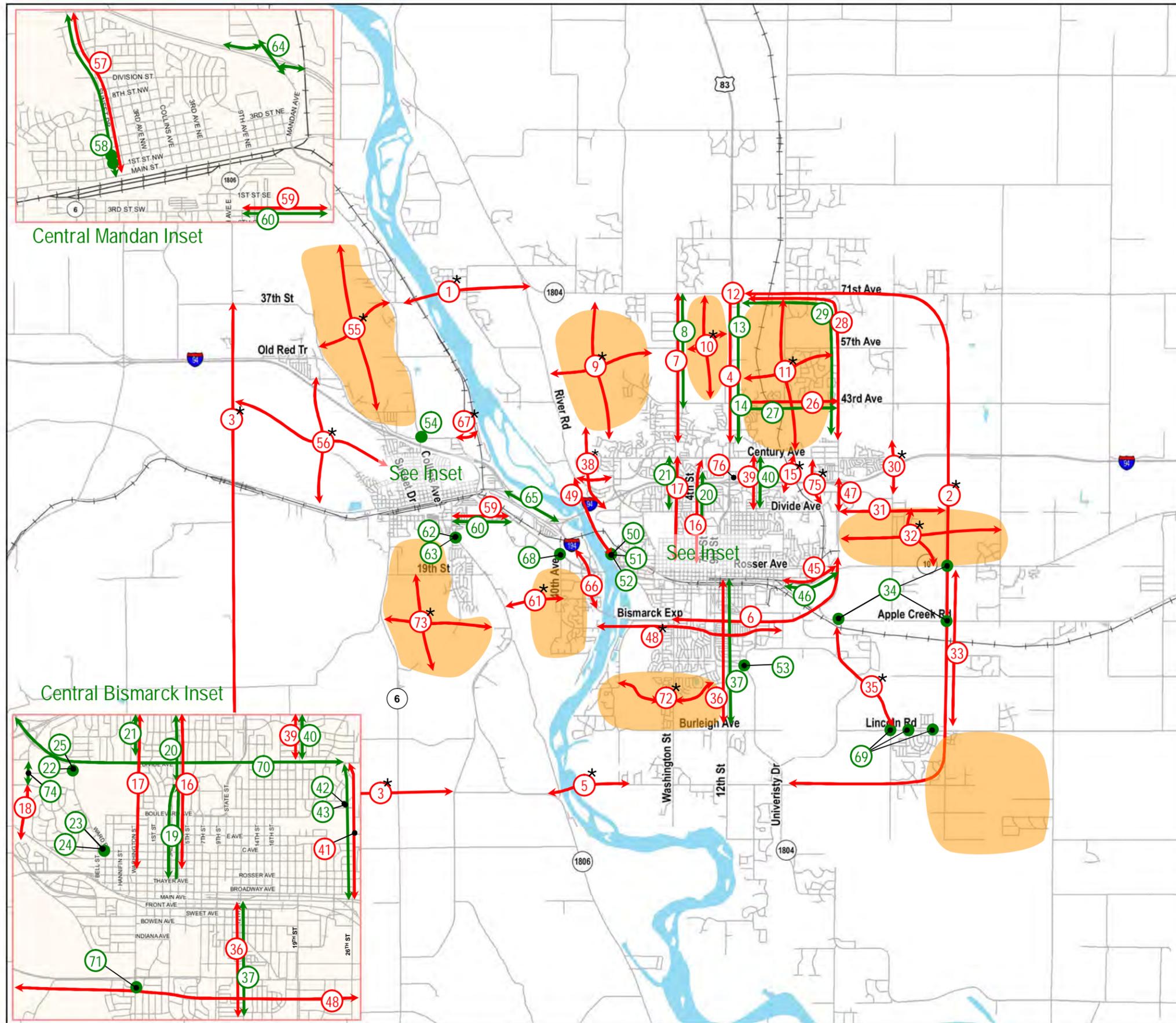


TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
North Washington Street Congestion: Century Avenue to 71st Avenue	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Anticipated to attract approximately 6,000 vehicles per day (vpd) in 2035. Bridge has limited traffic diversion from North Washington corridor.	High	
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts 1,000 to 1,500 vpd from Washington Street north of Century. Provides LOS "D" on Washington St at Century.	High	
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue	Sufficient roadway ROW exists in corridor.	Limited environmental impacts, reduced peak hour congestion benefits including less fuel consumption and decreased green house gas (GHG) emissions.	US 83 improvement would have limited traffic diversion from Washington; would improve traffic flow in tandem with improvements in Washington Street corridor.	Moderate to High	
	<u>Improvement of Existing Routes</u>					
	<u>Corridor Expansion Improvements</u>					
	⑦ Widen Washington Street to a 4-lane divided roadway north of Calgary Avenue.	Currently 90' to 100' roadway ROW width - sufficient for 4-lane divided; current trail setback is likely sufficient to avoid trail reconstruction. Housing / Horizon Middle School back to Washington south of 43rd.	Potential increased noise levels for adjacent residences.	Provides sufficient capacity through 2035; 4-lanes likely more capacity than needed north of 43rd Ave.	Moderate to High	
	<u>Corridor Management Improvements</u>					
	⑧ Add left-turn lanes at major access points 43rd Avenue to 71st Avenue	Sufficient ROW in corridor.	Limited environmental impacts.	Provides sufficient capacity north of 43rd Ave through 2035, improves corridor safety.	Low to Moderate	
	<u>Alternate Corridor Improvements</u>					
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	New trails provide non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable. Cultural resources in area.	Ash Coulee alignment provides acceptable grade for connection to River Road. Continuous collector corridors accommodates growth area's shorter trips.	High		
⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	US 83 Study concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Provides relatively continuous North-South corridor between 84th Ave and 43rd Ave. Severe terrain in growth area. Diverts approximately 1,000 vpd from Washington St north of 43rd Ave.	High		
③⑧ I-94 Crossing at BSC with Northwest Bismarck Grid improvements, including extension of Century Ave west of Tyler Parkway.	Potential impacts to Pioneer Park, overlook and trail; roadway adjacent to subdivision between I-94 and Burn Boat Drive. Impacts to Firestation or other business near Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Some grade issues with new corridor near Burnt Boat Dr. Potential alternative to #9. Enhanced accessibility to BSC. Would divert 1,000 to 2,000 vpd from Washington and 2,000 to 3,000 vpd from Divide / Tyler Parkway north of I-94. Provides LOS "D" on Washington St at Century.	High		

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
US 83 / State Street Congestion, Divide Avenue to 71st Avenue	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	On its own, northern Bridge would divert approximately 1,000 to 2,000 vpd from US 83 corridor.	High	
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway would divert approximately 2,000 to 3,000 vpd. With northern bridge in place, combined beltway / bridge would divert between 3,000 and 6,000 vpd from US 83.	High	
	③ North-South Beltway (Morton County Only)	As with Burleigh side, increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from US 83 is less than 500 vpd. Some slope stability issues south of I-94 may affect constructability.	High	
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts. Associated trail extension would improve non-motorized opportunities in corridor.	Need for six-lanes north of 43rd is likely to happen after 2035; concept provides sufficient capacity between Interstate Ave and 43rd Ave. Dual lefts at 83/Century improve operations through corridor.	Moderate to High	
	⑫ Interchange at US 83 / 71st St (Northern Beltway Corridor)	Standard diamond interchange would require ROW acquisition from all four quadrants of intersection, including part of business park on SE corner.	Reduced signal delay for vehicles decreases air quality / GHG emissions.	NDDOT has operations and safety concerns with mix of signals / interchange in US 83 corridor.	High	
	<u>Improvement of Existing Routes</u>					
	<i>Corridor Management Improvements</i>					
⑬ Add left-turn and right-turn lanes at major access points 43rd Avenue to 71st Avenue.	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	43rd, Skyline and 71st intersections have left-turn lanes; add dual-lefts at 43rd and left- and right-turn lanes to other accesses for safety / traffic flow. Provides sufficient capacity north of 43rd through 2035.	Low to Moderate		
⑦⑥ Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for southbound traffic, eliminates signal delay for heavy northbound left-turn movement at north ramp terminal. Removes turning traffic from left-lanes, improving the distribution of traffic across lanes (lane balance).	Moderate to High		
⑭ Implement signal timing improvements in corridor.	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	Improved traffic progression through corridor results in decreased travel delays. On its own, does not provide sufficient capacity through 2035.	Low		

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
US 83 / State Street Congestion, Divide Avenue to 71st Avenue (continued)	<u>Alternate Corridor Improvements</u>					
	9 Complete Northwest Bismarck Growth Area Roadway Grid	Similar to <i>Fringe Road</i> concepts - requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	Incorporation of trails provides non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 vpd from US 83.	High	
	10 Complete Roadway Grid in US 83 to Washington Street Growth Area	<i>US 83 Study</i> concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Continuous collector corridors function to relieve short distance trips from US 83 and Washington; supports future development. Diverts approximately 1,000 from US 83.	High	
	11 Complete Northeast Bismarck Growth Area Roadway Grid	<i>US 83 Study</i> concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	Includes extension of 57th Avenue from 26th Street to US 83; requires railroad crossing.	High	
	15 Extend 26th Street across I-94 to connect Divide Avenue to Century Avenue	Potential impact to residences north of Divide, impacts to golf course. Corridor possibilities limited by cemetery, trail and DMVW conflicts.	Requires crossing / potentially impacting Hay Creek floodway and floodplain.	Improves connectivity: I-94 currently provides a 1.5 mile barrier to north-south connectivity. Steep grades in corridor.	Moderate to High	
	16 Widen 4th Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Extensive property impacts south of I-94; existing ROW is 60'-70'. Dense driveway accesses, on-street parking throughout.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	Some diversion from State Street. More 2035 capacity than needed.	High	
	<u>Alternate Modes Improvements</u>					
	1 Expand CAT fixed-route bus service into area of 71st / US 83.	Improved transit service provides increased market accessibility for area businesses.	Reduced vehicular trips benefit air quality / GHG emissions.	2035 trip density is similar to higher-density suburban locations currently served by CAT; closest current route is just under 2 miles away. 34,000 person trips destined for this area are within walking distance of a current CAT transit line.	Low to Moderate	
	2 Extend US 83 trail north from current terminus at Calgary Ave through 71st Street	Improved trail service provides amenity / improved non-motorized connectivity to area residences / businesses.	Potential to reduce vehicle trips from area - improve air quality / reduced GHG emissions.	Sufficient ROW in corridor to accommodate trail and widened US 83 roadway; provides connectivity to future beltway / 1804 trail.	Moderate	
	3 Establish employer-based vanpool or rideshare program at 71st / US 83 employment node.	Allows employee access to jobs without vehicle ownership. Many riders may come from outside of MPO study area.	Reduced vehicular demand on some surrounding roadways; improved regional air quality / reduced GHG emissions.	Model-estimated travel shed is over 90% from within urbanized portions of Bismarck; vanpool has limited benefit for these commuters.	Low	

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
Bismarck West Side Congested Segments - 4th Street, Century Ave to Ave C; Washington St, Century Ave to Rosser Ave; 7th / 9th Street Congestion; Ward Rd Congestion	<u>Regionally Significant Projects</u> ① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Minor traffic diversion from West Bismarck corridors, typically 100 to 500 vpd.	High	
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Likely limited traffic diversion in West Bismarck corridors, some from 4th Street north of Divide Ave.	Moderate to High	
	<u>Improvement of Existing Routes / Subarea Streets</u> <i>Corridor Expansion Improvements</i> ⑩ Widen 4th Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Extensive property impacts south of I-94; existing ROW is 60'-70' wide. Dense driveway accesses, on-street parking throughout.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	More capacity than required on 4th Street through 2035.	Moderate to High	
	⑪ Widen Washington Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Washington Street ROW is 80' wide. 4-Lane south Washington has similar ROW width (approx. 85' wide). Dense driveways, increased traffic and noise for residences.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	More capacity than required on Washington St through 2035.	Moderate to High	
	⑫ Schafer St Extension / Reconstruction, Connect BSC Campus to Fraine Barracks	Has been supported by public during previous planning studies. Increases traffic through Fraine Barracks and BSC campus; positive is that it improves BSC connectivity to Bismarck, particularly Mandan via Memorial Bridge.	Impacts to Missouri River viewshed. Fraine Barracks is a potential historical site.	BNSF rail crossing an issue. Corridor preserved through BSC. Connection to Main Ave serves a somewhat limited set of potential trips. Earlier study indicated 3,500 vpd diversion from Ward Rd - limited diversion from Washington.	Moderate to High	
	<i>Corridor Management Improvements</i> ⑬ Convert 3rd and 4th Street to One-Way Streets, Arikara Avenue to Boulevard Avenue	Increases traffic past residences and school, alters local access.	Limited environmental impacts; reduced peak travel delays improve air quality.	New striping and signing required. Improves corridor capacity. Recommended in <i>West Side Study</i> to provide sufficient 2030 subarea capacity.	Low to Moderate	
	⑭ Add Turn Lanes to 4th Street, Interstate Avenue to Arikara Avenue	Requires on-street parking removal. North of Divide, increase traffic past Northridge school crossing.	Limited environmental impacts; reduced peak travel delays improve air quality.	Restriping / removal of on-street parking required. Provides sufficient 2035 capacity in 4th Street corridor, part of recommended <i>West Side Study</i> package that provided sufficient capacity through 2030.	Low	
	⑮ Add center left turn lane to Washington Street, Divide Avenue to Century Avenue	One side of on-street parking would need to be removed to accommodate center left-turn lane. Safety benefit to adjacent homeowners turning into / out of their driveways.	Limited environmental impacts; reduced peak travel delays improve air quality.	Reduce delays / improve safety in corridor. Provides sufficient capacity for parts of Washington Street corridor; recommended in <i>West Side Study</i> package that provided sufficient 2030 subarea capacity.	Low	
	⑯ Realign Ward Road / College Road Intersection	Minor right-of-way acquisition east of the current intersection, avoiding impacts to the public uses. Impacts driveway location for office parking lot.	Need for minor shift in trail about 20' east; likely no impacts to golf course.	This concept would improve north-south traffic flow by eliminating a stop sign for Ward Rd to Divide Ave traffic pattern. Improves north-south continuity.	Low to Moderate	
⑰ Add southeast-bound left-turn lane to Ward Road at Avenue C / Griffin intersection.	Limited impacts, minor widening required at most, 66' wide ROW available.	Limited environmental impacts; reduced peak travel delays improve air quality.	Only minor widening of Ward Road required - current pavement width is approximately 34'. Consider limiting turns between Ward Road and north leg of Griffin.	Low to Moderate		

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
Bismarck West Side Congested Segments (Continued)	24 Add roundabout at Ward Road / Avenue C / Griffin intersection.	Urban compact roundabout should provide sufficient long-term capacity - with 100' max diameter would require minimal ROW acquisition at most.	Reduced peak travel delays improve air quality, reduced GHG emissions.	Improved safety (6 crashes in 3 years) and sufficient 2035 operations, supporting high left-turn and right-turn movements at intersection. May require slight re-alignment of Griffin Road north leg approach.	Low to Moderate	
	25 Add roundabout at Ward Road / College Road intersection.	Office parking lot driveway may need to be realigned slightly, minimal ROW impacts anticipated (100' diameter). With landscaping, provides enhanced gateway to BSC and fits with O'Leary golf course / trail.	Reduced peak travel delays improve air quality, reduced GHG emissions.	Queuing back from Divide Ave / College Ave intersection may be a concern (250' separation). Sufficient capacity through 2035, accommodates high turns at intersection well. Yield replaces northbound stop condition.	Low to Moderate	
	<u>Alternate Modes Improvements</u> 4 Add bicycle lane with minor widening of Washington Street.	Current pavement is 40' - 48' wide for two- and three-lane cross-sections with on-street parking. New NB and SB bike lanes would typically require 10' more pavement width - either widen or remove on-street parking. Both options impact adjacent properties to some extent.	During biking weather, offers improved non-motorized accessibility to region. Reduced vehicular traffic improves air quality / reduces GHG emissions.	Connects to several trails and on-street bike opportunities in central Bismarck due to low-speeds, dense street network. Minimum combined bike lane / on-street parking zone width is 12', standalone bike lane is 5' adjacent to on-street parking. Need separate lanes for each direction.	Moderate	
	5 Establish a Transportation Management Association (TMA) for Central Bismarck.	Typically employer-based conglomeration that pools resources to provides opportunities for carpool matching, vanpooling and coordinated alternative work arrangements to reduce peak hour vehicular travel demand.	Reduced VMT, improved regional air quality and reduced emissions.	Requires minimal infrastructure investment to support; bike racks, van parking, rideshare matching database, etc are examples of public-based investments that could be required.	Employer based, might include some public incentives.	
43rd Avenue Congestion, US 83 to 26th Street	<u>Regionally Significant Projects</u> 1 Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	On its own, the northern bridge provides limited diversion from 43rd Avenue (less than 500 vpd).	High	
	2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway corridor provides diversion of 1,000 vpd or less through 43rd Avenue corridor.	High	
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> 26 Widen 43rd Avenue to a 4-Lane Divided Roadway from US 83 to Centennial Road	Limited ROW impacts, current 43rd Ave ROW is 100' wide.	Limited environmental impacts; improves future traffic flow, reduced gas consumption and emissions.	Similar 2035 volumes as Century Avenue today. Grade separate low-volume DMVV RR? Century was grade separated. Current culvert at Hay Creek appears to be sufficiently wide for future 4-lane section.	High	
	<i>Corridor Management Improvements</i> 27 Add turn-lanes at key 43rd Avenue access points.	Limited ROW impacts.	Limited environmental impacts.	Provides improved operations, likely still LOS E during peak periods between 26th and US 83. Provides sufficient capacity between Centennial and 26th Street.	Low to Moderate	

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
43rd Avenue Congestion, US 83 to 26th Street (Continued)	<u>Alternate Corridor Improvements</u> ⑪ Complete Northeast Bismarck Growth Area Roadway Grid	US 83 concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	Includes extension of 57th Avenue as minor arterial; requires creek crossing and DMVW line crossing. Diverts 1,000 to 1,500 vpd from 43rd Ave east of US 83. On it's own, does not provide sufficient capacity through 2035.	High	
	<u>Alternate Modes Improvements</u> ⑥ Expand CAT fixed-route bus service into area of 26th St / Calgary Avenue.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Current Bismarck Route C-2 has service in the area. High-density suburban residential in this future neighborhood a good candidate for service, with 38,000 area daily person trips with trip end w/in walk distance of a CAT route.	Low to Moderate	
71st Avenue and Centennial Road Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway diverts approximately 1,000 to 2,000 vpd from Centennial Road - provides LOS "C" at Century intersection through 2035.	High	
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited social impacts.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Provides minor diversion from 71st Ave / Centennial Road.	High	
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> ⑳ Widen corridor to 4-lanes: 71st Avenue, US 83 to Centennial Road and Centennial Road, 71st Avenue to Jericho Road	4-lane ROW reservation in 71st Avenue corridor is part of Beltway study; sufficient ROW along Centennial Road. Increased traffic noise levels adjacent to residences.	Limited environmental impacts.	More capacity than required north of 43rd Avenue through 2035.	High	
	<u>Corridor Management Improvements</u> ㉑ Add turn-lanes at all major access points. Consolidate access points where practical.	Limited ROW impacts.	Limited environmental impacts.	Recommendation of 71st / Centennial Corridor Study. Provides sufficient capacity / addresses safety concerns through 2035.	Moderate	
	<u>Alternate Corridor Improvements</u> ㉓ Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing.	Adjacent subdivisions, potential for increased noise levels. Limited property impacts; some conversion of open / ag land.	Requires crossing of intermittent stream, not an identified floodplain / floodway. Reduces out-of-direction travel for future growth area development, improved future air quality.	Diverts approximately 1,000 - 2,000 vpd from Centennial Road corridor. Provides improved future roadway / trail connectivity in east Bismarck. Steep grades adjacent to I-94 for crossing. Improves Centennial from Century to I-94 to LOS "C".	High	
	㉗ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - minor improvement to connectivity to reduce some trips' lengths.	Would support shorter sub-area trips in future, limited corridor continuity. 1/2 mile west of Bismarck Expressway / Centennial, estimated to divert approximately 3,000 to 4,000 vpd from Centennial.	High	

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
East Divide Avenue and 52nd St Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Currently rural roads. Beltway removes approximately 1,000 vpd from Divide east of Bismarck Expressway. Improves operations; TSM improvements likely still required.	High	
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> ③① Extend East Divide Avenue from Bismarck Expressway / Commerce Drive intersection to 66th Street (3-lane cross-section)	Alignment near commercial development adjacent to Bismarck Exp - likely minor impacts, potential ROW acquisition. Reserve sufficient corridor for trail and future 4-lane.	Requires a stream crossing. Identified wetland near the alignment.	Align with near term extension of Divide west of Bismarck Exp (2012) - improves network continuity. With center turn lane, provides sufficient capacity through 2035.	High	
	<u>Alternate Corridor Improvements</u> ③② Complete East Bismarck Growth Area Roadway Grid	Improves accessibility for new residents / businesses in area. One local subdivision street converted to a Collector. Conversion of ag / open space.	Improved Collector network reduces trip lengths, reduces travel, improves air quality / GHG emissions. Stream crossing; alignment near hillside with "Bismarck" spelled in trees.	Collector improvements to supplement Divide Avenue extension and Highway 10. Supports significant household and employment growth in area.	High	
Lincoln Area Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Increases traffic along 66th Street; reduces traffic on Apple Creek Rd by 300 to 1,000 vpd and Highway 10 by 1,000 vpd or less.	High	
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences along 48th Ave South in Burleigh County and riverside houses in Morton County.	48th Ave S alignment has nearly 4 miles of identified floodplain to cross for bridge. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts little traffic volume from congested Lincoln area segments. Limited connectivity with development on Morton County side.	High	
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> ③③ Widen 66th Street to 4-lanes, Lincoln Road to Highway 10	Consistent with <i>Lincoln Connector Study</i> . Some adjacent farmsteads, most setback from road several hundred feet. Limited property impacts.	Requires crossing of Apple Creek and nearly one mile of floodplain along existing 66th Street alignment. Incorporation of trail improves non-motorized travel opportunities.	Similar forecasted traffic volumes as <i>Connector Study</i> . BNSF rail crossing south of Apple Creek Rd. Provides sufficient capacity through 2035 and beyond.	Moderate to High	
	<u>Corridor Management Improvements</u> ③④ Add turn-lanes at key intersections: Yegen Rd / Apple Creek Rd, Highway 10 / 66th Street, Apple Creek Rd / 66th St	Limited social impacts.	Limited environmental impacts, improved traffic operations during peaks a benefit.	Likely provides sufficient capacity through mid-term; volumes along 66th will exceed capacity of a rural, 2-lane highway by 2035.	Moderate	
	<u>Alternate Corridor Improvements</u> ③⑤ Create New Diagonal Connection between Lincoln and SE Bismarck, Lincoln Road to Apple Creek Road / Yegen Road	Substantial property acquisition required. Concept was screened out of <i>Lincoln Connector Study</i> .	Significant impacts to Apple Creek floodway and floodplain.	Provides more direct Lincoln - Bismarck route; sufficient capacity.	High	
	<u>Alternate Modes Improvements</u> ⑦ Expand CAT fixed-route bus service into Lincoln area.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Lincoln is currently more than 4 miles from nearest CAT route. By 2035, nearly 16,000 daily person trips from Lincoln have a trip end within walking distance of a CAT route.	Low to Moderate	

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation
	Social	Environmental	Engineering		
South 12th Street Congestion	<u>Improvement of Existing Routes / Subarea Streets</u> <i>Corridor Expansion Improvements</i> (36) Widen 12th Street to 4-lanes, Burleigh Avenue to Main Avenue	12th St ROW width is 100' south of Frontier Dr (between Bismarck Expwy and University Ave) and 80' ROW to the north. Widening adjacent to several Mobile Homes.	Increased traffic noise; improved traffic flow / improved air quality.	More capacity than is required through 2035.	High
	<i>Corridor Management Improvements</i> (37) Add turn lanes at major 12th St intersections: 12th St / Sweet Ave, 12th St / Bowen Ave, 12th St / Burleigh Ave, 12th St / Bismarck Expwy	Consistent with <i>12th Street Corridor Study</i> and <i>Bismarck Expressway Study</i> . Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves traffic flow and safety in corridor, provides sufficient capacity through 2035. Likely accomplished by removing on-street parking - limited widening required.	Low to Moderate
West Divide Avenue / Tyler Parkway Congestion, Country West Rd to US 83	<u>Regionally Significant Projects</u> (1) Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,500 vpd from Tyler Parkway, and 300 to 500 vpd from Divide Avenue west of Washington St.	High
	(6) Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	High
	<u>Improvement of Existing Routes</u> (70) Implement West Divide TSM Projects: Restripe Divide Ave to 3-lane, I-94 to 26th St; Add EB Right-turn lane at College Dr, Signalize Country West / Tyler Pkwy, Century / Tyler Pkwy.	Similar concept recommended in 2030 LRTP. Requires removal of some on-street parking adjacent to residences east of Washington St.	Limited environmental impacts.	Current pavement width is 48' through most of corridor.	Moderate
	<u>Alternate Corridor Improvements</u> (38) I-94 Crossing at BSC with Northwest Bismarck Grid improvements, including extension of Century Ave west of Tyler Parkway.	Alignment near Pioneer Park, overlook and trail; adjacent residential subdivision. Firestation or business impacts at Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Some grade issue with new road intersection at Burnt Boat Dr. Enhanced accessibility to BSC. Extension of Century improves arterial connectivity. Would divert 2,000 to 3,000 vpd from Divide / Tyler Parkway north of Burnt Boat Dr.	High
	(18) Schafer St Extension / Reconstruction, Connect BSC Campus to Fraine Barracks	Supported by public during previous planning studies. Increased traffic through Fraine Barracks and BSC campus, improves BSC connectivity.	Impacts to Missouri River viewshed. Fraine Barracks is a potential historical site.	BNSF rail crossing an issue. Corridor preserved through BSC. Earlier study indicated 3,500 vpd diversion from Ward Rd - limited diversion from Washington.	Moderate to High
19th Street Congestion, Century Avenue to Divide Avenue	<u>Regionally Significant Projects</u> (2) North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 500 vpd from 19th Street at I-94.	High
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> (39) Widen 19th Street to 4-lanes	80' ROW through corridor, pretty tight to accommodate a 4-lane cross-section. Dense driveway accesses south of Capitol Ave.	Limited environmental impacts.	Current I-94 overpass has 48' pavement and separated sidewalk. 19th Street discontinuous south of Divide. 19th Street speed limit is 25 mph currently south of I-94.	Moderate to High

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Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
19th Street Congestion, Century Avenue to Divide Avenue (continued)	<p><b>40</b> <i>Corridor Management Improvements</i> Add turn lanes along 19th Street: Center left-turn lane south of Capitol Ave, dual northbound left-turn lanes at Century, right-turn lanes where warranted.</p>	Left-turn lanes already present at major intersections in corridor, consider center left-turn lane south of I-94. On-street parking on both sides - would require removal of one side of parking.	Limited environmental impacts; potential .	Provides sufficient capacity south of Capitol Avenue. About 350 NB left-turns at Century during the peak hours today. Right-turn lanes at high-turn intersections would provide additional capacity to corridor with limited impacts.	Low	
	<p><u>Alternate Corridor Improvements</u> <b>15</b> Extend 26th Street, Divide Avenue to Century Avenue</p>	Potential impact to residences and golf course. Corridor possibilities limited by cemetery, trail and DMVW conflicts.	Requires crossing / potentially impacting Hay Creek floodway and floodplain. Green space, park and trail impacts.	Improves connectivity - I-94 currently provides a 1.5 mile barrier to north-south connectivity. Steep grades in corridor.	High	
26th St Congestion, Main Avenue to Divide Avenue	<p><u>Regionally Significant Projects</u> <b>2</b> North-South Beltway (Burleigh County Only)</p>	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts, increased noise levels, potential cultural resource issues.	Diverts less than 500 vpd through 26th Street corridor.	High	
	<p><b>6</b> Bismarck Expressway Widening / Improvements</p>	Impacts to fire station operations and strips of commercial development adjacent to Expressway.	Limited environmental impacts.	Limited traffic diversion from 26th Street.	High	
	<p><u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> <b>41</b> Widen 26th Street to 4-lane divided roadway between Divide Avenue and Main Ave, include sidewalks in construction.</p>	80' ROW in corridor, relatively narrow for 4-lane cross-section. Dense driveway access. New sidewalks a benefit, corridor sidewalks are not currently continuous.	Improved non-motorized connectivity in corridor with added sidewalks. Limited environmental impacts.	Access impacts with median; continuous center turn-lane would provide access to driveways. More capacity than required through 2035.	High	
	<p><i>Corridor Management Improvements</i> <b>42</b> Add turn lanes at major intersections: 26th / Broadway, 26th / D Ave, 26th / Valley View Blvd, 26th / Hillview Blvd, 26th / Boulevard Ave</p>	Current pavement in corridor is 48' wide, removing parking on one side adjacent to intersections to restriping for left-turn lanes.	Limited environmental impacts.	On its own, provides LOS "C" or better at most intersections, isolated LOS "D". Longer delays will occur as vehicles access mid-block driveway accesses during peak.	Low	
	<p><b>43</b> Restripe 26th Street as a 3-lane corridor</p>	Requires removal of on-street parking from one side of street.	Limited environmental impacts. Improved peak hour operations provide improved air quality by 2035.	On its own, provides LOS "C" to most of corridor - eliminates delays associated with mid-block driveway turns in Alt #42.	Low	
East Main Ave Congestion, East of 26th Street to Bismarck Expressway	<p><u>Regionally Significant Projects</u> <b>6</b> Bismarck Expressway Widening / Improvements</p>	Impacts to fire station operations at 9th St and to commercial property adjacent to Expressway, including parking.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	High	
	<p><u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> <b>45</b> Widen East Main Avenue to 4-lanes</p>	Limited social impacts, Main Ave ROW is 200' wide through most of commercial corridor. Provides opportunity for addition of sidewalk / trail in corridor.	Corridor is in Hay Creek floodway and floodplain - widening may incur impacts.	More capacity than required by 2035.	Moderate to High	
	<p><i>Corridor Management Improvements</i> <b>46</b> Add left-turn lanes to major intersections: eastbound dual lefts and right-turn lane at Bismarck Expressway, left-turn lanes at Eastdale Avenue.</p>	Limited access points in corridor reduces need for continuous center turn lane. Consistent with recommendations in <i>Bismarck Expressway Study</i> .	Limited environmental impacts, minor improvements are within floodplain.	Limited access points in corridor reduces need for continuous center turn lane. Provides sufficient capacity through 2035.	Low to Moderate	

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	Social	Environmental	Engineering			
Bismarck Expwy Congestion, Washington Street to I-94	<u>Regionally Significant Projects</u>					
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 2,500 from Bismarck Expressway at I-94 (still LOS "F" on its own.) Limited diversion from Bismarck Expressway south/west of Rosser Ave.	High	
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts approximately 1,000 vpd from Bismarck Expressway Washington to 9th Street.	High	
	⑥ Bismarck Expressway Widening / Improvements: Widen to 6-lanes from Washington Street to 9th Street, Implement intersection improvements between 9th Street and Rosser Ave	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Provides sufficient traffic operations from Rosser Ave to Washington St through 2035.	High	
	<u>Improvement of Existing Routes</u>					
	④⑦ Widen Bismarck Expressway to 6-lane cross-section, I-94 ramps to Commerce Street (Future Divide Avenue Extension)	Sufficient ROW already present in corridor for widening (200').	Limited environmental impacts, benefits from improved traffic flow.	Improvement to alternate corridors can provide sufficient diversion for mid-term capacity; by 2035 6-lanes may be required to achieve LOS "C". Requires widening overpass of I-94.	Moderate to High	
	<u>Alternate Corridor Improvements</u>					
③⑩ Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing.	Adjacent subdivisions, potential for increased noise levels. Limited property impacts; some conversion of open / ag land.	Requires crossing of intermittent stream, not an identified floodplain / floodway. Reduces out-of-direction travel for future growth area development, improved future air quality.	Diverts approximately 5,000 vpd from Bismarck Expressway south of I-94. On its own, improves Bismarck Expressway south of I-94 to LOS "E".	High		
④⑧ Extend Denver Ave to 26th Street, provide connection to I-194 via new River Crossing south of Bismarck Expressway Bridge	Dense residential access in developed portions, adjacent parks. Significant residential acquisitions required for continuous corridor.	Environmental justice concerns with this improvement - significant acquisitions in mobile home parks.	Likely creates functional conflict for corridor - currently operates as Collector or Local street. Mobility levels required for effective concept are more in line with minor arterial.	High		
⑦⑤ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - improved connectivity reduces some trips' lengths. Avoids green space impacts associated with 26th Street corridor crossing	Only 1/2 mile west of Centennial. Supports shorter sub-area trips: diverts 3,000 to 4,000 vpd from Centennial / Bismarck Expwy. On its own, improves Bismarck Expwy, I-94 to Divide to LOS "E" in 2035.	High		

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Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
River Rd Congestion	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Northern Bridge has little effect on River Road volumes (+600 to -200 vpd).	High	
	<u>Improvement of Existing Routes</u>					
	<u>Corridor Expansion Improvements</u>					
	④9 Widen River Road to four-lanes	Significant ROW impacts throughout corridor, impacts to trail near Fraine Barracks intersection.	Entire corridor is within Missouri River floodplain.	More capacity than required through 2035. Constructability difficult with adjacent bluff, trail, water facilities.	High	
	<u>Corridor Management Improvements</u>					
	⑤0 Add SB left turn lane at Fraine Barracks / River Road	Likely requires minor ROW acquisition from Barracks property (state of ND).	Improvements are within floodplain.	Some retaining walls may be necessary, water plant property north of intersection. Trail adjacent to River Rd is close to riverbank - can't move farther west.	Low to Moderate	
	⑤1 Add Roundabout to Fraine Barracks / River Road intersection	Similar ROW impacts as Alt #50.	Improvements are within floodplain.	Slight adjustment to approach slope needed on Fraine Barracks (currently 3-4% slope)? Provides sufficient capacity, both roads are collectors.	Low to Moderate	
⑤2 Add traffic signal at Fraine Barracks / River Road intersection with special phasing (no widening)	No property impacts. May affect residents' travel patterns by eliminating Fraine Barracks to SB River Road movement (limited number).	Limited environmental impacts; reduced delay is a benefit to air quality / GHG emissions.	Either operate as: 1) split phasing for all approaches, or 2) just operate signal for northbound River Rd and Fraine Barracks (restrict left-turns from Fraine Barracks) and have always green southbound movement. Sufficient capacity through 2035.	Low		
<u>Alternate Corridor Improvements</u>						
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Similar to Fringe Road concepts. Conversion of some ag land.	Benefit of new trails.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 to 3,000 vpd from River Road north of Burnt Boat - area of safety concern in <i>River Road Study</i> .	High		
③8 I-94 Crossing at BSC with Northwest Bismarck Grid improvements.	Alignment near park, overlook, trail and subdivision.	Potential cultural resource issues in this area.	Would divert approximately 1,000 vpd from River Road north of Burnt Boat Dr.	High		
②1 Add center left turn lane to Washington Street, Divide Avenue to Century Avenue	Removal of some on-street parking.	Limited environmental impacts; reduced peak travel delays improve air quality.	Limited diversion from River Road Corridor.	Low		
Airport Rd / University Dr Congestion	<u>Improvement of Existing Routes</u>					
	⑤3 Add 2nd southbound left-turn lane to Airport Drive	Limited social impacts.	Limited environmental impacts, reduced delay by 2035 an air quality benefit.	Cross-section already paved. Only need is to restripe / resign and make minor signal adjustments.	Low	
<u>Alternate Corridor Improvements</u>						
③7 Add turn lanes at major 12th St intersections	Consistent with 12th Street Corridor Study and Bismarck Expressway Study. Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves upstream traffic flow.	Low to Moderate		

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
North Collins Avenue / Hwy 1806 Congestion	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,000 to 2,000 vpd from Highway 1806 north of Old Red Trail.	High	
	③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from Collins north of Old Red Tr is 2,000 vpd. Some slope stability issues south of I-94 may affect constructability.	High	
	<u>Improvement of Existing Routes</u>					
	⑤④ Improve and signalize Collins Road / Old Red Trail Intersection	Limited social impacts. Appropriate treatment for the intersection as it transitions from rural to urban.	Limited environmental impacts.	Add left turn lanes to all approaches and signalize. Sufficient capacity on most legs; north of Collins still operates at LOS "D".	Low to Moderate	
	<u>Alternate Corridor Improvements</u>					
⑤⑤ Complete North Mandan Growth Area Roadway Grid	Similar to <i>Fringe Road Plan</i> . Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Extend 38th St and Sunset Dr to connect Old Red Tr to Hwy 1806. Diverts 1,000 to 4,000 vpd from Collins Ave and 1,000 from Old Red Tr. In tandem with TSM Alt #54, traffic diversion provides sufficient operations.	High		
⑤⑥ Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Difficult terrain between I-94 and Highway 10. Diverts approximately 1,000 from Collins Ave at I-94.	High		
<u>Alternate Modes Improvements</u>						
⑧ Expand CAT fixed-route bus service into North Mandan growth area.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Route M1 currently serves the area to Old Red Tr, minor route extension only. By 2035, 10,000 daily person trips from North Mandan have a trip end within walking distance of a CAT route.	Low to Moderate		
North Sunset Dr Congestion	<u>Improvement of Existing Routes</u>					
	<u>Corridor Expansion Improvements</u>					
	③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, Heart River crossing / floodplain.	Traffic diversion from Sunset is 1,000 vpd.	High	
⑤⑦ Widen Sunset Drive to four-lanes, Main Avenue to I-94	Significant residential property acquisitions required for this alternative. Sunset ROW with approximately 66' in corridor.	Widened cross-section brings traffic noise closer to remaining homes.	More capacity than required through 2035.	High		
<u>Corridor Management Improvements</u>						
⑤⑧ Restripe Sunset as 3-lane roadway; Convert 4-way stops at 1st NW and 2nd NW to 2-way stops or signals	Widening not required north of 6th St. Sunset pavement width is 40' south of 6th Ave, 48' north of 6th Ave. On-street parking would be removed from at least one side, potential for minor widening south of 6th St to maintain one side of on-street parking.	Improved traffic flow reduces emissions. Minimal change in traffic noise anticipated.	Currently on-street parking on both sides of street. Concept provides sufficient capacity through 2035.	Low to Moderate		

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

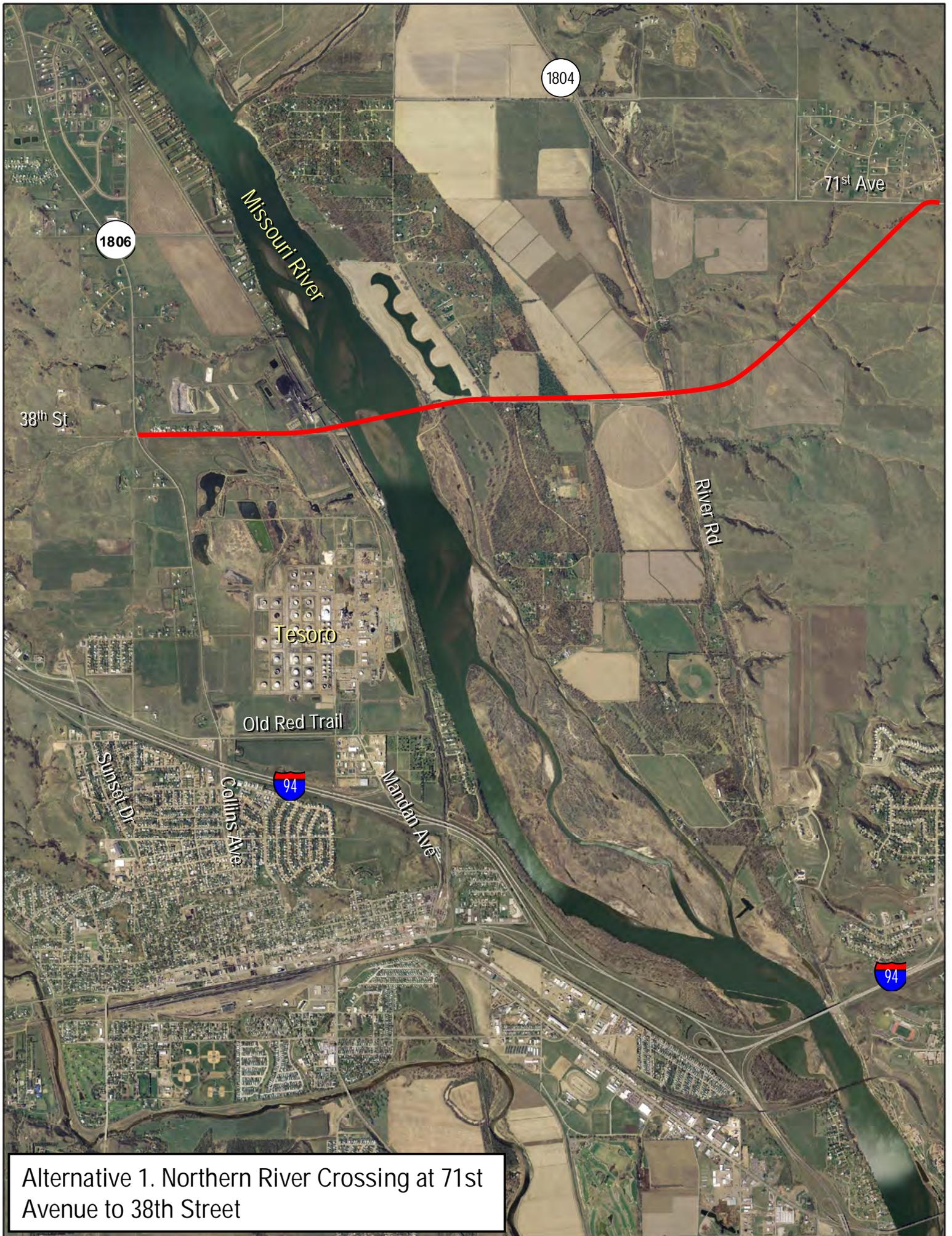
Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
North Sunset Dr Congestion (Continued)	<u>Alternate Corridor Improvements</u> 55 Complete North Mandan Roadway Grid	Similar to Fringe Road Plan. Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Limited diversion from Sunset Dr.	High	
	56 Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Diverts approximately 3,000 vpd from Old Red Trail west of Sunset; limited diversion from Sunset Dr at I-94. Diverts 1,000 vpd from Sunset south of Division Street. On its own, does not provide sufficient operations.	High	
3rd St SE Congestion, Hwy 1806 to Memorial Highway	<u>Regionally Significant Projects</u> 5 Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Much of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation / agency review required.	Diverts approximately 1,500 vpd from 3rd St SE. Still operates at LOS "D" by 2035.	High	
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> 59 Widen 3rd Street SE to four-lanes	Limited social impacts.	Limited environmental impacts.	Provides LOS "C" through 2035. More capacity than required through 2035.	Moderate to High	
	<i>Corridor Management Improvements</i> 60 Add turn lanes at key cross streets, signalize 3rd Street / Memorial Highway intersection by 2035	Limited social impacts.	Limited environmental impacts.	Remove parking on one side and restripe. Provide signal when warranted, provides LOS "C" through 2035.	Low	
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Avenue between 40th Ave SE and Highway 1806	Increases traffic by houses and apartments along existing McKenzie alignment east 40th Ave SE.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts approximately 4,000 vpd from 3rd St SE, for sufficient 3rd St capacity in 2035. Extension improves regional connectivity; consistent with Minor arterial function and I-194 interchange.	Moderate to High	
Hwy 1806 / 8th Ave SE Congestion	<u>Improvement of Existing Routes</u> 62 Add turn lanes and signalize 8th Ave SE / Highway 1806 intersection by 2035.	Pavement width is about 40' with no on-street parking currently allowed. Limited social impacts for restriped turn lanes.	Limited environmental impacts, improved traffic operations improves air quality.	Intersection is about 250' to 300' from Heart River bridge. Provides sufficient capacity through 2035.	Low	
	63 Restripe as 3-lane section between Heart River to 3rd St SE.	No parking allowed north of bridge; restriping as a three lane requires no widening.	Limited environmental impacts, improved traffic operations improves air quality.	Currently 4-lane undivided for 2 blocks north of Poplar. High through volumes and turning traffic could lead to safety issues and congestion. 3-lane section provides improved left-turning traffic safety, sufficient capacity through 2035.	Low to Moderate	
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Drive between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts 3,000 to 4,000 vpd from Highway 1806. Improves Highway 1806 operations; turn lanes still required at 1806 / 8th Ave. Improves operations south of Main Ave to LOS "D" by 2035.	Moderate to High	
	73 Complete South Mandan Growth Area Roadway Grid	Improves connectivity / access for south Mandan Growth area.	Limited environmental impacts.	Diverts approximately 1,000 from Highway 1806 between 19th St SE and 8th Ave SE. TSM improvements still required at 1806 / 8th Ave intersection.	High	

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

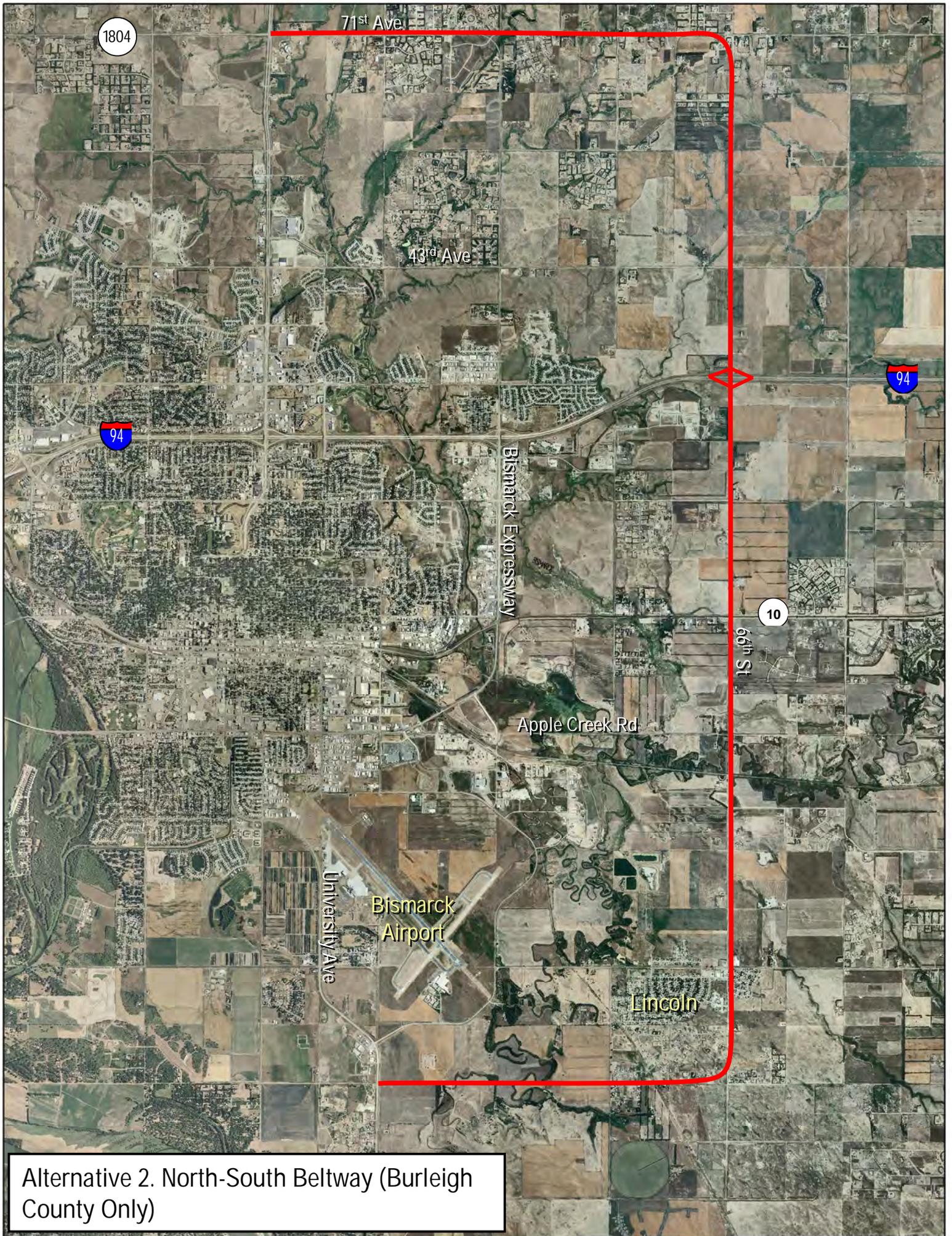
Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
Mandan Interstate Safety Concerns	<u>Regionally Significant Projects</u> ⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation required.	Diverts approximately 2,000 vpd from I-194 / Bismarck Expressway Bridge	High	
	<u>Improvement of Existing Routes</u> ⑥④ Improve Mandan Ave Interchange with left-turn lanes on Mandan Ave and Channelize, Lengthen I-94 on-ramps	Limited social impacts.	Limited environmental impacts.	Intersection safety improved. Lengthened ramps provide improved merge.	Low to Moderate	
	⑥⑤ Improve I-94, East Main to I-194 with reconfigured access ramps, elimination of left-on-ramp from WB I-94 to EB I-194, eliminate I-94 weave movement.	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Improved safety with removed I-94 weaving segments, standard right-hand ramps, larger loop ramp for WB I-94 to EB I-194.	Moderate to High	
	⑥⑥ I-94, Memorial Highway and McKenzie Dr interchanges: Add C/D road and ramp reconstructions to improve interchange spacing.	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Establishes C-D road system to remove WB weave, improved interchange design. Potential need to widen bridges with lengthened auxiliary lanes.	High	
Bismarck Expressway Pedestrian Safety Issues	<u>Alternate Modes Improvements</u> ⑨ Provide trails and sidewalks for pedestrians/bicyclists east of 18th St	Limited social impacts, sufficient Bismarck Expressway ROW exists for trail within current ROW.	Limited environmental impacts.	Crossing of BNSF tracks is a barrier, Bismarck Expressway bridge over tracks is 70' with 12' median.	Moderate	
	⑩ Incorporate pedestrian crossing timing adjustments and increase use of warning signs for pedestrians crossing Bismarck Expressway and for drivers traversing intersections.	Improves pedestrian safety and connectivity. Identified as a high ped-demand corridor in Community Committee meeting.	Limited environmental impacts.	Currently a median pedestrian refuge at Washington Street. When activated, timing adjustments would have some impact on Bismarck Expressway traffic flow. 6-lane concept between Washington and 9th would provide center median / ped refuge.	Low	
40th Ave SE / Memorial Highway Congestion	<u>Improvement of Existing Routes</u> ⑥⑧ Signalize and add turn lanes to intersection by 2035.	Minor widening of 40th Ave S required, limited impacts anticipated.	Limited environmental impacts, reduced queuing / idling for 40th Ave SE traffic improves emissions.	Provides sufficient capacity through 2035.	Low to Moderate	
	<u>Alternate Corridor Improvements</u> ⑥① Extend McKenzie Avenue between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Limited diversion from 40th Ave SE, diverts approximately 3,000 vpd from Memorial Highway. High delays remain for 40th Ave S traffic without improved intersection control.	Moderate to High	
Desire for Continuous North-South Access / Discontinuities through Bismarck	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Provides a continuous, high mobility corridor to growing portions of Burleigh County.	High	
	Several other projects would provide capacity improvements in portions of Bismarck north-south corridors. Limited continuous corridors are available for improvement.	Social impacts of providing a high-mobility corridor through currently developed portions of Bismarck are very high, even along existing corridors such as Washington St, State St/ 7th St/ 9th St, 26th St.	Vary by corridor; social impacts are a fatal flaw with corridors within currently developed Bismarck.	North-South Beltway corridor is likely only feasible opportunity for a continuous, high mobility corridor. Elevated / underground corridors in built areas have constructability issues / very high cost / social impacts.		
Desire to Improve Access Across I-94 in West Mandan	⑤⑥ Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Provides desired connectivity.	High	

TABLE 1. Initial Alternatives Screening, 2009-2035 Long Range Transportation Plan Update

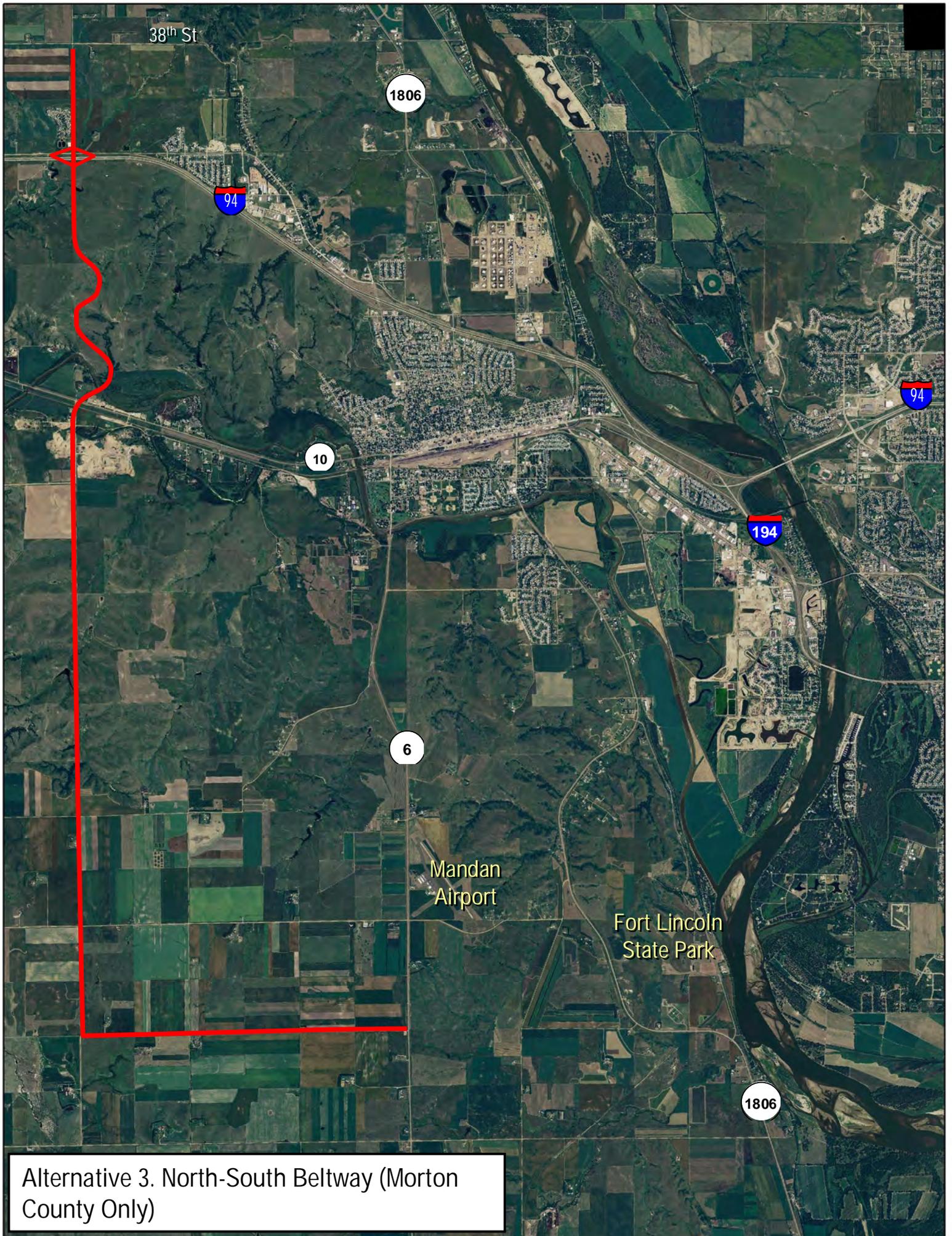
Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
Desire to Provide Connection between Old Red Trail and River Rd (Mandan)	67 Extend Old Red Trail to River Road (Mandan)	Improves accessibility to residences along Missouri River. Impacts to boundary of Oil plant property and new road adjacent to cemetery.	Limited environmental impacts, positive is that it reduces out of direction travel for neighborhood residents.	Difficult terrain and crossing of rail tracks adjacent to River Rd. Somewhat redundant with concept that would extend Divide Avenue to Missouri Drive. Anticipated future volumes < 1,000 vpd.	Moderate to High	
Desire to Provide Transit Service to University of Mary	11 University / Bis-Man Transit Partnership	Students tend to be more transit-dependent than typical residents. Transit service can be coordinated with campus schedule - partnership opportunity.	Reduced vehicle trips translates into less emissions.	UMary is 3 miles south of current CAT service area (Route B-2). By 2035, 11,000 person trips destined for UMary have trip end within walking distance of current route (4,500 trips along Route B-2). Higher ridership propensity than most of population.	Low to Moderate	
Peak Period Concerns with Congestion / Safety along Lincoln Road	69 Add left-turn lanes at 52nd Ave, Benteen Drive and McDougall Drive	Sufficient right-of-way, limited impacts. Include trail in project addresses concerns regarding bike and pedestrian safety along Lincoln Road.	Limited environmental impacts.	Need to coordinate with other trail project to provide non-motorized connection between Bismarck and Lincoln.	Moderate	
Riverwood Drive Congestion at Washington Street	71 Add second eastbound left-turn lane at Washington Street	Property impacts likely, as roadway ROW appears to be 66' wide.	Limited environmental impacts, reduced vehicle delays and emissions.	Adjustment to signal required, should provide sufficient capacity in 2035.	Low to Moderate	
	Alternate Corridor Improvements 72 Southwest Bismarck Growth Area Roadway Grid Improvement	Improved neighborhood access. Some increased traffic adjacent to residences near Washington Street. London Ave provides corridor with least impacts. Other corridors have impacts to residents and golf course.	Improvements would occur within floodway / floodplain. Wetlands adjacent to corridor. Environmental documentation required.	Diverts 1,500 vpd from Riverwood Drive in 2035. London Ave carries 2,500 vpd, and is adjacent to water treatment plant. Soils in area are mostly sandy/silt to sandy/clay, with pockets of fat clays. On its own, provides LOS "D" in 2035.	High	
Schafer Street Pedestrian Safety and Campus Appearance	74 Reconstruction of Schafer Street between Edwards Avenue and College Drive to incorporate improved pedestrian and landscaping amenities.	Provides improved gateway corridor for BSC. Pedestrian safety improved.	Limited environmental impacts.	Included in BSC master plan.	Moderate	
Find Opportunities to Better Manage Regional Travel Demand	12 Regional TDM program, including ridesharing program and vanpool promotion	More than 13% of Bismarck-Mandan workers commute from outside of Burleigh and Morton counties - potential vanpool riders. Improved transportation choices in region.	Reduced VMT, improved regional air quality and reduced emissions.	Employer-based surveys could provide a better gauge of vanpool opportunities.	Low to Moderate	
State Street / US 83 Crash History / Safety Issues	14 Implement signal timing improvements in corridor.	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	Low	
	76 Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for northbound traffic in corridor, reducing rear-end crashes. Removes traffic from left-lanes, addressing congestion and safety at adjacent intersections.	Moderate to High	
Bismarck Expressway Crash History / Safety Issues from Washington to 3rd Street	6 Bismarck Expressway Widening / Improvements: Widen to 6-lanes from Washington Street to 9th Street, Implement intersection improvements between 9th Street and Rosser Ave	Impacts to operations of fire station at 9th St / Bismarck Expwy and commercial development.	Limited environmental impacts; additional environmental documentation likely required.	Reduced peak hour congestion should reduce the incidence of rear-end collisions.	High	
	14 Implement signal timing improvements in corridor.	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	Low	



Alternative 1. Northern River Crossing at 71st Avenue to 38th Street



Alternative 2. North-South Beltway (Burleigh County Only)



38<sup>th</sup> St

1806

94

10

6

194

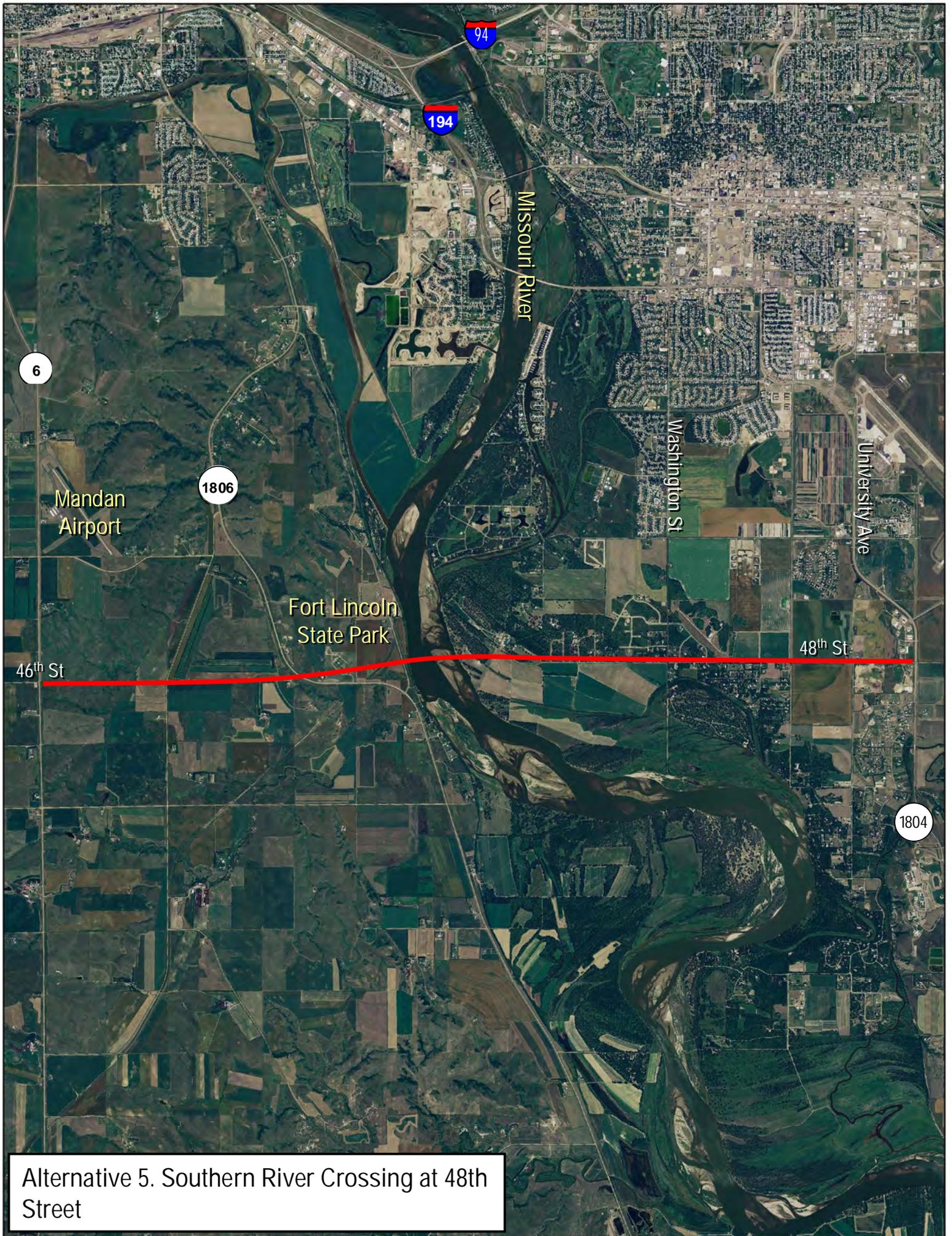
94

Mandan  
Airport

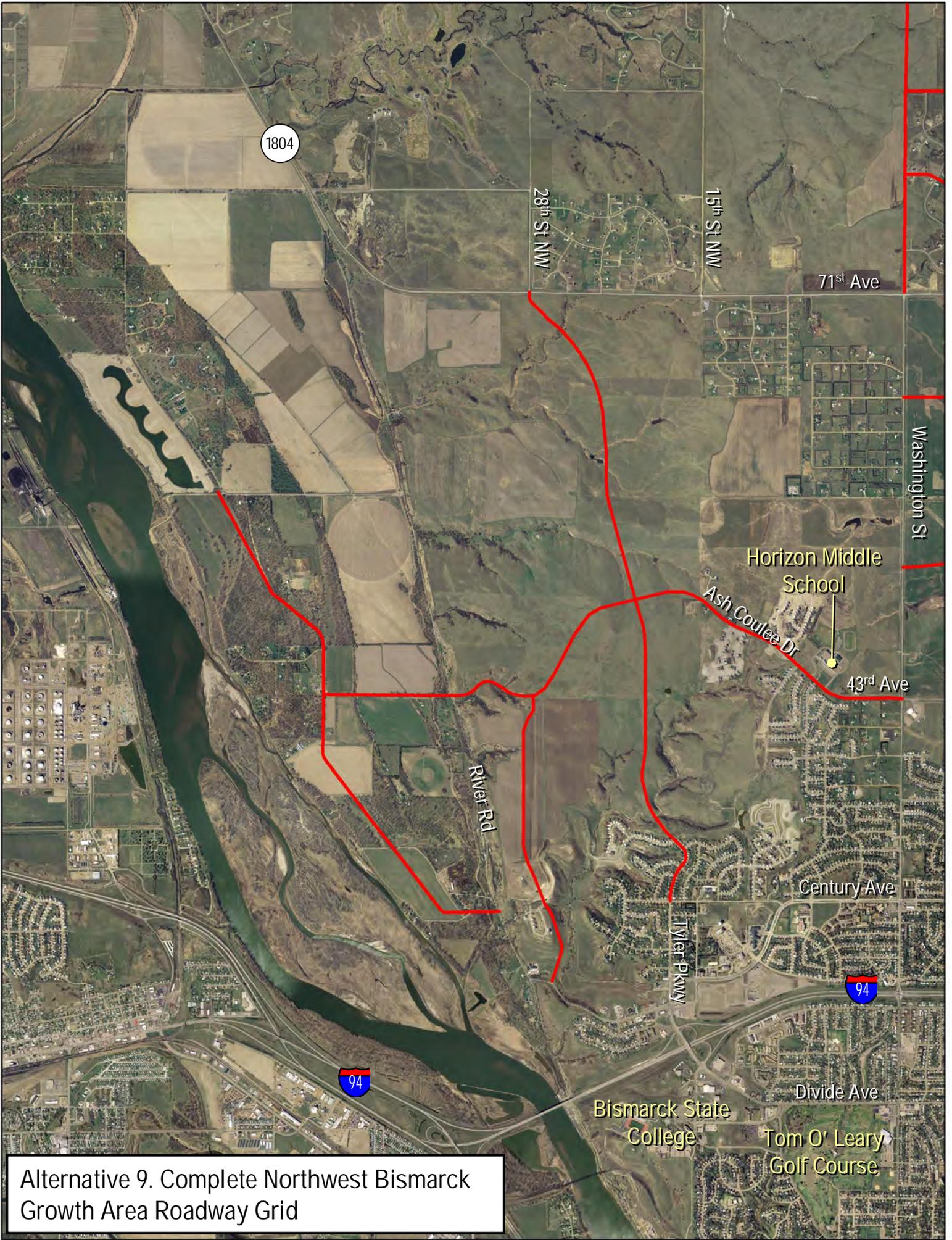
Fort Lincoln  
State Park

1806

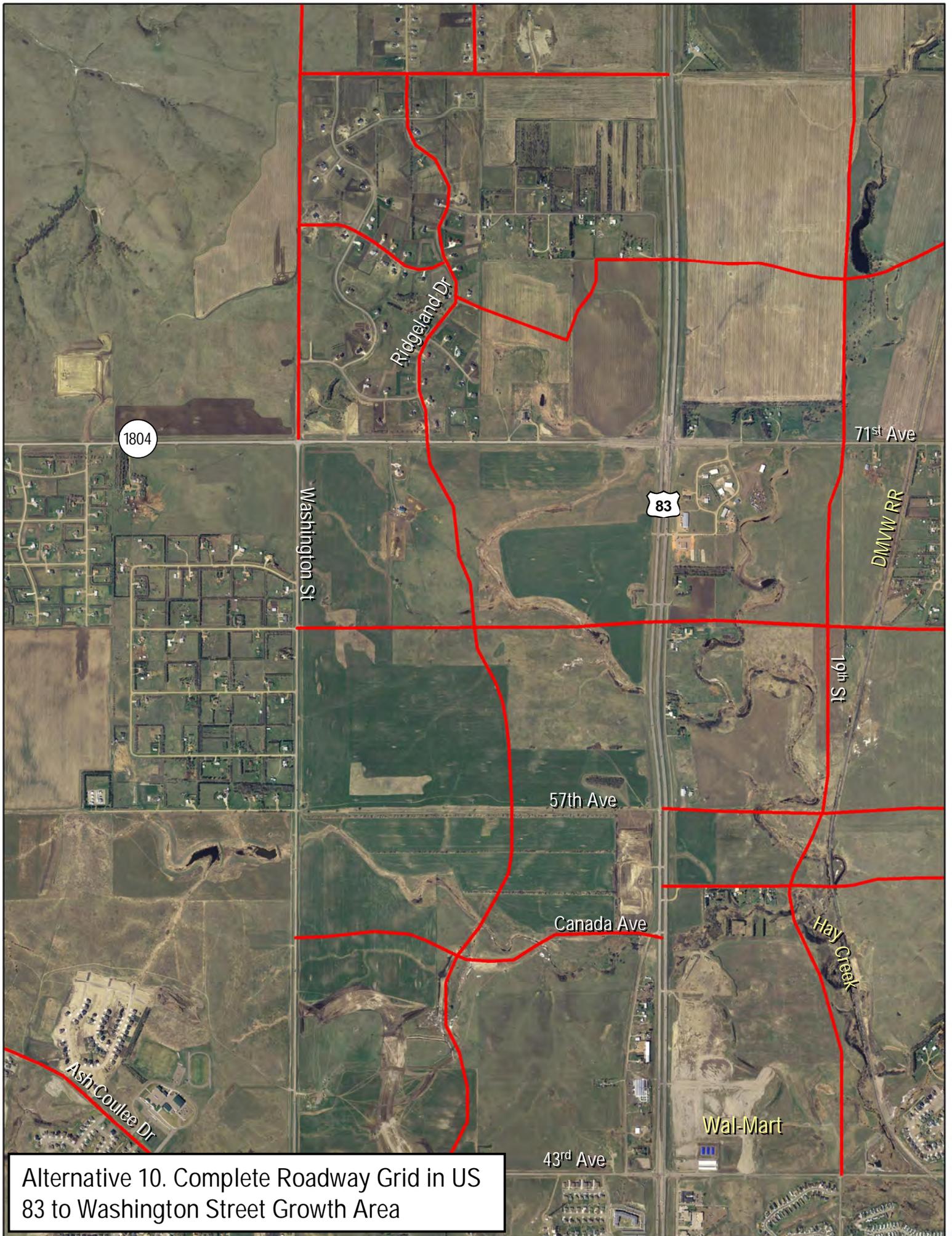
Alternative 3. North-South Beltway (Morton  
County Only)



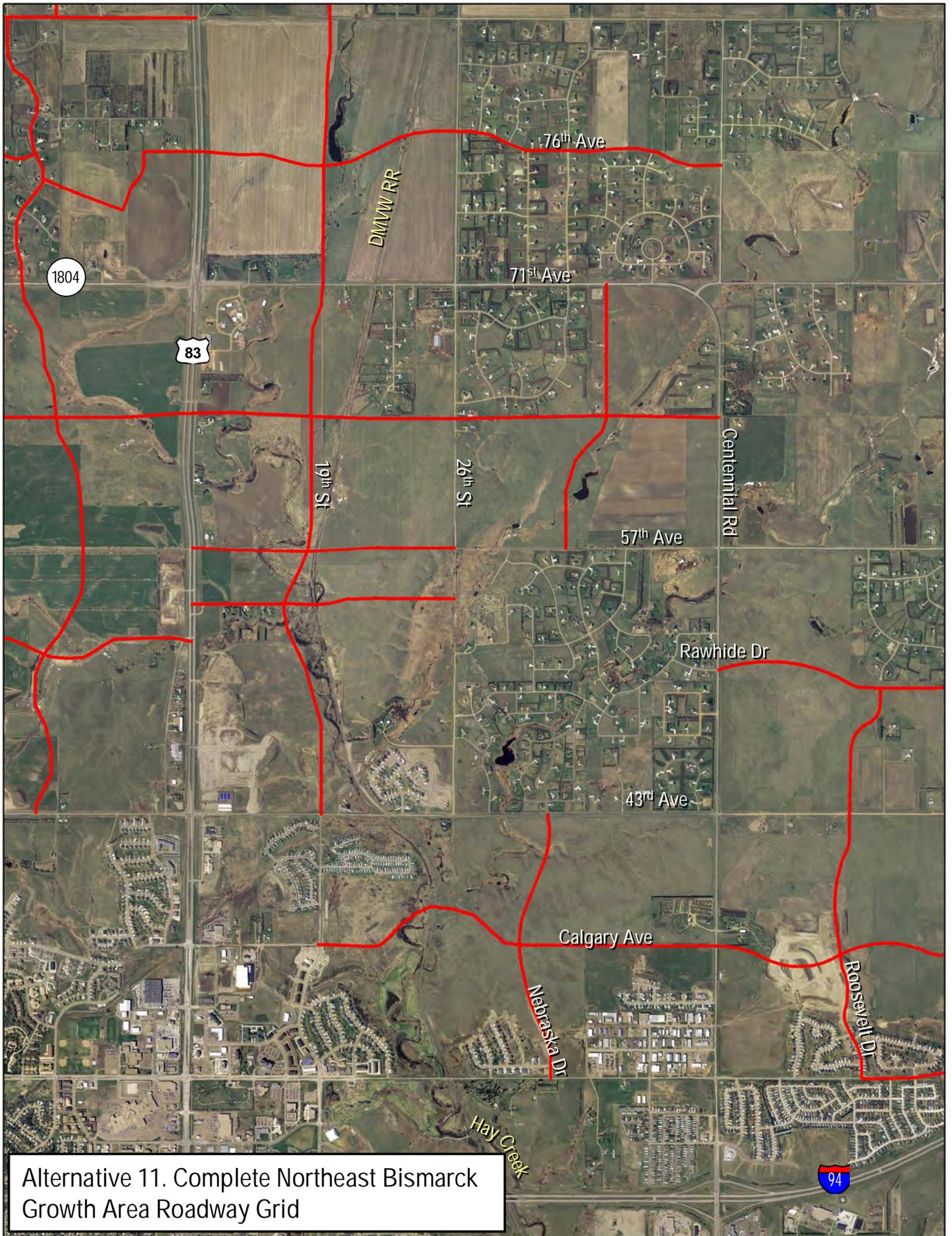
Alternative 5. Southern River Crossing at 48th Street



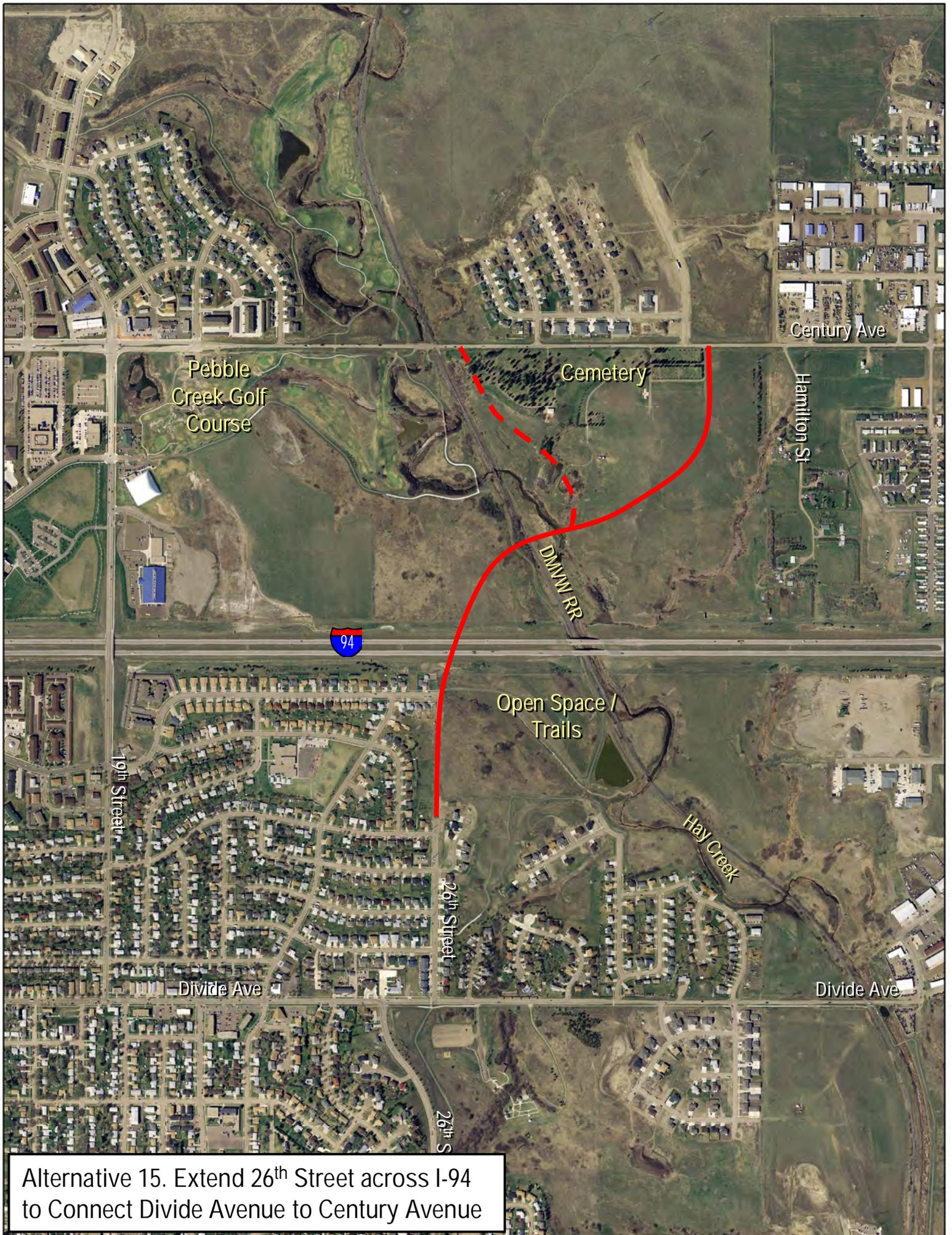
Alternative 9. Complete Northwest Bismarck Growth Area Roadway Grid



Alternative 10. Complete Roadway Grid in US 83 to Washington Street Growth Area



Alternative 11. Complete Northeast Bismarck Growth Area Roadway Grid



Alternative 15. Extend 26<sup>th</sup> Street across I-94 to Connect Divide Avenue to Century Avenue



43rd Ave

Centennial Rd

Century Ave

Landfill

94

Divide Ave

Future Extension  
of Divide Avenue

Bismarck Expwy

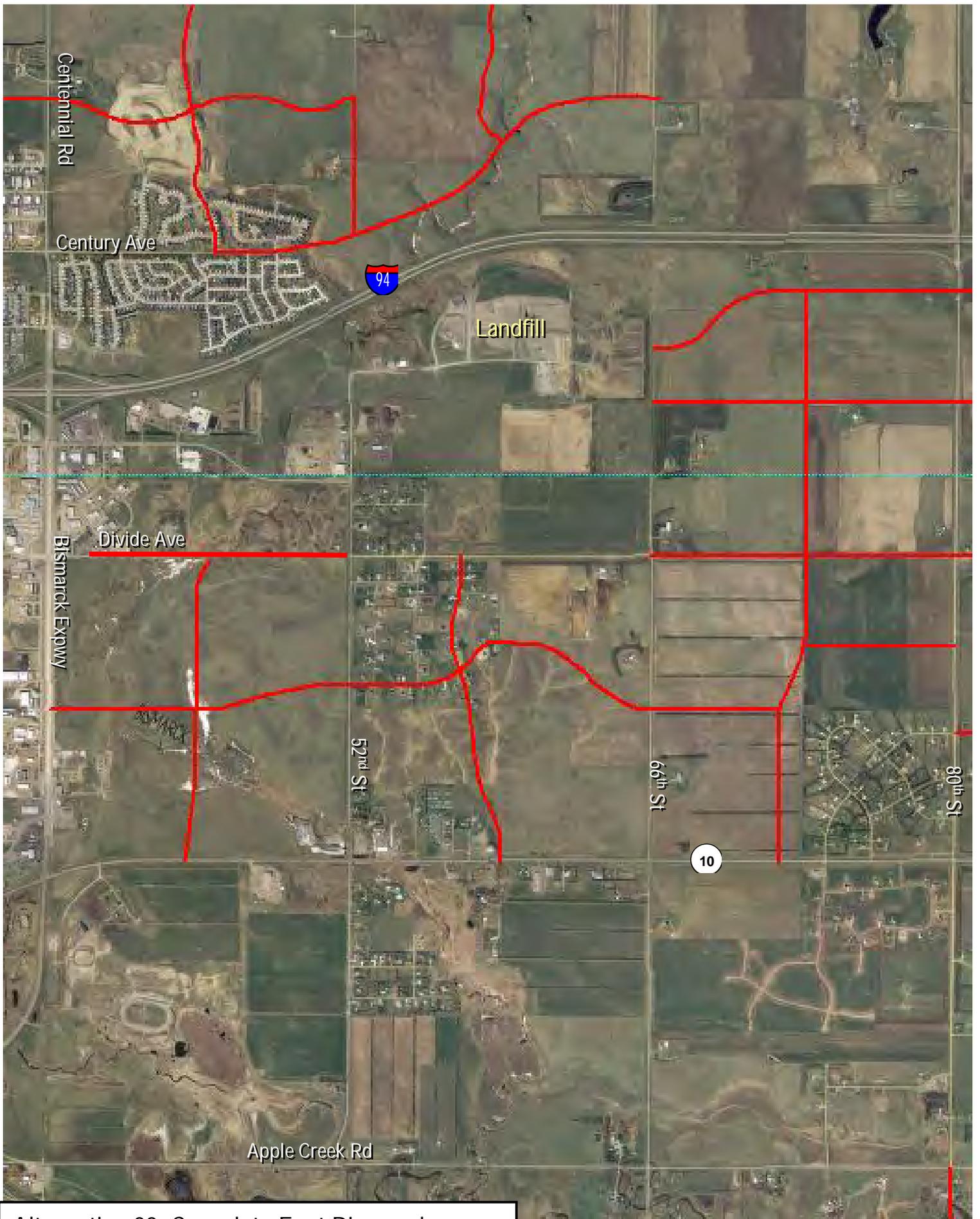
BISMARCK

52nd St

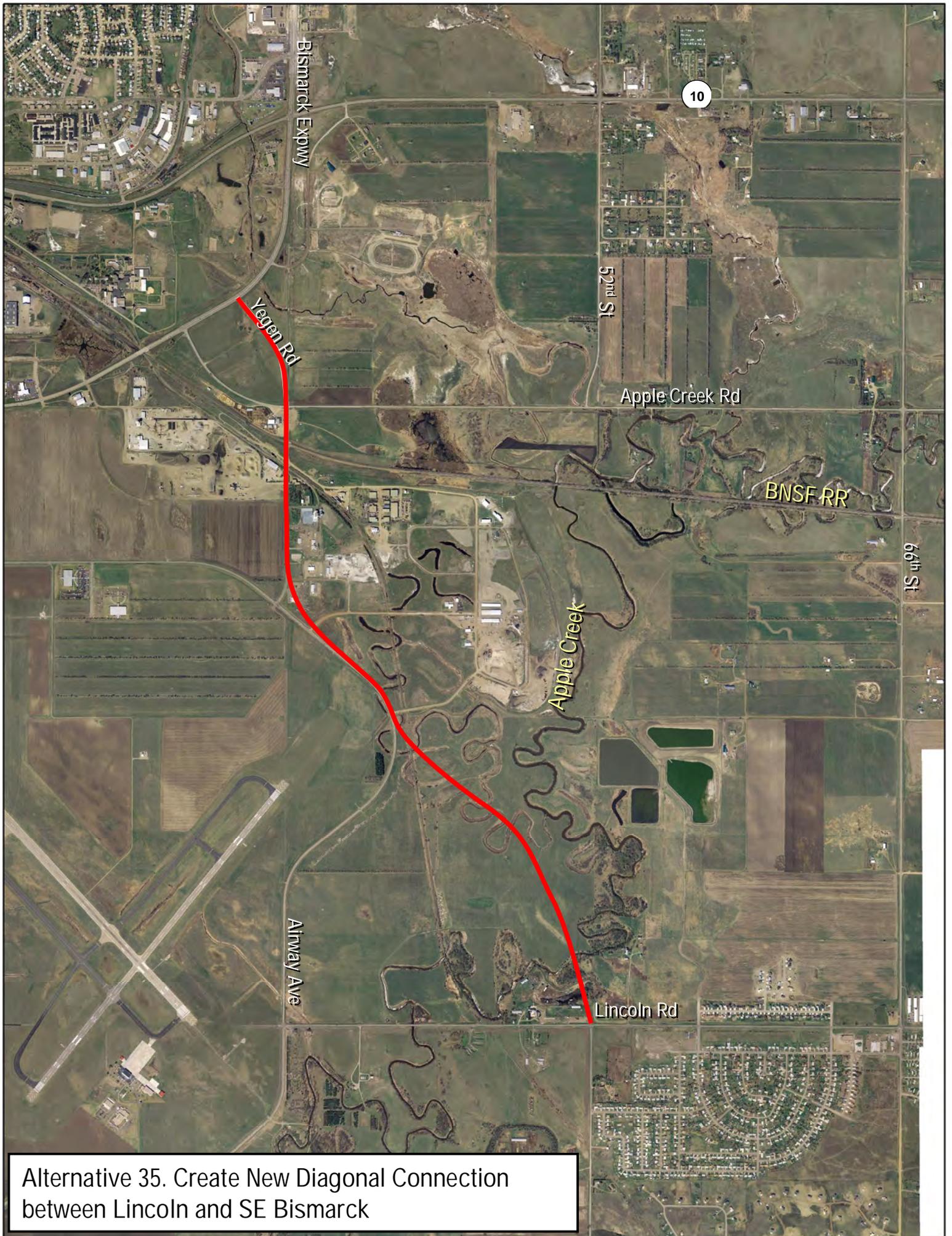
66th St

10

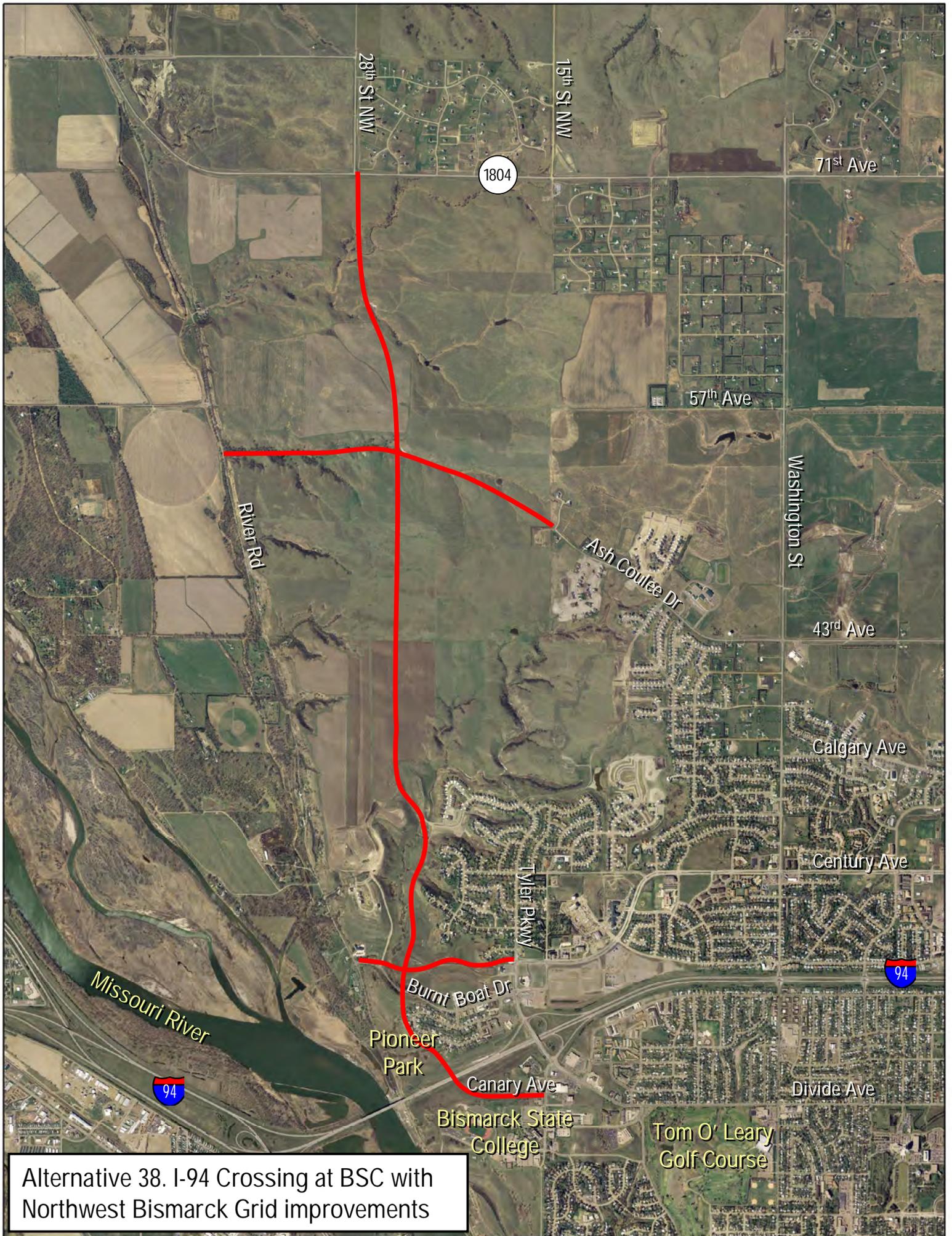
Alternative 30. Extend 52nd Street across I-94  
to Connect Divide Avenue to Century Avenue



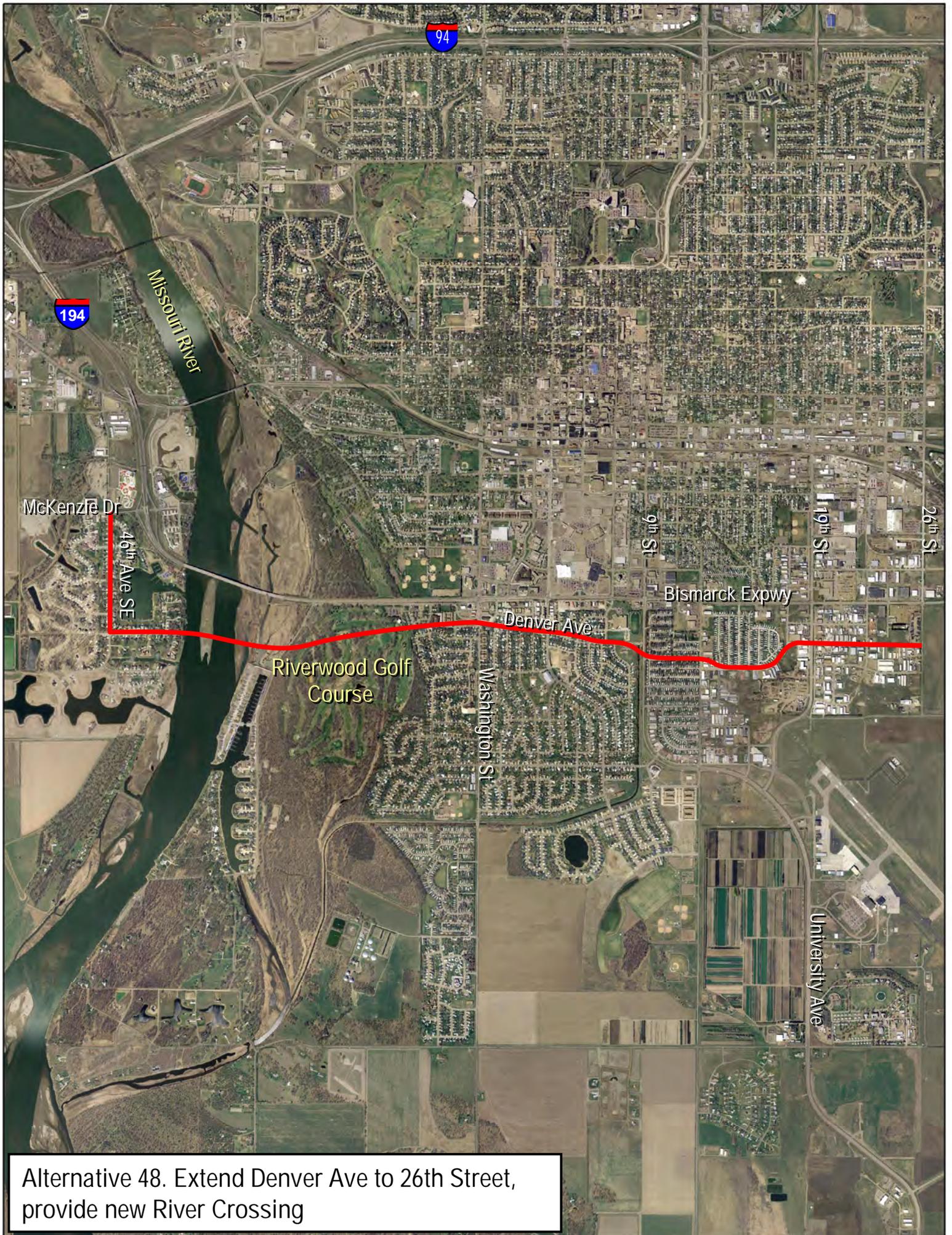
Alternative 32. Complete East Bismarck Growth Area Roadway Grid



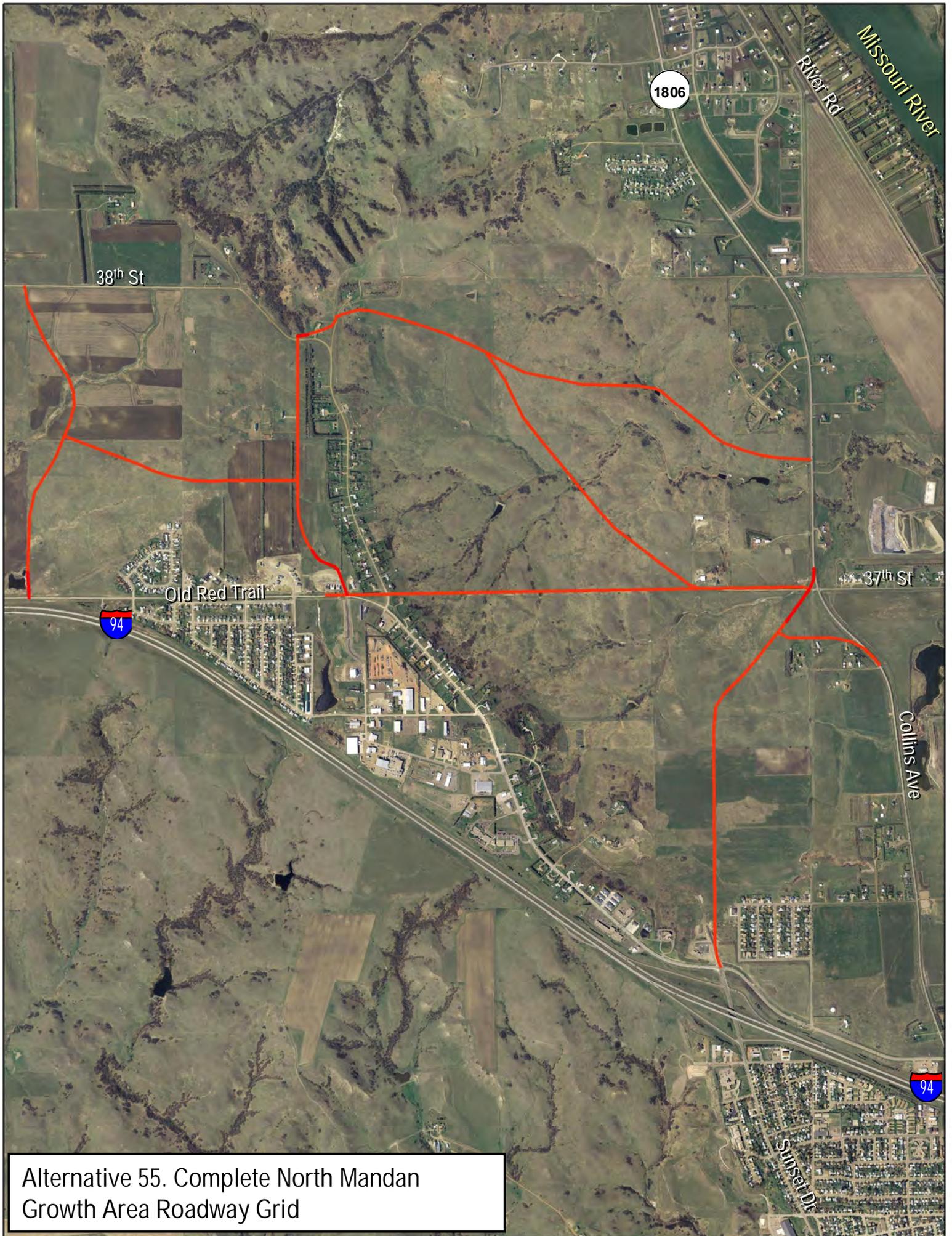
Alternative 35. Create New Diagonal Connection between Lincoln and SE Bismarck



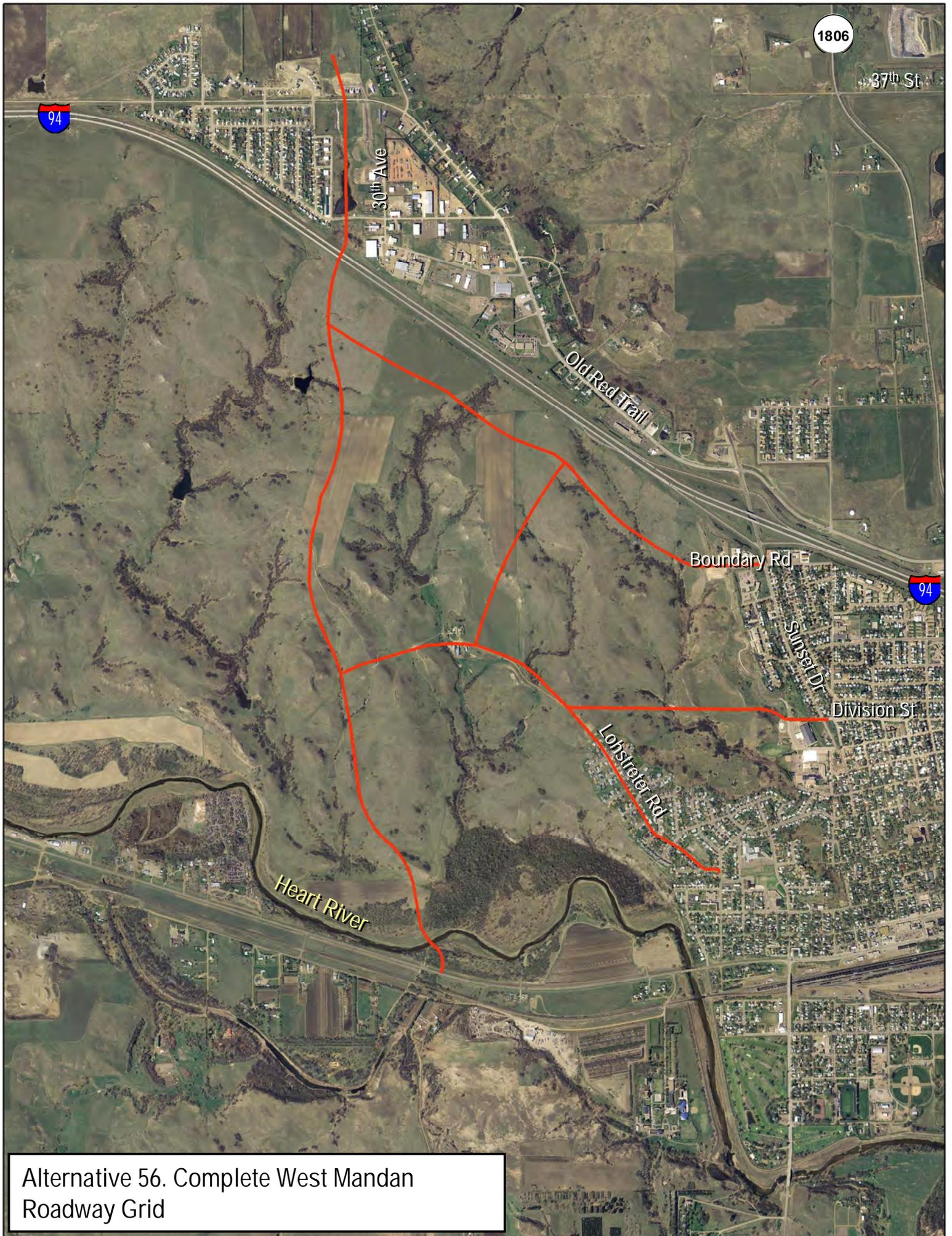
Alternative 38. I-94 Crossing at BSC with Northwest Bismarck Grid improvements



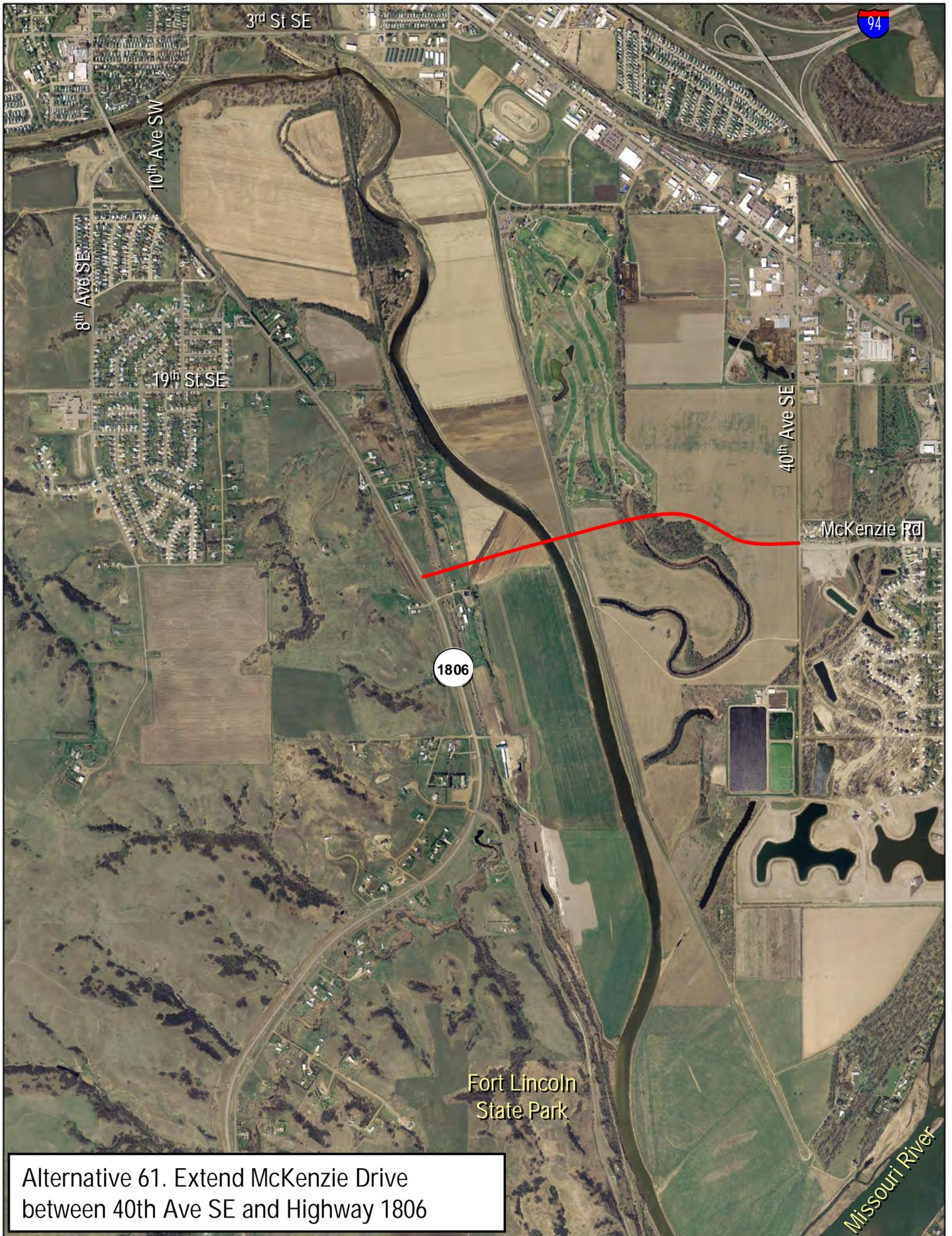
Alternative 48. Extend Denver Ave to 26th Street, provide new River Crossing



Alternative 55. Complete North Mandan Growth Area Roadway Grid



Alternative 56. Complete West Mandan Roadway Grid



Alternative 61. Extend McKenzie Drive between 40th Ave SE and Highway 1806



1806

Tesoro

Missouri River

River Rd

Old Red Trail

94

Collins Ave

Division Ave

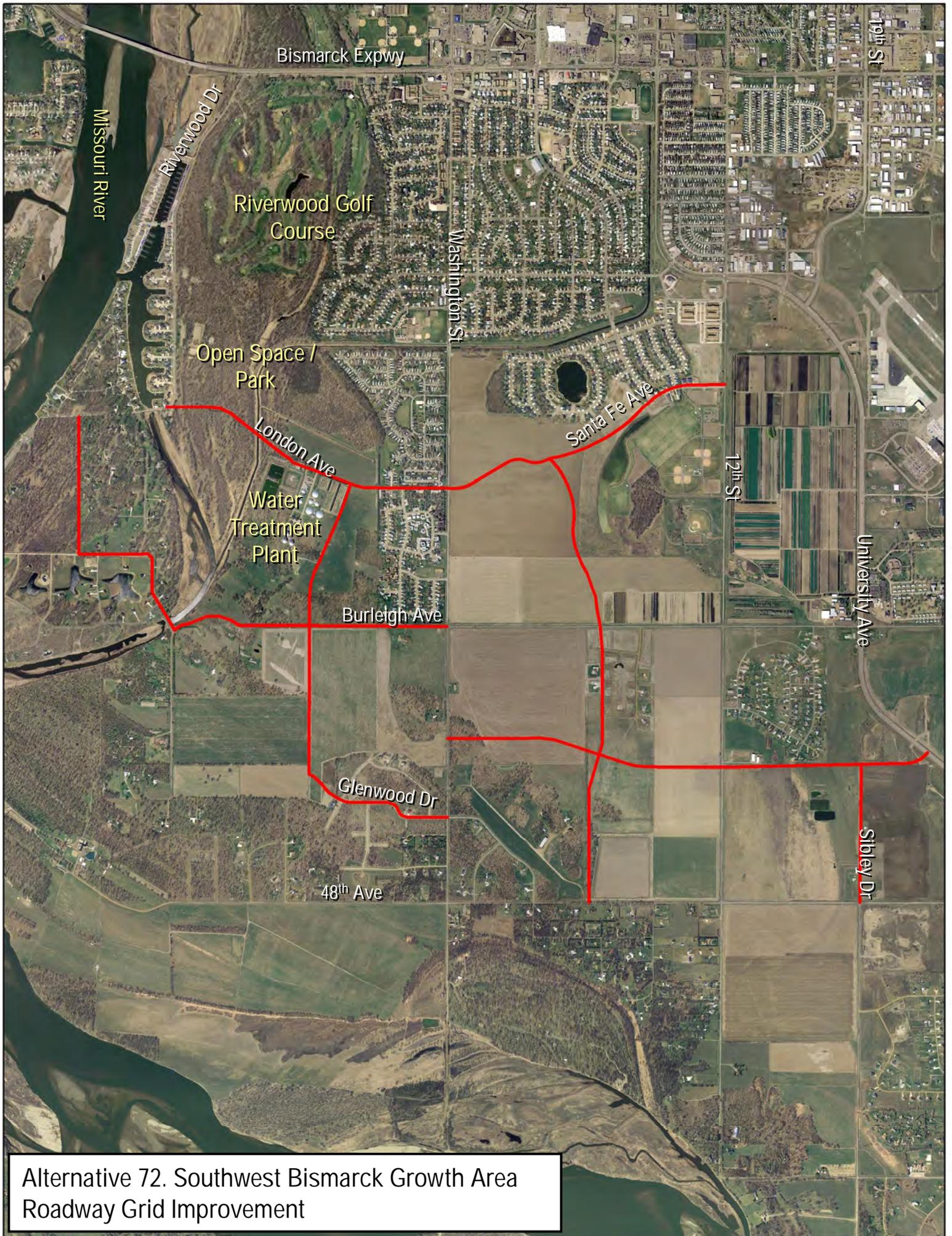
Mandan Ave

Rail Corridor

Missouri Dr

94

Alternative 67. Extend Old Red Trail to River Road (Mandan)



Bismarck Expwy

Missouri River

Riverwood Dr

Riverwood Golf Course

Washington St

19th St

Open Space / Park

London Ave

Water Treatment Plant

Santa Fe Ave

12th St

University Ave

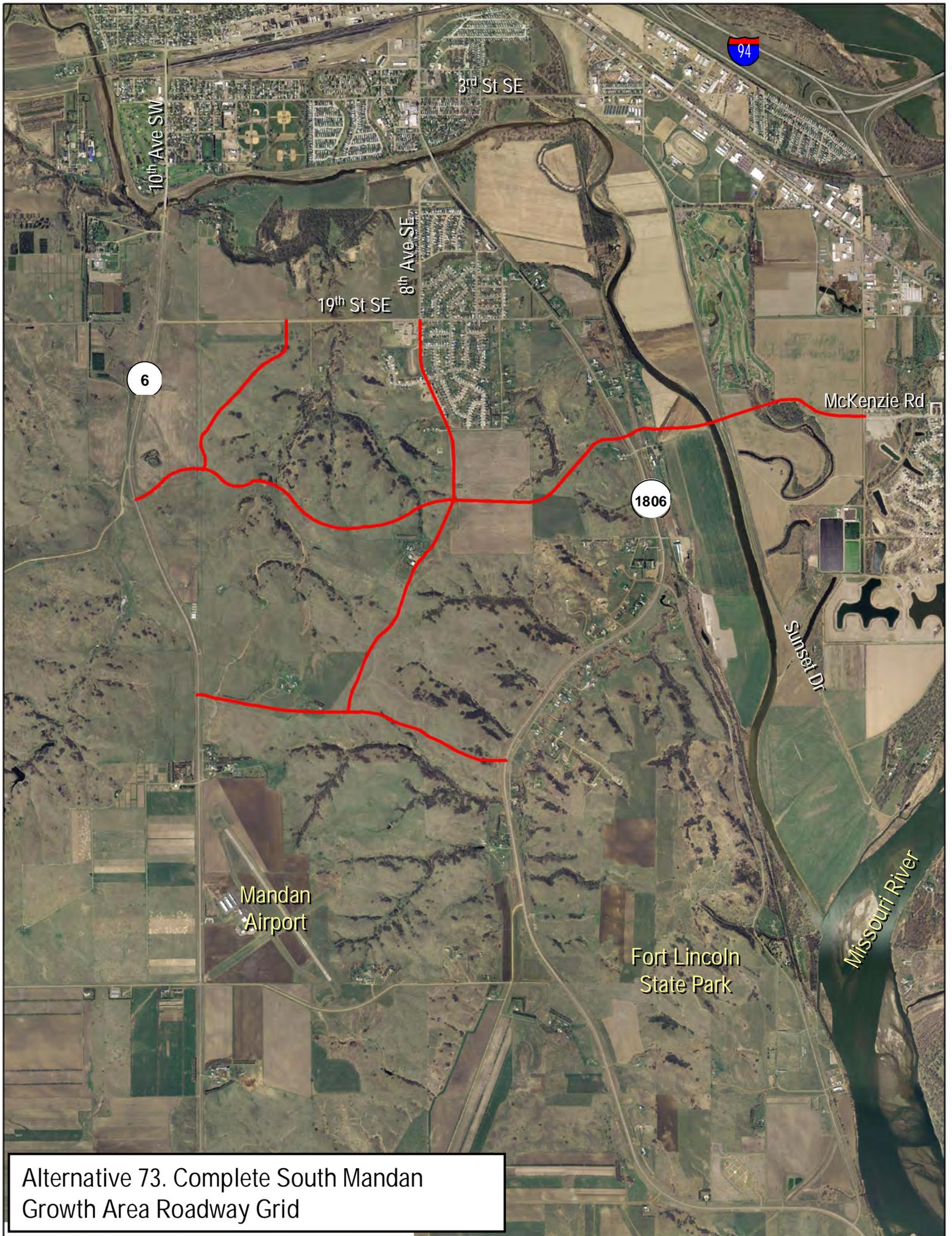
Burleigh Ave

Glenwood Dr

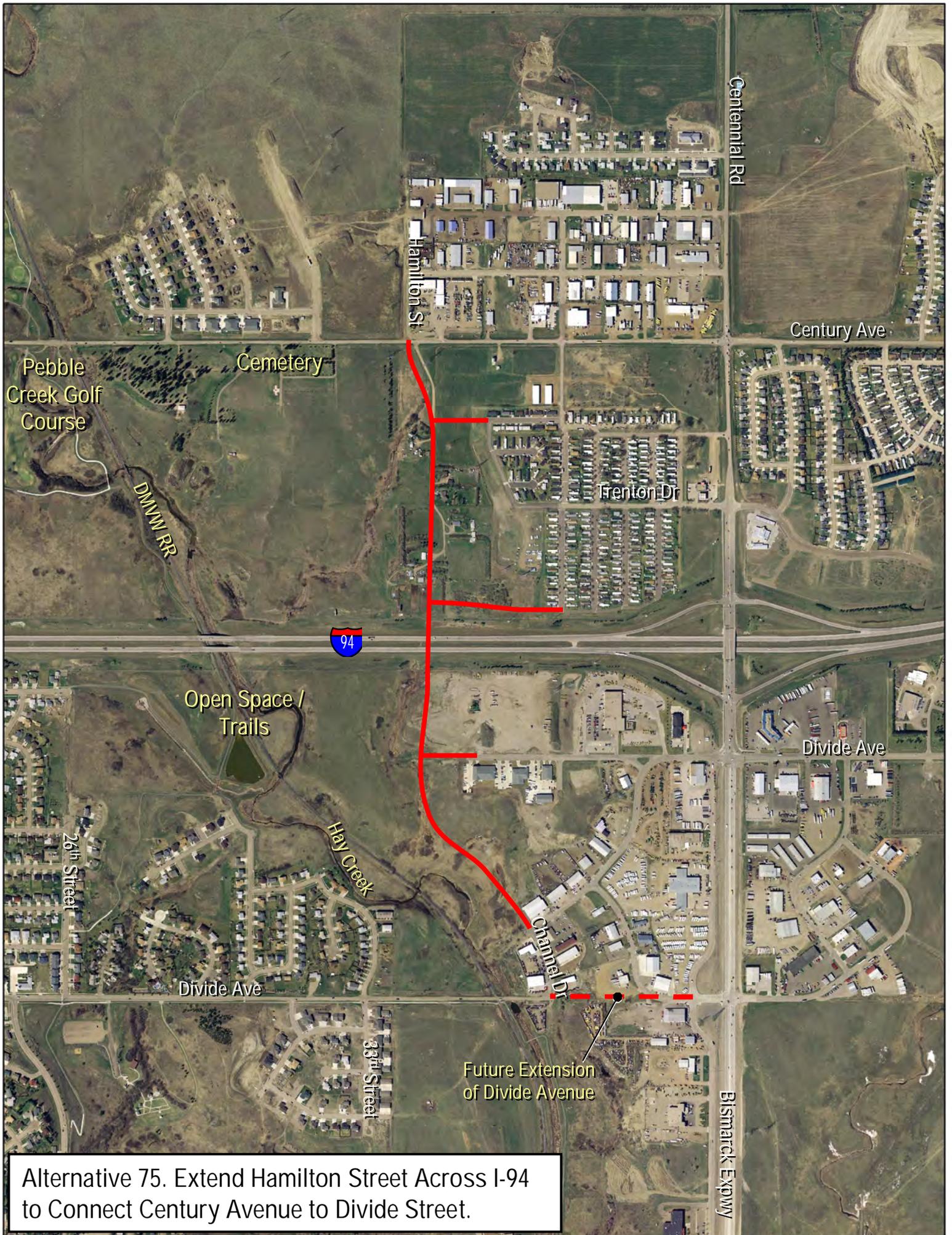
48th Ave

Sibley Dr

Alternative 72. Southwest Bismarck Growth Area Roadway Grid Improvement



Alternative 73. Complete South Mandan Growth Area Roadway Grid



Alternative 75. Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.



## MEMORANDUM

**Bill Troe, AICP**  
**Jason Carbee, AICP**  
12120 Shamrock Plaza  
Suite 300  
Omaha, NE 68154  
(402) 334-8181  
(402) 334-1984 (Fax)

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**To: Ben Ehreth**

**Date:** April 9, 2009

**Subject: Confirmation of Regionally-Significant Corridor Recommendations for Previous Studies**

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The purpose of this memorandum is to review the 2035 land development concept and traffic forecasts in reference to several regionally-significant studies that have been studied in the Bismarck-Mandan region over the past few years, all of which were based on older traffic and development assumptions (typically 2030, some 2025). Most of the various corridor and subarea studies completed in the Bismarck-Mandan region over the recent past are more focused in scope and typically employ a more detailed analysis in each study area than the level of analysis / review that is used in the LRTP update. Thus, as long as the variables that drive the projected travel demand in the studied corridors have not changed significantly with the updated 2035 land development concept, it is not anticipated that the 2035 Long Range Transportation Plan (LRTP) would provide a significantly revised study area recommendation.

The comparison presented in this memorandum will evaluate the general input assumptions used for each of the regionally-significant studies and answer the following questions:

- Have the base year conditions changed significantly?
- If documented, has the land development increment changed significantly (is the 2035 development concept significantly different from the 2030 development concept)?
- If documented, have the 2035 traffic forecasts changed significantly (are the 2035 traffic forecasts significantly different from the 2030 or 2025 traffic forecasts)?

The intent of this review is to either:

- Confirm that the land development / traffic forecasts in the project corridor are relatively consistent between 2035 and the corridor study's planning horizon (typically 2030).
- Establish that the land development / traffic forecasts in the project corridor have changed and revisit the recommended improvements for the studied corridor / subarea.

Those corridors that have their current recommendations confirmed by this review will not necessarily be guaranteed a spot on the ultimate 2035 recommended LRTP list, it just means that the recommended improvements to address the corridor deficiencies / issues will not be significantly altered through the 2035 LRTP alternatives analysis process. The relative prioritization of each corridor's improvements will be reviewed in regards to evaluation criteria scoring and evaluation of funding capability.

For reference, a comparison of employment and housing forecasts are provided for the 2030 planning horizon (as used for most of the studies) and 2035 (as used for the 2009-2035 LRTP update). These figures include the following summaries by Traffic Analysis Zone (TAZ):

- Estimated growth in households between 2000 and 2007
- Estimated growth in jobs between 2000 and 2007
- Forecasted 2030 households
- Forecasted 2035 households
- Forecasted 2030 employment
- Forecasted 2035 employment

For purposes of consistency / comparability, the data for both 2030 and 2035 are presented based on the 2030 TAZ structure.

As shown in Figures 1 and 2, socio-economic growth between 2000 and 2007 has been essentially a continuation of past trends and is consistent with the growth trends forecasted for 2030 and 2035. Thus, significant shifts in base year conditions were not determined to be a factor and thus did not affect whether or not a past study's recommendations should be confirmed for the 2035 LRTP.

## ***OVERVIEW OF PREVIOUS STUDIES***

### ***North-South Beltway Study***

- *North-South Beltway Overview:* To provide traffic relief, a high safety and mobility corridor and to provide regional connectivity and continuity, the study identified several potential arterial alignments along the fringe of the metropolitan area.
- *North-South Beltway Planning Horizon:* The Beltway study assumed a 2030 planning horizon.
- *North-South Beltway Study Recommendations:* The general recommendations for the beltway were that it would follow the following corridors:
  - 71st Avenue (Burleigh County) / 37th Street (Morton County) on the north
  - 66th Street on the east
  - 48th Avenue (Burleigh County) / 48th Street (Morton County) on the south
  - 24th Avenue on the west
- *Consistency with the 2035 Development Concept:* In general, there are similar development patterns identified in beltway study area.

- *Consistency with 2035 Traffic Forecasts:* Based on the available Beltway study documentation on traffic forecasting methodology and results, 2035 LRTP forecasts for the Beltway facilities are within the general range anticipated by the North-South Beltway.
- *Recommendation for 2035 LRTP:* Based on the relative consistency in development pattern and the ability to recreate the general Beltway traffic results with the 2035 LRTP, the Beltway Study is confirmed. The Beltway concept will be advanced and will be compared to other alternatives for prioritization.

### ***US 83 Corridor Study***

- *US 83 Corridor Study Overview:* The study covered a subarea experiencing relatively fast residential and commercial growth - US Highway 83 corridor between Calgary Avenue and 110<sup>th</sup> Avenue. The purpose of the study was to address economic development and traffic operations conflicts within the study area, as such the study focused on coordinating the development and infrastructure planning in the corridor.
- *US 83 Planning Horizon:* The US 83 plan assumed a 2030 planning horizon.
- *US 83 Study Recommendations:* A set of recommended future collector and minor arterial corridors were identified for the study area, based on general spacing and access guidelines. Based on the development plan used for the US 83 corridor study, it was anticipated that US 83 would eventually need to be expanded to 6-lanes from 43rd Avenue north to 71st Avenue / ND 1804. An interchange was recommended at the intersection of 71<sup>st</sup> Avenue / ND 1804.
- *Consistency with the 2035 Development Concept:* The 2035 development concept has similar development *patterns* as the 2030 concept used for the US 83 study. The 2035 socio-economic data used for this LRTP update does have significantly less assumed total employment and housing growth adjacent to the US 83 corridor.
- *Consistency with 2035 Traffic Forecasts:* The reduced levels of employment and housing growth in the corridor are reflected in lower forecasted 2035 traffic volumes. The following bullets provide a comparison of forecasted US 83 volumes from the US 83 study and the 2035 LRTP:
  - North of I-94:
    - US 83 Study: 72,000 vpd
    - 2035 LRTP: 54,000 vpd
  - North of Century:
    - US 83 Study: 50,600 vpd
    - 2035 LRTP: 37,000 vpd
  - North of 43<sup>rd</sup> Avenue:
    - US 83 Study: 45,000 vpd
    - 2035 LRTP 29,000 vpd
- *Recommendation for 2035 LRTP:* In general, the findings of the US 83 study are confirmed: significant traffic growth and congestion are anticipated in the corridor by 2035, but are somewhat lower in the corridor than anticipated in the study based on the 2030 development concept. It is recommended that many components of the US 83

recommendations would still be appropriate based on the LRTP traffic volume forecasts, including:

- Adjacent arterial and collector improvements in 2035 growth areas.
- 6-lane widening of US 83 south of 43<sup>rd</sup> Avenue

Portions of the study-recommended US 83 6-lane widening between 57<sup>th</sup> Avenue and 71<sup>st</sup> Avenue may not be required until after 2035.

### ***Fringe Area Master Plans***

- *Fringe Area Overview:* The purpose of the separate Fringe Area Master Plans for Bismarck-Burleigh County and Mandan – Morton County was to provide local jurisdictions a set of planned roadway corridors for which they could preserve right-of-way for a network that met their desired right-of-way widths and access spacing recommendations. The Fringe Road Area Plans were laid out to accommodate traffic growth related to future development on the periphery of the currently developed portions of Bismarck-Mandan-Lincoln.
- *Fringe Plan Planning Horizon:* There was no documented planning horizon associated with the Fringe Plan.
- *Fringe Area Recommendations:* The recommended placement of arterial and collector roadways in the study was heavily influenced by the terrain in the region. The guidelines employed in establishing the recommended fringe area network were:
  - An arterial network with a minimum spacing of one mile (up to five miles)
  - A collector network that included exactly one north-south and one east-west collector road in each section, typically near the ½ section line.
- *Consistency with 2035 Development Concept:* The general concepts proposed in the Fringe Area Plans were not necessarily tied to the 2030 development concept, and in many cases the proposed corridors were beyond the extent of anticipated 2030 development.
- *Recommendation for 2035 LRTP:* The general concept of the Fringe Study is confirmed. URS will work with local staff on both sides of the river to identify locations where it is recognized that fringe alignments need to be changed due to development or adjustments to accommodate the finding of other corridor studies.

### ***71<sup>st</sup> Avenue and Centennial Road Corridor Study***

- *71<sup>st</sup> and Centennial Overview:* The study provided a set of short- / mid-term recommendations to address the traffic flow and safety needs of the corridor, specifically addressing:
  - Traffic growth from corridor-based development
  - Through traffic using the corridor
  - Truck traffic

- Access management
- *71<sup>st</sup> and Centennial Planning Horizon:* The 71st and Centennial study assumed a 2030 planning horizon.
- *71<sup>st</sup> and Centennial Recommendations:* The following summarizes the recommendations from the 71<sup>st</sup> / Centennial Study:
  - Centennial Road, I-94 to Jericho Rd: Provide four-lane roadway with left-turn lanes.
  - Centennial Rd, Jericho Rd to 71<sup>st</sup> Ave: Provide a two-lane roadway with a continuous center left-turn lane.
  - 71<sup>st</sup> Avenue, Centennial Rd to US 83: Provide a two-lane roadway with a continuous center left-turn lane.
  - Left-turn and right-turn lanes were recommended at several cross-streets.
- *Consistency with 2035 Development Concept:* In general, the locations of development anticipated for 2030 and 2035 are relatively consistent. The 2035 development concept anticipates more housing and employment growth in the TAZs adjacent to the Century Ave – Centennial Rd intersection.
- *Consistency with 2035 Traffic Forecasts:* The reduced levels of employment and housing growth in the corridor are reflected in lower forecasted 2035 traffic volumes. The following bullets provide a comparison of forecasted corridor volumes from the 71<sup>st</sup> / Centennial study and the 2035 LRTP:
  - North of I-94:
    - 71<sup>st</sup> / Centennial Study: 26,000 vpd
    - 2035 LRTP: 25,500 vpd
  - North of Century:
    - 71<sup>st</sup> / Centennial Study: 13,000 vpd
    - 2035 LRTP: 18,500 vpd
  - North of 43<sup>rd</sup> Avenue:
    - 71<sup>st</sup> / Centennial Study: 6,900 vpd
    - 2035 LRTP 8,000 vpd
  - East of US 83:
    - 71<sup>st</sup> / Centennial Study: 7,200 vpd
    - 2035 LRTP 13,700 vpd
- *Recommendation for 2035 LRTP:* The 71<sup>st</sup> / Centennial recommendations are confirmed. An addition would be that a 4-lane widening of Centennial Road may be required between Jericho Road and at least Calgary Avenue by 2035.

### ***Interstate and Bismarck Expressway Corridor Study***

- *Interstate and Bismarck Expressway Overview:* The Interstate and Bismarck Expressway Corridor Study identified and recommended improvements that would improve safety and traffic flow through the corridors.
- *Interstate and Bismarck Expressway Planning Horizon:* The Interstate and Bismarck Expressway Corridor Study assumed a 2030 planning horizon.
- *Interstate and Bismarck Expressway Recommendations:* The following summarizes the recommendations from the Interstate and Bismarck Expressway Study:
  - Reconstruct the Mandan Avenue Interchange for safety improvements.
  - Reconstruct I-194 and East Main interchanges to improve safety and traffic flow.
  - Reconstruct the Memorial Highway and McKenzie Drive interchanges.
  - Widen Bismarck Expressway to 7-lanes between Washington Street and 9<sup>th</sup> Street.
  - Improve intersections and manage corridor access between 9<sup>th</sup> Street and Rosser Avenue.
- *Consistency with 2035 Development Concept:* In general, the locations and amount of new development anticipated for 2030 and 2035 are relatively consistent within the corridor.
- *Consistency with 2035 Traffic Forecasts:* In general, the 2035 forecasts are similar but slightly less than the 2030 forecasts. The following bullets provide a comparison of forecasted corridor volumes from the Interstate / Bismarck Expressway study and the 2035 LRTP:
  - I-94 between Main and I-194:
    - Interstate / Bismarck Expressway Study: 52,000 vpd
    - 2035 LRTP: 48,000 vpd
  - Bismarck Expressway Bridge:
    - Interstate / Bismarck Expressway Study: 27,500 vpd
    - 2035 LRTP: 22,500 vpd
  - Washington Street to 3<sup>rd</sup> Avenue:
    - Interstate / Bismarck Expressway Study: 31,000 vpd
    - 2035 LRTP: 31,800 vpd
  - 7<sup>th</sup> Street to 9<sup>th</sup> Street:
    - Interstate / Bismarck Expressway Study: 37,500 vpd
    - 2035 LRTP: 34,400 vpd
  - Main Avenue to Rosser Avenue:
    - Interstate / Bismarck Expressway Study: 36,000 vpd
    - 2035 LRTP 32,000 vpd
- *Recommendation for 2035 LRTP:* The Interstate and Bismarck Expressway recommendations are confirmed. An additional westbound left turn lane at Yegan Road (dual left-turn lanes) may be required by 2035.

### ***Northern Bridge Corridor Study***

- *Northern Bridge Corridor Study Overview:* The Northern Bridge corridor study identified a future regional beltway corridor and preserved right-of-way for a new river crossing in the growing areas of northern Bismarck-Mandan.
- *Northern Bridge Corridor Study Planning Horizon:* The Northern Bridge Study assumed a 2025 planning horizon.
- *Northern Bridge Corridor Study Recommendations:* The study recommended a northern river crossing that would include a diagonal connection from 71st Avenue / Highway 1804 in Burleigh County to 38th Street in Morton County.
- *Consistency with 2035 Traffic Forecasts:* The 2035 LRTP forecasts are in line with the forecasted Missouri River crossing volumes documented in the Northern Bridge Crossing for 2025 and 2040:
  - Northern Bridge Study: 75,200 vpd crossing the Missouri River in 2025 and 89,600 vpd in 2040 (extrapolated from 2025 LRTP volumes).
  - 2035 LRTP: 81,400 vehicles per day crossing the Missouri River in 2035.
- *Recommendation for 2035 LRTP:* Similar river crossing demands and development patterns for both 2030 and 2035, thus the Northern Bridge Corridor Study recommendations are confirmed.

### ***12<sup>th</sup> Street Corridor Study***

- *12<sup>th</sup> Street Corridor Study Overview:* The study recommended a set of improvements to address the varying / sometimes conflicting corridor functions, pedestrian and vehicle safety and high access levels throughout the corridor to provide a corridor that provides a more consistent corridor that meets safety, mobility and access needs of users
- *12<sup>th</sup> Street Corridor Study Planning Horizon:* The study assumed a 2025 planning horizon.
- *12<sup>th</sup> Street Corridor Study Recommendations:* Recommendations were made throughout the corridor including minor widenings, addition of turn lanes in locations or restriping existing segments for continuous center left-turn lane, on-street parking removals in some locations, reconstruction of segments to flatten horizontal and vertical curves, access consolidations and stop control changes.
- *Recommendation for 2035 LRTP:* Traffic forecasts are not provided in the 12<sup>th</sup> Street Document. Traffic congestion has been identified for 2035 in the LRTP update for locations along the 12<sup>th</sup> Street corridor, and many of the projects identified in the 12<sup>th</sup> Street Corridor Study would address those deficiencies. Thus, the 12<sup>th</sup> Street Corridor Study recommendations are confirmed.

### ***Lincoln to Bismarck Roadway Connection Study***

- *Lincoln – Bismarck Connection Study Overview:* The study intended to address the desire for improved multi-modal connection between Lincoln and southeast Bismarck and address some perceived peak hour turning movement congestion.
- *Lincoln – Bismarck Connection Study Planning Horizon:* The study assumed a 2030 planning horizon.
- *Lincoln – Bismarck Connection Study Recommendations:* The Connection Study recommended turn lane additions at the following intersections:
  - 66th / Apple Creek
  - 66th / Main
  - Yegen / Airway Ave
  - 66th / Lincoln.

Reconstruct 66th Street to a four-lane urban roadway between Lincoln Rd and Main Ave with BNSF grade separation

- *Consistency with the 2035 Development Concept:* In general, the 2030 and 2035 development concepts are similar as both anticipate significant housing and residential growth in the Lincoln area. The 2035 development concept assumed approximately 500 unit *lower* growth in households than the 2030 development concept, and the 2035 development concept assumed approximately 800 *higher* job growth in employment than the 2030 development concept.
- *Consistency with 2035 Traffic Forecasts:* Based on the limited traffic forecasting information provided in Table 1 of the *Lincoln-Bismarck Connector Study*, the traffic forecasts are relatively consistent between the 2035 LRTP and the Connector Study. The 2030 forecast for 66<sup>th</sup> Street north of Lincoln in the Connector Study was 9,000 vpd and is 11,300 vpd in the 2035 LRTP forecasts.
- *Recommendation for 2035 LRTP:* The Lincoln Connector Study recommendations are confirmed.

### ***River Road Corridor Study***

- *River Road Study Overview:* The study was initiated to address issues in the River Road corridor with traffic growth and safety.
- *River Road Study Planning Horizon:* No planning horizon is identified in the study documentation.
- *River Road Study Recommendations:* The recommendations include running River Road along a new alignment west of the current alignment between Ash Coulee Drive and Burnt Boat Drive, and extending Ash Coulee Drive farther west to intersect with Burnt Boat Drive.

- *Consistency with 2035 Traffic Forecasts:* The forecasting methodology employed in the River Road study was different than used in the 2035 LRTP and in other studies. The River Road study relied on a relatively short amount of historical daily count data to extrapolate traffic volumes into the future. The River Road Study projected an 800 vehicle-per-year growth rate for River Road north of Burnt Boat Drive, with a 2010 daily forecast was 7,900 vpd. The 2006 traffic count in this location is 2,175 vpd.
- *Recommendation for 2035 LRTP:* The recommendations in the River Road study address some identified issues for the 2035 update, including north-south continuity. The extension of Ash Coulee Drive provides an alternate route for the study area; through traffic forecasting completed in the 2035 LRTP update it is estimated to divert 1,000 to 3,000 vpd from River Road north of Burnt Boat Drive. Thus, the general concepts recommended by the River Road Study are confirmed, but the timing and priority assigned to the concepts through the 2035 LRTP update may be different than those assumed in the study.

## ***SUMMARY***

Based on the comparison of the input assumptions, between the 2035 LRTP and the 2030 development concept most of the other studies used, there is little that would warrant *significant* changes to the various studies' findings or recommendations. As documented:

- There are some isolated differences in LRTP and study assumptions / inputs that would indicate that timing and / or prioritization of various recommendations should be adjusted. Issues of timing / prioritization will be worked out in the second level alternatives analysis.
- The 2035 LRTP alternatives analysis process has added some projects to the studied corridors to address new issues that have arisen as a part of the current LRTP update.

If you have any questions or comments about this memorandum, please contact Jason Carbee at (402) 952-2506 or via e-mail at [Jason.Carbee@urscorp.com](mailto:Jason.Carbee@urscorp.com).

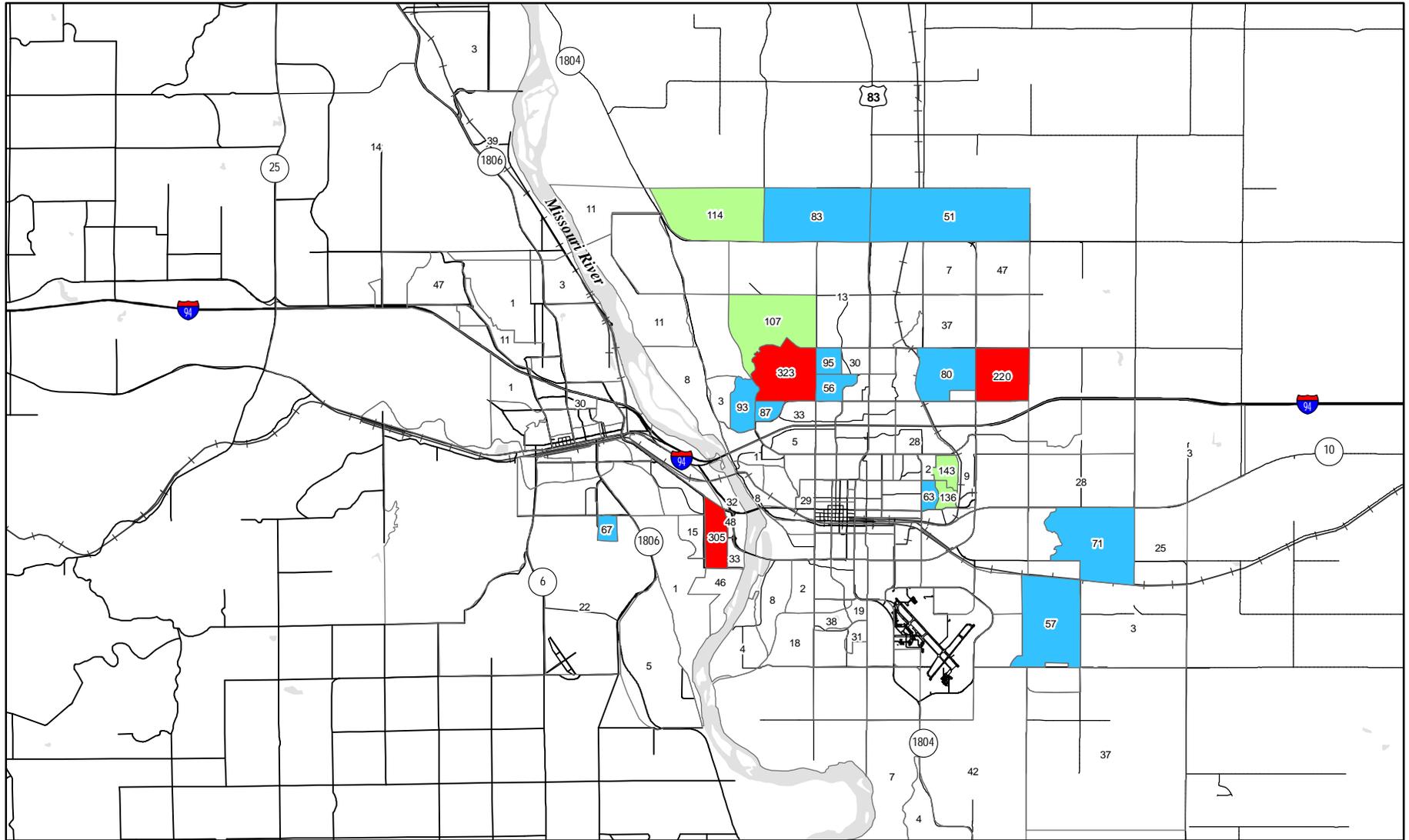


Figure 1.  
2000 to 2007 Household Growth



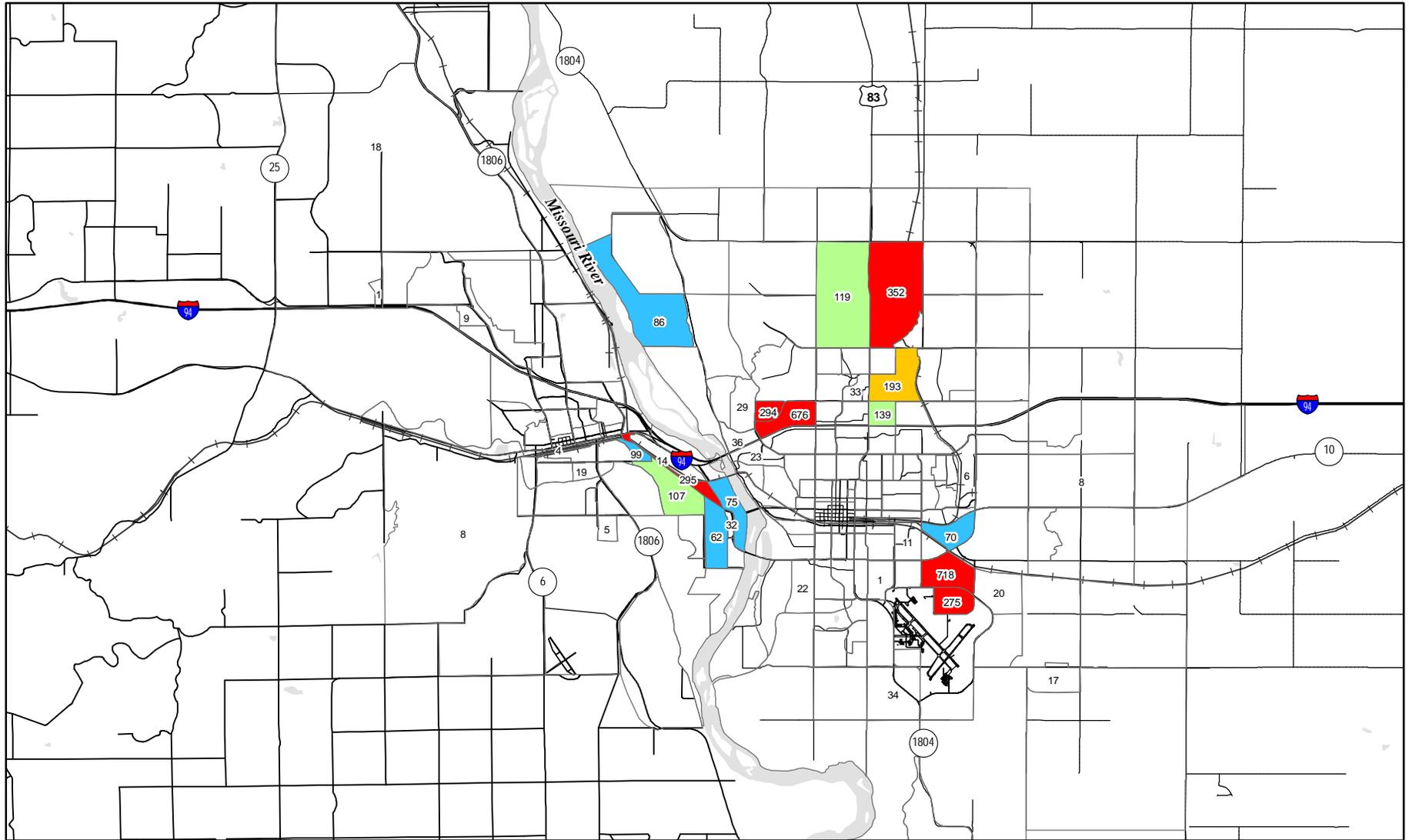


Figure 2.  
2000 to 2007 Employment Growth





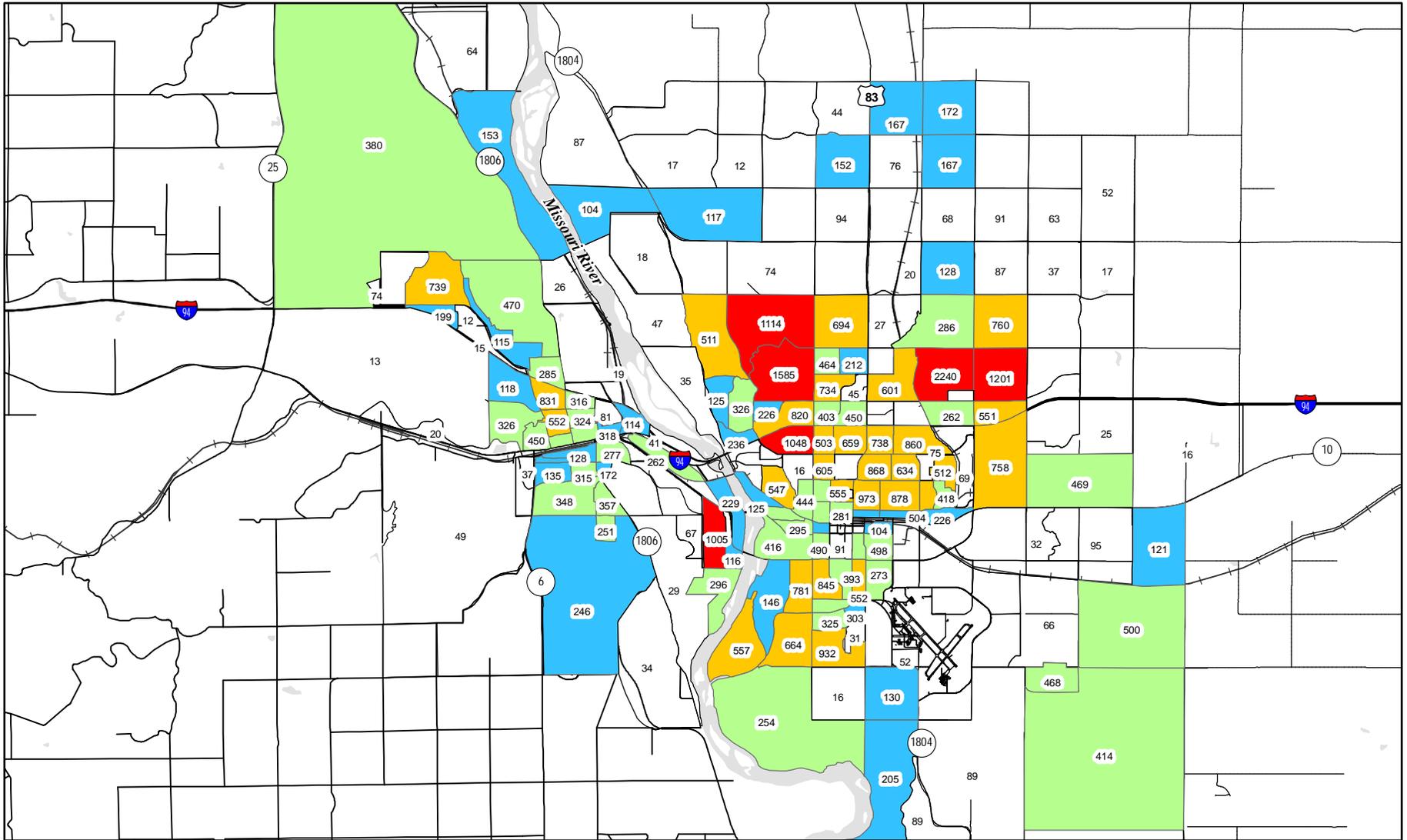


Figure 4.  
2035 Household Levels





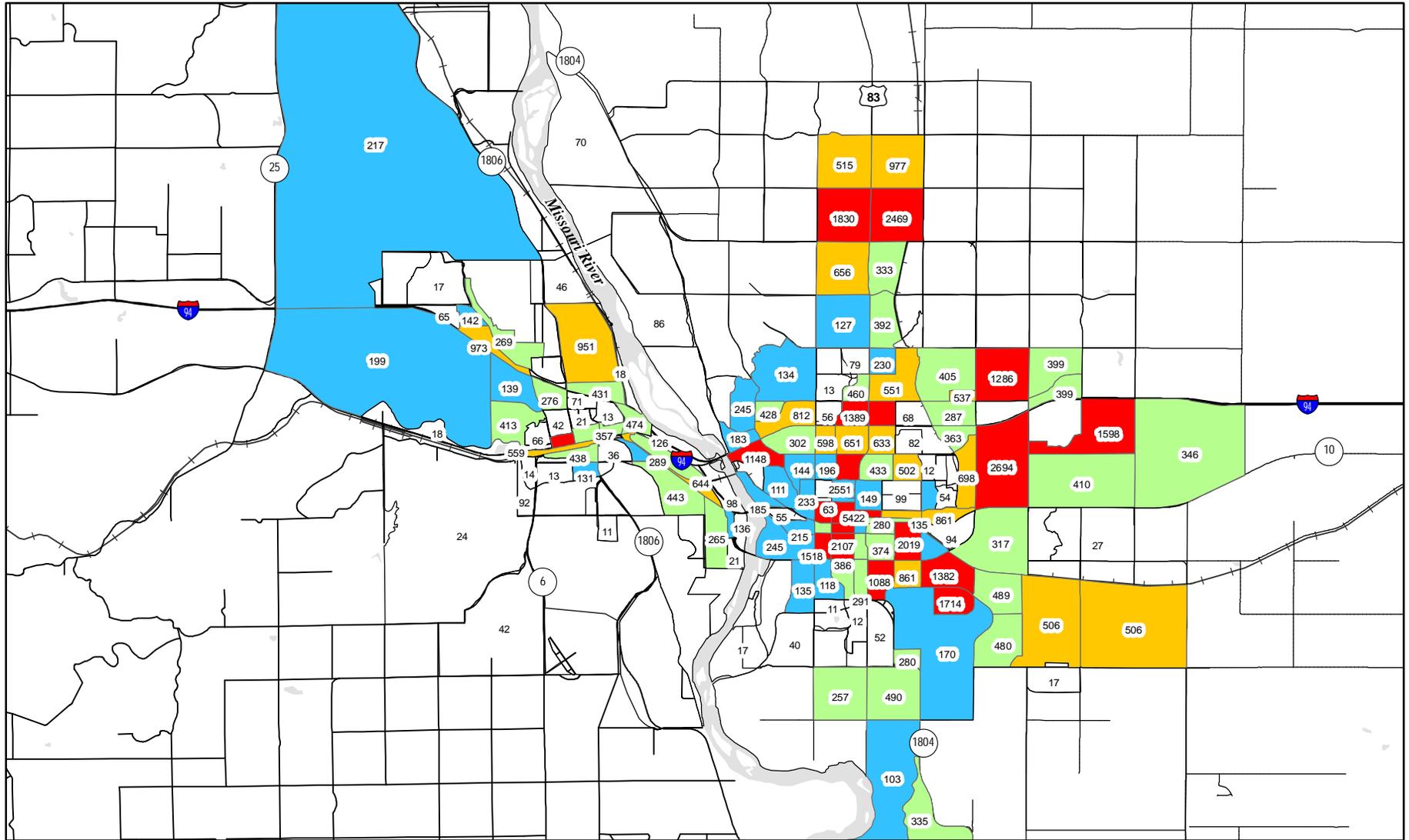


Figure 6.  
2035 Employment Levels





## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

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**To: Ben Ehreth**  
**Bismarck-Mandan MPO**

**Date:** April 8, 2009

**Subject:** Bismarck-Mandan 2035 Long Range Transportation Plan  
Draft First Level Multimodal Alternatives Screening Results

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As noted in previous discussions of the alternatives analysis, the purpose of the alternatives analysis process is to evaluate a wide range of potential multimodal improvement alternatives to address identified transportation deficiencies and issues, including safety, continuity and travel quality evaluations for all modes of travel in the Bismarck-Mandan area. This analysis is incorporating both quantitative and qualitative methods in reviewing and screening a wide range of concepts, projects and programs. The locally-developed transportation goals and objectives have been incorporated into the multimodal alternatives analysis.

The first level alternatives analysis, which we are now completing, narrows the list of potential alternatives by removing those concepts that do not reasonably reflect the transportation goals or do not have local support. The second level alternatives analysis phase, which we will be moving into, evaluates each of the alternatives that are maintained through the Phase 1 screening, with additional detailed assessments relative to the established evaluation criteria.

The purpose of this memorandum is to provide updated documentation of the First Level alternatives analysis screening results, following discussions held at the March 17 workshop. This memorandum provides preliminary screening recommendations for all of the alternatives, whether to carry the alternative forward for more evaluation in the next level or to discard it at this point. Screening recommendations are included for those alternatives that did not get fully discussed at the workshop. Thus, it is hoped that everyone in attendance at the meeting will take some time and review the alternatives review matrix (Table 1) included in this memorandum and provide any feedback. Based on any comments received, we will finalize the "First Level" alternatives results, and use that list as a starting point for moving into the second level alternatives screening.

Table 2 reflects a draft alternative status in the "Initial Screening Recommendation" column. The alternatives matrix has also been updated to include any new improvement concepts that were raised by committee members at the meeting. In addition to new improvement concepts, the matrix includes any additional discussion items or clarifications that were raised regarding any additional social, engineering or environmental metrics that were not included in the original matrix.

As discussed in the meeting, the review of the alternatives completed in the first level screening workshop used more broadly described measures intended to determine whether an alternative had a fatal flaw. Fatal flaws generally fall into one of the following categories:

- An alternative that did not address the issue intended or another issue.
- An alternative that resulted in a substantial impact to its adjacent surroundings, whether the built or natural environment, that cannot be reasonably mitigated.
- An alternative that exceeded the transportation improvement budget estimate for the metropolitan area.
- An alternative could not be reasonably constructed using current engineering standards or through allowing reasonable exceptions to the standards.

Those alternatives maintained following this *initial screening* do not necessarily reflect the set of concepts that the study team believe should be included in the recommended long range transportation plan. Those alternatives maintained through the initial screening will next be reviewed in greater detail to establish whether the concept meets the transportation goals and could reasonably be funded over the planning period. Many of the concepts/ideas that are documented in this memorandum as “carried forward” through the initial screening could very well be eliminated, or set aside, through completion of the second level of the screening analysis. The remaining roadway alternatives are illustrated on a map of the region in Figure 1, and are numbered to correspond with the alternatives matrix (in Table 2). A summary of the initial set of discarded alternatives is shown in Table 1, including a brief description of why each was not included. A complete, updated alternatives screening matrix is presented in Table 2. Illustrations of those remaining expansion alternatives which are located in new corridors are also provided at the end of this memorandum, with the general concept corridors shown in red lines.

### ***ACTION REQUESTED***

Please take some time and review the revised set of improvement alternatives and the preliminary screening recommendations provided in the final column. Provide any comments to Ben Ehreth or Bill Troe. We will continue refining and evaluating the remaining alternatives over the next few weeks, will be conducting a second, more detailed level of screening workshop with staff next month.

**Table 1. Initial Set of Discarded Alternatives Following First Level Screening**

<b>Preliminarily Discarded Alternative</b>	<b>Reason for Discarding</b>
(15) - Extend 26th Street across I-94 to connect Divide Avenue to Century Avenue	Extensive social and environmental impacts.
(16) - Widen 4th Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Significant property impacts.
(17) - Widen Washington Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Significant property impacts.
(18) - Schafer St Extension / Reconstruction, Connect BSC Campus to Fraine Barracks	Social impacts and rail crossing issues.
(19) - Convert 3rd and 4th Street to One-Way Streets, Arikara Avenue to Boulevard Avenue	Neighborhood impacts.
(25) - Add roundabout at Ward Road / College Road intersection.	Traffic operations / southbound queuing to Divide Ave.
(35) - New Diagonal Connection between Lincoln and SE Bismarck	High environmental impacts.
(36) - Widen 12th Street to 4-lanes, Burleigh Avenue to Main Avenue	High social impacts.
(38) - I-94 Crossing at BSC	High property and environmental impacts, retained extension of Century Avenue.
(45) - Widen East Main Avenue to 4-lanes	More capacity than required through 2035.
(48) - Extend Denver Ave to 26th Street, provide connection to I-194 via new River Crossing south of Bismarck Expressway Bridge	Significant social impacts.
(49) - Widen River Road to four-lanes	High social and environmental impacts.
(51) - Add Roundabout to Fraine Barracks / River Road intersection	Right-of-way impacts.
(57) - Widen Sunset Drive to four-lanes, Main Avenue to I-94	Significant social impacts.
(59) - Widen 3rd Street SE to four-lanes	More capacity than required through 2035.
(67) - Extend Old Red Trail to River Road (Mandan)	Property impacts and constructability issues.
4 - Add bicycle lane with minor widening of Washington Street.	Property and tree canopy impacts. Identify on-street opportunities on lower-volume parallel street.



Legend

- Roadway Expansion Alternative
- Roadway Management Alternative
- Development Growth Area
- Concept Illustration Included for Alternative

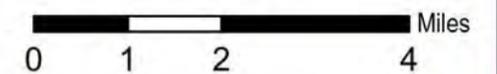


Figure 1. Roadway Alternatives Considered Following First Level Alternatives Workshop

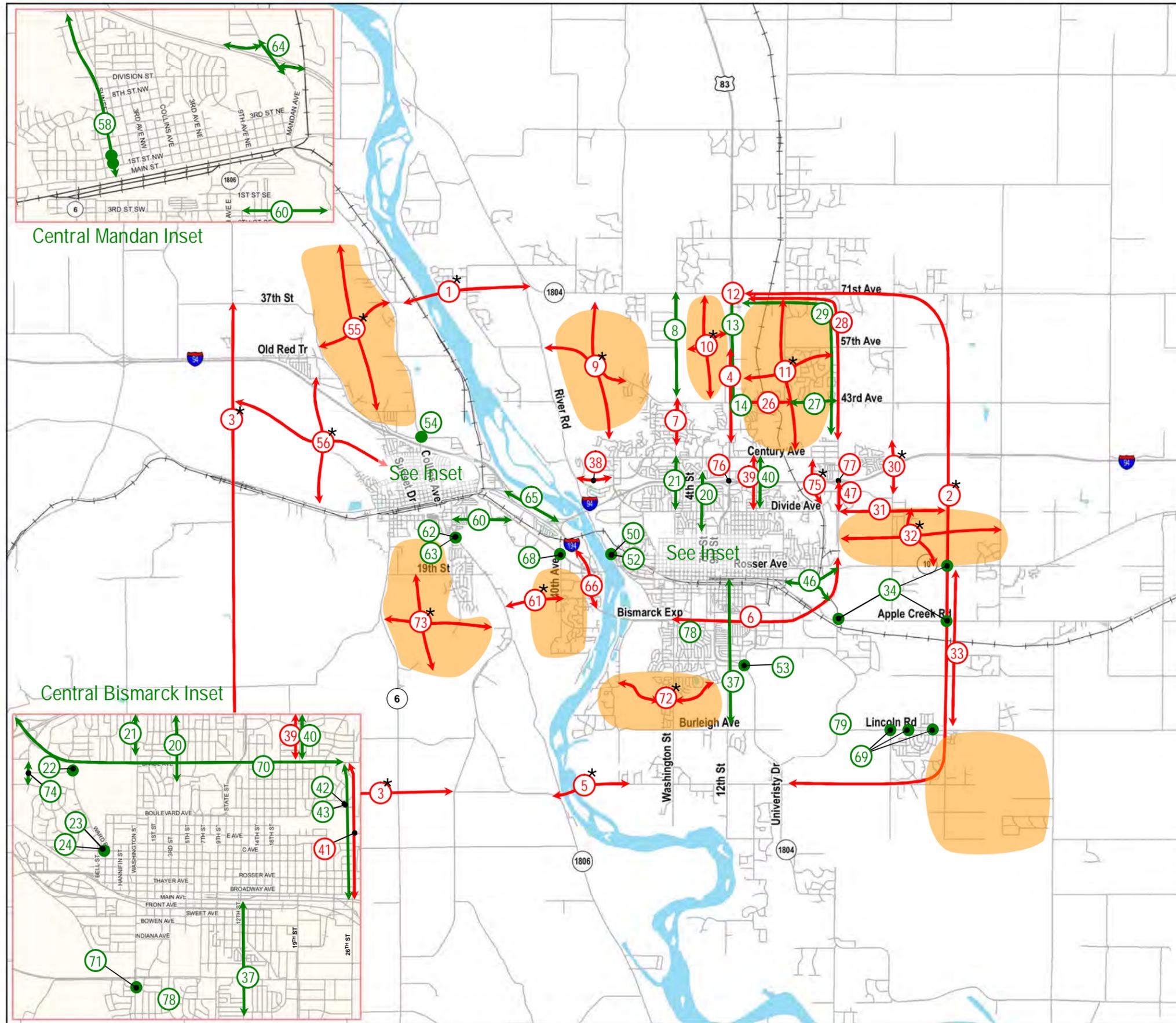


TABLE 2. Multimodal Improvement Alternatives Following First Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
North Washington Street Congestion: Century Avenue to 71st Avenue	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Anticipated to attract approximately 6,000 vehicles per day (vpd) in 2035. Bridge has limited traffic diversion from North Washington corridor.	High	Carry forward to second level evaluation.
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Combined beltway concept diverts 1,000 to 1,500 vpd from Washington Street north of Century. Provides LOS "D" on Washington St at Century.	High	Carry forward to second level evaluation; limited benefit to Washington Street Corridor
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue	Sufficient roadway ROW exists in corridor.	Limited environmental impacts, reduced peak hour congestion benefits including less fuel consumption and decreased green house gas (GHG) emissions.	US 83 improvement would have limited traffic diversion from Washington; would improve traffic flow in tandem with improvements in Washington Street corridor.	Moderate to High	Carry forward to second level evaluation; 6-lane north of 57th is beyond 2035.
	<u>Improvement of Existing Routes</u>					
	<i>Corridor Expansion Improvements</i>					
	⑦ Widen Washington Street to a 4-lane divided roadway north of Calgary Avenue.	Currently 90' to 100' roadway ROW width - sufficient for 4-lane divided; current trail setback is likely sufficient to avoid trail reconstruction. Housing / Horizon Middle School backs to Washington south of 43rd.	Potential increased noise levels for adjacent residences.	Provides sufficient capacity through 2035; 4-lanes likely more capacity than needed north of 43rd Ave.	Moderate to High	Carry forward from 43rd Avenue to the south.
	<i>Corridor Management Improvements</i>					
	⑧ Add left-turn lanes at major access points 43rd Avenue to 71st Avenue	Sufficient ROW in corridor.	Limited environmental impacts.	Provides sufficient capacity north of 43rd Ave through 2035, improves corridor safety.	Low to Moderate	Carry forward as a three-lane section north of 43rd Avenue.
	<u>Alternate Corridor Improvements</u>					
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	New trails provide non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable. Cultural resources in area.	Ash Coulee alignment provides acceptable grade for connection to River Road. Continuous collector corridors accommodates growth area's shorter trips.	High	Carry forward to second level evaluation.	
⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	US 83 Study concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Provides relatively continuous North-South corridor between 84th Ave and 43rd Ave. Severe terrain in growth area. Diverts approximately 1,000 vpd from Washington St north of 43rd Ave.	High	Carry forward to second level evaluation - adjust to reflect Lasalle Avenue as the collector at the 1/4 section line.	
③ I-94 Crossing at BSC with Northwest Bismarck Grid improvements, including extension of Century Ave west of Tyler Parkway.	Potential impacts to Pioneer Park, overlook and trail; roadway adjacent to subdivision between I-94 and Burn Boat Drive. Impacts to Firestation or other business near Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Some grade issues with new corridor near Burnt Boat Dr. Potential alternative to #9. Enhanced accessibility to BSC. Would divert 1,000 to 2,000 vpd from Washington and 2,000 to 3,000 vpd from Divide / Tyler Parkway north of I-94. Provides LOS "D" on Washington St at Century.	High	Dismiss I-94 crossing to BSC due to social and environmental impacts. Carry forward Century Avenue extension element. Northwest Subarea study will determine ultimate recommendations.	

TABLE 2. Multimodal Improvement Alternatives Following First Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
US 83 / State Street Congestion, Divide Avenue to 71st Avenue	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	On its own, northern Bridge would divert approximately 1,000 to 2,000 vpd from US 83 corridor.	High	Carry forward to second level evaluation.
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway would divert approximately 2,000 to 3,000 vpd. With northern bridge in place, combined beltway / bridge would divert between 3,000 and 6,000 vpd from US 83.	High	Carry forward to second level evaluation.
	③ North-South Beltway (Morton County Only)	As with Burleigh side, increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from US 83 is less than 500 vpd. Some slope stability issues south of I-94 may affect constructability.	High	Carry forward to second level evaluation.
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts. Associated trail extension would improve non-motorized opportunities in corridor.	Need for six-lanes north of 43rd is likely to happen after 2035; concept provides sufficient capacity between Interstate Ave and 43rd Ave. Dual lefts at 83/Century improve operations through corridor.	Moderate to High	Carry forward to second level evaluation; 6-lane north of 57th is beyond 2035.
	⑫ Interchange at US 83 / 71st St (Northern Beltway Corridor)	Standard diamond interchange would require ROW acquisition from all four quadrants of intersection, including part of business park on SE corner. Single-point urban interchange (SPUI) would reduce property impacts.	Reduced signal delay for vehicles decreases air quality / GHG emissions.	NDDOT has operations and safety concerns with mix of signals / interchange in US 83 corridor. SPUI would improve Aurora / 71st Ave access separation from interchange ramp intersection.	High	Carry forward; likely a lower priority project but preserve ROW at a minimum. Consider a SPUI concept for reduced property / access impacts.
	<u>Improvement of Existing Routes</u> <i>Corridor Management Improvements</i>					
	⑬ Add left-turn and right-turn lanes at major access points 43rd Avenue to 71st Avenue.	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	43rd, Skyline and 71st intersections have left-turn lanes; add dual-lefts at 43rd and left- and right-turn lanes to other accesses for safety / traffic flow. Provides sufficient capacity north of 43rd through 2035.	Low to Moderate	Carry forward to second level evaluation.
⑦⑥ Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for southbound traffic, eliminates signal delay for heavy northbound left-turn movement at north ramp terminal. Removes turning traffic from left-lanes, improving the distribution of traffic across lanes (lane balance).	Moderate to High	Carry forward to second level evaluation; and add two new concepts - 1) full partial cloverleaf (SB to EB and NB to WB loop ramps) and 2) reconstruct as a SPUI.	
⑭ Implement signal timing improvements in corridor.	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	Improved traffic progression through corridor results in decreased travel delays. On its own, does not provide sufficient capacity through 2035.	Low	Carry forward to second level evaluation.	

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
US 83 / State Street Congestion, Divide Avenue to 71st Avenue (continued)	<u>Alternate Corridor Improvements</u>					
	9 Complete Northwest Bismarck Growth Area Roadway Grid	Similar to <i>Fringe Road</i> concepts - requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	Incorporation of trails provides non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 vpd from US 83.	High	Carry forward to second level evaluation.
	10 Complete Roadway Grid in US 83 to Washington Street Growth Area	<i>US 83 Study</i> concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Continuous collector corridors function to relieve short distance trips from US 83 and Washington; supports future development. Diverts approximately 1,000 from US 83.	High	Carry forward to second level evaluation.
	11 Complete Northeast Bismarck Growth Area Roadway Grid	<i>US 83 Study</i> concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	Includes extension of 57th Avenue from 26th Street to US 83; requires railroad crossing.	High	Carry forward to second level evaluation.
	15 Extend 26th Street across I-94 to connect Divide Avenue to Century Avenue	Potential impact to residences north of Divide, impacts to golf course / baseball complex. Corridor possibilities limited by cemetery, trail and DMVW conflicts.	Requires crossing / potentially impacting Hay Creek floodway and floodplain.	Improves connectivity: I-94 currently provides a 1.5 mile barrier to north-south connectivity. Steep grades in corridor.	Moderate to High	Dismiss due to social and environmental impacts.
	16 Widen 4th Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Extensive property impacts south of I-94; existing ROW is 60'-70'. Dense driveway accesses, on-street parking throughout.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	Some diversion from State Street. More 2035 capacity than needed.	High	Dismiss due to significant property impacts.
	<u>Alternate Modes Improvements</u>					
	1 Expand CAT fixed-route bus service into area of 71st / US 83.	Improved transit service provides increased market accessibility for area businesses.	Reduced vehicular trips benefit air quality / GHG emissions.	2035 trip density is similar to higher-density suburban locations currently served by CAT; closest current route is just under 2 miles away. 34,000 person trips destined for this area are within walking distance of a current CAT transit line.	Low to Moderate	Carry forward - review with Bis Man transit at next level.
	2 Extend US 83 trail north from current terminus at Calgary Ave through 71st Street	Improved trail service provides amenity / improved non-motorized connectivity to area residences / businesses.	Potential to reduce vehicle trips from area - improve air quality / reduced GHG emissions.	Sufficient ROW in corridor to accommodate trail and widened US 83 roadway; provides connectivity to future beltway / 1804 trail.	Moderate	Carry forward - review with Bismarck Parks and Rec staff at next level.
	3 Establish employer-based vanpool or rideshare program at 71st / US 83 employment node.	Allows employee access to jobs without vehicle ownership. Many riders may come from outside of MPO study area.	Reduced vehicular demand on some surrounding roadways; improved regional air quality / reduced GHG emissions.	Model-estimated travel shed is over 90% from within urbanized portions of Bismarck; vanpool has limited benefit for these commuters.	Low	Carry forward - review with Bis Man transit at next level.

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Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
Bismarck West Side Congested Segments - 4th Street, Century Ave to Ave C; Washington St, Century Ave to Rosser Ave; 7th / 9th Street Congestion; Ward Rd Congestion	<b>Regionally Significant Projects</b> ① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Minor traffic diversion from West Bismarck corridors, typically 100 to 500 vpd.	High	Carry forward to second level evaluation.
	④ US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Likely limited traffic diversion in West Bismarck corridors, some from 4th Street north of Divide Ave.	Moderate to High	Carry forward to second level evaluation; 6-lane north of 57th is beyond 2035.
	<b>Improvement of Existing Routes / Subarea Streets</b> <i>Corridor Expansion Improvements</i> ⑬ Widen 4th Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Extensive property impacts south of I-94; existing ROW is 60'-70' wide. Dense driveway accesses, on-street parking throughout.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	More capacity than required on 4th Street through 2035.	Moderate to High	Dismiss due to significant property impacts.
	⑭ Widen Washington Street to 4-lane Roadway, Century Avenue to Rosser Avenue	Washington Street ROW is 80' wide. 4-Lane south Washington has similar ROW width (approx. 85' wide). Dense driveways, increased traffic and noise for residences.	Improved traffic flow through corridor during peaks, improved air quality / reduced emissions.	More capacity than required on Washington St through 2035.	Moderate to High	Dismiss due to significant property impacts.
	⑮ Schafer St Extension / Reconstruction, Connect BSC Campus to Fraine Barracks	Has been supported by public during previous planning studies. Increases traffic through Fraine Barracks and BSC campus; positive is that it improves BSC connectivity to Bismarck, particularly Mandan via Memorial Bridge.	Impacts to Missouri River viewshed. Fraine Barracks is a potential historical site.	BNSF rail crossing an issue. Corridor preserved through BSC. Connection to Main Ave serves a somewhat limited set of potential trips. Earlier study indicated 3,500 vpd diversion from Ward Rd - limited diversion from Washington.	Moderate to High	Dismiss due to social impacts and rail crossing issues.
	<i>Corridor Management Improvements</i> ⑯ Convert 3rd and 4th Street to One-Way Streets, Arikara Avenue to Boulevard Avenue	Increases traffic past residences and school, alters local access.	Limited environmental impacts; reduced peak travel delays improve air quality.	New striping and signing required. Improves corridor capacity. Recommended in <i>West Side Study</i> to provide sufficient 2030 subarea capacity.	Low to Moderate	Dismiss due to neighborhood impacts.
	⑰ Add Turn Lanes to 4th Street, Interstate Avenue to Arikara Avenue	Requires on-street parking removal. North of Divide, increase traffic past Northridge school crossing.	Limited environmental impacts; reduced peak travel delays improve air quality.	Restriping / removal of on-street parking required. Provides sufficient 2035 capacity in 4th Street corridor, part of recommended <i>West Side Study</i> package that provided sufficient capacity through 2030.	Low	Carry forward to second level evaluation.
	⑱ Add center left turn lane to Washington Street, Divide Avenue to Century Avenue	One side of on-street parking would need to be removed to accommodate center left-turn lane. Safety benefit to adjacent homeowners turning into / out of their driveways.	Limited environmental impacts; reduced peak travel delays improve air quality.	Reduce delays / improve safety in corridor. Provides sufficient capacity for parts of Washington Street corridor; recommended in <i>West Side Study</i> package that provided sufficient 2030 subarea capacity.	Low	Carry forward to second level evaluation.
	⑳ Realign Ward Road / College Road Intersection	Minor right-of-way acquisition east of the current intersection, avoiding impacts to the public uses. Impacts driveway location for office parking lot.	Need for minor shift in trail about 20' east; likely no impacts to golf course.	This concept would improve north-south traffic flow by eliminating a stop sign for Ward Rd to Divide Ave traffic pattern. Improves north-south continuity.	Low to Moderate	Carry forward to second level evaluation.
	㉑ Add southeast-bound left-turn lane to Ward Road at Avenue C / Griffin intersection.	Limited impacts, minor widening required at most, 66' wide ROW available.	Limited environmental impacts; reduced peak travel delays improve air quality.	Only minor widening of Ward Road required - current pavement width is approximately 34'. Consider limiting turns between Ward Road and north leg of Griffin.	Low to Moderate	Carry forward to second level evaluation.

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Bismarck West Side Congested Segments (Continued)	24 Add roundabout at Ward Road / Avenue C / Griffin intersection.	Urban compact roundabout should provide sufficient long-term capacity - with 100' max diameter would require minimal ROW acquisition at most.	Reduced peak travel delays improve air quality, reduced GHG emissions.	Improved safety (6 crashes in 3 years) and sufficient 2035 operations, supporting high left-turn and right-turn movements at intersection. May require slight re-alignment of Griffin Road north leg approach.	Low to Moderate	Carry forward to second level evaluation.
	25 Add roundabout at Ward Road / College Road intersection.	Office parking lot driveway may need to be realigned slightly, minimal ROW impacts anticipated (100' diameter). With landscaping, provides enhanced gateway to BSC and fits with O'Leary golf course / trail.	Reduced peak travel delays improve air quality, reduced GHG emissions.	Queuing back from Divide Ave / College Ave intersection may be a concern (250' separation). Sufficient capacity through 2035, accommodates high turns at intersection well. Yield replaces northbound stop condition.	Low to Moderate	Dismiss due to concerns with traffic operations / southbound queuing to Divide Ave.
	<u>Alternate Modes Improvements</u> 4 Add bicycle lane with minor widening of Washington Street.	Current pavement is 40' - 48' wide for two- and three-lane cross-sections with on-street parking. New NB and SB bike lanes would typically require 10' more pavement width - either widen or remove on-street parking. Both options impact adjacent properties to some extent.	During biking weather, offers improved non-motorized accessibility to region. Reduced vehicular traffic improves air quality / reduces GHG emissions.	Connects to several trails and on-street bike opportunities in central Bismarck due to low-speeds, dense street network. Minimum combined bike lane / on-street parking zone width is 12', standalone bike lane is 5' adjacent to on-street parking. Need separate lanes for each direction.	Moderate	Dismiss due to property / tree canopy impacts. Identify on-street opportunities on lower-volume parallel street.
	5 Establish a Transportation Management Association (TMA) for Central Bismarck.	Typically employer-based conglomeration that pools resources to provides opportunities for carpool matching, vanpooling and coordinated alternative work arrangements to reduce peak hour vehicular travel demand.	Reduced VMT, improved regional air quality and reduced emissions.	Requires minimal infrastructure investment to support; bike racks, van parking, rideshare matching database, etc are examples of public-based investments that could be required.	Employer based, might include some public incentives.	Carry forward - review with Bis Man transit at next level.
43rd Avenue Congestion, US 83 to 26th Street	<u>Regionally Significant Projects</u> 1 Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	On its own, the northern bridge provides limited diversion from 43rd Avenue (less than 500 vpd).	High	Carry forward to second level evaluation.
	2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway corridor provides diversion of 1,000 vpd or less through 43rd Avenue corridor.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> 26 Widen 43rd Avenue to a 4-Lane Divided Roadway from US 83 to Centennial Road	Limited ROW impacts, current 43rd Ave ROW is 100' wide.	Limited environmental impacts; improves future traffic flow, reduced gas consumption and emissions.	Similar 2035 volumes as Century Avenue today. Grade separate low-volume DMVW RR? Century was grade separated. Current culvert at Hay Creek appears to be sufficiently wide for future 4-lane section.	High	Carry forward to second level evaluation.
	<i>Corridor Management Improvements</i> 27 Add turn-lanes at key 43rd Avenue access points.	Limited ROW impacts.	Limited environmental impacts.	Provides improved operations, likely still LOS E during peak periods between 26th and US 83. Provides sufficient capacity between Centennial and 26th Street.	Low to Moderate	Carry forward to second level evaluation east of 26th Street.

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	Social	Environmental	Engineering			
43rd Avenue Congestion, US 83 to 26th Street (Continued)	<u>Alternate Corridor Improvements</u> 11 Complete Northeast Bismarck Growth Area Roadway Grid - Includes extension of 57th Avenue to relieve 43rd Ave	US 83 concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	57th Avenue as 3-lane minor arterial; requires creek crossing and DMVW line crossing. Diverts 1,000 to 1,500 vpd from 43rd Ave east of US 83. On it's own, does not provide sufficient capacity through 2035.	High	Carry forward to second level evaluation. As a part of Northeast area recommendations, include prioritization of DMVW grade-separations.
	<u>Alternate Modes Improvements</u> 6 Expand CAT fixed-route bus service into area of 26th St / Calgary Avenue.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Current Bismarck Route C-2 has service in the area. High-density suburban residential in this future neighborhood a good candidate for service, with 38,000 area daily person trips with trip end w/in walk distance of a CAT route.	Low to Moderate	Carry forward - review with Bis Man transit at next level.
71st Avenue and Centennial Road Congestion / Safety	<u>Regionally Significant Projects</u> 2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway diverts approximately 1,000 to 2,000 vpd from Centennial Road - provides LOS "C" at Century intersection through 2035.	High	Carry forward to second level evaluation.
	4 US 83 (State Street) - Extend 6-Lane Section to 71st Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited social impacts.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Provides minor diversion from 71st Ave / Centennial Road.	High	Carry forward to second level evaluation; 6-lane north of 57th is beyond 2035.
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> 28 Widen corridor to 4-lanes: 71st Avenue, US 83 to Centennial Road and Centennial Road, 71st Avenue to Jericho Road	4-lane ROW reservation in 71st Avenue corridor is part of Beltway study; sufficient ROW along Centennial Road. Increased traffic noise levels adjacent to residences.	Limited environmental impacts.	More capacity than required north of 43rd Avenue through 2035.	High	Carry forward to second level evaluation for segment from 43rd Avenue to the south.
	<u>Corridor Management Improvements</u> 29 Add turn-lanes at all major access points. Consolidate access points where practical.	Limited ROW impacts.	Limited environmental impacts.	Recommendation of 71st / Centennial Corridor Study. Provides sufficient capacity / addresses safety concerns through 2035.	Moderate	Carry forward to second level evaluation for segment north of 43rd Avenue.
	<u>Alternate Corridor Improvements</u> 30 Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing.	Adjacent subdivisions, potential for increased noise levels. Limited property impacts; some conversion of open / ag land.	Requires crossing of intermittent stream, not an identified floodplain / floodway. Reduces out-of-direction travel for future growth area development, improved future air quality.	Diverts approximately 1,000 - 2,000 vpd from Centennial Road corridor. Provides improved future roadway / trail connectivity in east Bismarck. Steep grades adjacent to I-94 for crossing. Improves Centennial from Century to I-94 to LOS "C".	High	Carry forward to second level evaluation; likely lower priority than a new crossing west of Centennial due to development / traffic patterns.
	75 Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - improvement to connectivity to reduce some trips' lengths.	Would support shorter sub-area trips in future, limited corridor continuity. 1/2 mile west of Bismarck Expressway / Centennial, estimated to divert approximately 3,000 to 4,000 vpd from Centennial.	High	Carry forward to second level evaluation. Complete traffic model run for Hamilton corridor with I-94 crossing in place.

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East Divide Avenue and 52nd St Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Currently rural roads. Beltway removes approximately 1,000 vpd from Divide east of Bismarck Expressway. Improves operations; TSM improvements likely still required.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> ③① Extend East Divide Avenue from Bismarck Expressway / Commerce Drive intersection to 66th Street (3-lane cross-section)	Alignment near commercial development adjacent to Bismarck Exp - likely minor impacts, potential ROW acquisition. Reserve sufficient corridor for trail and future 4-lane.	Requires a stream crossing. Identified wetland near the alignment.	Align with near term extension of Divide west of Bismarck Exp (2012) - improves network continuity. With center turn lane, provides sufficient capacity through 2035.	High	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u> ③② Complete East Bismarck Growth Area Roadway Grid	Improves accessibility for new residents / businesses in area. One local subdivision street converted to a Collector. Conversion of ag / open space.	Improved Collector network reduces trip lengths, reduces travel, improves air quality / GHG emissions. Stream crossing; alignment near hillside with "Bismarck" spelled in trees.	Collector improvements to supplement Divide Avenue extension and Highway 10. Supports significant household and employment growth in area.	High	Carry forward to second level evaluation.
Lincoln Area Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Increases traffic along 66th Street; reduces traffic on Apple Creek Rd by 300 to 1,000 vpd and Highway 10 by 1,000 vpd or less.	High	Carry forward to second level evaluation.
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences along 48th Ave South in Burleigh County and riverside houses in Morton County. Veterans cemetery in Fort Lincoln park.	48th Ave S alignment has nearly 4 miles of identified floodplain to cross for bridge. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts little traffic volume from congested Lincoln area segments. Limited connectivity with development on Morton County side.	High	Carry forward to second level evaluation. Likely a low priority.
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> ③③ Widen 66th Street to 4-lanes, Lincoln Road to Highway 10	Consistent with <i>Lincoln Connector Study</i> . Some adjacent farmsteads, most setback from road several hundred feet. Limited property impacts.	Requires crossing of Apple Creek and nearly one mile of floodplain along existing 66th Street alignment. Incorporation of trail improves non-motorized travel opportunities.	Similar forecasted traffic volumes as <i>Connector Study</i> . BNSF rail crossing south of Apple Creek Rd. Provides sufficient capacity through 2035 and beyond.	Moderate to High	Carry forward to second level evaluation.
	<i>Corridor Management Improvements</i> ③④ Add turn-lanes at key intersections: Yegen Rd / Apple Creek Rd, Highway 10 / 66th Street, Apple Creek Rd / 66th St	Limited social impacts.	Limited environmental impacts, improved traffic operations during peaks a benefit.	Likely provides sufficient capacity through mid-term; volumes along 66th will exceed capacity of a rural, 2-lane highway by 2035.	Moderate	Carry forward to second level evaluation.
	⑦⑨ Improve Lincoln Road - Airway Avenue intersection to allow free-flow movements between east leg and north leg.	Minor ROW impacts on corner.	Limited environmental impacts; intersection is near (but not in) the 100 year floodplain.	Reduces a stop / turn for predominant movement of traffic between Lincoln and southeast Bismarck.	Low to Moderate	Added following first level workshop.
	<u>Alternate Corridor Improvements</u> ③⑤ Create New Diagonal Connection between Lincoln and SE Bismarck, Lincoln Road to Apple Creek Road / Yegen Road	Substantial property acquisition required. Concept was screened out of <i>Lincoln Connector Study</i> .	Significant impacts to Apple Creek floodway and floodplain.	Provides more direct Lincoln - Bismarck route; sufficient capacity.	High	Dismiss due to high environmental impacts.
	<u>Alternate Modes Improvements</u> ⑦ Expand CAT fixed-route bus service into Lincoln area.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Lincoln is currently more than 4 miles from nearest CAT route. By 2035, nearly 16,000 daily person trips from Lincoln have a trip end within walking distance of a CAT route.	Low to Moderate	Carry forward - review with Bis Man transit at next level.

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South 12th Street Congestion	<u>Improvement of Existing Routes / Subarea Streets</u> <i>Corridor Expansion Improvements</i> 36 Widen 12th Street to 4-lanes, Burleigh Avenue to Main Avenue	12th St ROW width is 100' south of Frontier Dr (between Bismarck Expwy and University Ave) and 80' ROW to the north. Widening adjacent to several Mobile Homes.	Increased traffic noise; improved traffic flow / improved air quality.	More capacity than is required through 2035.	High	Dismiss due to high social impacts.
	37 <i>Corridor Management Improvements</i> Add turn lanes at major 12th St intersections: 12th St / Sweet Ave, 12th St / Bowen Ave, 12th St / Burleigh Ave, 12th St / Santa Fe Ave, 12th St / Bismarck Expwy	Consistent with <i>12th Street Corridor Study</i> and <i>Bismarck Expressway Study</i> . Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves traffic flow and safety in corridor, provides sufficient capacity through 2035. Likely accomplished by removing on-street parking - limited widening required.	Low to Moderate	Carry forward to second level evaluation - turn lanes added at Santa Fe Ave in 1st Level workshop.
West Divide Avenue / Tyler Parkway Congestion, Country West Rd to US 83	<u>Regionally Significant Projects</u> 1 Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,500 vpd from Tyler Parkway, and 300 to 500 vpd from Divide Avenue west of Washington St.	High	Carry forward to second level evaluation.
	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u> 70 Implement West Divide TSM Projects: Restripe Divide Ave to 3-lane, I-94 to 26th St; Add EB Right-turn lane at College Dr, Signalize Country West / Tyler Pkwy, Century / Tyler Pkwy.	Similar concept recommended in 2030 LRTP. Requires removal of some on-street parking adjacent to residences east of Washington St.	Limited environmental impacts.	Current pavement width is 48' through most of corridor.	Moderate	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u> 38 I-94 Crossing at BSC with Northwest Bismarck Grid improvements, including extension of Century Ave west of Tyler Parkway.	Alignment near Pioneer Park, overlook and trail; adjacent residential subdivision. Firestation or business impacts at Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Some grade issue with new road intersection at Burnt Boat Dr. Enhanced accessibility to BSC. Extension of Century improves arterial connectivity. Would divert 2,000 to 3,000 vpd from Divide / Tyler Parkway north of Burnt Boat Dr.	High	Dismiss I-94 crossing due to social and environmental impacts. Carry forward Century Avenue extension element. Northwest Subarea study to determine recommendations.
	18 Schafer St Extension / Reconstruction, Connect BSC Campus to Fraine Barracks	Supported by public during previous planning studies. Increased traffic through Fraine Barracks and BSC campus, improves BSC connectivity.	Impacts to Missouri River viewshed. Fraine Barracks is a potential historical site.	BNSF rail crossing an issue. Corridor preserved through BSC. Earlier study indicated 3,500 vpd diversion from Ward Rd - limited diversion from Washington.	Moderate to High	Dismiss due to social impacts and rail crossing issues.
19th Street Congestion, Century Avenue to Divide Avenue	<u>Regionally Significant Projects</u> 2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 500 vpd from 19th Street at I-94.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> 39 Widen 19th Street to 4-lanes	80' ROW through corridor, pretty tight to accommodate a 4-lane cross-section. Dense driveway accesses south of Capitol Ave.	Limited environmental impacts.	Current I-94 overpass has 48' pavement and separated sidewalk. 19th Street discontinuous south of Divide. 19th Street speed limit is 25 mph currently south of I-94.	Moderate to High	Carry forward, likely lower priority.

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Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
19th Street Congestion, Century Avenue to Divide Avenue (continued)	<p><b>40</b> <i>Corridor Management Improvements</i> Add turn lanes along 19th Street: Center left-turn lane south of Capitol Ave, dual northbound left-turn lanes at Century, right-turn lanes where warranted.</p>	Left-turn lanes already present at major intersections in corridor, consider center left-turn lane south of I-94. On-street parking on both sides - would require removal of one side of parking.	Limited environmental impacts; potential .	Provides sufficient capacity south of Capitol Ave, 350 NB left-turns at Century during the peak hours today. Right-turn lanes at high-turn intersections would provide additional capacity to corridor with limited impacts.	Low	Carry forward, likely lower priority.
	<p><u>Alternate Corridor Improvements</u> <b>15</b> Extend 26th Street, Divide Avenue to Century Avenue, including crossing of I-94.</p>	Potential impact to residences and golf course. Corridor possibilities limited by cemetery, trail and DMVW conflicts.	Requires crossing / potentially impacting Hay Creek floodway and floodplain. Green space, park and trail impacts.	Improves connectivity - I-94 currently provides a 1.5 mile barrier to north-south connectivity. Steep grades in corridor.	High	Dismiss due to social and environmental impacts.
26th St Congestion, Main Avenue to Divide Avenue	<p><u>Regionally Significant Projects</u> <b>2</b> North-South Beltway (Burleigh County Only)</p>	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts, increased noise levels, potential cultural resource issues.	Diverts less than 500 vpd through 26th Street corridor.	High	Carry forward to second level evaluation.
	<p><b>6</b> Bismarck Expressway Widening / Improvements</p>	Impacts to fire station operations and strips of commercial development adjacent to Expressway.	Limited environmental impacts.	Limited traffic diversion from 26th Street.	High	Carry forward to second level evaluation.
	<p><u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> <b>41</b> Widen 26th Street to 4-lane divided roadway between Divide Avenue and Main Ave, include sidewalks in construction.</p>	80' ROW in corridor, relatively narrow for 4-lane cross-section. Dense driveway access. New sidewalks a benefit, corridor sidewalks are not currently continuous.	Improved non-motorized connectivity in corridor with added sidewalks. Limited environmental impacts.	Access impacts with median; continuous center turn-lane would provide access to driveways. More capacity than required through 2035.	High	Carry forward, but likely not high priority improvement (3-lane more reasonable through 2035).
	<p><i>Corridor Management Improvements</i> <b>42</b> Add turn lanes at major intersections: 26th / Broadway, 26th / D Ave, 26th / Valley View Blvd, 26th / Hillview Blvd, 26th / Boulevard Ave</p>	Current pavement in corridor is 48' wide, removing parking on one side adjacent to intersections to restriping for left-turn lanes.	Limited environmental impacts.	On its own, provides LOS "C" or better at most intersections, isolated LOS "D". Longer delays will occur as vehicles access mid-block driveway accesses during peak.	Low	Carry forward to second level evaluation, due to dense accesses 3-lane would provide more traffic benefit.
	<p><b>43</b> Restripe 26th Street as a 3-lane corridor</p>	Requires removal of on-street parking from one side of street.	Limited environmental impacts. Improved peak hour operations provide improved air quality by 2035.	On it's own, provides LOS "C" to most of corridor - eliminates delays associated with mid-block driveway turns in Alt #42.	Low	Carry forward to second level evaluation.
East Main Ave Congestion, East of 26th Street to Bismarck Expressway	<p><u>Regionally Significant Projects</u> <b>6</b> Bismarck Expressway Widening / Improvements</p>	Impacts to fire station operations at 9th St and to commercial property adjacent to Expressway, including parking.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	High	Carry forward to second level evaluation.
	<p><u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> <b>45</b> Widen East Main Avenue to 4-lanes</p>	Limited social impacts, Main Ave ROW is 200' wide through most of commercial corridor. Provides opportunity for addition of sidewalk / trail in corridor.	Corridor is in Hay Creek floodway and floodplain - widening may incur impacts.	More capacity than required by 2035.	Moderate to High	Dismiss - more capacity than required through 2035.
	<p><i>Corridor Management Improvements</i> <b>46</b> Add left-turn lanes to major intersections: eastbound dual lefts and right-turn lane at Bismarck Expressway, left-turn lanes at Eastdale Avenue.</p>	Limited access points in corridor reduces need for continuous center turn lane. Consistent with recommendations in <i>Bismarck Expressway Study</i> .	Limited environmental impacts, minor improvements are within floodplain.	Limited access points in corridor reduces need for continuous center turn lane. Provides sufficient capacity through 2035.	Low to Moderate	Carry forward to second level evaluation. Potential for extension of Eastdale Avenue adjacent to penitentiary.

TABLE 2. Multimodal Improvement Alternatives Following First Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
Bismarck Expwy Congestion, Washington Street to I-94	<u>Regionally Significant Projects</u>					
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 2,500 from Bismarck Expressway at I-94 (still LOS "F" on its own.) Limited diversion from Bismarck Expressway south/west of Rosser Ave.	High	Carry forward to second level evaluation.
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts approximately 1,000 vpd from Bismarck Expressway Washington to 9th Street.	High	Carry forward to second level evaluation. Likely a low priority.
	⑥ Bismarck Expressway Widening / Improvements: Widen to 6-lanes from Washington Street to 9th Street, Implement intersection improvements between 9th Street and Rosser Ave	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Provides sufficient traffic operations from Rosser Ave to Washington St through 2035.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u>					
	④⑦ Widen Bismarck Expressway to 6-lane cross-section, I-94 ramps to Commerce Street (Future Divide Avenue Extension)	Sufficient ROW already present in corridor for widening (200').	Limited environmental impacts, benefits from improved traffic flow.	Improvement to alternate corridors can provide sufficient diversion for mid-term capacity; by 2035 6-lanes may be required to achieve LOS "C". Requires widening overpass of I-94.	Moderate to High	Carry forward to second level evaluation.
	⑦⑦ Provide Northbound to Westbound and Southbound to Eastbound loop ramps at US 83 / I-94 interchange	Potential for impacts to commercial platted property adjacent to NE quadrant of interchange - depends on design of ramps in that quadrant.	Limited environmental impacts, reduced idling and emissions a benefit.	Eliminates left-turn phase, providing more green time for through traffic on Centennial; reduced corridor delays. Currently being studied by NDDOT.	Moderate to High	Added at first level workshop, carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u>					
	③⑩ Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing.	Adjacent subdivisions, potential for increased noise levels. Limited property impacts; some conversion of open / ag land.	Requires crossing of intermittent stream, not an identified floodplain / floodway. Reduces out-of-direction travel for future growth area development, improved future air quality.	Diverts approximately 5,000 vpd from Bismarck Expressway south of I-94. On its own, improves Bismarck Expressway south of I-94 to LOS "E".	High	Carry forward to second level evaluation; likely lower priority than a new crossing west of Centennial due to development / traffic patterns.
④⑧ Extend Denver Ave to 26th Street, provide connection to I-194 via new River Crossing south of Bismarck Expressway Bridge	Dense residential access in developed portions, adjacent parks. Significant residential acquisitions required for continuous corridor.	Environmental justice concerns with this improvement - significant acquisitions in mobile home parks.	Likely creates functional conflict for corridor - currently operates as Collector or Local street. Mobility levels required for effective concept are more in line with minor arterial.	High	Dismiss due to significant social impacts.	
⑦⑧ Add signal at Denver Avenue / 3rd Street when warranted.	Limited reasonable opportunities to improve Denver corridor due to dense driveway access and on-street parking on both sides of street. 3rd / Denver intersection was identified as a safety issue.	Limited environmental impacts.	Denver is a 40' wide collector street; 4-way stop at Denver / 3rd St. Concept provides limited diversion of local traffic from Bismarck Expressway. High angle crashes at intersection, if warranted, new 3rd / Denver intersection control could improve safety.	Low	Added at first level workshop, carry forward to second level evaluation.	
⑦⑤ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - improved connectivity reduces some trips' lengths. Avoids green space impacts associated with 26th Street corridor crossing	Only 1/2 mile west of Centennial. Supports shorter sub-area trips: diverts 3,000 to 4,000 vpd from Centennial / Bismarck Expwy. On its own, improves Bismarck Expwy, I-94 to Divide to LOS "E" in 2035.	High	Carry forward to second level evaluation.	

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Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
River Rd Congestion	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Northern Bridge has little effect on River Road volumes (+600 to -200 vpd).	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u>					
	<u>Corridor Expansion Improvements</u>					
	④⁹ Widen River Road to four-lanes	Significant ROW impacts throughout corridor, impacts to trail near Fraine Barracks intersection.	Entire corridor is within Missouri River floodplain.	More capacity than required through 2035. Constructability difficult with adjacent bluff, trail, water facilities.	High	Dismiss due to significant social and environmental impacts.
	<u>Corridor Management Improvements</u>					
	⑤⁰ Add SB left turn lane at Fraine Barracks / River Road	Likely requires minor ROW acquisition from Barracks property (state of ND).	Improvements are within floodplain.	Some retaining walls may be necessary, water plant property north of intersection. Trail adjacent to River Rd is close to riverbank - can't move farther west.	Low to Moderate	Carry forward to second level evaluation.
	⑤¹ Add Roundabout to Fraine Barracks / River Road intersection	Similar ROW impacts as Alt #50, potentially higher depending on entry angles.	Improvements are within floodplain.	Slight adjustment to approach slope needed on Fraine Barracks (currently 3-4% slope)? Provides sufficient capacity, both roads are collectors.	Low to Moderate	Dismiss due to right-of-way impacts.
⑤² Add traffic signal at Fraine Barracks / River Road intersection with special phasing (no widening)	No property impacts. May affect residents' travel patterns by eliminating Fraine Barracks to SB River Road movement (limited number).	Limited environmental impacts; reduced delay is a benefit to air quality / GHG emissions.	Either operate as: 1) split phasing for all approaches, or 2) just operate signal for northbound River Rd and Fraine Barracks (restrict left-turns from Fraine Barracks) and have always green southbound movement. Sufficient capacity through 2035.	Low	Carry forward to second level evaluation.	
<u>Alternate Corridor Improvements</u>						
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Similar to Fringe Road concepts. Conversion of some ag land.	Benefit of new trails.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 to 3,000 vpd from River Road north of Burnt Boat - area of safety concern in <i>River Road Study</i> .	High	Carry forward to second level evaluation.	
③⁸ I-94 Crossing at BSC with Northwest Bismarck Grid improvements.	Alignment near park, overlook, trail and subdivision.	Potential cultural resource issues in this area.	Would divert approximately 1,000 vpd from River Road north of Burnt Boat Dr.	High	Dismiss I-94 crossing due to social and environmental impacts. Carry forward Century Avenue extension element.	
②¹ Add center left turn lane to Washington Street, Divide Avenue to Century Avenue	Removal of some on-street parking.	Limited environmental impacts; reduced peak travel delays improve air quality.	Limited diversion from River Road Corridor.	Low	Carry forward to second level evaluation.	
Airport Rd / University Dr Congestion	<u>Improvement of Existing Routes</u>					
	⑤³ Add 2nd southbound left-turn lane to Airport Drive	Limited social impacts.	Limited environmental impacts, reduced delay by 2035 an air quality benefit.	Cross-section already paved. Only need is to restripe / resign and make minor signal adjustments.	Low	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u>					
③⁷ Add turn lanes at major 12th St intersections: 12th St / Sweet Ave, 12th St / Bowen Ave, 12th St / Burleigh Ave, 12th St / Santa Fe Ave, 12th St / Bismarck Expwy.	Consistent with 12th Street Corridor Study and Bismarck Expressway Study. Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves upstream traffic flow.	Low to Moderate	Carry forward to second level evaluation.	

TABLE 2. Multimodal Improvement Alternatives Following First Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
North Collins Avenue / Hwy 1806 Congestion	<u>Regionally Significant Projects</u>					
	① Northern River Crossing at 71st Avenue to 38th Street.	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,000 to 2,000 vpd from Highway 1806 north of Old Red Trail.	High	Carry forward to second level evaluation.
	③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from Collins north of Old Red Tr is 2,000 vpd. Some slope stability issues south of I-94 may affect constructability.	High	Carry forward to second level evaluation.
	<u>Improvement of Existing Routes</u>					
	⑤④ Improve and signalize Collins Road / Old Red Trail Intersection	Limited social impacts. Appropriate treatment for the intersection as it transitions from rural to urban.	Limited environmental impacts.	Add left turn lanes to all approaches and signalize. Sufficient capacity on most legs; north of Collins still operates at LOS "D".	Low to Moderate	Carry forward to second level evaluation. Likely a higher priority. Also need to investigate alternatives related to access to new Mandan Community Center.
	<u>Alternate Corridor Improvements</u>					
⑤⑤ Complete North Mandan Growth Area Roadway Grid	Similar to <i>Fringe Road Plan</i> . Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Extend 38th St and Sunset Dr to connect Old Red Tr to Hwy 1806. Diverts 1,000 to 4,000 vpd from Collins Ave and 1,000 from Old Red Tr. In tandem with TSM Alt #54, traffic diversion provides sufficient operations.	High	Carry forward. Work with Morton County on a revised grid concept for this subarea, that may diverge from Fringe Road Plan.	
⑤⑥ Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Difficult terrain between I-94 and Highway 10. Diverts approximately 1,000 from Collins Ave at I-94.	High	Carry forward to second level evaluation.	
<u>Alternate Modes Improvements</u>						
⑧ Expand CAT fixed-route bus service into North Mandan growth area.	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Route M1 currently serves the area to Old Red Tr, minor route extension only. By 2035, 10,000 daily person trips from North Mandan have a trip end within walking distance of a CAT route.	Low to Moderate	Carry forward - review with Bis Man transit at next level.	
North Sunset Dr Congestion	<u>Improvement of Existing Routes</u>					
	<u>Corridor Expansion Improvements</u>					
	③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, Heart River crossing / floodplain.	Traffic diversion from Sunset is 1,000 vpd.	High	Carry forward to second level evaluation.
⑤⑦ Widen Sunset Drive to four-lanes, Main Avenue to I-94	Significant residential property acquisitions required for this alternative. Sunset ROW with approximately 66' in corridor.	Widened cross-section brings traffic noise closer to remaining homes.	More capacity than required through 2035.	High	Dismiss due to significant social impacts.	
<u>Corridor Management Improvements</u>						
⑤⑧ Restripe Sunset as 3-lane roadway; Convert 4-way stops at 1st NW and 2nd NW to 2-way stops or signals	Widening not required north of 6th St. Sunset pavement width is 40' south of 6th Ave, 48' north of 6th Ave. On-street parking would be removed from at least one side, potential for minor widening south of 6th St to maintain one side of on-street parking.	Improved traffic flow reduces emissions. Minimal change in traffic noise anticipated.	Currently on-street parking on both sides of street. Concept provides sufficient capacity through 2035.	Low to Moderate	Carry forward to second level evaluation.	

TABLE 2. Multimodal Improvement Alternatives Following First Level Screening, 2009-2035 Long Range Transportation Plan Update

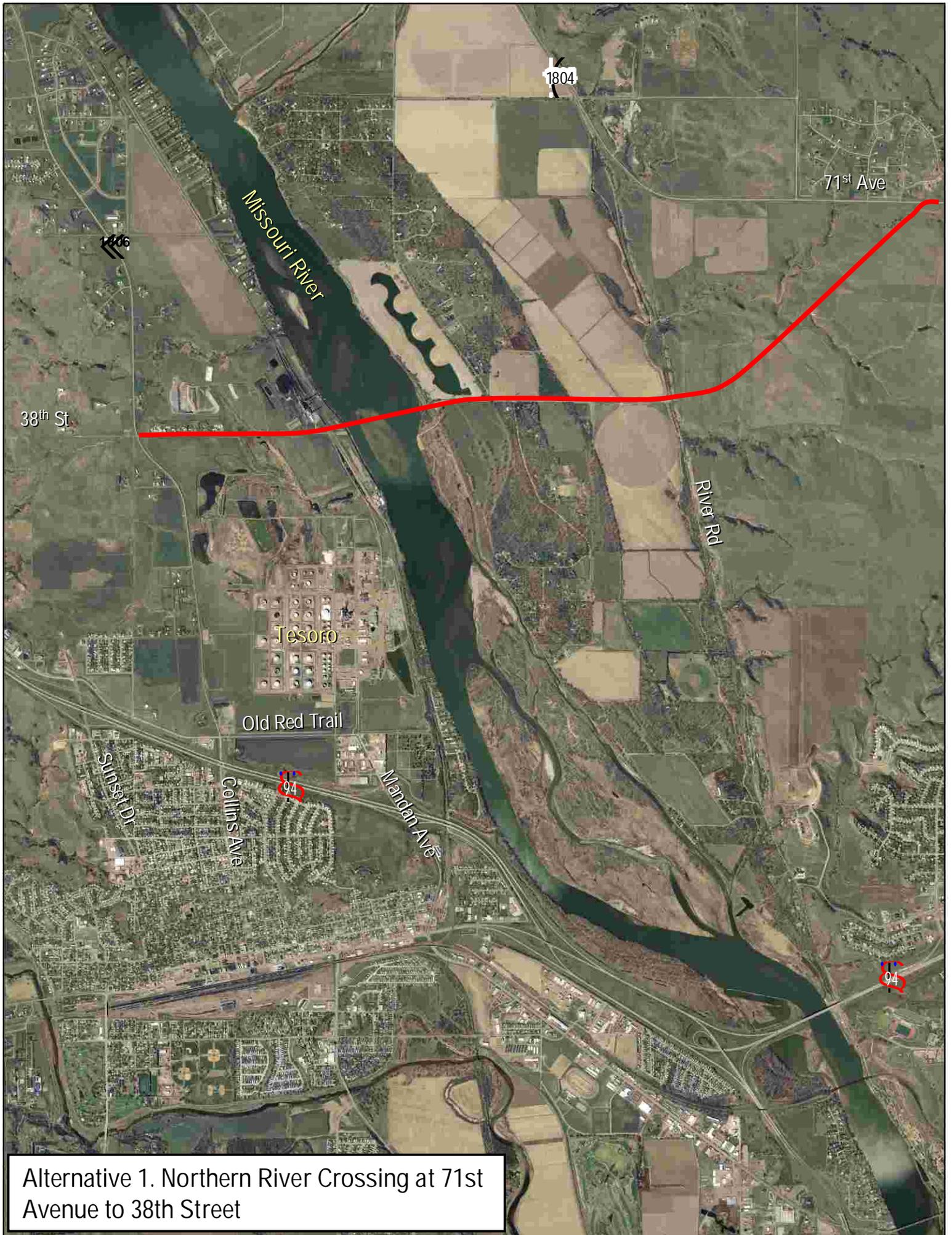
Issue to Address/Alternative Title	Evaluation by Perspective			Cost Range	Initial Screening Recommendation	
	Social	Environmental	Engineering			
North Sunset Dr Congestion (Continued)	<u>Alternate Corridor Improvements</u> 55 Complete North Mandan Roadway Grid	Similar to Fringe Road Plan. Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Limited diversion from Sunset Dr.	High	Carry forward. Work with Morton County on a revised grid concept, that may diverge from Fringe Road Plan.
	56 Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Diverts approximately 3,000 vpd from Old Red Trail west of Sunset; limited diversion from Sunset Dr at I-94. Diverts 1,000 vpd from Sunset south of Division Street. On its own, does not provide sufficient operations.	High	Carry forward to second level evaluation.
3rd St SE Congestion, Hwy 1806 to Memorial Highway	<u>Regionally Significant Projects</u> 5 Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Much of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation / agency review required.	Diverts approximately 1,500 vpd from 3rd St SE. Still operates at LOS "D" by 2035.	High	Carry forward to second level evaluation. Likely a low priority.
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> 59 Widen 3rd Street SE to four-lanes	Limited social impacts.	Limited environmental impacts.	Provides LOS "C" through 2035. More capacity than required through 2035.	Moderate to High	Dismiss - more capacity than needed through 2035.
	<u>Corridor Management Improvements</u> 60 Add turn lanes at key cross streets, signalize 3rd Street / Memorial Highway intersection by 2035	Limited social impacts.	Limited environmental impacts.	Remove parking on one side and restripe. Provide signal when warranted, provides LOS "C" through 2035.	Low	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Avenue between 40th Ave SE and Highway 1806	Increases traffic by houses and apartments along existing McKenzie alignment east 40th Ave SE.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts approximately 4,000 vpd from 3rd St SE, for sufficient 3rd St capacity in 2035. Extension improves regional connectivity; consistent with Minor arterial function and I-194 interchange.	Moderate to High	Carry forward to second level evaluation.
Hwy 1806 / 8th Ave SE Congestion	<u>Improvement of Existing Routes</u> 62 Add turn lanes and signalize 8th Ave SE / Highway 1806 intersection by 2035.	Pavement width is about 40' with no on-street parking currently allowed. Limited social impacts for restriped turn lanes.	Limited environmental impacts, improved traffic operations improves air quality.	Intersection is about 250' to 300' from Heart River bridge. Provides sufficient capacity through 2035.	Low	Carry forward to second level evaluation.
	63 Restripe as 3-lane section between Heart River to 3rd St SE.	No parking allowed north of bridge; restriping as a three lane requires no widening. Any widening adjacent to Heart River has potential cultural resource issues.	Limited environmental impacts, improved traffic operations improves air quality.	Currently 4-lane undivided for 2 blocks north of Poplar. High through volumes and turning traffic could lead to safety issues and congestion. 3-lane section provides improved left-turning traffic safety, sufficient capacity through 2035.	Low to Moderate	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Drive between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts 3,000 to 4,000 vpd from Highway 1806. Improves Highway 1806 operations; turn lanes still required at 1806 / 8th Ave. Improves operations south of Main Ave to LOS "D" by 2035.	Moderate to High	Carry forward to second level evaluation.
	73 Complete South Mandan Growth Area Roadway Grid	Improves connectivity / access for south Mandan Growth area.	Limited environmental impacts.	Diverts approximately 1,000 from Highway 1806 between 19th St SE and 8th Ave SE. TSM improvements still required at 1806 / 8th Ave intersection.	High	Carry forward to second level evaluation.

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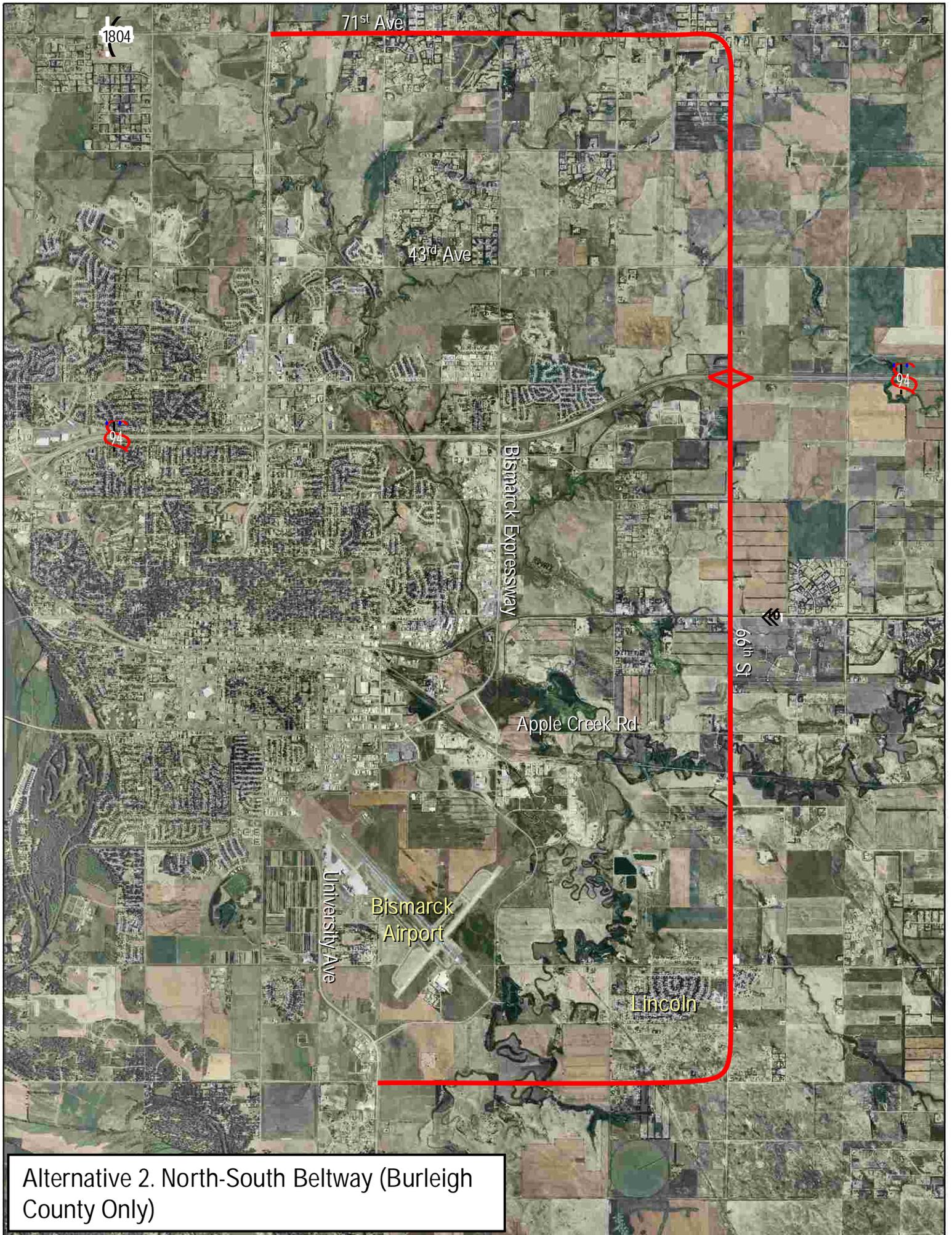
Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
Mandan Interstate Safety Concerns	<u>Regionally Significant Projects</u> 5 Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation required.	Diverts approximately 2,000 vpd from I-194 / Bismarck Expressway Bridge	High	Carry forward to second level evaluation. Likely a low priority.
	<u>Improvement of Existing Routes</u> 64 Improve Mandan Ave Interchange with left-turn lanes on Mandan Ave and Channelize, Lengthen I-94 on-ramps	Limited social impacts.	Limited environmental impacts.	Intersection safety improved. Lengthened ramps provide improved merge.	Low to Moderate	Carry forward to second level evaluation.
	65 Improve I-94, East Main to I-194 with reconfigured access ramps, elimination of left-on-ramp from WB I-94 to EB I-194, eliminate I-94 weave movement.	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Improved safety with removed I-94 weaving segments, standard right-hand ramps, larger loop ramp for WB I-94 to EB I-194.	Moderate to High	Carry forward to second level evaluation.
	66 I-94, Memorial Highway and McKenzie Dr interchanges: Add C/D road and ramp reconstructions to improve interchange spacing.	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Establishes C-D road system to remove WB weave, improved interchange design. Potential need to widen bridges with lengthened auxiliary lanes.	High	Carry forward to second level evaluation.
Bismarck Expressway Pedestrian Safety Issues	<u>Alternate Modes Improvements</u> 9 Provide trails and sidewalks for pedestrians/bicyclists east of 18th St	Limited social impacts, sufficient Bismarck Expressway ROW exists for trail within current ROW.	Limited environmental impacts.	Crossing of BNSF tracks is a barrier, Bismarck Expressway bridge over tracks is 70' with 12' median.	Moderate	Carry forward - review with Bismarck Parks and Rec staff at next level.
	10 Incorporate pedestrian crossing timing adjustments and increase use of warning signs for pedestrians crossing Bismarck Expressway and for drivers traversing intersections.	Improves pedestrian safety and connectivity. Identified as a high ped-demand corridor in Community Committee meeting.	Limited environmental impacts.	Currently a median pedestrian refuge at Washington Street. When activated, timing adjustments would have some impact on Bismarck Expressway traffic flow. 6-lane concept between Washington and 9th would provide center median / ped refuge.	Low	Carry forward to second level evaluation.
40th Ave SE / Memorial Highway Congestion	<u>Improvement of Existing Routes</u> 68 Signalize and add turn lanes to intersection by 2035.	Minor widening of 40th Ave S required, limited impacts anticipated.	Limited environmental impacts, reduced queuing / idling for 40th Ave SE traffic improves emissions.	Provides sufficient capacity through 2035.	Low to Moderate	Carry forward to second level evaluation.
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Avenue between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Limited diversion from 40th Ave SE, diverts approximately 3,000 vpd from Memorial Highway. High delays remain for 40th Ave S traffic without improved intersection control.	Moderate to High	Carry forward to second level evaluation.
Desire for Continuous North-South Access / Discontinuities through Bismarck	2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Provides a continuous, high mobility corridor to growing portions of Burleigh County.	High	Carry forward to second level evaluation.
	Several other projects would provide capacity improvements in portions of Bismarck north-south corridors. Limited continuous corridors are available for improvement.	Social impacts of providing a high-mobility corridor through currently developed portions of Bismarck are very high, even along existing corridors such as Washington St, State St/ 7th St/ 9th St, 26th St.	Vary by corridor; social impacts are a fatal flaw with corridors within currently developed Bismarck.	North-South Beltway corridor is likely only feasible opportunity for a continuous, high mobility corridor. Elevated / underground corridors in built areas have constructability issues / very high cost / social impacts.		Dismiss high social impact concepts through heart of Bismarck.
Desire to Improve Access Across I-94 in West Mandan	56 Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Provides desired connectivity.	High	Carry forward to second level evaluation.

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Issue to Address/Alternative Title		Evaluation by Perspective			Cost Range	Initial Screening Recommendation
		Social	Environmental	Engineering		
Desire to Provide Connection between Old Red Trail and River Rd (Mandan)	67 Extend Old Red Trail to River Road (Mandan)	Improves accessibility to residences along Missouri River. Impacts to boundary of Oil plant property and new road adjacent to cemetery.	Limited environmental impacts, positive is that it reduces out of direction travel for neighborhood residents.	Difficult terrain and crossing of rail tracks adjacent to River Rd. Somewhat redundant with concept that would extend Divide Avenue to Missouri Drive. Anticipated future volumes < 1,000 vpd.	Moderate to High	Dismiss due to property impacts and constructability issues.
Desire to Provide Transit Service to University of Mary	11 University / Bis-Man Transit Partnership	Students tend to be more transit-dependent than typical residents. Transit service can be coordinated with campus schedule - partnership opportunity.	Reduced vehicle trips translates into less emissions.	UMary is 3 miles south of current CAT service area (Route B-2). By 2035, 11,000 person trips destined for UMary have trip end within walking distance of current route (4,500 trips along Route B-2). Higher ridership propensity than most of population.	Low to Moderate	Carry forward - review with Bis Man transit at next level.
Peak Period Concerns with Congestion / Safety along Lincoln Road	69 Add left-turn lanes at 52nd Ave, Benteen Drive and McDougall Drive	Sufficient right-of-way, limited impacts. Include trail in project addresses concerns regarding bike and pedestrian safety along Lincoln Road.	Limited environmental impacts.	Need to coordinate with other trail project to provide non-motorized connection between Bismarck and Lincoln.	Moderate	Carry forward to second level evaluation.
Riverwood Drive Congestion at Washington Street	71 Add second eastbound left-turn lane at Washington Street	Property impacts likely, as roadway ROW appears to be 66' wide.	Limited environmental impacts, reduced vehicle delays and emissions.	Adjustment to signal required, should provide sufficient capacity in 2035.	Low to Moderate	Carry forward to second level evaluation.
	Alternate Corridor Improvements 72 Southwest Bismarck Growth Area Roadway Grid Improvement	Improved neighborhood access. Some increased traffic adjacent to residences near Washington Street. London Ave provides corridor with least impacts. Other corridors have impacts to residents and golf course.	Improvements would occur within floodway / floodplain. Wetlands adjacent to corridor. Environmental documentation required.	Diverts 1,500 vpd from Riverwood Drive in 2035. London Ave carries 2,500 vpd, and is adjacent to water treatment plant. Soils in area are mostly sandy/silt to sandy/clay, with pockets of fat clays. On its own, provides LOS "D" in 2035.	High	Carry forward to second level evaluation.
Schafer Street Pedestrian Safety and Campus Appearance	74 Reconstruction of Schafer Street between Edwards Avenue and College Drive to incorporate improved pedestrian and landscaping amenities.	Provides improved gateway corridor for BSC. Pedestrian safety improved.	Limited environmental impacts.	Included in BSC master plan.	Moderate	Carry forward to second level evaluation; depending on funding source may be a lower regional priority.
Find Opportunities to Better Manage Regional Travel Demand	12 Regional TDM program, including ridesharing program and vanpool promotion	More than 13% of Bismarck-Mandan workers commute from outside of Burleigh and Morton counties - potential vanpool riders. Improved transportation choices in region.	Reduced VMT, improved regional air quality and reduced emissions.	Employer-based surveys could provide a better gauge of vanpool opportunities.	Low to Moderate	Carry forward - review with Bis Man transit at next level.
State Street / US 83 Crash History / Safety Issues	14 Implement signal timing improvements in corridor.	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	Low	Carry forward to second level evaluation.
	76 Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for northbound traffic in corridor, reducing rear-end crashes. Removes traffic from left-lanes, addressing congestion and safety at adjacent intersections.	Moderate to High	Carry forward to second level evaluation; and add two new concepts - 1) full partial cloverleaf (SB to EB and NB to WB loop ramps) and 2) reconstruct as a SPUI.
Bismarck Expressway Crash History / Safety Issues from Washington to 3rd Street	6 Bismarck Expressway Widening / Improvements: Widen to 6-lanes from Washington Street to 9th Street, Implement intersection improvements between 9th Street and Rosser Ave	Impacts to operations of fire station at 9th St Bismarck Expwy and commercial development.	Limited environmental impacts; additional environmental documentation likely required.	Reduced peak hour congestion should reduce the incidence of rear-end collisions.	High	Carry forward to second level evaluation.
	14 Implement signal timing improvements in corridor.	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	Low	Carry forward to second level evaluation.



Alternative 1. Northern River Crossing at 71st Avenue to 38th Street



1804

71<sup>st</sup> Ave

43<sup>rd</sup> Ave

Bismarck Expressway

Apple Creek Rd

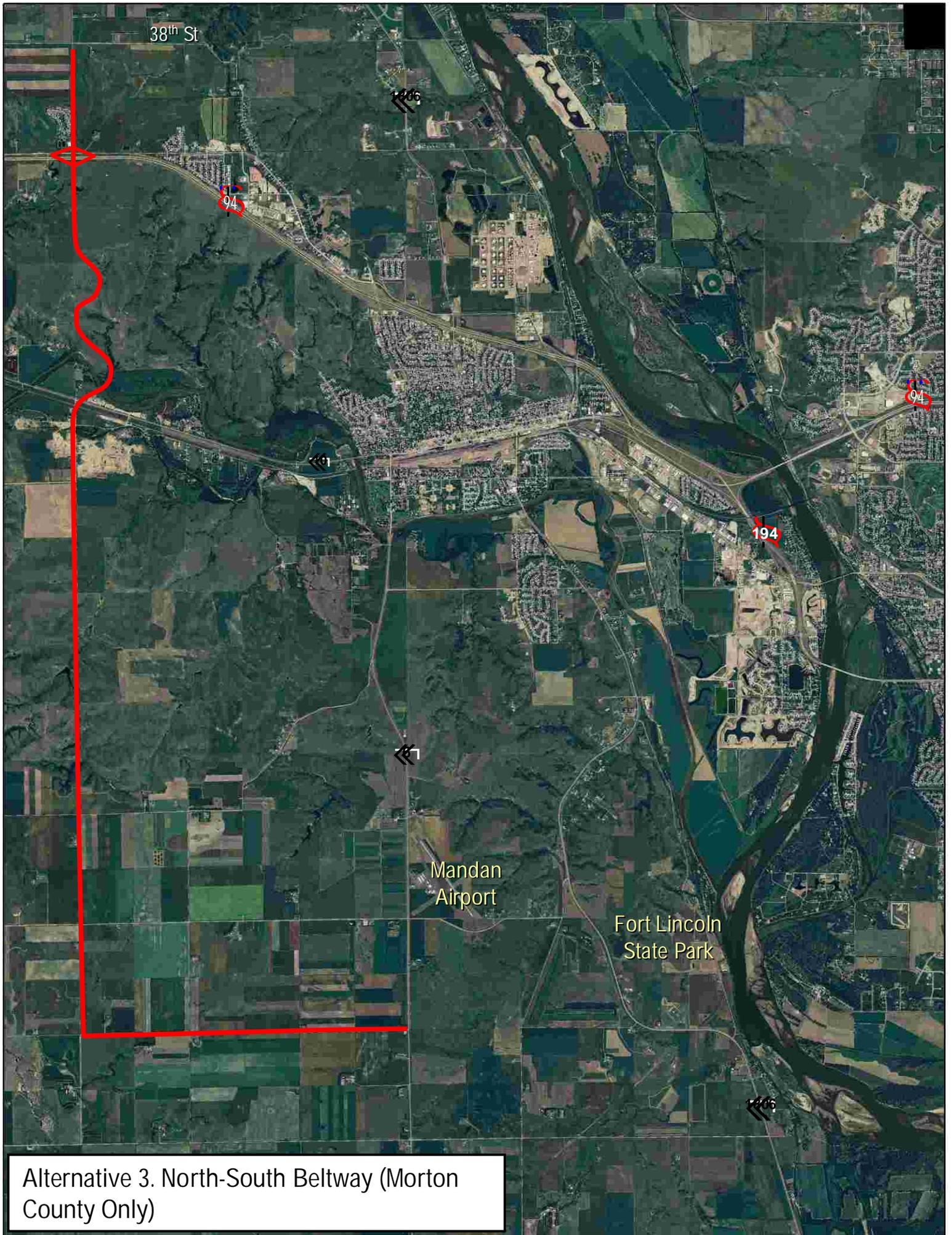
66<sup>th</sup> St

University Ave

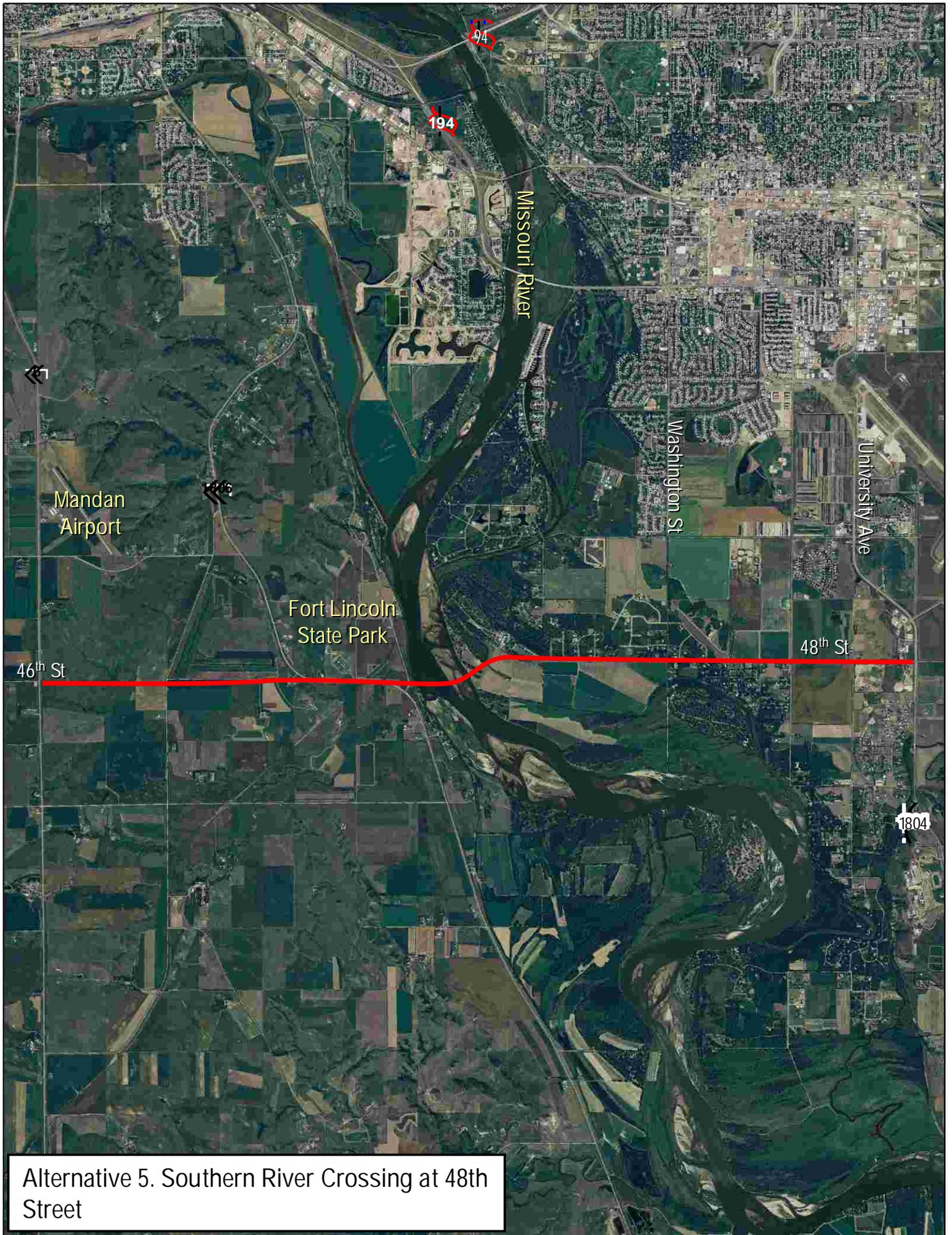
Bismarck Airport

Lincoln

Alternative 2. North-South Beltway (Burleigh County Only)



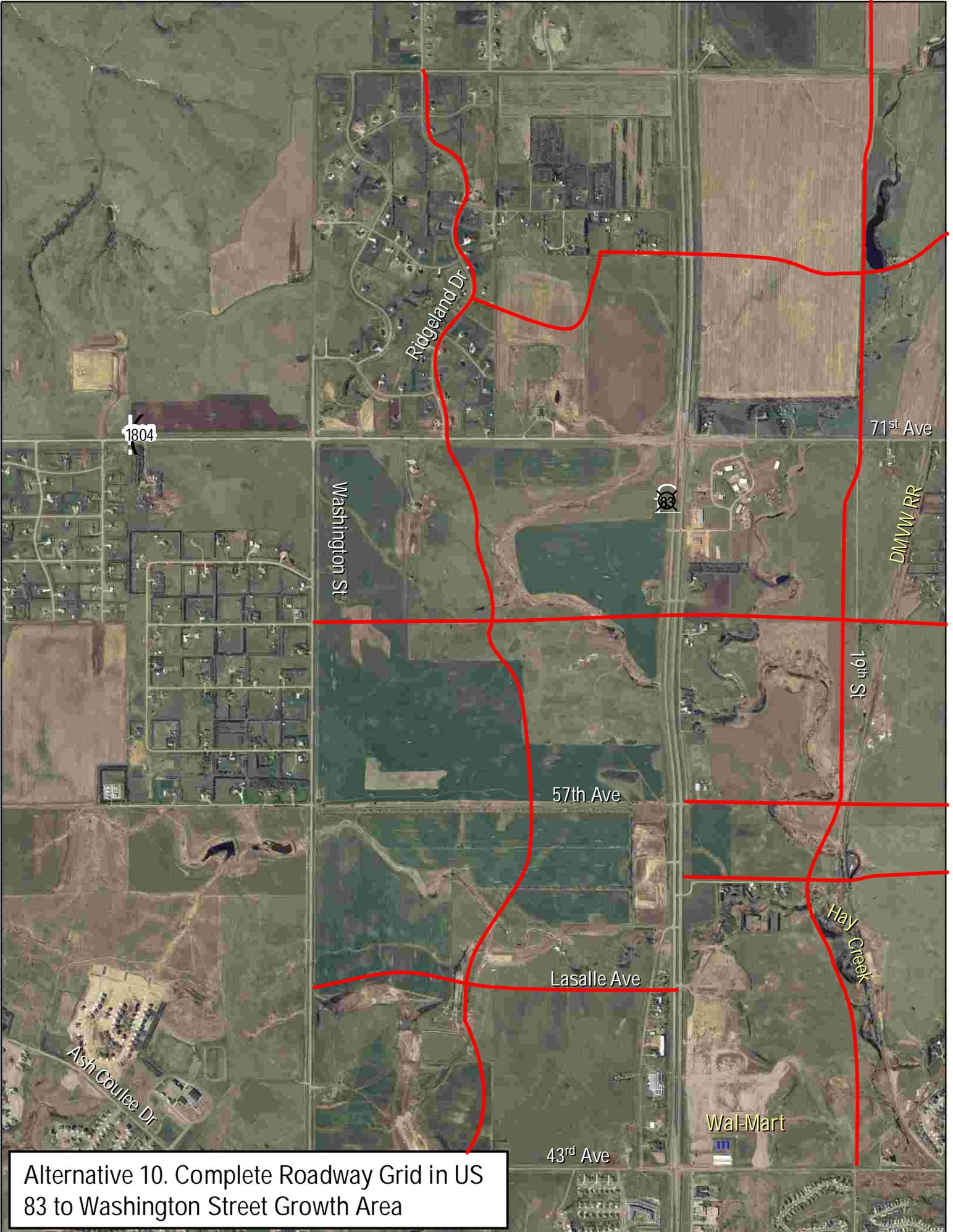
Alternative 3. North-South Beltway (Morton County Only)



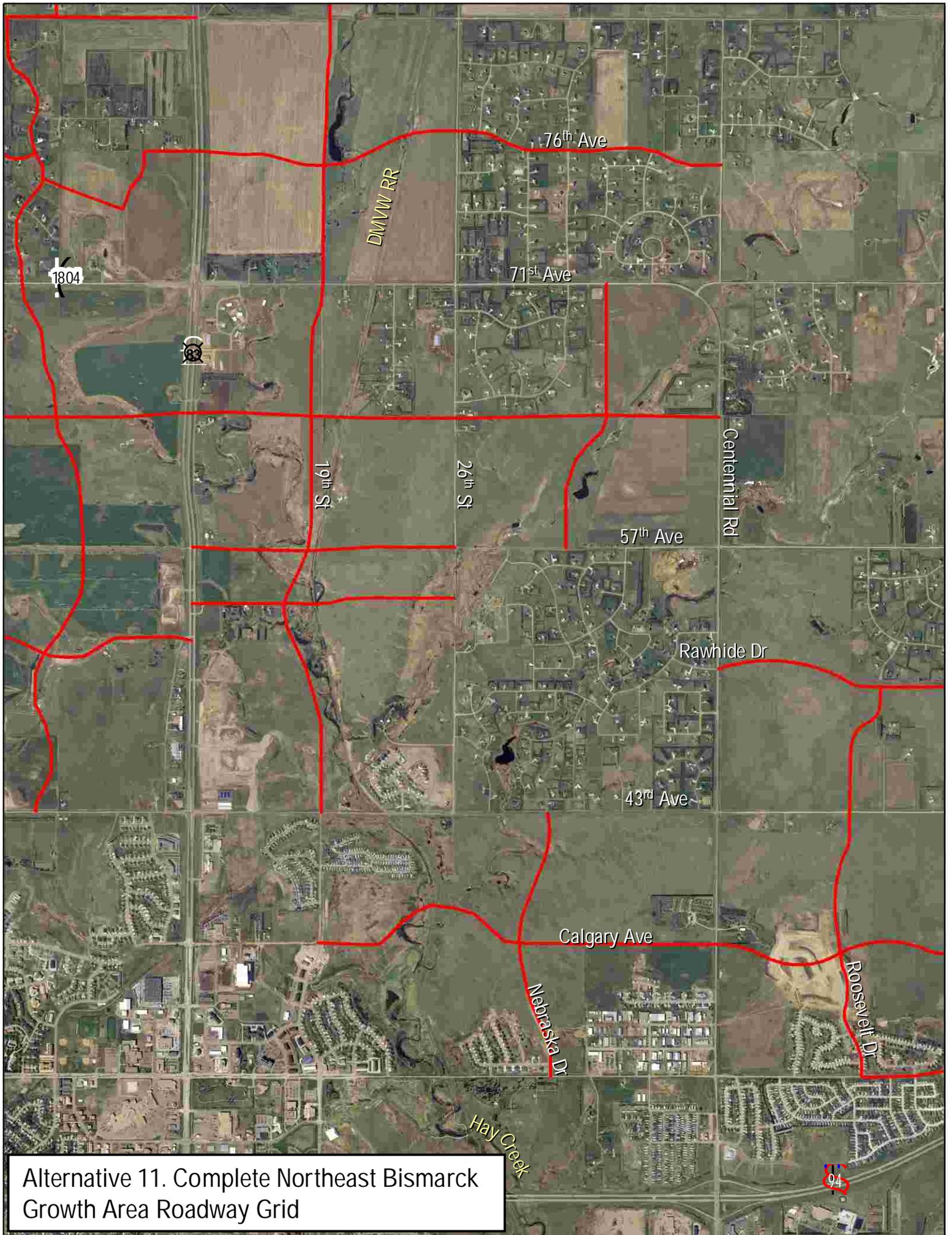
Alternative 5. Southern River Crossing at 48th Street



Alternative 9. Complete Northwest Bismarck Growth Area Roadway Grid



Alternative 10. Complete Roadway Grid in US 83 to Washington Street Growth Area



Alternative 11. Complete Northeast Bismarck Growth Area Roadway Grid



43<sup>rd</sup> Ave

Centennial Rd

Century Ave

Landfill

94

Divide Ave

Future Extension  
of Divide Avenue

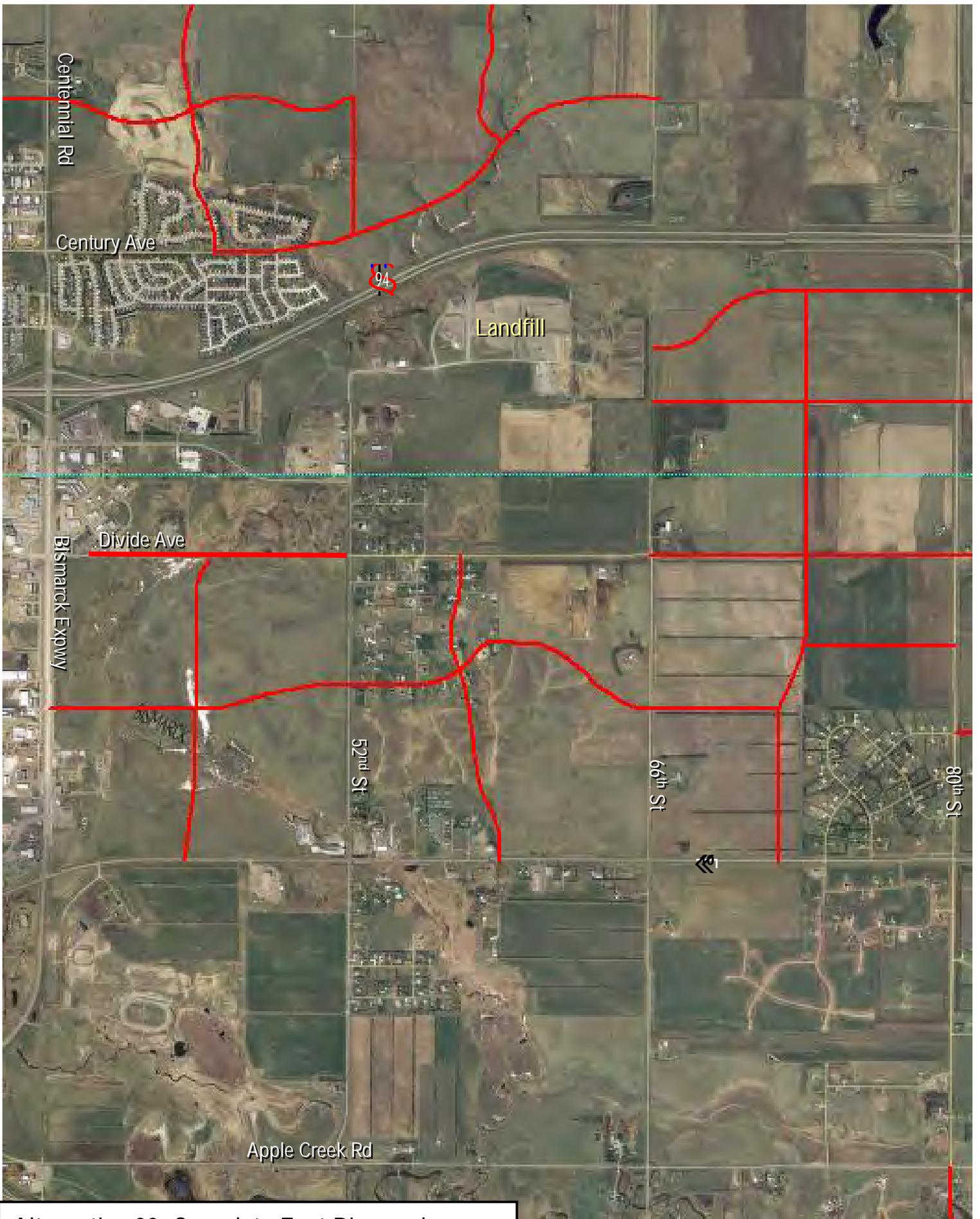
Bismarck Expwy

52<sup>nd</sup> St

66<sup>th</sup> St

BISMARCK

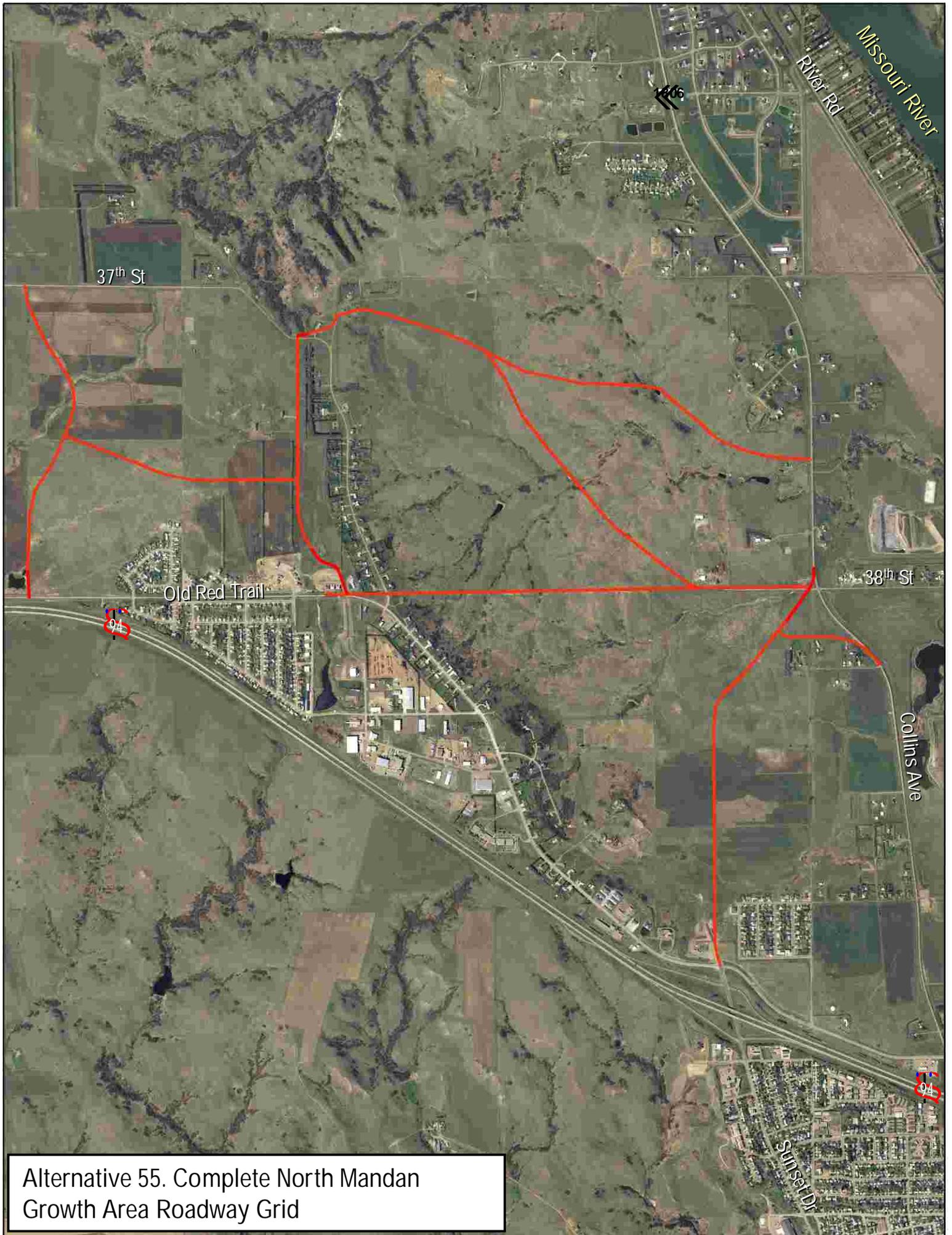
Alternative 30. Extend 52<sup>nd</sup> Street across I-94 to Connect Divide Avenue to Century Avenue



Alternative 32. Complete East Bismarck Growth Area Roadway Grid



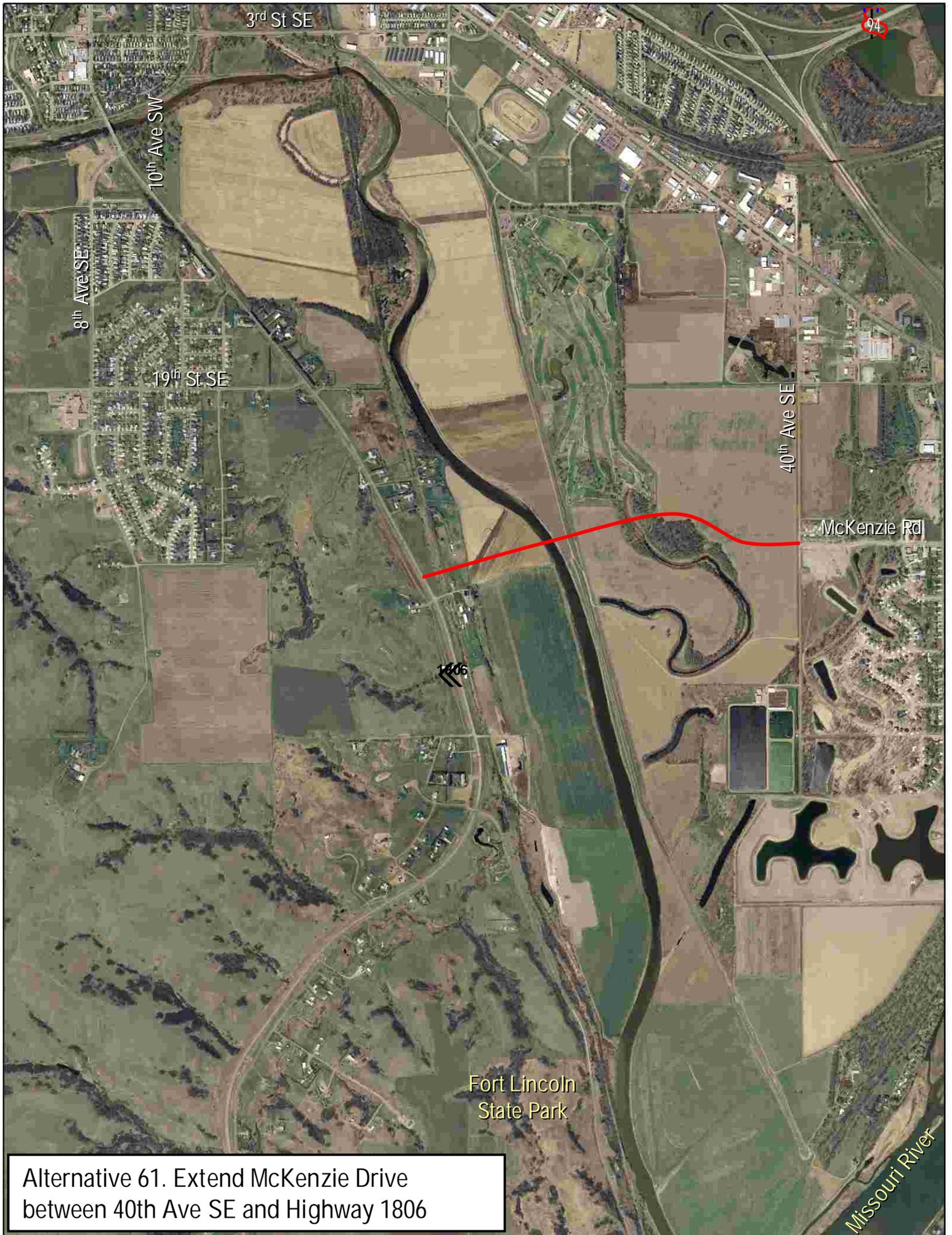
Adjusted Alternative 38. Potential East-West Arterials in Northwest Bismarck



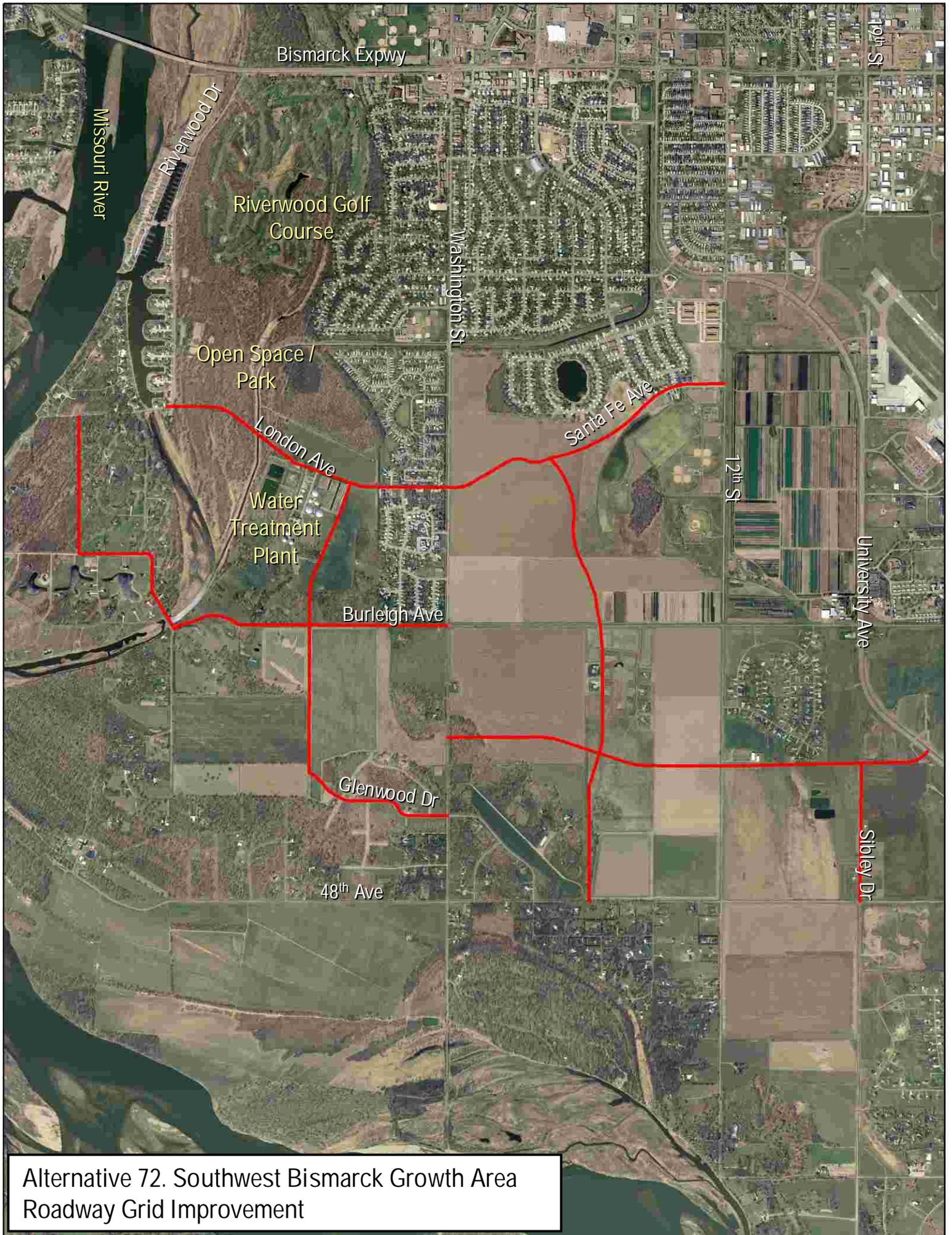
Alternative 55. Complete North Mandan Growth Area Roadway Grid



Alternative 56. Complete West Mandan Roadway Grid



Alternative 61. Extend McKenzie Drive between 40th Ave SE and Highway 1806



Bismarck Expwy

19th St

Missouri River

Riverwood Dr

Riverwood Golf Course

Washington St

Open Space / Park

Santa Fe Ave

London Ave

12th St

Water Treatment Plant

University Ave

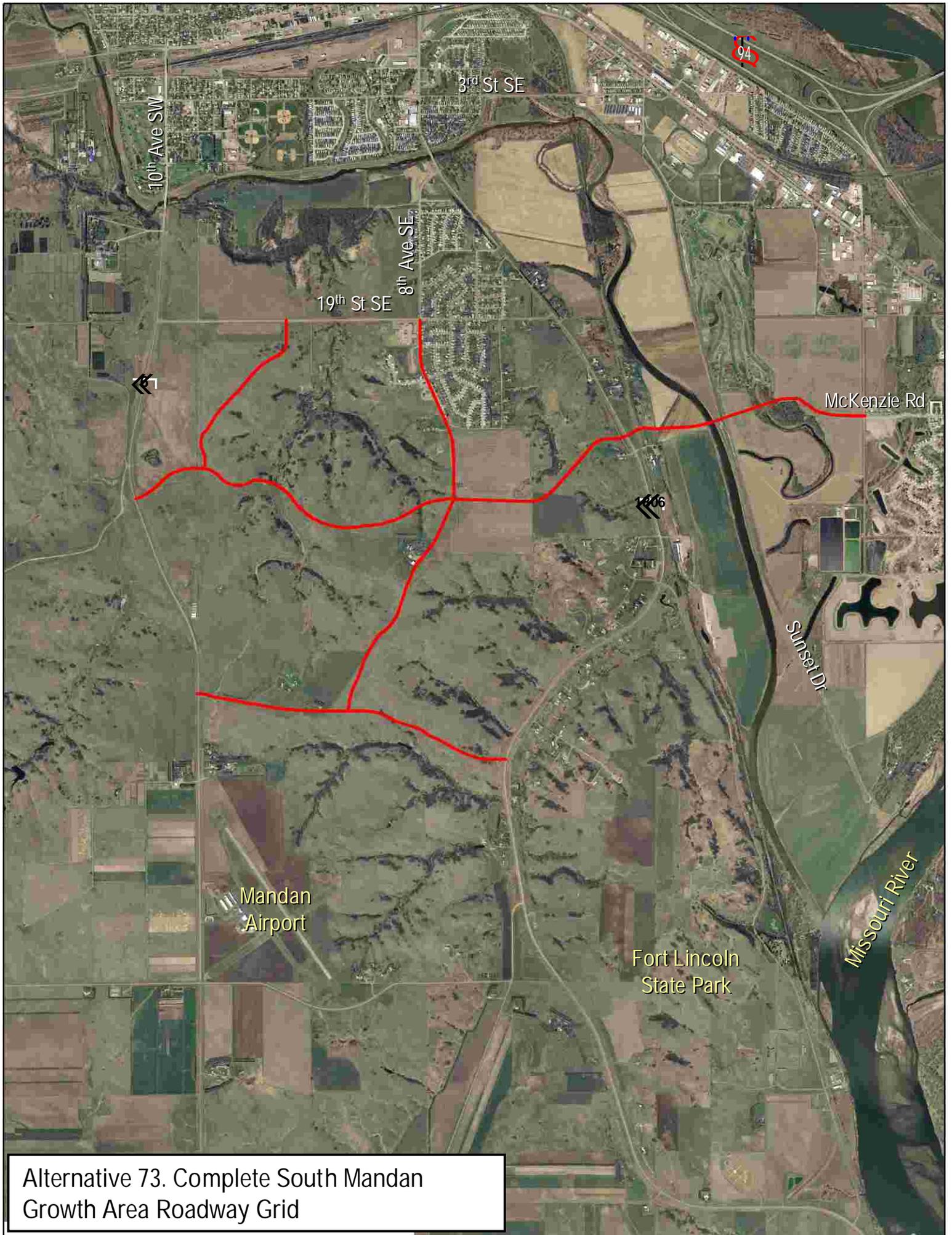
Burleigh Ave

Glenwood Dr

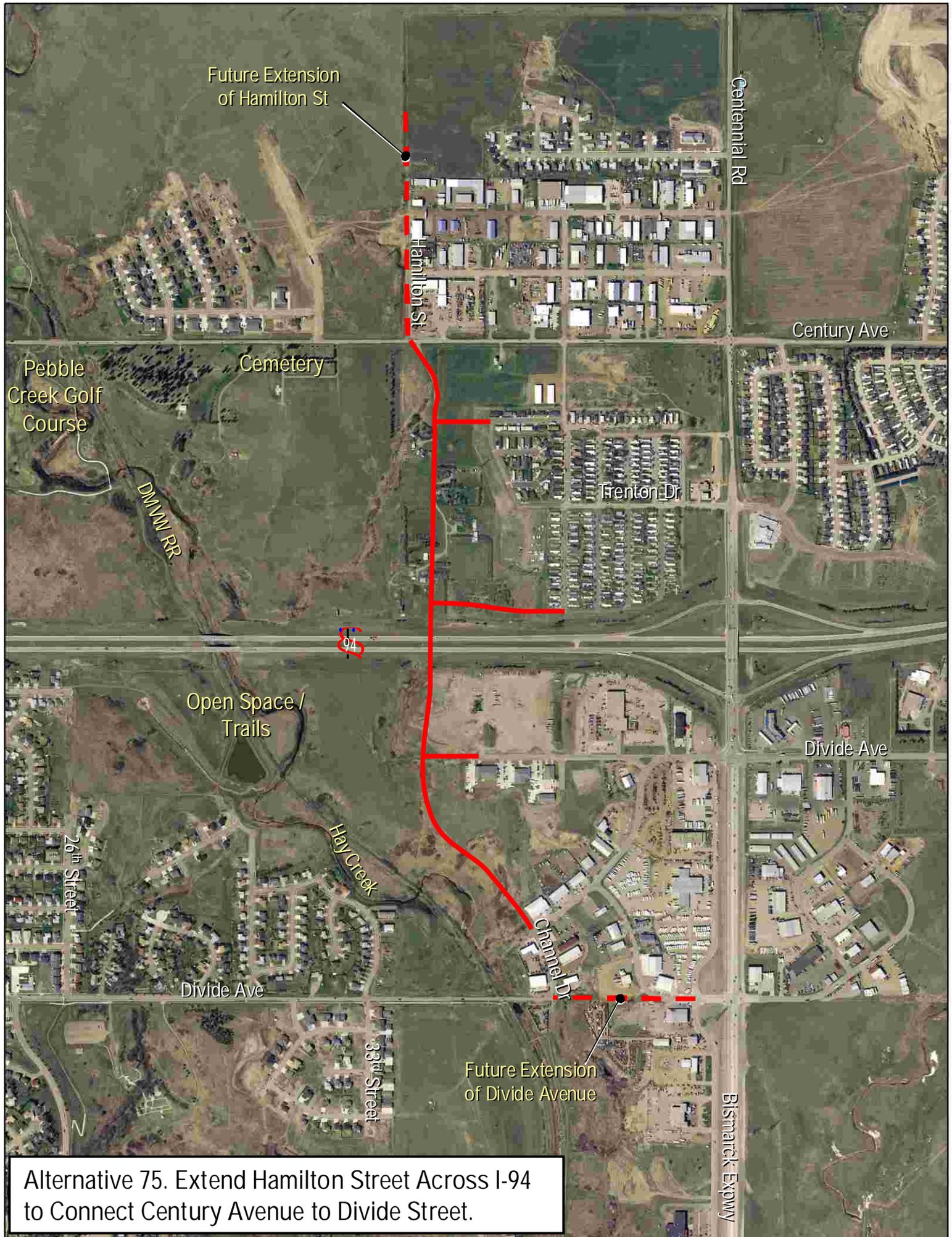
Sibley Dr

48th Ave

Alternative 72. Southwest Bismarck Growth Area Roadway Grid Improvement



Alternative 73. Complete South Mandan Growth Area Roadway Grid



Future Extension of Hamilton St

Century Ave

Century Ave

Pebble Creek Golf Course

Cemetery

DMV RR

Trenton Dr

94

Open Space / Trails

Divide Ave

26th Street

Hay Creek

Divide Ave

Channel Dr

33rd Street

Future Extension of Divide Avenue

Bismarck Expwy

Alternative 75. Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.



## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

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**To:** Ben Ehreth  
Bismarck-Mandan MPO

**Date:** May 7, 2009

**Subject:** Bismarck-Mandan 2035 Long Range Transportation Plan  
Draft Prioritization Screening of Remaining Alternatives

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### ***OVERVIEW***

The purpose of this memorandum is to:

- Provide a methodology for prioritizing the remaining improvement alternatives, by applying the evaluation criteria / performance measures established earlier in the Transportation Plan update for the second level of our alternatives analysis approach.
- Provide a draft scoring for each alternative, based on the prioritization methodology.

To this point in the study, we have completed the first level alternatives analysis for the 2035 Long Range Transportation Plan (LRTP). The purpose of the first level of the alternatives screening was to narrow the universe of alternatives by removing those that had fatal flaws because they did not reasonably reflect the transportation goals or did not have local support. The results of that first level of alternatives screening were presented to the TAC and Policy Board last month and are posted at the study website.

The goal of the second level screening is to evaluate how well each of the alternatives that were maintained through the first level assessment reflect the established LRTP goals and objectives. Specifically, this process will score and prioritize each alternative based on a scoring system that reflects the study performance measures. This memorandum provides an overview of that process and a draft scoring of the remaining alternatives. We stress that this is a draft scoring, and will rely on input from local staff and stakeholders on finalizing this scoring / prioritization.

## ***SECOND LEVEL SCREENING***

As previously documented, alternatives included in the “Maintain / Carry Forward” list developed following the first level screening were those that provided utility in meeting the transportation goals and in addressing identified transportation issues / concerns / deficiencies. All of the alternatives that remain are not necessarily alternatives that should be implemented. Many of the maintained concepts will be eliminated in this second phase, or placed very low on the priority list.

The purpose of the second level screening process is to go through each of the remaining ideas / concepts and prioritize them in a manner that reflects both likelihood of implementation by 2035 and provides a multi-modal system that supports the regional transportation goals. The ultimate set of alternatives will also be cost constrained. Development of the prioritized list will require completing more than one iteration of review through the scoring summary provided. The iterations in this level are important as the Transportation Plan needs to be cost constrained and should reflect the region’s diverse transportation system goals. We will work with the TAC, the Policy Board and the community to make the decision as to the projects and programs that will make up the recommended list. The scoring summary information can be used to assist in prioritizing the project / program list. Those projects scoring the highest, in the case where the scoring is used as the primary determinant, would be included in the list as the highest priorities.

It is highly unlikely that the fundable list will be developed through *solely* reviewing the project scoring, but it can be used as a tool in making some hard decisions. The scoring incorporates a very broad range of criteria, all developed to reflect Bismarck-Mandan’s goals and objectives, and the results of the scoring can be reviewed by the committees as we discuss the recommended list.

## **PRIORITIZATION / SCORING METHODOLOGY**

The scoring criteria applied in the Phase 2 assessment incorporate a broad range of inputs that cover the social, engineering and environmental perspectives. Incorporating these perspectives into the transportation assessment process is a requirement of SAFETEA-LU in addressing the metropolitan long range planning factors. Through the draft evaluation scoring approach proposed in this memorandum, numerical values are assigned to specific performance measures associated with each of the perspectives. The numerical values are tied to a definition of the level to which a particular plan objective (such as reducing congestion, reducing vehicle hours of travel, limiting impacts to property, etc.) is met. In this application, higher numerical values reflect a more favorable or positive association and lower numerical values reflect less favorable or negative conditions. Thus, when the numbers are summed, the concept(s) with the highest cumulative score would be more reflective of the community transportation goals relative to the other ideas / concepts.

### SCORING CRITERIA DEFINITIONS

While the assessment process would be easier if we only used criteria that could be discretely quantified, it is not really possible as we need to include elements that can only be measured through more qualitative means (such as consistency with plans, impact on emergency response etc.). The quantitative approach we have developed is documented in Table 1, which provides some preliminary definitions for each criterion and how each is scored.

### DRAFT SCORING RESULTS

The draft scores provided in this memorandum reflect our initial opinions as to scoring in each of the categories. It needs to be emphasized that some of the scoring values are open to interpretation and it is very likely that through the local review process the scores recorded in any one or numerous cells might be adjusted. We have also left the “Local Support for the Project / Program” category blank, as it is our intention to work with local staff and get feedback from the TAC, Policy Board and Community Committee to gauge how this field should be filled in for each alternative.

The preliminary results of evaluating each of the concepts / ideas that were maintained through the first screening are displayed in Table 2. Included in this table are:

- Brief descriptions of the alternatives identified to address the transportation issue.
- A preliminary scoring summary for each of the alternatives using each of the criteria. Scores on the 0 to 6 scale for each of the criteria are included. For all of the criteria 6 reflects the highest score (most consistent, greatest relative positive impact, least relative negative impact, etc.) and 0 the lowest.
- Summation of the score for each alternative.

Figure 1 illustrates the scored alternatives documented in Table 2.

### NOTES ON THE INITIAL SCORING

Listed below are some items to consider as you review the material:

- Many of the more regionally-significant projects appear in several issue areas, as they have *some* effect on addressing issues in multiple corridors, consistent with how they were shown in the last round of alternatives screening.
- For each issue area, the alternative with the highest score **and** with a direct benefit to the issue area is highlighted in light yellow. Those regionally-significant projects that project more indirect benefits to the issue area are highlighted in yellow. For instance, Alternative 6 (Bismarck Expressway Improvements) appears in the “West Divide Avenue / Tyler Parkway Congestion” issue area. Alternative 6’s cumulative score was higher than Alternative 70 (Implement West Divide Avenue TSM projects), but Alternative 6 does not directly address the issue – relieving West Divide / Tyler Congestion. However, Alternative 6 is the highest ranked option for the “Bismarck Expressway Congestion / Safety” issue, as it provides the

needed congestion relief in the Bismarck Expressway corridor and is highlighted in light yellow accordingly.

- In some cases, a single issue area has various alternatives that address sub-corridors of that larger issue area. In those situations, the highest-scoring alternatives for each sub-corridor are highlighted in light yellow. An example is North Washington Street Congestion, where Alternative 7 addresses the issue area south of 43<sup>rd</sup> Avenue and Alternative 8 addresses the issue area north of 43<sup>rd</sup> Avenue.
- If additional information on each of the alternatives is desired, please refer back to the memorandum that was circulated at the April TAC and Policy Board meetings relating to summary of the Phase 1 alternatives screening. This memorandum is also available at the project website at: [www.bis-manplan2009.com/PDFs/Alternatives1.pdf](http://www.bis-manplan2009.com/PDFs/Alternatives1.pdf). Each of these alternatives are included in that documentation and the previous documentation was used to provide source data for items such as level of social impacts, congestion relief, etc.
- The cost estimates are still being refined. Thus, there could be minor changes to the scoring in this category if a project that we initially thought would be relatively low cost ends up being a high cost project and vice versa.

## ***CONCLUSION***

We intend to work with local staffs and the TAC / Policy Board to walk through the scoring displayed in Table 2 and refine as needed. At a minimum, we anticipate getting feedback from you to fill in the "Local Support" Column in Table 2. In the mean time, if you have any specific questions / comments about this memorandum please contact Bill Troe at (402) 952-2522 or Jason Carbee at (402) 952-2506.

Table 1. Performance Measure Scoring and Definitions

Assessment Perspective	Performance Measure	Score / Definition			
		6	4	2	0
<b>Social</b>					
	Benefits / Impacts to Low-Income, Minority and / or Mobility-Challenged (Environmental Justice) Populations	Project / Program Provides Significantly Improved Mobility with No to EJ Populations / Has No Physical Impacts	Project / Program Provides Some Improved Mobility to EJ Populations / Has No Physical Impacts	Project Does Not Affect EJ Populations	Project Negatively Impacts EJ Populations
	Potential Economic Benefits / Impacts	Project Results in Significant Improvement to Regional Goods and People Movement	Supports Improvement in Movement of People and Goods / Addresses Deficient Commercial Corridor	Minor / Localized Improvement; Supports Speculative / Temporary Economic Benefits	No Improvement / Negative Economic Impact
	Impact on Emergency Response	Significantly Enhances Emergency Response	Moderately Enhances Emergency Response	Limited Enhancement to Emergency Response	Negative Effects on Emergency Response
	Transportation Security Impacts	Significantly Enhances System Security by Providing Critical Connection	Moderately Enhances System Security by Providing Access to Regional System	Limited Enhancement to System Security	Negative Effects on System Security and / or is Detrimental to Security Plans
	Local 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
	Consistency with Local / Regional Planning Efforts	Supports Recommendations of Other Plans / Studies and is in TIP	Improvement Area / Concept is Supported by Recommendations of Other Plans / Studies	Not Addressed in Other Plans	Inconsistent with Recommendations of Other Plans / Studies
	Cost	Low Cost and Within the Transportation Budget Constraints	Moderate Cost / Within Transportation Budget Constraints	High Cost but Within the Transportation Budget Constraints	High Cost / Not within the Transportation Budget Constraints

Table 1. Performance Measure Scoring and Definitions

Assessment Perspective	Performance Measure	Score / Definition			
		6	4	2	0
Environmental					
	Natural Environment Impacts	No / Few Impacts Environmental Features, including Wetlands, Floodplains, Cultural Amenities, Tree Canopy, etc.	Minimal Impacts to Adjacent Environmental Features	Moderate Level of Impacts to Adjacent Environmental Features	Significant Level of Impacts to Adjacent Environmental Features
	Property Impacts	No impact to adjacent private property	Minor impact to adjacent properties, does not significantly affect property use	Moderate impact to adjacent properties, some impacts to property uses	Significant impact to adjacent properties / some acquisitions required
	Non-motorized / Transit Mode Share	Project / Program would Significantly Increase Non-Motorized or Transit Mode Share	Project / Program Provides Moderate Increase in Non-Auto Mode Share or Targets Unserved, High Density Area	Project / Program Provides Minimal Increase Non-Auto Mode Share	Project / Program Has No Impact or Decreases Non-Motorized or Transit Mode Share
	Impact on 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	Slight Reduction in Rate of Change in VMT, VHT and/or New Trips	Negligible Impact or Increases VMT / VHT / New Trips

Table 1. Performance Measure Scoring and Definitions

Assessment Perspective	Performance Measure	Score / Definition			
		6	4	2	0
Engineering					
	Impact to Multimodal Connectivity / Continuity	Provides Significant Roadway / Trail / Transit Connections between Key Areas in Region	Provides Connectivity between Neighborhoods, Limited Impact to Neighborhood Integrity	Little Impact on Continuity / Connectivity	Isolated Route / Provides Access to Growth Area, But No Through Connection
	Impacts to Non-Motorized Safety	Project / Program Significantly or Directly Enhances Bicycle and Pedestrian Safety in Existing Corridor	Project / Program Provides Moderate Improvements to Bicycle / Pedestrian Safety in Existing Corridor	Negligible or neutral Impact on Bicycle / Pedestrian Safety	Program / project would have a Negative Impact on Non-Motorized Safety.
	Roadway Travel Time / Congestion / Level of Service	Provides Acceptable Traffic Operations in Currently Congested Corridors	Provides Acceptable Traffic Operations in Future Congested Corridors	Does not Meet Operations Goal, but Improves Travel Time in Current or Future Congested Corridors	Limited / No Direct Impact on Corridor Congestion / Travel Time
	Number of / Rate of Crashes	Project Targets Known High Crash Location	Project Targets Known Moderate Crash Location	Generally Safer Design Concept Relative to Existing / No Perceived Crash Problem	No Impact
	Impact on Freight Movements and Connections	Significantly Improves Regional Freight Movements / Truck Route or Access to Major Freight Generators	Some Improvement to Regional Freight Movements / Truck Route or Access to Freight Generators	Improves Access to Freight Generators / No Regional Freight System Impacts	No Impact / Reduces Regional Freight Movements / Access to Freight Generators
	Consistency with Access Management Guidelines / Principles	Significant Improvements to Access Control / Consolidation	Moderate Improvements to Access Control / Consolidation	Project Does Not Affect Access Control	Project Has a Negative Impact on Access Management
	Impacts to System Operations and Maintenance	High Maintenance Priority / Would Significantly Reduce Multimodal Operations / Maintenance Costs	Project Includes Major Reconstruction or Addresses Moderate Maintenance Priority / Reduces Operations Costs	Neutral Affect on Operations / Maintenance Costs	Results in an Increase in Operations / Maintenance Costs

Table 2. Draft Prioritization of Alternatives by Issue Area

Issue	Retained Alternatives	Social Measures							Environmental Measures				Engineering Measures							Draft Alternative Score	Overall Rank
		Impacts to Low-Income, Minority and / or Mobility-Challenged	Potential Economic Benefits / Impacts	Impact on Emergency Response	Transportation Security Impacts	Local Support for Project / Program	Consistency with Local / Regional Planning Efforts	Cost	Natural Environment Impacts	Property Impacts	Non-motorized / Transit Mode Share	Impact on VMT / VHT / Trip Generation	Impact to Multimodal Connectivity / Continuity	Roadway Travel Time / Congestion / Level of Service	Impacts to Non-Motorized Safety	Number of / Rate of Crashes	Impact on Freight Movements and Connections	Consistency with Access Management Guidelines / Principles	Impacts to Multimodal Operations and Maintenance		
North Washington Street Congestion: Century Avenue to 71st Avenue	① Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue	2	4	2	4		4	2	4	6	0	2	2	4	2	0	6	2	4	50	7
	⑦ Widen Washington Street to a 4-lane divided roadway between Calgary Avenue and 43rd Avenue.	2	2	2	2		4	4	4	6	0	0	2	4	2	2	4	2	4	46	22
	⑧ Add left-turn lanes at major Washington Street access points 43rd Avenue to 71st Avenue	2	2	2	2		4	6	6	6	0	0	2	4	2	2	4	2	4	50	7
	⑨ Complete Northwest Bismarck Growth Area Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	2	2	4	2		4	4	6	4	2	2	4	2	2	0	0	2	0	42	43
	③⑧ Extend Century Avenue between Tyler Parkway and River Road	2	2	4	4		4	4	4	0	0	0	4	2	2	0	4	2	0	38	62
US 83 / State Street Congestion, Divide Avenue to 71st Avenue	① Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	③ North-South Beltway (Morton County Only)	2	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	46	22
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	2	4	2	4		4	2	4	6	0	2	2	4	2	0	6	2	4	50	7
	⑫ Interchange at US 83 / 71st St (Northern Beltway Corridor)	2	4	2	4		4	2	4	2	0	0	2	4	2	2	4	2	0	40	55
	⑬ Add left-turn and right-turn lanes at major US 83 access points 43rd Avenue to 71st Avenue.	2	2	2	2		6	6	6	6	0	0	2	4	2	2	0	4	2	48	15
	⑦⑥ Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	2	4	2	4		2	2	4	2	0	0	2	6	2	4	4	2	0	42	43
	⑭ Implement signal timing improvements in US 83 corridor.	2	2	2	2		6	6	6	6	0	0	2	2	2	0	4	2	2	46	22
	⑨ Complete Northwest Bismarck Growth Area Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	2	2	4	2		4	4	6	4	2	2	4	2	2	0	0	2	0	42	43
	⑪ Complete Northeast Bismarck Growth Area Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	① Expand CAT fixed-route bus service into area of 71st / US 83.	2	4	2	2		2	4	6	6	2	0	4	2	2	0	0	2	0	40	55
	② Extend US 83 trail north from current terminus at Calgary Ave through 71st Street	2	2	2	2		2	6	6	6	2	0	4	2	4	0	0	2	0	42	43
	③ Establish employer-based vanpool or rideshare program at 71st / US 83 employment node.	2	4	2	2		2	6	6	6	0	0	2	2	2	0	0	2	0	38	62
Bismarck West Side Congested Segments	① Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	2	4	2	4		4	2	4	6	0	2	2	4	2	0	6	2	4	50	7
	⑳ Add Turn Lanes to 4th Street, Interstate Avenue to Arikara Avenue - Remove On-Street Parking	2	2	2	2		4	6	6	4	0	0	2	6	2	2	0	4	2	46	22
	㉑ Add center left turn lane to Washington Street, Divide Avenue to Century Avenue - Remove On-Street Parking	2	2	2	2		4	6	6	4	0	0	2	6	2	2	4	4	2	50	7
	㉒ Realign Ward Road / College Road Intersection	2	2	2	2		4	4	2	2	0	0	2	0	2	0	0	2	2	28	74
	㉓ Add southeast-bound left-turn lane to Ward Road at Avenue C / Griffin intersection.	2	2	2	2		4	6	6	4	0	0	2	4	2	2	0	2	2	42	43
	㉔ Add roundabout at Ward Road / Avenue C / Griffin intersection.	2	2	2	2		2	4	6	4	0	0	2	4	2	2	0	2	2	38	62
	⑤ Establish a Transportation Management Association (TMA) for Central Bismarck.	2	4	2	2		2	6	6	6	2	2	4	2	2	0	0	2	0	44	33

**Shading Notes**

- Highest Scoring Alternative Directly Effecting Issue Area (Positive Effect)
- Regionally Significant Alternative Indirectly Influencing this Issue Area (Positive Effect)

Table 2. Draft Prioritization of Alternatives by Issue Area

Issue	Retained Alternatives	Social Measures							Environmental Measures				Engineering Measures						Draft Alternative Score	Overall Rank	
		Impacts to Low-Income, Minority and / or Mobility-Challenged	Potential Economic Benefits / Impacts	Impact on Emergency Response	Transportation Security Impacts	Local Support for Project / Program	Consistency with Local / Regional Planning Efforts	Cost	Natural Environment Impacts	Property Impacts	Non-motorized / Transit Mode Share	Impact on VMT / VHT / Trip Generation	Impact to Multimodal Connectivity / Continuity	Roadway Travel Time / Congestion / Level of Service	Impacts to Non-Motorized Safety	Number of / Rate of Crashes	Impact on Freight Movements and Connections	Consistency with Access Management Guidelines / Principles			Impacts to Multimodal Operations and Maintenance
43rd Avenue Congestion, US 83 to 26th Street	① Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	②⑥ Widen 43rd Avenue to a 4-Lane Divided Roadway from US 83 to 26th Avenue; add multi-use trail to corridor	2	2	2	2		4	4	4	6	2	0	4	4	4	2	2	6	4	54	2
	②⑦ Add turn-lanes at key 43rd Avenue access points, 26th to Centennial	2	2	2	2		2	6	4	6	0	0	2	4	2	2	0	4	2	42	43
	①① Complete Northeast Bismarck Growth Area Roadway Grid - Includes extension of 57th Avenue to relieve 43rd Ave	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	⑥ Expand CAT fixed-route bus service into area of 26th St / Calgary Avenue.	2	2	2	2		2	6	6	6	4	0	4	2	2	0	0	2	2	44	33
71st Avenue and Centennial Road Congestion / Safety	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	2	4	2	4		4	2	4	6	0	2	2	4	2	0	6	2	4	50	7
	②⑧ Widen 71st Avenue to 4-lanes, 43rd Avenue to Jericho Road	2	2	2	2		4	4	4	6	0	0	2	4	2	2	4	6	4	50	7
	②⑨ Add turn-lanes at all major 71st / Centennial access points north of 43rd Avenue. Consolidate access points where practical.	2	2	2	2		4	6	4	6	0	0	2	4	2	2	4	4	2	48	15
	③⑩ Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing; provide pedestrian / bike crossing of I-94.	4	4	4	4		2	2	4	4	2	2	4	2	2	0	2	2	0	44	33
	⑦⑤ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	2	4	4	4		2	2	4	4	0	2	4	2	2	0	0	2	0	38	62
East Divide Avenue and 52nd St Congestion	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	③① Extend East Divide Avenue from Bismarck Expressway / Commerce Drive intersection to 66th Street (3-lane cross-section)	4	2	4	2		4	4	4	4	0	0	4	2	2	0	2	4	0	42	43
	③② Complete East Bismarck Growth Area Roadway Grid	4	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	38	62
Lincoln Area Congestion	② North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	⑤ Southern River Crossing at 48th Street	2	4	2	4		2	0	0	0	2	2	4	2	2	0	4	2	0	32	73
	③③ Widen 66th Street to 4-lanes, Lincoln Road to Highway 10	4	4	2	2		4	4	4	6	2	0	2	4	2	2	2	4	4	52	3
	③④ Add turn-lanes at key intersections: Yegen Rd / Apple Creek Rd, Highway 10 / 66th Street, Apple Creek Rd / 66th St	4	2	2	2		4	6	4	6	0	0	2	4	2	2	6	4	2	52	3
	⑦⑨ Improve Lincoln Road - Airway Avenue intersection to allow free-flow movements between east leg and north leg.	4	2	2	2		2	4	4	4	0	0	4	0	2	0	0	2	2	34	72
	⑦ Expand CAT fixed-route bus service into Lincoln area.	6	2	2	2		2	4	6	6	2	0	4	2	2	0	0	2	0	42	43
South 12th Street Congestion	③⑦ Add turn lanes at major 12th St intersections: 12th St / Sweet Ave, 12th St / Bowen Ave, 12th St / Burleigh Ave, 12th St / Santa Fe Ave, 12th St / Bismarck Expwy - Mostly Restriping and On-Street Parking Removal	4	2	2	2		4	6	6	4	0	0	2	4	2	6	2	4	2	52	3
West Divide Avenue / Tyler Parkway Congestion, Country West Rd to US 83	① Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	⑥ Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	2	4	2	4		4	2	6	2	0	2	2	6	2	6	6	2	4	56	1
	⑦⑩ Implement West Divide TSM Projects: Restripe Divide Ave to 3-lane, I-94 to 26th St; Add EB Right-turn lane at College Dr, Signalize Country West / Tyler Pkwy, Century / Tyler Pkwy.	2	2	2	2		4	4	6	4	2	0	2	6	2	2	4	4	2	50	7

**Shading Notes**

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Table 2. Draft Prioritization of Alternatives by Issue Area

Issue	Retained Alternatives	Social Measures							Environmental Measures				Engineering Measures						Draft Alternative Score	Overall Rank	
		Impacts to Low-Income, Minority and / or Mobility-Challenged	Potential Economic Benefits / Impacts	Impact on Emergency Response	Transportation Security Impacts	Local Support for Project / Program	Consistency with Local / Regional Planning Efforts	Cost	Natural Environment Impacts	Property Impacts	Non-motorized / Transit Mode Share	Impact on VMT / VHT / Trip Generation	Impact to Multimodal Connectivity / Continuity	Roadway Travel Time / Congestion / Level of Service	Impacts to Non-Motorized Safety	Number of / Rate of Crashes	Impact on Freight Movements and Connections	Consistency with Access Management Guidelines / Principles			Impacts to Multimodal Operations and Maintenance
19th Street Congestion, Century Avenue to Divide Avenue	2 North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	39 Widen 19th Street to 4-lanes with Center Left Turn Lane	2	2	2	2		2	4	6	4	0	0	2	6	2	2	4	4	4	48	15
	40 Add turn lanes along 19th Street: Center left-turn lane south of Capitol Ave, dual northbound left-turn lanes at Century, right-turn lanes where warranted.	2	2	2	2		2	6	6	6	0	0	2	6	2	2	2	4	2	48	15
26th St Congestion, Main Avenue to Divide Avenue	2 North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	2	4	2	4		4	2	6	2	0	2	2	6	2	6	6	2	4	56	1
	41 Widen 26th Street to 4-lane divided roadway between Divide Avenue and Main Ave, include sidewalks in construction.	2	2	2	2		2	2	4	2	2	0	2	6	4	2	0	6	2	42	43
	42 Add turn lanes at major intersections: 26th / Broadway, 26th / D Ave, 26th / Valley View Blvd, 26th / Hillview Blvd, 26th / Boulevard Ave - Remove on Street Parking	2	2	2	2		2	6	6	4	0	0	2	6	2	2	0	2	2	42	43
	43 Restripe 26th Street as a 3-lane corridor - Remove On-Street Parking	2	2	2	2		2	6	6	4	0	0	2	6	2	2	0	4	2	44	33
East Main Ave Congestion, East of 26th Street to Bismarck Expressway	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	2	4	2	4		4	2	6	2	0	2	2	6	2	6	6	2	4	56	1
	46 Add left-turn lanes to major East Main intersections: eastbound dual lefts and right-turn lane at Bismarck Expressway, left-turn lanes at Eastdale Avenue.	2	2	2	2		4	6	4	6	0	0	2	4	2	2	6	4	2	50	7
Bismarck Expwy Congestion, Washington Street to I-94	2 North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
	5 Southern River Crossing at 48th Street	2	4	2	4		2	0	0	0	2	2	4	2	2	0	4	2	0	32	73
	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	2	4	2	4		4	2	6	2	0	2	2	6	2	6	6	2	4	56	1
	47 Widen Bismarck Expressway to 6-lane cross-section, I-94 ramps to Commerce Street (Future Divide Avenue Extension)	4	4	2	4		2	2	4	6	0	0	2	4	2	0	6	2	4	48	15
	77 Provide Northbound to Westbound and Southbound to Eastbound loop ramps at US 83 / I-94 interchange	2	4	2	4		2	2	4	4	0	0	2	4	2	6	6	2	0	46	22
	30 Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing; provide pedestrian / bike crossing of I-94.	4	4	4	4		2	2	4	4	2	2	4	2	2	0	2	2	0	44	33
	78 Add signal at Denver Avenue / 3rd Street when warranted.	2	2	2	2		2	6	6	6	2	0	2	0	2	6	0	2	2	44	33
	75 Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	2	4	4	4		2	2	4	4	0	2	4	2	2	0	0	2	0	38	62
River Rd Congestion	1 Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	50 Add SB left turn lane at Fraine Barracks / River Road	2	2	2	2		2	4	4	4	0	0	2	4	2	2	0	2	4	38	62
	52 Add traffic signal at Fraine Barracks / River Road intersection with special phasing (no widening)	2	2	2	2		2	6	6	6	0	0	2	4	2	2	0	2	2	42	43
	9 Complete Northwest Bismarck Growth Area Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	21 Add center left turn lane to Washington Street, Divide Avenue to Century Avenue - Remove On-Street Parking	2	2	2	2		4	6	6	4	0	0	2	6	2	2	4	4	2	50	7

**Shading Notes**

- Highest Scoring Alternative Directly Effecting Issue Area (Positive Effect)
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Table 2. Draft Prioritization of Alternatives by Issue Area

Issue	Retained Alternatives	Social Measures							Environmental Measures				Engineering Measures						Draft Alternative Score	Overall Rank	
		Impacts to Low-Income, Minority and / or Mobility-Challenged	Potential Economic Benefits / Impacts	Impact on Emergency Response	Transportation Security Impacts	Local Support for Project / Program	Consistency with Local / Regional Planning Efforts	Cost	Natural Environment Impacts	Property Impacts	Non-motorized / Transit Mode Share	Impact on VMT / VHT / Trip Generation	Impact to Multimodal Connectivity / Continuity	Roadway Travel Time / Congestion / Level of Service	Impacts to Non-Motorized Safety	Number of / Rate of Crashes	Impact on Freight Movements and Connections	Consistency with Access Management Guidelines / Principles			Impacts to Multimodal Operations and Maintenance
Airport Rd / University Dr Congestion	53 Add 2nd southbound left-turn lane to Airport Drive - Restriping and Signal Work	2	2	2	2		2	6	6	6	0	0	2	4	2	0	0	2	2	40	55
	37 Add turn lanes at major 12th St intersections: 12th St / Sweet Ave, 12th St / Bowen Ave, 12th St / Burleigh Ave, 12th St / Santa Fe Ave, 12th St / Bismarck Expwy.	4	2	2	2		4	6	6	4	0	0	2	4	2	6	2	4	2	52	3
North Collins Avenue / Hwy 1806 Congestion	1 Northern River Crossing at 71st Avenue to 38th Street.	2	4	2	4		4	0	0	2	0	4	4	2	2	0	4	2	0	36	69
	3 North-South Beltway (Morton County Only)	2	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	46	22
	54 Improve and signalize Collins Road / Old Red Trail Intersection	2	2	2	2		2	6	4	6	0	0	2	4	2	4	6	2	4	50	7
	55 Complete North Mandan Growth Area Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	56 Complete West Mandan Roadway Grid	2	2	4	2		4	4	2	4	2	2	4	2	2	0	0	2	0	38	62
	8 Expand CAT fixed-route bus service into North Mandan growth area.	2	4	2	2		2	4	6	6	2	0	4	2	2	0	0	2	2	42	43
North Sunset Dr Congestion	3 North-South Beltway (Morton County Only)	2	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	46	22
	58 Restripe Sunset as 3-lane roadway; Convert 4-way stops at 1st NW and 2nd NW to 2-way stops or signals - Remove on-street parking	2	2	2	2		4	6	6	4	0	0	2	4	2	2	0	4	2	44	33
	55 Complete North Mandan Roadway Grid	2	2	4	2		4	4	4	4	2	2	4	2	2	0	0	2	0	40	55
	56 Complete West Mandan Roadway Grid	2	2	4	2		4	4	2	4	2	2	4	2	2	0	0	2	0	38	62
3rd St SE Congestion, Hwy 1806 to Memorial Highway	5 Southern River Crossing at 48th Street	2	4	2	4		2	0	0	0	2	2	4	2	2	0	4	2	0	32	73
	60 Add turn lanes at key 3rd St SE cross streets, signalize 3rd Street / Memorial Highway intersection by 2035 - Remove on-street parking	4	2	2	2		2	6	6	4	0	0	2	4	2	2	2	4	2	46	22
	61 Extend McKenzie Avenue between 40th Ave SE and Highway 1806; provide multi-use trail adjacent to roadway	2	2	4	4		4	2	2	4	2	4	4	4	2	0	2	2	0	44	33
Hwy 1806 / 8th Ave SE Congestion	62 Add turn lanes and signalize 8th Ave SE / Highway 1806 intersection by 2035	2	2	2	2		2	6	6	6	0	0	2	4	2	2	2	4	46	22	
	63 Restripe Hwy 1806 as 3-lane section between Heart River to 3rd St SE	2	2	2	2		2	6	6	6	0	0	2	4	2	2	6	4	2	50	7
	61 Extend McKenzie Drive between 40th Ave SE and Highway 1806	2	2	4	4		4	2	2	4	2	4	4	4	2	0	2	2	0	44	33
	73 Complete South Mandan Growth Area Roadway Grid	2	2	4	2		2	4	4	4	2	2	4	2	2	0	0		0	36	69
Mandan Interstate Safety Concerns	5 Southern River Crossing at 48th Street	2	4	2	4		2	0	0	0	2	2	4	2	2	0	4	2	0	32	73
	64 Improve Mandan Ave Interchange with left-turn lanes on Mandan Ave and Channelize, Lengthen I-94 on-ramps	2	4	2	4		4	4	4	6	0	0	2	0	2	4	4	2	4	48	15
	65 Improve I-94, East Main to I-194 with reconfigured access ramps, elimination of left-on-ramp from WB I-94 to EB I-194, eliminate I-94 weave movement.	2	4	2	4		4	4	4	6	0	0	2	0	2	4	4	2	4	48	15
	66 I-94, Memorial Highway and McKenzie Dr interchanges: Add C/D road and ramp reconstructions to improve interchange spacing.	2	4	2	4		4	2	4	6	0	0	2	0	2	4	4	2	4	46	22
Bismarck Expressway Pedestrian Safety Issues	9 Provide trails and sidewalks for pedestrians/bicyclists east of 18th St	4	2	2	2		4	4	4	6	2	0	4	0	4	0	0	2	0	40	55
	10 Incorporate pedestrian crossing timing adjustments and increase use of warning signs for pedestrians crossing Bismarck Expressway and for drivers traversing intersections.	6	2	2	2		4	6	6	6	0	0	2	0	6	0	0	2	2	46	22

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Issue	Retained Alternatives	Social Measures							Environmental Measures				Engineering Measures						Draft Alternative Score	Overall Rank	
		Impacts to Low-Income, Minority and / or Mobility-Challenged	Potential Economic Benefits / Impacts	Impact on Emergency Response	Transportation Security Impacts	Local Support for Project / Program	Consistency with Local / Regional Planning Efforts	Cost	Natural Environment Impacts	Property Impacts	Non-motorized / Transit Mode Share	Impact on VMT / VHT / Trip Generation	Impact to Multimodal Connectivity / Continuity	Roadway Travel Time / Congestion / Level of Service	Impacts to Non-Motorized Safety	Number of / Rate of Crashes	Impact on Freight Movements and Connections	Consistency with Access Management Guidelines / Principles			Impacts to Multimodal Operations and Maintenance
40th Ave SE / Memorial Highway Congestion	68 Signalize 40th Ave SE / Memorial Hwy and add turn lanes to intersection by 2035.	2	2	2	2		2	6	6	4	0	0	2	4	2	2	4	2	4	46	22
	61 Extend McKenzie Drive between 40th Ave SE and Highway 1806	2	2	4	4		4	2	2	4	2	4	4	4	2	0	2	2	0	44	33
Desire for Continuous North-South Access / Discontinuities through Bismarck	2 North-South Beltway (Burleigh County Only)	0	4	4	4		4	0	2	2	0	4	4	2	4	2	4	4	0	44	33
Desire to Improve Access Across I-94 in West Mandan	56 Complete West Mandan Roadway Grid	2	2	4	2		4	4	2	4	2	2	4	2	2	0	0	2	0	38	62
Desire to Provide Transit Service to University of Mary	11 University / Bis-Man Transit Partnership	2	4	2	2		4	6	6	6	4	0	4	2	2	0	0	2	0	46	22
Peak Period Concerns with Congestion / Safety along Lincoln Road	69 Add left-turn lanes to Lincoln Road at 52nd Ave, Benteen Drive and McDougall Drive	4	2	2	2		4	6	4	6	0	0	2	2	2	2	0	4	2	44	33
Riverwood Drive Congestion at Washington Street	71 Add second eastbound left-turn lane at Washington Street / Riverwood Dr	2	2	2	2		2	4	6	2	0	0	2	4	2	0	0	2	4	36	69
	72 Southwest Bismarck Growth Area Roadway Grid Improvement	2	2	4	2		4	4	4	4	2	2	4	4	2	0	0	2	0	42	43
Schafer Street Pedestrian Safety and Campus Appearance	74 Reconstruct Schafer Street between Edwards Avenue and College Drive to incorporate improved pedestrian and landscaping amenities.	2	2	2	2		4	6	6	6	2	0	2	0	4	0	0	2	4	44	33
Find Opportunities to Better Manage Regional Travel Demand	12 Regional TDM program, including ridesharing program and vanpool promotion	4	4	2	2		2	6	6	6	4	2	6	2	2	0	0	2	2	52	3
State Street / US 83 Crash History / Safety Issues	14 Implement signal timing improvements in corridor.	2	4	2	2		6	6	6	6	0	0	2	2	2	0	4	2	2	48	22
	76 Provide Northbound to Westbound loop ramp at US 83 / I-94 interchange	2	4	2	4		2	2	4	2	0	0	2	6	2	4	4	2	0	42	43
Bismarck Expressway Crash History / Safety Issues from Washington to 3rd Street	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	2	4	2	4		4	2	6	2	0	2	2	6	2	6	6	2	4	56	1
	14 Implement signal timing improvements in Bismarck Expressway corridor.	2	2	2	2		6	6	6	6	0	0	2	2	2	0	4	2	2	46	22

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**Legend**

Alternatives Maintained

- Roadway Expansion Alternative
- Roadway Management Alternative
- Transit / Non-Motorized Alternative

Alternatives Dismissed

- Dismissed Alternative
- Development Growth Area

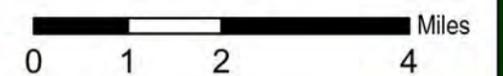
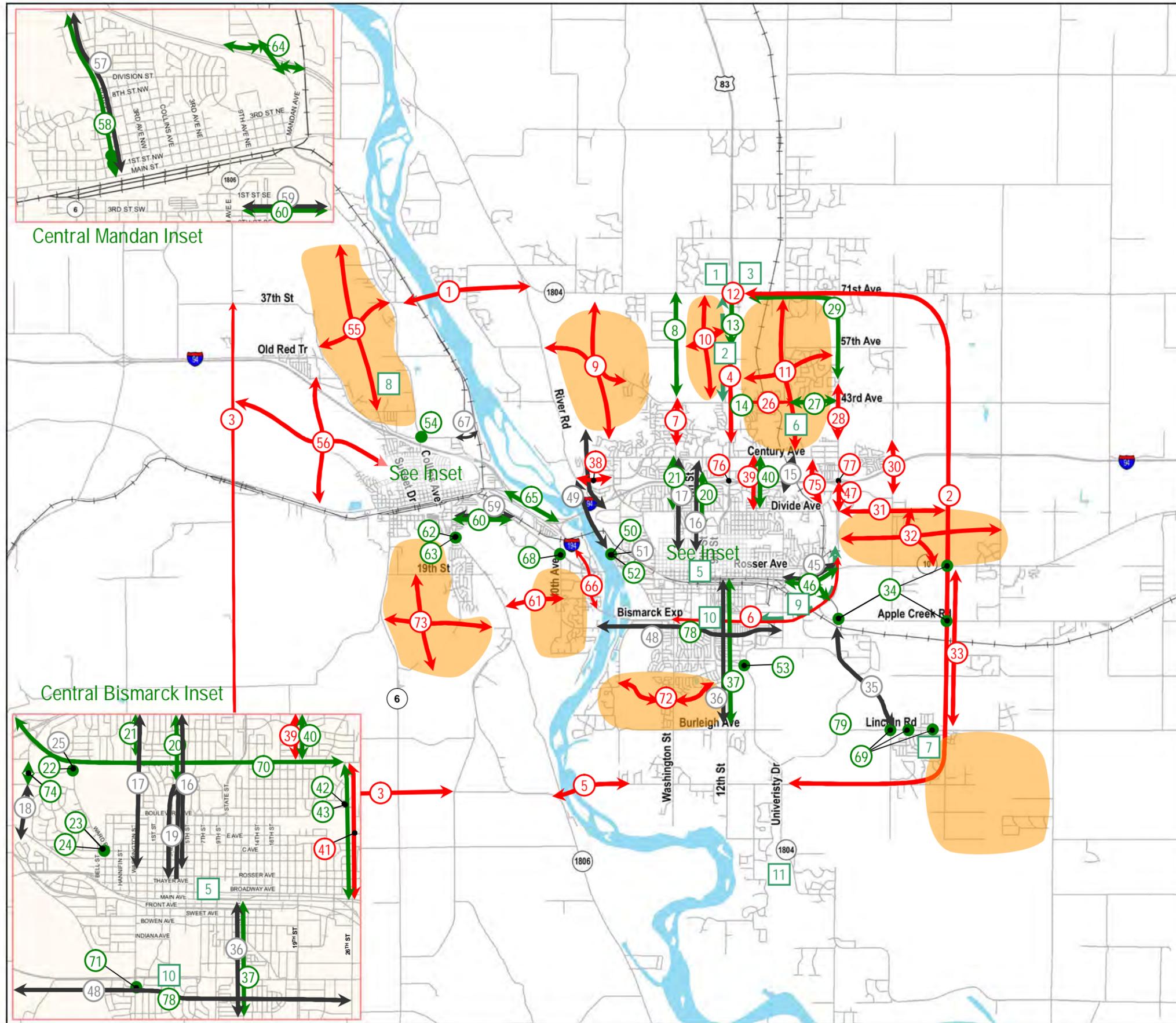


Figure 1. Roadway Alternatives Considered Following First Level Alternatives Workshop





## MEMORANDUM

**Bill Troe, AICP**

**Jason Carbee, AICP**

12120 Shamrock Plaza

Suite 300

Omaha, NE 68154

(402) 334-8181

(402) 334-1984 (Fax)

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**To:** **Ben Ehreth, Bismarck-Mandan MPO**  
**Mark Berg, City of Bismarck**  
**Sarah Baehurst, City of Mandan**

**Date:** June 30, 2009

**Subject:** Bismarck-Mandan 2035 Long Range Transportation Plan  
Draft Alternative Project Cost Estimates

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### ***OVERVIEW***

The purpose of this memorandum is to document the preliminary cost estimates prepared for the second level of the alternatives analysis phase of the 2035 Long Range Transportation Plan (LRTP) Update. The draft cost estimates have been provided in material related to the development of draft packages earlier this month, but it is hoped that the format in which they are presented in this memorandum provides local staff the capability to critically review how well these estimates fit with local experience.

The cost estimates are based on planning-level assumptions for each concept, with unit costs as the primary input. The unit costs were developed from available local and regional sources of information and based on the typical design characteristics on a unit basis, whether linear foot of feature, or per item. Those projects that are included in the recommended list of this plan, and as it progresses into a programmed improvement, the selected projects / concepts will be further developed and more detailed engineering work will be completed, at which time more detailed cost estimates will be produced.

### ***COST ESTIMATE APPROACH***

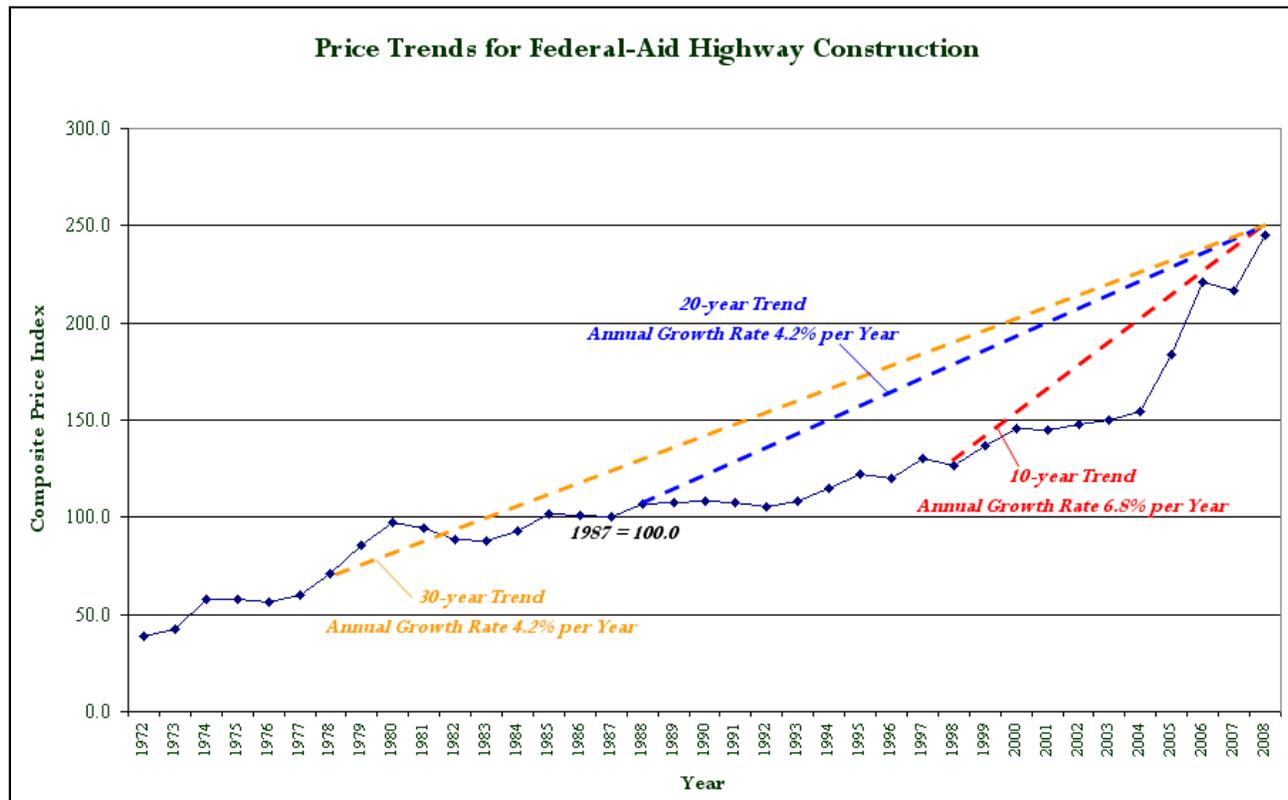
Those projects that have been maintained into the second level of the alternatives analysis have a preliminary cost estimate associated with them. The unit costs used in development of the draft cost estimates are based on:

- Unit costs that URS has adapted from the latest cost estimates included in recent Transportation Improvement Programs (TIP), or other subarea / corridor studies recently completed in Bismarck-Mandan. When possible, local sources of information were the primary source of information used to develop unit costs.
- Unit costs URS has developed and use for other planning / corridor studies in the region.

Much of the required information was developed based on costs of similar projects in the current TIP. For those projects that relied on older cost-estimate information, unit costs from before 2009 were grown according to available construction cost index information, as construction costs have increased dramatically over the past several years. Thus, the construction costs presented in this memorandum have been escalated to represent costs in 2009 dollars. As the FHWA’s publication of “Price Trends for Federal-Aid Highway Construction” ended after 2006, other sources of data were required to escalate pre-2009 prices to 2009 dollars. Washington DOT maintains a cost index that reviews the annual changes in construction costs for 6 western states, including neighboring South Dakota. Relative price change data for 2007 and 2008 was used to supplement the FHWA index in the few instances where older cost data were required.

The draft cost estimates presented in this memorandum reflect a 33 percent increase in construction costs since 2005. Thus, with no changes to project design details a project that was estimated to cost \$1,000,000 in the 2005 plan update, the current plan update’s cost estimate would be \$1,330,000 (in 2009 dollars). The adjusted cost index is displayed in Figure 1.

**FIGURE 1. Roadway Construction Cost Trends**



Sources: Price Trends for Federal-Aid Highway Construction, FHWA, 1972-2006.  
 Construction Cost Indices, Washington DOT from Washington, California Colorado Oregon South Dakota  
 And Utah state data, 2007-2008.

The draft unit construction costs are presented in Table 1. Costs are intended to reflect construction costs, but do not include any engineering / environmental documentation costs, which local staff indicate generally account for about 20 percent of construction cost.

**TABLE 1. Draft Unit Cost by Construction Item, 2009 Dollars**

Construction Item	Unit of Measure	2009 Unit Cost	Source
<b>New Corridor</b>			
New 2-lane local street	Lineal Foot (L.F.)	\$680	URS adjusted from recent Bis-Man Projects
New 3-lane roadway	L.F.	\$920	URS
New Turn Lane (rural construction w/ grading, paving, striping)	L.F.	\$280	URS
<b>Widened Corridors</b>			
Widen 2-lane to 3-lane roadway - urban	L.F.	\$1,140	Recent Bis-Man Projects in TIP
Widen 2-Lane to 3-lane roadway - rural	L.F.	\$570	City of Bismarck Staff
Widen and reconstruct 2-lane to 4-lane divided / 5-lane	L.F.	\$1,890	Recent Bis-Man Projects in TIP
Widen and reconstruct 5-lane to 7-lane	L.F.	\$2,080	URS adjusted based on recent Bis-Man costs for widening / reconstruction costs
<b>Non-Motorized Corridors</b>			
Bike & Ped Trail	L.F.	\$60	Recent Bis-Man Projects in TIP
Sidewalk	L.F.	\$22	URS - Bismarck Expressway
<b>Other Items</b>			
Short Bridge	Square Foot (S.F.)	\$90	Recent Bis-Man Projects in TIP
New Bridge (standard)	S.F.	\$130	URS
New Missouri River Bridge	S.F.	\$250	Liberty Memorial Bridge Costs
New Traffic Signal	Each	\$200,000	URS
Existing Traffic Signal Upgrade	Each	\$20,000	URS
Small Urban Roundabout Construction	Each	\$500,000	URS
Roadway Reconstruction	Lane Mile (L.M.)	\$1,430,000	Bis-Man Stimulus Projects
Interchange	Each	\$10,000,000	URS

Based on the unit costs presented in Table 1, cost estimates were developed for each of the remaining roadway alternatives. The preliminary cost estimates are shown by alternative in Table 2.

***REQUESTED ACTION***

It is hoped that staff can review the cost estimates provided in Tables 1 and 2 and provide any feedback you might have. If you have any specific questions / comments about this memorandum please contact Bill Troe at (402) 952-2522 or Jason Carbee at (402) 952-2506.

**Table 2. Preliminary Cost Estimates by Alternative**

Alternative Number	Alternative Description	Construction Cost (2009 \$)	Comments
1	Northern River Crossing at 71st Avenue to 38th Street.	\$61,900,000	Assumes 2.2 miles of new roadway east of Hwy 1806 and west of River Rd. Similar unit costs as Memorial Bridge, but longer span.
2	North-South Beltway (Burleigh County Only)	\$40,000,000	Costs from North-South Beltway Study
3	North-South Beltway (Morton County Only)	\$33,000,000	Not documented in North-South Beltway, but based on unit costs documented for Burleigh County Side
4	US 83 (State Street) - Extend 6-Lane Section to 57th Avenue	\$16,500,000	Reconstruct existing and widen cross-section.
5	Southern River Crossing at 48th Street	\$77,300,000	Assumes 5.2 miles of new 2 lane roadway. Similar costs as Memorial Bridge, but longer span.
6	Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	\$21,400,000	Bismarck Expressway Study cost estimates grown to 2008.
7	Widen Washington Street to a 4-lane divided roadway Calgary Avenue to 43rd Avenue	\$5,000,000	1/2 mile of reconstruction as urban section / widening.
8	North Washington St: Add center left-turn between 43rd Avenue to 71st Avenue	\$12,000,000	2 miles of urban reconstruction and widening to 3-lane.
9	Complete Northwest Bismarck Growth Area Roadway Grid	-	Assumed costs are covered by developers.
10	Complete Roadway Grid in US 83 to Washington Street Growth Area	-	Assumed costs are covered by developers.
11	Complete Northeast Bismarck Growth Area Roadway Grid	-	Assumed costs are covered by developers.
12	Interchange at US 83 / 71st St (Northern Beltway Corridor)	\$10,000,000	Costs based on North-South Beltway Study.
13	US 83 Turn Lane Additions, 43rd Avenue to 71st Avenue	\$900,000	Assumes 8 added turn lanes throughout corridor; minor widenings at each intersection without reconstruction.
14	Implement signal timing improvements in corridor	\$100,000	Assumed costs for field engineering / minor equipment upgrades.
20	4th Street, Interstate Ave to Arikara Ave, remove on-street parking and restripe with added turn lanes	\$100,000	Assumed signing and striping costs.
21	Washington Street, Divide Avenue to Century Avenue, remove on-street parking and restripe center left-turn lane	\$100,000	Assumed signing and striping costs.
23	Add southeast-bound left-turn lane to Ward Road at Avenue C / Griffin intersection.	\$480,000	Assumes minor ROW costs, urban reconstruction, signal upgrade.
24	Add roundabout at Ward Road / Avenue C / Griffin intersection.	\$600,000	Cost from Grand Forks LRTP. Assume added landscaping amenities.
26	Widen 43rd Avenue to a 4-Lane Divided Roadway from US 83 to 26th Street	\$10,000,000	1 mile of reconstruction as urban section / widening. Costs similar to Century Ave / Centennial Road.
27	Add turn-lanes at key 43rd Avenue access points.	\$1,110,000	Urban reconstruction, assume signal at 1/2 mile.

**Table 2. Preliminary Cost Estimates by Alternative (Continued)**

Alternative Number	Alternative Description	Construction Cost (2009 \$)	Comments
29	Centennial Road / 71st Street: Add turn lanes and consolidate accesses	\$7,100,000	Costs from 71st/Centennial Report, grown to 2008 dollars.
30	Extend 52nd Street to connect Divide Avenue to Century Ave with I-94 crossing.	\$4,060,000	Assumes 2-lane urban approach roads, I-94 overpass similar length as 19th St overpass.
31	Extend East Divide Avenue from Bismarck Expressway to 66th Street	\$6,600,000	Assumes two-lane rural roadway with turn lanes at key intersections, bridge over creek.
32	Complete East Bismarck Growth Area Roadway Grid	-	Assumed costs are covered by developers.
33	Widen 66th Street to 4-lanes, Lincoln Road to Highway 10	\$12,500,000	Widen to 4-lane rural cross-section with bridges over creek and railroad.
34	Add turn-lanes at key intersections: Yegen Rd / Apple Creek Rd, Highway 10 / 66th Street, Apple Creek Rd / 66th St	\$300,000	Assumes minor widening, rural turn lanes.
37	Restripe and remove on-street parking for 12th Street turn lanes at: Sweet Ave, Bowen Ave, Burleigh Ave, Santa Fe Ave, Bismarck Expwy	\$50,000	Assumes signing and striping costs.
38	Revised Northwest Bismarck Grid improvements. North-south corridor, extended Century Drive, extended Ash Coulee	-	Assumed costs are covered by developers.
39	Widen 19th Street to 4-lanes	\$7,700,000	No ROW costs assumed, assumed no bridge widening needed (currently 48' wide).
40	Add turn lanes along 19th Street: Center left-turn lane south of Capitol Ave, dual northbound left-turn lanes at Century, right-turn lanes where warranted.	\$410,000	Urban reconstruction costs for new Century turn lane, minor ROW assumed on corner (assessed values at \$142,000 / acre).
41	Widen 26th Street to 4-lane divided roadway between Divide Avenue and Main Ave, include sidewalks in construction.	\$12,980,000	Urban reconstruction and widening. Assume some ROW costs (less than 2 acres through corridor, no takings).
42	Add turn lanes at major intersections: 26th / Broadway, 26th / D Ave, 26th / Valley View Blvd, 26th / Hillview Blvd, 26th / Boulevard Ave	\$50,000	Assumes signing and striping costs.
43	Restripe 26th Street as a 3-lane corridor	\$100,000	Assumes signing and striping costs.
46	East Main TSM: Add left-turn lanes - eastbound dual lefts and right-turn lane at Bismarck Expressway, left-turn lanes at Eastdale Avenue.	\$340,000	Minor widening retaining rural cross-section.
47	Widen Bismarck Expressway to 6-lane cross-section, I-94 ramps to Commerce Street (Future Divide Avenue Extension)	\$5,000,000	1/2 mile of reconstruction as urban section / widening.
50	Add SB left turn lane at Fraine Barracks / River Road	\$1,100,000	Assumes widening for turn lane (rural) and realignment of Fraine Barracks Rd. No ROW costs / trail reconstruction costs assumed.
52	Add traffic signal at Fraine Barracks / River Road intersection with special phasing (no widening)	\$200,000	Signal cost only.
53	Add 2nd SB left-turn lane to Airport Dr / University Dr	\$50,000	Restriping / signal upgrade for dual left turns.
54	Improve and signalize Collins Road / Old Red Trail Intersection	\$6,200,000	Assume a three-lane road reconstruction on all four legs
55	Complete North Mandan Growth Area Roadway Grid	-	Assumed costs are covered by developers.

**Table 2. Preliminary Cost Estimates by Alternative (Continued)**

Alternative Number	Alternative Description	Construction Cost (2009 \$)	Comments
56	Complete West Mandan Roadway Grid	-	Assumed costs are covered by developers.
58	Convert 4-way stops at 1st NW and 2nd NW to 2-way stops or signals	\$400,000	Assume new signals at 1st St and 2nd St NW
60	Add turn lanes at key cross streets, signalize 3rd Street / Memorial Highway intersection by 2035	\$1,600,000	Urban reconstruction, signal
61	Extend McKenzie Avenue between 40th Ave SE and Highway 1806	\$4,900,000	5,600' of new 2 lane roadway, 250' long bridge over Heart River.
62	Add turn lanes and signalize 8th Ave SE / Highway 1806 intersection by 2035.	\$1,600,000	Urban reconstruction and turn lanes, signalize
63	Restripe as 3-lane section between Heart River to 3rd St SE.	\$50,000	Assume signing and striping costs
64	Improve Mandan Ave through I-94 Interchange and Lengthen I-94 on-ramps	\$5,500,000	From Bismarck Expressway and Interstate Study. Includes engineering cost, inflated to 2008 \$\$\$.
65	Improve I-94, East Main to I-194 with reconfigured access ramps, no left-on-ramp from WB I-94 to I-194	\$12,200,000	From Bismarck Expwy and Interstate Study. Includes engineering cost, inflated to 2008 \$.
66	I-94, Memorial Highway and McKenzie Dr interchanges: Add C/D road and ramp reconstructions to improve interchange spacing.	\$22,500,000	From Bismarck Expressway and Interstate Study. Includes engineering cost, inflated to 2008 \$\$\$.
68	40th Ave / Memorial Hwy: Signalize and add turn lanes	\$900,000	Assume urban reconstruction, signal
69	Lincoln Road: Add left-turn lanes at 52nd Ave, Benteen Drive and McDougall Drive	\$500,000	Minor widening retaining rural cross-section.
70	Implement West Divide TSM Projects: Restripe Divide Ave to 3-lane, I-94 to 26th St, Signalize Country West / Tyler Pkwy, Century / Tyler Pkwy.	\$500,000	Assume signing / striping costs and two new signals.
71	Riverview Drive / Washington St: Add second eastbound left-turn lane	\$900,000	Assumes urban reconstruction, minor ROW acquisition
72	Southwest Bismarck Growth Area Roadway Grid Improvement	-	Assumed costs are covered by developers.
73	Complete South Mandan Growth Area Roadway Grid	-	Assumed costs are covered by developers.
74	Schafer Street Reconstruction with Pedestrian and Landscaping improvements, Edwards Avenue to College Drive	\$500,000	Assume BSC bears costs
75	Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street.	\$6,200,000	Assume 5,000' of new 3-lane roadway, I-94 bridge assumed to be similar to 19th Street.
76	Provide Northbound to Westbound and Southbound to Eastbound loop ramps at US 83 / I-94 interchange	\$8,000,000	Assume reconstruction of existing off ramps and new ramp. No R.O.W. impacts assumed.
77	Provide Northbound to Westbound and Southbound to Eastbound loop ramps at Bismarck Expressway / I-94 interchange	\$8,000,000	Assume reconstruction of existing off ramps and new ramp. No R.O.W. impacts assumed.
78	Add signal at Denver Avenue / 3rd Street when warranted.	\$200,000	Signal cost only.
79	Improve Lincoln Road - Airway Avenue intersection to allow free-flow movements between east leg and north leg.	\$600,000	Reconstruction and construction of new rural roadway, approximately 1000'.

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
North Washington Street Congestion: Century Avenue to 71st Avenue	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Anticipated to attract approximately 6,000 vehicles per day (vpd) in 2035. Bridge has limited traffic diversion from North Washington corridor.	\$74,300,000
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Combined beltway concept diverts 1,000 to 1,500 vpd from Washington Street north of Century. Provides LOS "D" on Washington St at Century.	\$48,000,000
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Sufficient roadway ROW exists in corridor.	Limited environmental impacts, reduced peak hour congestion benefits including less fuel consumption and decreased green house gas (GHG) emissions.	US 83 improvement would have limited traffic diversion from Washington; would improve traffic flow in tandem with improvements in Washington Street corridor.	\$19,800,000
	<u>Improvement of Existing Routes</u>				
	<i>Corridor Expansion Improvements</i>				
	⑦ Widen Washington Street to a 4-lane divided roadway between Calgary Avenue and 43rd Avenue	Currently 90' to 100' roadway ROW width - sufficient for 4-lane divided; current trail setback is likely sufficient to avoid trail reconstruction. Housing / Horizon Middle School backs to Washington south of 43rd.	Potential increased noise levels for adjacent residences.	Provides sufficient capacity through 2035; 4-lanes likely more capacity than needed north of 43rd Ave.	\$6,000,000
	<i>Corridor Management Improvements</i>				
	⑧ Widen Washington Street to a 3-lane roadway between 43rd Avenue to 71st Avenue	Sufficient ROW in corridor.	Limited environmental impacts.	Provides sufficient capacity north of 43rd Ave through 2035, improves corridor safety.	\$14,400,000
	<u>Alternate Corridor Improvements</u>				
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	New trails provide non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable. Cultural resources in area.	Ash Coulee alignment provides acceptable grade for connection to River Road. Continuous collector corridors accommodates growth area's shorter trips.	\$15,960,000	
⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	US 83 Study concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Provides relatively continuous North-South corridor between 84th Ave and 43rd Ave. Severe terrain in growth area. Diverts approximately 1,000 vpd from Washington St north of 43rd Ave.	\$0	
③⑧ Extend Century Ave west of Tyler Parkway and Connect to River Road	Impacts to Firestation or other business near Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Minor traffic diversion from Washington St and Divide / Tyler Parkway north of I-94.	\$0	

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Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
US 83 / State Street Congestion, Divide Avenue to 71st Avenue	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	On its own, northern Bridge would divert approximately 1,000 to 2,000 vpd from US 83 corridor.	\$74,280,000
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway would divert approximately 2,000 to 3,000 vpd. With northern bridge in place, combined beltway / bridge would divert between 3,000 and 6,000 vpd from US 83.	\$48,000,000
	③ North-South Beltway (Morton County Only)	As with Burleigh side, increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from US 83 is less than 500 vpd. Some slope stability issues south of I-94 may affect constructability.	\$39,600,000
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts. Associated trail extension would improve non-motorized opportunities in corridor.	Need for six-lanes north of 43rd is likely to happen after 2035; concept provides sufficient capacity between Interstate Ave and 43rd Ave. Dual lefts at 83/Century improve operations through corridor.	\$19,800,000
	⑫ Interchange at US 83 / 71st St (Northern Beltway Corridor)	Standard diamond interchange would require ROW acquisition from all four quadrants of intersection, including part of business park on SE corner. Single-point urban interchange (SPUI) would reduce property impacts.	Reduced signal delay for vehicles decreases air quality / GHG emissions.	NDDOT has operations and safety concerns with mix of signals / interchange in US 83 corridor. SPUI would improve Aurora / 71st Ave access separation from interchange ramp intersection.	\$12,000,000
	<u>Improvement of Existing Routes</u>				
	<i>Corridor Management Improvements</i>				
	⑬ Add left-turn and right-turn lanes at major access points 43rd Avenue to 71st Avenue	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	43rd, Skyline and 71st intersections have left-turn lanes; add dual-lefts at 43rd and left- and right-turn lanes to other accesses for safety / traffic flow. Provides sufficient capacity north of 43rd through 2035.	\$1,080,000
	⑦⑥ Provide Northbound to Westbound and Southbound to Eastbound loop ramps at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for southbound traffic, eliminates signal delay for heavy northbound left-turn movement at north ramp terminal. Removes turning traffic from left-lanes, improving the distribution of traffic across lanes (lane balance).	\$9,600,000
⑭ Implement signal timing improvements in corridor	Limited social impacts.	Limited environmental impacts, reduced idling and emissions a benefit to air quality.	Improved traffic progression through corridor results in decreased travel delays. On its own, does not provide sufficient capacity through 2035.	\$120,000	
<u>Alternate Corridor Improvements</u>					
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Similar to <i>Fringe Road</i> concepts - requires conversion of some agricultural land to transportation uses. Potential for increased traffic / noise adjacent to currently rural residences.	Incorporation of trails provides non-motorized opportunities to the growth area. Some wetlands in growth area - impacts appear to be avoidable.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 vpd from US 83.	\$15,960,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
US 83 / State Street Congestion, Divide Avenue to 71st Avenue (continued)	⑩ Complete Roadway Grid in US 83 to Washington Street Growth Area	US 83 Study concepts follow platted lots in most instances - some subdivision streets would function as Collectors (increased traffic).	Limited environmental impacts. Trail / bike lane improvements provide enhanced non-motorized travel opportunities.	Continuous collector corridors function to relieve short distance trips from US 83 and Washington; supports future development. Diverts approximately 1,000 from US 83.	\$0
	⑪ Complete Northeast Bismarck Growth Area Roadway Grid	US 83 Study concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	Includes extension of 57th Avenue from 26th Street to US 83; requires railroad crossing.	\$5,880,000
	<u>Alternate Modes Improvements</u>				
	① Expand CAT fixed-route bus service into area of 71st / US 83	Improved transit service provides increased market accessibility for area businesses.	Reduced vehicular trips benefit air quality / GHG emissions.	2035 trip density is similar to higher-density suburban locations currently served by CAT; closest current route is just under 2 miles away. 34,000 person trips destined for this area are within walking distance of a current CAT transit line.	Operations: \$40,000 / year. Capital: \$90,000
	② Extend US 83 trail north from current terminus at Calgary Ave through 71st Street	Improved trail service provides amenity / improved non-motorized connectivity to area residences / businesses.	Potential to reduce vehicle trips from area - improve air quality / reduced GHG emissions.	Sufficient ROW in corridor to accommodate trail and widened US 83 roadway; provides connectivity to future beltway / 1804 trail.	\$800,000
	③ Establish employer-based vanpool or rideshare program at 71st / US 83 employment node	Allows employee access to jobs without vehicle ownership. Many riders may come from outside of MPO study area.	Reduced vehicular demand on some surrounding roadways; improved regional air quality / reduced GHG emissions.	Model-estimated travel shed is over 90% from within urbanized portions of Bismarck; vanpool has limited benefit for these commuters.	Employer-funded.
Bismarck West Side Congested Segments - 4th Street, Century Ave to Ave C; Washington St, Century Ave to Rosser Ave; 7th / 9th Street Congestion; Ward Rd Congestion	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts. Improved connectivity reduces some trip lengths.	Minor traffic diversion from West Bismarck corridors, typically 100 to 500 vpd.	\$74,280,000
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited impacts; existing US 83 ROW is sufficient to accommodate 6-lane divided roadway and trail.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Likely limited traffic diversion in West Bismarck corridors, some from 4th Street north of Divide Ave.	\$19,800,000
	<u>Improvement of Existing Routes / Subarea Streets</u>				
	<u>Corridor Management Improvements</u>				
	⑳ 4th Street, Interstate Ave to Arikara Ave, remove on-street parking and restripe with added turn lanes	Requires on-street parking removal. North of Divide, increase traffic past Northridge school crossing.	Limited environmental impacts; reduced peak travel delays improve air quality.	Restriping / removal of on-street parking required. Provides sufficient 2035 capacity in 4th Street corridor, part of recommended West Side Study package that provided sufficient capacity through 2030.	\$120,000
㉑ Washington Street, Divide Avenue to Century Avenue, remove on-street parking and restripe center left-turn lane	One side of on-street parking would need to be removed to accommodate center left-turn lane. Safety benefit to adjacent homeowners turning into / out of their driveways.	Limited environmental impacts; reduced peak travel delays improve air quality.	Reduce delays / improve safety in corridor. Provides sufficient capacity for parts of Washington Street corridor; recommended in West Side Study package that provided sufficient 2030 subarea capacity.	\$120,000	
㉓ Add southeast-bound left-turn lane to Ward Road at Avenue C / Griffin intersection	Limited impacts, minor widening required at most, 66' wide ROW available.	Limited environmental impacts; reduced peak travel delays improve air quality.	Only minor widening of Ward Road required - current pavement width is approximately 34'. Consider limiting turns between Ward Road and north leg of Griffin.	\$580,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
Bismarck West Side Congested Segments (Continued)	24 Add roundabout at Ward Road / Avenue C / Griffin intersection	Urban compact roundabout should provide sufficient long-term capacity - with 100' max diameter would require minimal ROW acquisition at most.	Reduced peak travel delays improve air quality, reduced GHG emissions.	Improved safety (6 crashes in 3 years) and sufficient 2035 operations, supporting high left-turn and right-turn movements at intersection. May require slight re-alignment of Griffin Road north leg approach.	\$720,000
	<u>Alternate Modes Improvements</u> 5 Establish a Transportation Management Association (TMA) for Central Bismarck	Typically employer-based conglomeration that pools resources to provides opportunities for carpool matching, vanpooling and coordinated alternative work arrangements to reduce peak hour vehicular travel demand.	Reduced VMT, improved regional air quality and reduced emissions.	Requires minimal infrastructure investment to support; bike racks, van parking, rideshare matching database, etc are examples of public-based investments that could be required.	Employer based, might include some public incentives.
43rd Avenue Congestion, US 83 to 26th Street	<u>Regionally Significant Projects</u> 1 Northern River Crossing at 71st Avenue to 38th Street	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	On its own, the northern bridge provides limited diversion from 43rd Avenue (less than 500 vpd).	\$74,280,000
	2 North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway corridor provides diversion of 1,000 vpd or less through 43rd Avenue corridor.	\$48,000,000
	<u>Improvement of Existing Routes</u> <u>Corridor Expansion Improvements</u> 26 Widen 43rd Avenue to a 4-Lane Divided Roadway from US 83 to 26th Street	Limited ROW impacts, current 43rd Ave ROW is 100' wide.	Limited environmental impacts; improves future traffic flow, reduced gas consumption and emissions.	Similar 2035 volumes as Century Avenue today. Grade separate low-volume DMVW RR? Century was grade separated. Current culvert at Hay Creek appears to be sufficiently wide for future 4-lane section.	\$12,000,000
	<u>Corridor Management Improvements</u> 27 Add turn-lanes at key 43rd Avenue access points, 26th Avenue to Centennial Road	Limited ROW impacts.	Limited environmental impacts.	Provides improved operations, likely still LOS E during peak periods between 26th and US 83. Provides sufficient capacity between Centennial and 26th Street.	\$1,330,000
	<u>Alternate Corridor Improvements</u> 11 Complete Northeast Bismarck Growth Area Roadway Grid - Includes extension of 57th Avenue to relieve 43rd Ave	US 83 concepts - most avoid bisecting established plats, some local system roads become collectors, increased traffic adjacent to residences.	Limited environmental impacts. Enhanced non-motorized connectivity.	57th Avenue as 3-lane minor arterial; requires creek crossing and DMVW line crossing. Diverts 1,000 to 1,500 vpd from 43rd Ave east of US 83. On it's own, does not provide sufficient capacity through 2035.	\$5,880,000
	<u>Alternate Modes Improvements</u> 6 Expand CAT fixed-route bus service into area of 26th St / Calgary Avenue	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Current Bismarck Route C-2 has service in the area. High-density suburban residential in this future neighborhood a good candidate for service, with 38,000 area daily person trips with trip end w/in walk distance of a CAT route.	Operations: \$7,000 / year. No Significant Capital Cost

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
71st Avenue and Centennial Road Congestion / Safety	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Beltway diverts approximately 1,000 to 2,000 vpd from Centennial Road - provides LOS "C" at Century intersection through 2035.	\$48,000,000
	④ US 83 (State Street) - Extend 6-Lane Section to 57th Avenue, include dual left-turn lanes at US 83 / Century Avenue intersection	Limited social impacts.	Improved traffic flow reduces vehicle emissions during peak hours. Limited environmental impacts.	Provides minor diversion from 71st Ave / Centennial Road.	\$19,800,000
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> ②⑧ Widen corridor to 4-lanes: Centennial Road, 43rd Avenue to Jericho Road	4-lane ROW reservation in 71st Avenue corridor is part of Beltway study; sufficient ROW along Centennial Road. Increased traffic noise levels adjacent to residences.	Limited environmental impacts.	Provides sufficient capacity for Centennial south of 43rd Avenue through 2035.	\$8,400,000
	<i>Corridor Management Improvements</i> ②⑨ Centennial Road / 71st Street: Add turn lanes and consolidate accesses	Limited ROW impacts.	Limited environmental impacts.	Recommendation of 71st / Centennial Corridor Study. Provides sufficient capacity / addresses safety concerns through 2035.	\$8,520,000
	<u>Alternate Corridor Improvements</u> ⑦⑤ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - improvement to connectivity to reduce some trips' lengths.	Would support shorter sub-area trips in future, limited corridor continuity. 1/2 mile west of Bismarck Expressway / Centennial, estimated to divert approximately 3,000 to 4,000 vpd from Centennial. Major power line runs along Hamilton in this area.	\$7,440,000
East Divide Avenue and 52nd St Congestion	<u>Regionally Significant Projects</u> ② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Currently rural roads. Beltway removes approximately 1,000 vpd from Divide east of Bismarck Expressway. Improves operations; TSM improvements likely still required.	\$48,000,000
	<u>Improvement of Existing Routes</u> <i>Corridor Expansion Improvements</i> ③① Extend East Divide Avenue from Bismarck Expressway / Commerce Drive intersection to 66th Street (3-lane cross-section)	Alignment near commercial development adjacent to Bismarck Exp - likely minor impacts, potential ROW acquisition. Reserve sufficient corridor for trail and future 4-lane.	Requires a stream crossing. Identified wetland near the alignment.	Align with near term extension of Divide west of Bismarck Exp (2012) - improves network continuity. With center turn lane, provides sufficient capacity through 2035.	\$7,920,000
	<u>Alternate Corridor Improvements</u> ③② Complete East Bismarck Growth Area Roadway Grid	Improves accessibility for new residents / businesses in area. One local subdivision street converted to a Collector. Conversion of ag / open space.	Improved Collector network reduces trip lengths, reduces travel, improves air quality / GHG emissions. Stream crossing; alignment near hillside with "Bismarck" spelled in trees.	Collector improvements to supplement Divide Avenue extension and Highway 10. Supports significant household and employment growth in area.	\$7,200,000

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
Lincoln Area Congestion	<u>Regionally Significant Projects</u>				
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Increases traffic along 66th Street; reduces traffic on Apple Creek Rd by 300 to 1,000 vpd and Highway 10 by 1,000 vpd or less.	\$48,000,000
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences along 48th Ave South in Burleigh County and riverside houses in Morton County. Veterans cemetery in Fort Lincoln park.	48th Ave S alignment has nearly 4 miles of identified floodplain to cross for bridge. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts little traffic volume from congested Lincoln area segments. Limited connectivity with development on Morton County side.	\$92,760,000
	<u>Improvement of Existing Routes</u>				
	<i>Corridor Expansion Improvements</i>				
	③③ Widen 66th Street to 4-lanes, Lincoln Road to Highway 10	Consistent with <i>Lincoln Connector Study</i> . Some adjacent farmsteads, most setback from road several hundred feet. Limited property impacts.	Requires crossing of Apple Creek and nearly one mile of floodplain along existing 66th Street alignment. Incorporation of trail improves non-motorized travel opportunities.	Similar forecasted traffic volumes as <i>Connector Study</i> . BNSF rail crossing south of Apple Creek Rd. Provides sufficient capacity through 2035 and beyond.	\$15,000,000
<i>Corridor Management Improvements</i>					
③④ Add turn-lanes at key intersections: Yegen Rd / Apple Creek Rd, Highway 10 / 66th Street, Apple Creek Rd / 66th St	Limited social impacts.	Limited environmental impacts, improved traffic operations during peaks a benefit.	Likely provides sufficient capacity through mid-term; volumes along 66th will exceed capacity of a rural, 2-lane highway by 2035.	\$360,000	
⑦⑨ Improve Lincoln Road - Airway Avenue intersection to allow free-flow movements between east leg and north leg	Minor ROW impacts on corner.	Limited environmental impacts; intersection is near (but not in) the 100 year floodplain.	Reduces a stop / turn for predominant movement of traffic between Lincoln and southeast Bismarck.	\$720,000	
<u>Alternate Modes Improvements</u>					
⑦ Expand CAT fixed-route bus service into Lincoln area	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Lincoln is currently more than 4 miles from nearest CAT route. By 2035, nearly 16,000 daily person trips from Lincoln have a trip end within walking distance of a CAT route.	Operations: \$90,000 / year. Capital: \$210,000	
South 12th Street Congestion	<u>Improvement of Existing Routes / Subarea Streets</u>				
	<i>Corridor Management Improvements</i>				
③⑦ Restripe and remove on-street parking for 12th Street turn lanes at: Sweet Ave, Bowen Ave, Burleigh Ave, Santa Fe Ave, Bismarck Expwy	Consistent with <i>12th Street Corridor Study</i> and <i>Bismarck Expressway Study</i> . Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves traffic flow and safety in corridor, provides sufficient capacity through 2035. Likely accomplished by removing on-street parking - limited widening required.	\$60,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
West Divide Avenue / Tyler Parkway Congestion, Country West Rd to US 83	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,500 vpd from Tyler Parkway, and 300 to 500 vpd from Divide Avenue west of Washington St.	\$74,280,000
	⑥ Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	\$25,680,000
	<u>Improvement of Existing Routes</u>				
	⑦⑩ Implement West Divide TSM Projects: Restripe Divide Ave to 3-lane, I-94 to 26th St, Signalize Country West / Tyler Pkwy, Century / Tyler Pkwy	Similar concept recommended in 2030 LRTP. Requires removal of some on-street parking adjacent to residences east of Washington St.	Limited environmental impacts.	Current pavement width is 48' through most of corridor.	\$600,000
	<u>Alternate Corridor Improvements</u>				
	③⑧ Extend Century Ave west of Tyler Parkway and Connect to River Road	Impacts to Firestation or other business near Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Minor traffic diversion from Washington St and Divide / Tyler Parkway north of I-94.	\$0
19th Street Congestion, Century Avenue to Divide Avenue	<u>Regionally Significant Projects</u>				
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 500 vpd from 19th Street at I-94.	\$48,000,000
	<u>Improvement of Existing Routes</u>				
	<u>Corridor Expansion Improvements</u>				
	③⑨ Widen 19th Street to 5-Lane Segment, Century Ave to Divide Ave	80' ROW through corridor, pretty tight to accommodate a 4-lane cross-section. Dense driveway accesses south of Capitol Ave.	Limited environmental impacts. Tree impacts in boulevard section south of I-94.	Current I-94 overpass has 48' pavement and separated sidewalk. 19th Street discontinuous south of Divide. 19th Street speed limit is 25 mph currently south of I-94.	\$9,240,000
	<u>Corridor Management Improvements</u>				
	④⑩ Add turn lanes along 19th Street: Center left-turn lane south of Capitol Ave, dual northbound left-turn lanes at Century, right-turn lanes where warranted	Left-turn lanes already present at major intersections in corridor, consider center left-turn lane south of I-94. On-street parking on both sides - would require removal of one side of parking.	Limited environmental impacts; avoid impacts with wetland on SE corner of 19th/Century.	Provides sufficient capacity south of Capitol Ave, 350 NB left-turns at Century during the peak hours today. Right-turn lanes at high-turn intersections would provide additional capacity to corridor with limited impacts.	\$490,000

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
26th St Congestion, Main Avenue to Divide Avenue	<u>Regionally Significant Projects</u>				
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts, increased noise levels, potential cultural resource issues.	Diverts less than 500 vpd through 26th Street corridor.	\$48,000,000
	⑥ Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to fire station operations and strips of commercial development adjacent to Expressway.	Limited environmental impacts.	Limited traffic diversion from 26th Street.	\$25,680,000
	<u>Improvement of Existing Routes</u>				
	<i>Corridor Expansion Improvements</i> ④① Widen 26th Street to 4-lane divided roadway between Divide Avenue and Main Ave, include sidewalks in construction	80' ROW in corridor, relatively narrow for 4-lane cross-section. Dense driveway access. New sidewalks a benefit, corridor sidewalks are not currently continuous.	Improved non-motorized connectivity in corridor with added sidewalks. Limited environmental impacts.	Access impacts with median; continuous center turn-lane would provide access to driveways. More capacity than required through 2035.	\$15,580,000
<i>Corridor Management Improvements</i> ④② Add turn lanes at major intersections: 26th / Broadway, 26th / D Ave, 26th / Valley View Blvd, 26th / Hillview Blvd, 26th / Boulevard Ave	Current pavement in corridor is 48' wide, removing parking on one side adjacent to intersections to restriping for left-turn lanes.	Limited environmental impacts.	On its own, provides LOS "C" or better at most intersections, isolated LOS "D". Longer delays will occur as vehicles access mid-block driveway accesses during peak.	\$60,000	
④③ Restripe 26th Street as a 3-lane corridor	Requires removal of on-street parking from one side of street.	Limited environmental impacts. Improved peak hour operations provide improved air quality by 2035.	On its own, provides LOS "C" to most of corridor - eliminates delays associated with mid-block driveway turns in Alt #42.	\$120,000	
East Main Ave Congestion, East of 26th Street to Bismarck Expressway	<u>Regionally Significant Projects</u>				
	⑥ Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to fire station operations at 9th St and to commercial property adjacent to Expressway, including parking.	Limited environmental impacts; additional environmental documentation likely required.	Limited diversion from west Divide Avenue.	\$25,680,000
	<u>Improvement of Existing Routes</u>				
<i>Corridor Management Improvements</i> ④⑥ East Main TSM: Add left-turn lanes - eastbound dual lefts and right-turn lane at Bismarck Expressway, left-turn lanes at Eastdale Avenue	Limited access points in corridor reduces need for continuous center turn lane. Consistent with recommendations in <i>Bismarck Expressway Study</i> .	Limited environmental impacts, minor improvements are within floodplain.	Limited access points in corridor reduces need for continuous center turn lane. Provides sufficient capacity through 2035.	\$410,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title	Evaluation by Perspective			Draft Cost Estimate	
	Social	Environmental	Engineering		
Bismarck Expwy Congestion, Washington Street to I-94	<u>Regionally Significant Projects</u>				
	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Diverts approximately 2,500 from Bismarck Expressway at I-94 (still LOS "F" on its own.) Limited diversion from Bismarck Expressway south/west of Rosser Ave.	\$48,000,000
	⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Significant environmental documentation / agency review required.	Diverts approximately 1,000 vpd from Bismarck Expressway Washington to 9th Street.	\$92,760,000
	⑥ Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to operations of fire station at 9th St / Bismarck Expwy. Impacts to commercial development adjacent to Expressway, some parking affected.	Limited environmental impacts; additional environmental documentation likely required.	Provides sufficient traffic operations from Rosser Ave to Washington St through 2035.	\$25,680,000
	<u>Improvement of Existing Routes</u>				
	④⑦ Widen Bismarck Expressway to 6-lane cross-section, I-94 ramps to Commerce Street (Future Divide Avenue Extension)	Sufficient ROW already present in corridor for widening (200').	Limited environmental impacts, benefits from improved traffic flow.	Improvement to alternate corridors can provide sufficient diversion for mid-term capacity; by 2035 6-lanes may be required to achieve LOS "C". Requires widening overpass of I-94.	\$6,000,000
	⑦⑦ Provide Northbound to Westbound and Southbound to Eastbound loop ramps at Bismarck Expressway / I-94 interchange	Potential for impacts to commercial platted property adjacent to NE quadrant of interchange - depends on design of ramps in that quadrant.	Limited environmental impacts, reduced idling and emissions a benefit.	Eliminates left-turn phase, providing more green time for through traffic on Centennial; reduced corridor delays. Currently being studied by NDDOT.	\$9,600,000
<u>Alternate Corridor Improvements</u>					
⑦⑧ Add signal at Denver Avenue / 3rd Street when warranted	Limited reasonable opportunities to improve Denver corridor due to dense driveway access and on-street parking on both sides of street. 3rd / Denver intersection was identified as a safety issue.	Limited environmental impacts.	Denver is a 40' wide collector street; 4-way stop at Denver / 3rd St. Concept provides limited diversion of local traffic from Bismarck Expressway. High angle crashes at intersection, if warranted, new 3rd / Denver intersection control could improve safety.	\$240,000	
⑦⑤ Extend Hamilton Street Across I-94 to Connect Century Avenue to Divide Street	Hamilton is currently gravel road south of Century with adjacent houses / farmstead. Limited property impacts south of I-94.	Limited environmental impacts - improved connectivity reduces some trips' lengths. Avoids green space impacts associated with 26th Street corridor crossing	Only 1/2 mile west of Centennial. Supports shorter sub-area trips: diverts 3,000 to 4,000 vpd from Centennial / Bismarck Expwy. On its own, improves Bismarck Expwy, I-94 to Divide to LOS "E" in 2035.	\$7,440,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
River Rd Congestion	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	No property relocations assumed, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Northern Bridge has little effect on River Road volumes (+600 to -200 vpd).	\$74,280,000
	<u>Improvement of Existing Routes</u>				
	<u>Corridor Management Improvements</u>				
	⑤0 Add SB left turn lane at Fraine Barracks / River Road	Likely requires minor ROW acquisition from Barracks property (state of ND).	Improvements are within floodplain.	Some retaining walls may be necessary, water plant property north of intersection. Trail adjacent to River Rd is close to riverbank - can't move farther west.	\$1,320,000
	⑤2 Add traffic signal at Fraine Barracks / River Road intersection with special phasing (no widening)	No property impacts. May affect residents' travel patterns by eliminating Fraine Barracks to SB River Road movement (limited number).	Limited environmental impacts; reduced delay is a benefit to air quality / GHG emissions.	Either operate as: 1) split phasing for all approaches, or 2) just operate signal for northbound River Rd and Fraine Barracks (restrict left-turns from Fraine Barracks) and have always green southbound movement. Sufficient capacity through 2035.	\$240,000
<u>Alternate Corridor Improvements</u>					
⑨ Complete Northwest Bismarck Growth Area Roadway Grid	Similar to Fringe Road concepts. Conversion of some ag land.	Benefit of new trails.	Provides continuous arterial and collector streets in NW Bismarck growth area; accommodates shorter growth area trips. Including other growth area roadway grid additions, diverts 1,000 to 3,000 vpd from River Road north of Burnt Boat - area of safety concern in <i>River Road Study</i> .	\$15,960,000	
③8 Extend Century Ave west of Tyler Parkway and Connect to River Road	Impacts to Firestation or other business near Century Ave / Tyler Pkwy intersection.	Potential cultural resource issues in this area.	Minor traffic diversion from Washington St and Divide / Tyler Parkway north of I-94.	\$0	
②1 Washington Street, Divide Avenue to Century Avenue, remove on-street parking and restripe center left-turn lane	Removal of some on-street parking.	Limited environmental impacts; reduced peak travel delays improve air quality.	Limited diversion from River Road Corridor.	\$120,000	
Airport Rd / University Dr Congestion	<u>Improvement of Existing Routes</u>				
	⑤3 Add 2nd southbound left-turn lane to Airport Drive / University Drive intersection.	Limited social impacts.	Limited environmental impacts, reduced delay by 2035 an air quality benefit.	Cross-section already paved. Only need is to restripe / resign and make minor signal adjustments.	\$60,000
<u>Alternate Corridor Improvements</u>					
③7 Restripe and remove on-street parking for 12th Street turn lanes at: Sweet Ave, Bowen Ave, Burleigh Ave, Santa Fe Ave, Bismarck Expwy	Consistent with 12th Street Corridor Study and Bismarck Expressway Study. Spot removals of on-street parking required.	Limited impacts; improved traffic flow / improved air quality.	Improves upstream traffic flow.	\$60,000	

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
North Collins Avenue / Hwy 1806 Congestion	<u>Regionally Significant Projects</u>				
	① Northern River Crossing at 71st Avenue to 38th Street	Current assumed alignment requires no property relocations, 3 platted lots impacted and some Tesoro property needed. Increased noise levels.	Additional environmental documentation / agency review required. Potential impacts include wetlands, cultural resources, traffic noise impacts.	Diverts approximately 1,000 to 2,000 vpd from Highway 1806 north of Old Red Trail.	\$74,280,000
	③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, requires new Heart River crossing and its floodplain. Additional environmental documentation required.	Traffic diversion from Collins north of Old Red Tr is 2,000 vpd. Some slope stability issues south of I-94 may affect constructability.	\$39,600,000
	<u>Improvement of Existing Routes</u>				
	⑤④ Improve and signalize Collins Road / Old Red Trail Intersection	Limited social impacts. Appropriate treatment for the intersection as it transitions from rural to urban.	Limited environmental impacts.	Add left turn lanes to all approaches and signalize. Sufficient capacity on most legs; north of Collins still operates at LOS "D".	\$7,440,000
	<u>Alternate Corridor Improvements</u>				
⑤⑤ Complete North Mandan Growth Area Roadway Grid	Similar to <i>Fringe Road Plan</i> . Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Extend 38th St and Sunset Dr to connect Old Red Tr to Hwy 1806. Diverts 1,000 to 4,000 vpd from Collins Ave and 1,000 from Old Red Tr. In tandem with TSM Alt #54, traffic diversion provides sufficient operations.	\$19,920,000	
⑤⑥ Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Difficult terrain between I-94 and Highway 10. Diverts approximately 1,000 from Collins Ave at I-94.	\$18,240,000	
<u>Alternate Modes Improvements</u>					
⑧ Expand CAT fixed-route bus service into North Mandan growth area	Improved transit service provides expanded transportation choices for residents.	Reduced vehicular trips benefit air quality / GHG emissions.	Route M1 currently serves the area to Old Red Tr, minor route extension only. By 2035, 10,000 daily person trips from North Mandan have a trip end within walking distance of a CAT route.	Operations: \$7,000 / year. No Significant Capital Cost	
North Sunset Dr Congestion	<u>Improvement of Existing Routes</u>				
	<i>Corridor Expansion Improvements</i>				
③ North-South Beltway (Morton County Only)	Increased traffic, speeds, trucks and noise are concerns with rural residents.	Potential wetland and floodplain impacts, Heart River crossing / floodplain.	Traffic diversion from Sunset is 1,000 vpd.	\$39,600,000	
	<i>Corridor Management Improvements</i>				
⑤⑧ Restripe Sunset as 3-lane roadway; Convert 4-way stops at 1st NW and 2nd NW to 2-way stops or signals	Widening not required north of 6th St. Sunset pavement width is 40' south of 6th Ave, 48' north of 6th Ave. On-street parking would be removed from at least one side, potential for minor widening south of 6th St to maintain one side of on-street parking.	Improved traffic flow reduces emissions. Minimal change in traffic noise anticipated.	Currently on-street parking on both sides of street. Concept provides sufficient capacity through 2035.	\$480,000	

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Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
North Sunset Dr Congestion (Continued)	<u>Alternate Corridor Improvements</u> 55 Complete North Mandan Roadway Grid	Similar to Fringe Road Plan. Provides enhanced accessibility to future employment and residential growth areas.	Wetlands in area, most impacts appear avoidable.	Limited diversion from Sunset Dr.	\$19,920,000
	56 Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Diverts approximately 3,000 vpd from Old Red Trail west of Sunset; limited diversion from Sunset Dr at I-94. Diverts 1,000 vpd from Sunset south of Division Street. On its own, does not provide sufficient operations.	\$18,240,000
3rd St SE Congestion, Hwy 1806 to Memorial Highway	<u>Regionally Significant Projects</u> 5 Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Much of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation / agency review required.	Diverts approximately 1,500 vpd from 3rd St SE. Still operates at LOS "D" by 2035.	\$92,760,000
	<u>Improvement of Existing Routes</u> <i>Corridor Management Improvements</i> 60 3rd Street: Add turn lanes at key cross streets, signalize 3rd St / Memorial Hwy intersection by 2035	Limited social impacts.	Limited environmental impacts.	Remove parking on one side and restripe. Provide signal when warranted, provides LOS "C" through 2035.	\$1,920,000
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Avenue between 40th Ave SE and Highway 1806	Increases traffic by houses and apartments along existing McKenzie alignment east 40th Ave SE.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts approximately 4,000 vpd from 3rd St SE, for sufficient 3rd St capacity in 2035. Extension improves regional connectivity; consistent with Minor arterial function and I-194 interchange.	\$5,880,000
Hwy 1806 / 8th Ave SE Congestion	<u>Improvement of Existing Routes</u> 62 Add turn lanes and signalize 8th Ave SE / Highway 1806 intersection by 2035	Pavement width is about 40' with no on-street parking currently allowed. Limited social impacts for restriped turn lanes.	Limited environmental impacts, improved traffic operations improves air quality.	Intersection is about 250' to 300' from Heart River bridge. Provides sufficient capacity through 2035.	\$1,920,000
	63 Restripe Highway 1806 as 3-lane section between Heart River to 3rd St SE	No parking allowed north of bridge; restriping as a three lane requires no widening. Any widening adjacent to Heart River has potential cultural resource issues.	Limited environmental impacts, improved traffic operations improves air quality.	Currently 4-lane undivided for 2 blocks north of Poplar. High through volumes and turning traffic could lead to safety issues and congestion. 3-lane section provides improved left-turning traffic safety, sufficient capacity through 2035.	\$60,000
	<u>Alternate Corridor Improvements</u> 61 Extend McKenzie Drive between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Diverts 3,000 to 4,000 vpd from Highway 1806. Improves Highway 1806 operations; turn lanes still required at 1806 / 8th Ave. Improves operations south of Main Ave to LOS "D" by 2035.	\$5,880,000
	73 Complete South Mandan Growth Area Roadway Grid	Improves connectivity / access for south Mandan Growth area.	Limited environmental impacts.	Diverts approximately 1,000 from Highway 1806 between 19th St SE and 8th Ave SE. TSM improvements still required at 1806 / 8th Ave intersection.	\$0

TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
Mandan Interstate Safety Concerns	<u>Regionally Significant Projects</u> ⑤ Southern River Crossing at 48th Street	Alignment adjacent to several residences on both sides of Missouri River. Potential acquisitions.	Significant amount of corridor in floodplain. Potential impacts to Fort Lincoln SP. Environmental documentation required.	Diverts approximately 2,000 vpd from I-194 / Bismarck Expressway Bridge	\$92,760,000
	<u>Improvement of Existing Routes</u> ⑥④ Improve Mandan Ave Interchange with left-turn lanes on Mandan Ave and Channelize, Lengthen I-94 on-ramps	Limited social impacts.	Limited environmental impacts.	Intersection safety improved. Lengthened ramps provide improved merge.	\$6,600,000
	⑥⑤ Improve I-94, East Main to I-194 with reconfigured access ramps, elimination of left-on-ramp from WB I-94 to EB I-194, eliminate I-94 weave movement	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Improved safety with removed I-94 weaving segments, standard right-hand ramps, larger loop ramp for WB I-94 to EB I-194.	\$14,640,000
	⑥⑥ I-94, Memorial Highway and McKenzie Dr interchanges: Add C/D road and ramp reconstructions to improve interchange spacing	Within existing DOT ROW, limited social impacts.	Limited environmental impacts.	Establishes C-D road system to remove WB weave, improved interchange design. Potential need to widen bridges with lengthened auxiliary lanes.	\$27,000,000
Bismarck Expressway Pedestrian Safety Issues	<u>Alternate Modes Improvements</u> ⑨ Provide trails and sidewalks for pedestrians/bicyclists east of 18th St along Bismarck Expressway	Limited social impacts, sufficient Bismarck Expressway ROW exists for trail within current ROW.	Limited environmental impacts.	Crossing of BNSF tracks is a barrier, Bismarck Expressway bridge over tracks is 70' with 12' median.	\$890,000
	⑩ Incorporate pedestrian crossing timing adjustments and increase use of warning signs for pedestrians crossing Bismarck Expressway and for drivers traversing intersections	Improves pedestrian safety and connectivity. Identified as a high ped-demand corridor in Community Committee meeting.	Limited environmental impacts.	Currently a median pedestrian refuge at Washington Street. When activated, timing adjustments would have some impact on Bismarck Expressway traffic flow. 6-lane concept between Washington and 9th would provide center median / ped refuge.	\$50,000
40th Ave SE / Memorial Highway Congestion	<u>Improvement of Existing Routes</u> ⑥⑧ 40th Ave / Memorial Hwy: Signalize and add turn lanes to intersection by 2035	Minor widening of 40th Ave S required, limited impacts anticipated.	Limited environmental impacts, reduced queuing / idling for 40th Ave SE traffic improves emissions.	Provides sufficient capacity through 2035.	\$1,080,000
	<u>Alternate Corridor Improvements</u> ⑥① Extend McKenzie Drive between 40th Ave SE and Highway 1806	Increases traffic adjacent to residences along McKenzie Drive.	Requires Heart River Crossing and Oxbow / Slough crossing. Wetlands in area, most avoidable.	Limited diversion from 40th Ave SE, diverts approximately 3,000 vpd from Memorial Highway. High delays remain for 40th Ave S traffic without improved intersection control.	\$5,880,000
Desire for Continuous North-South Access / Discontinuities through Bismarck	② North-South Beltway (Burleigh County Only)	Concerns about speeds, truck traffic and noise adjacent to existing development. Some areas of ROW acquisition.	Floodway and floodplain impacts in some corridor locations, increased noise levels for adjacent residences, potential cultural resources in corridors.	Provides a continuous, high mobility corridor to growing portions of Burleigh County.	\$48,000,000
Desire to Improve Access Across I-94 in West Mandan	⑤⑥ Complete West Mandan Roadway Grid	Arterial roadway closer to subdivision west of 33rd Ave NW. Limited impacts to residences. Limited residential access benefits as limited growth in area is anticipated.	Identified wetland and pond north of I-94, just east of 33rd Ave NW - difficult to avoid.	Provides desired connectivity.	\$18,240,000
Desire to Provide Transit Service to University of Mary	⑪ University / Bis-Man Transit Partnership	Students tend to be more transit-dependent than typical residents. Transit service can be coordinated with campus schedule - partnership opportunity.	Reduced vehicle trips translates into less emissions.	UMary is 3 miles south of current CAT service area (Route B-2). By 2035, 11,000 person trips destined for UMary have trip end within walking distance of current route (4,500 trips along Route B-2). Higher ridership propensity than most of population.	Operations: \$60,000 / year. Capital: \$150,000

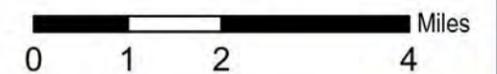
TABLE. Multimodal Improvement Alternatives Considered in Second Level Screening, 2009-2035 Long Range Transportation Plan Update

Issue to Address/Alternative Title		Evaluation by Perspective			Draft Cost Estimate
		Social	Environmental	Engineering	
Peak Period Concerns with Congestion / Safety along Lincoln Road	69 Lincoln Road: Add left-turn lanes at 52nd Ave, Benteen Drive and McDougall Drive	Sufficient right-of-way, limited impacts. Include trail in project addresses concerns regarding bike and pedestrian safety along Lincoln Road.	Limited environmental impacts.	Need to coordinate with other trail project to provide non-motorized connection between Bismarck and Lincoln.	\$600,000
Riverwood Drive Congestion at Washington Street	71 Riverwood Dr / Washington St: Add second eastbound left-turn lane	Property impacts likely, as roadway ROW appears to be 66' wide.	Limited environmental impacts, reduced vehicle delays and emissions.	Adjustment to signal required, should provide sufficient capacity in 2035.	\$1,080,000
	<u>Alternate Corridor Improvements</u> 72 Southwest Bismarck Growth Area Roadway Grid Improvement	Improved neighborhood access. Some increased traffic adjacent to residences near Washington Street. London Ave provides corridor with least impacts. Other corridors have impacts to residents and golf course.	Improvements would occur within floodway / floodplain. Wetlands adjacent to corridor. Environmental documentation required.	Diverts 1,500 vpd from Riverwood Drive in 2035. London Ave carries 2,500 vpd, and is adjacent to water treatment plant. Soils in area are mostly sandy/silt to sandy/clay, with pockets of fat clays. On its own, provides LOS "D" in 2035.	\$0
Schafer Street Pedestrian Safety and Campus Appearance	74 Schafer Street Reconstruction between Edwards Avenue and College Drive to incorporate improved pedestrian and landscaping amenities	Provides improved gateway corridor for BSC. Pedestrian safety improved.	Limited environmental impacts.	Included in BSC master plan.	\$600,000
Find Opportunities to Better Manage Regional Travel Demand	12 Regional TDM program, including ridesharing program and vanpool promotion	More than 13% of Bismarck-Mandan workers commute from outside of Burleigh and Morton counties - potential vanpool riders. Improved transportation choices in region.	Reduced VMT, improved regional air quality and reduced emissions.	Employer-based surveys could provide a better gauge of vanpool opportunities.	Varies
State Street / US 83 Crash History / Safety Issues	14 Implement signal timing improvements in corridor	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	\$120,000
	76 Provide Northbound to Westbound and Southbound to Eastbound loop ramps at US 83 / I-94 interchange	Potential for impacts to commercial property adjacent to NE quadrant of interchange.	Limited environmental impacts, reduced idling and emissions.	Provides more green time for northbound traffic in corridor, reducing rear-end crashes. Removes traffic from left-lanes, addressing congestion and safety at adjacent intersections.	\$9,600,000
Bismarck Expressway Crash History / Safety Issues from Washington to 3rd Street	6 Bismarck Expressway Widening / Improvements: 6-Lanes between Washington and 9th Street and new turn lanes 12th Street to Rosser Avenue	Impacts to operations of fire station at 9th St / Bismarck Expwy and commercial development.	Limited environmental impacts; additional environmental documentation likely required.	Reduced peak hour congestion should reduce the incidence of rear-end collisions.	\$25,680,000
	14 Implement signal timing improvements in corridor	Limited social impacts, improved safety due to reduced congestion.	Limited environmental impacts, reduced idling and emissions.	Improved traffic progression through corridor results in decreased travel delays. Will improve rear-end crash rate in corridor.	\$120,000

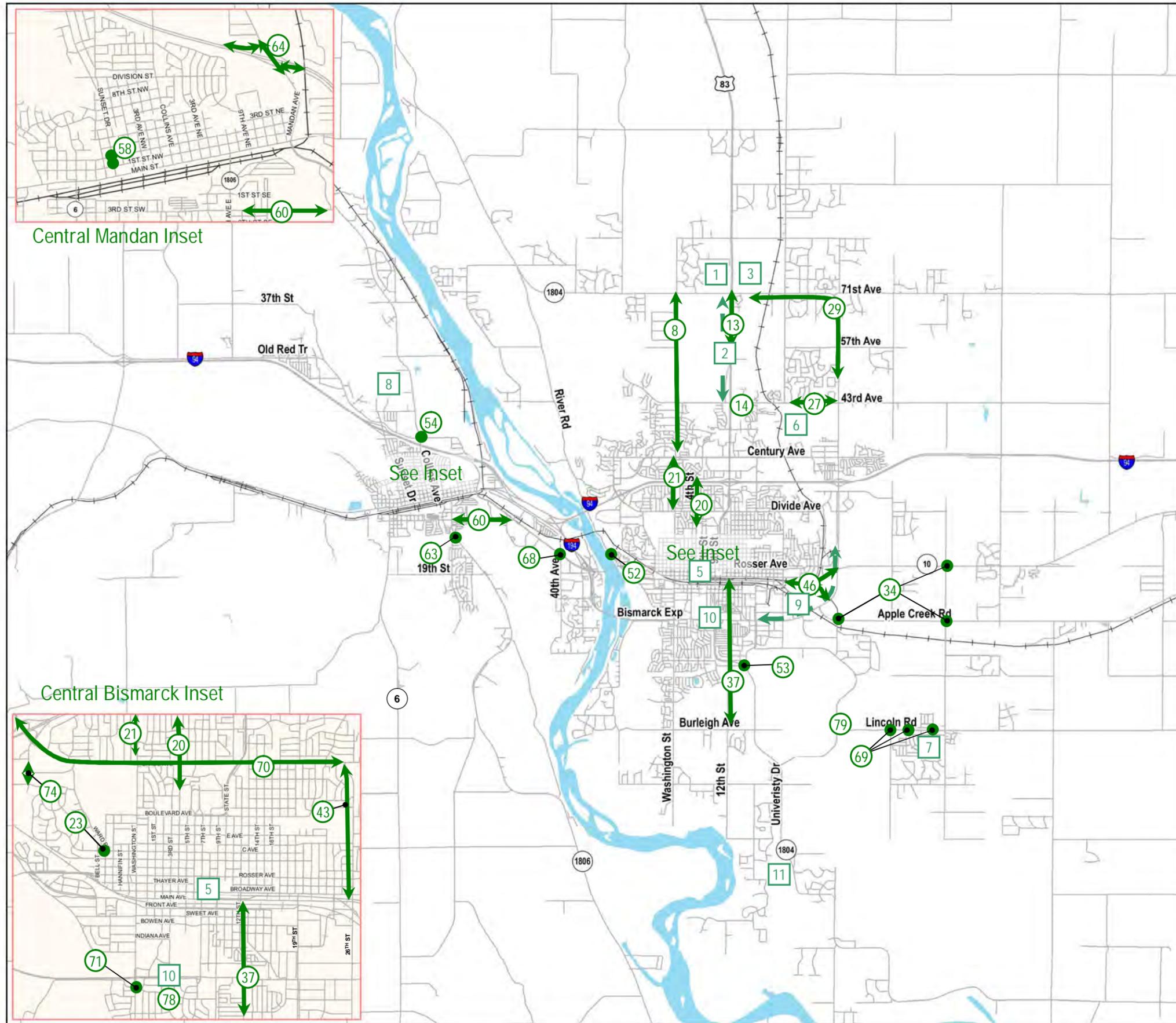


Legend

- Package Concept Identification/Location
- Roadway Management Alternative
  - Transit / Non-Motorized Alternative



**Figure 1: Transportation System Management (TSM) Improvement Package**





Legend

- Package Concept Identification/Location
- Roadway Management Alternative
  - Transit / Non-Motorized Alternative
  - Roadway Expansion Alternative

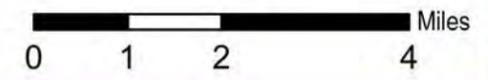
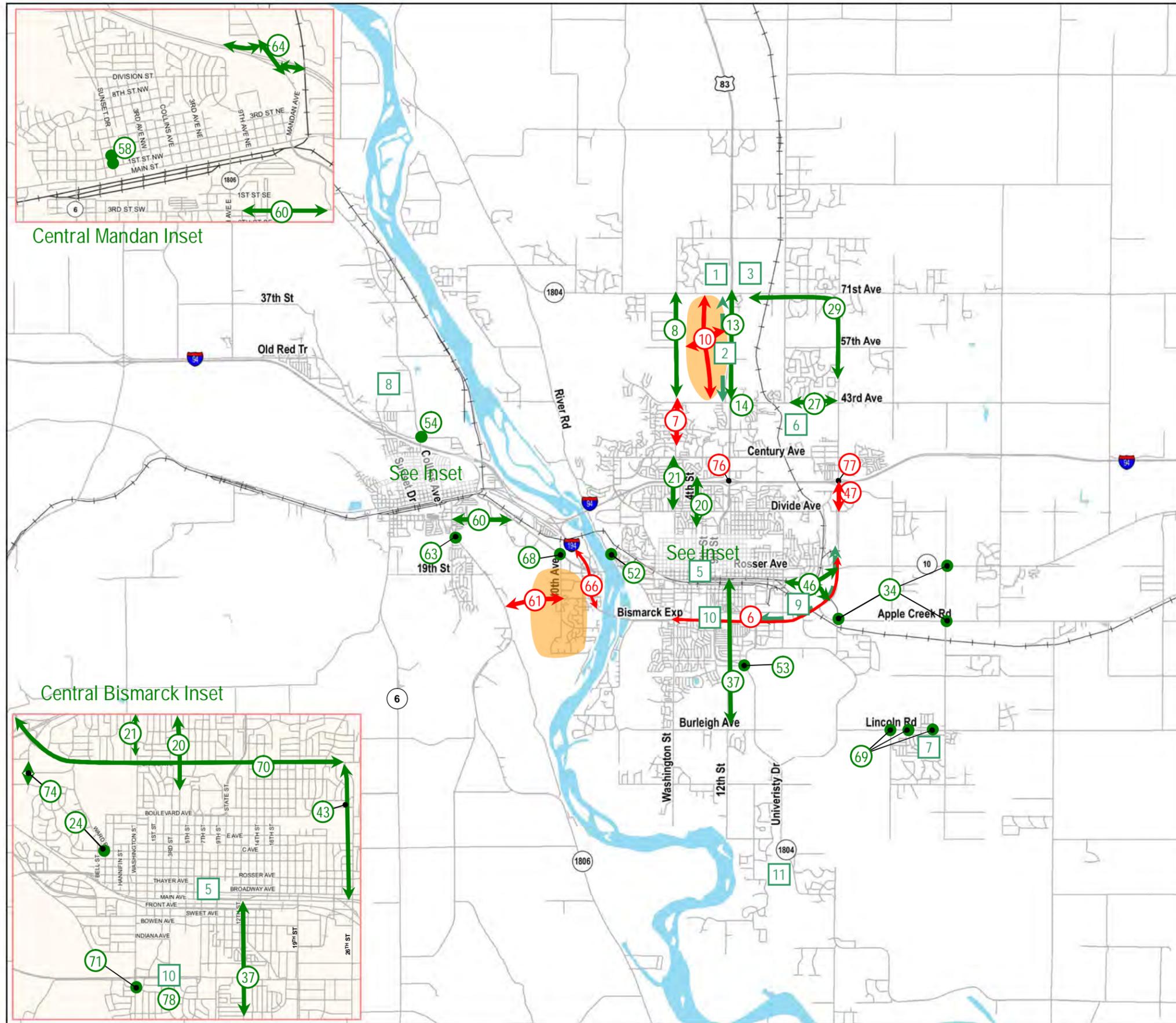


Figure 2: TSM + Improve the Current Network First Package





Legend

- Package Concept Identification/Location
- Roadway Management Alternative
  - Transit / Non-Motorized Alternative
  - Roadway Expansion Alternative

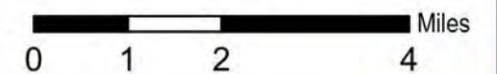
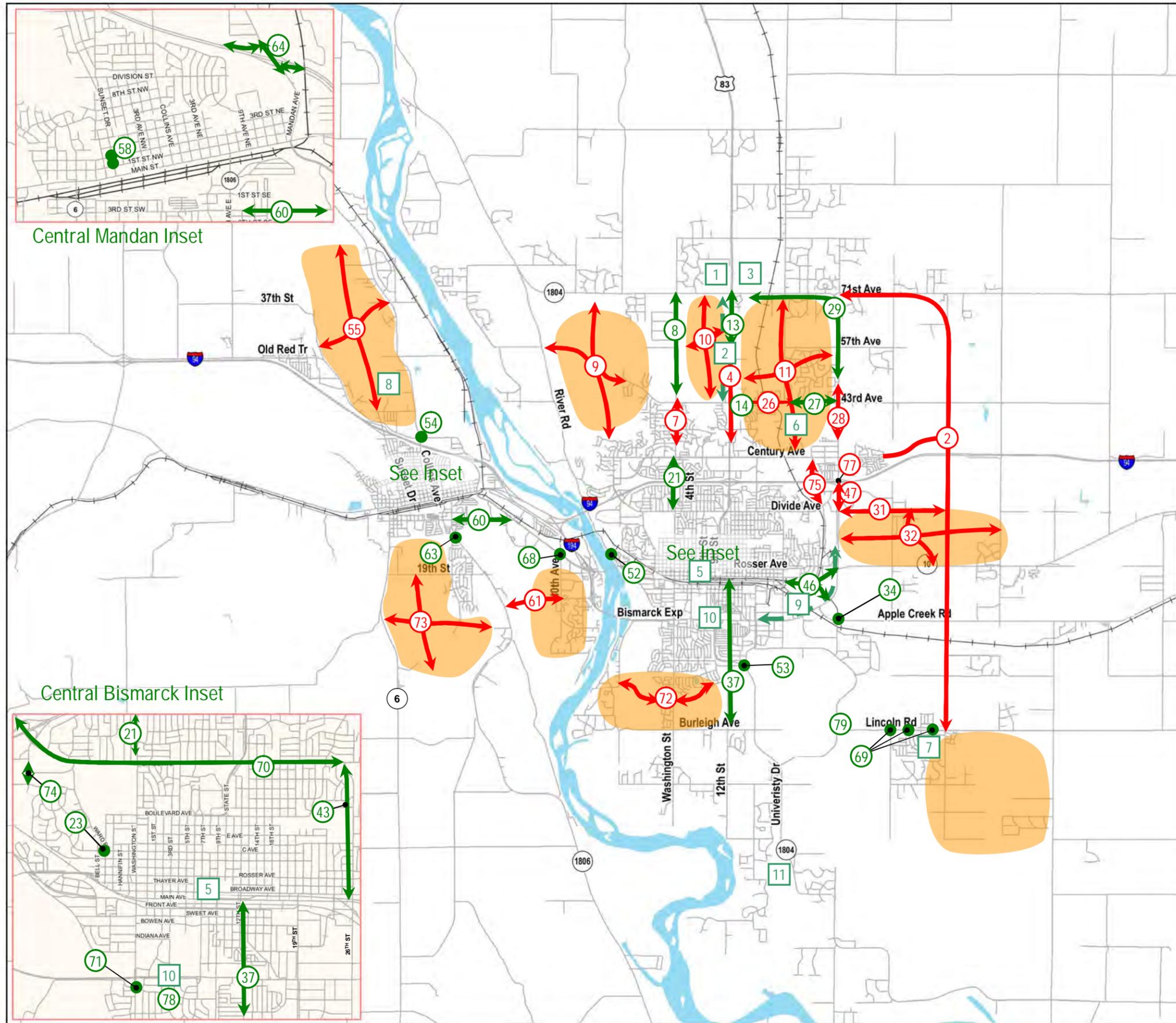


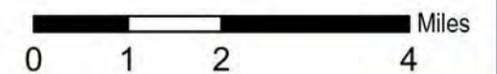
Figure 3: TSM + Provide for Future Development Access Package



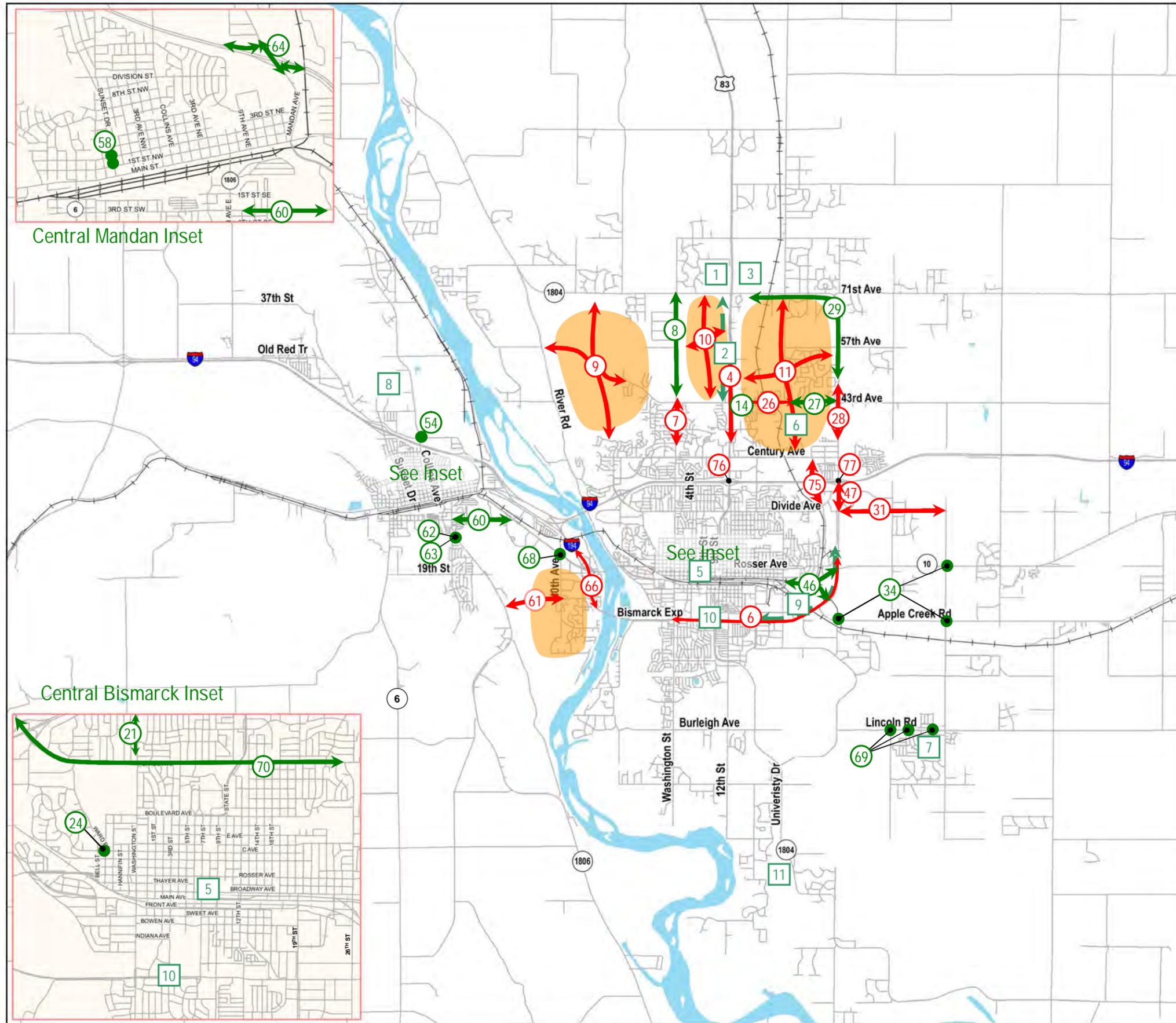


**Legend**

- Package Concept Identification/Location
- Roadway Expansion Alternative
  - Roadway Management Alternative
  - Transit / Non-Motorized Alternative
  - Development Growth Area



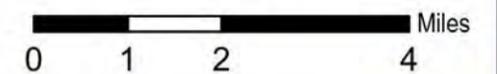
**Figure 4: Address the Most Critical Issues Package**



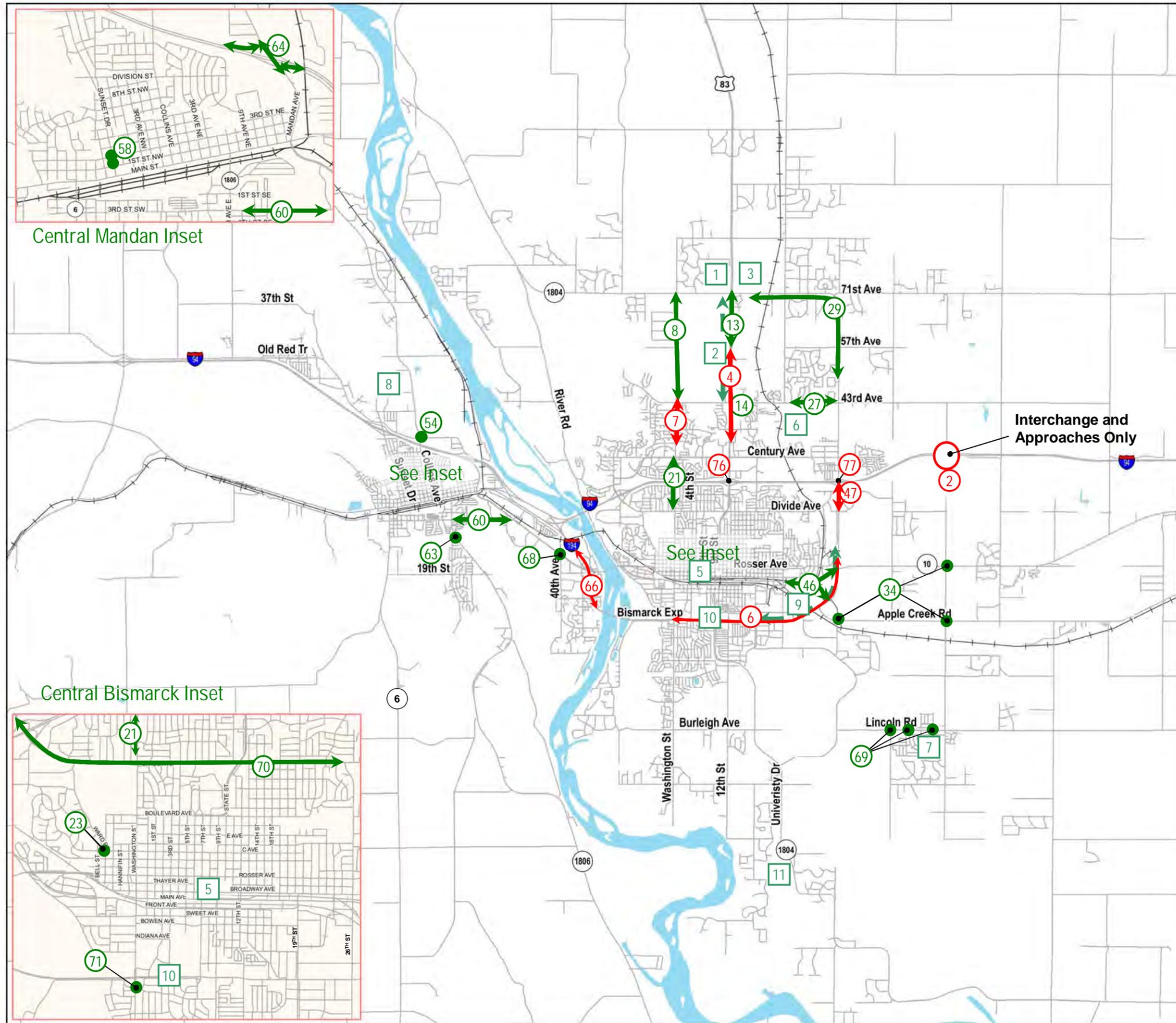


Legend

- Package Concept Identification/Location
- Roadway Management Alternative
  - Transit / Non-Motorized Alternative



**Figure 5: TSM + Federal Route + State Route Improvement Package**





Legend

Alternatives Maintained

- Roadway Expansion Alternative
- Roadway Management Alternative
- Transit / Non-Motorized Alternative

Alternatives Dismissed

- Dismissed Alternative
- Development Growth Area

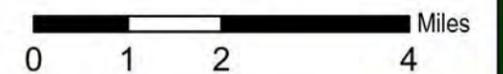
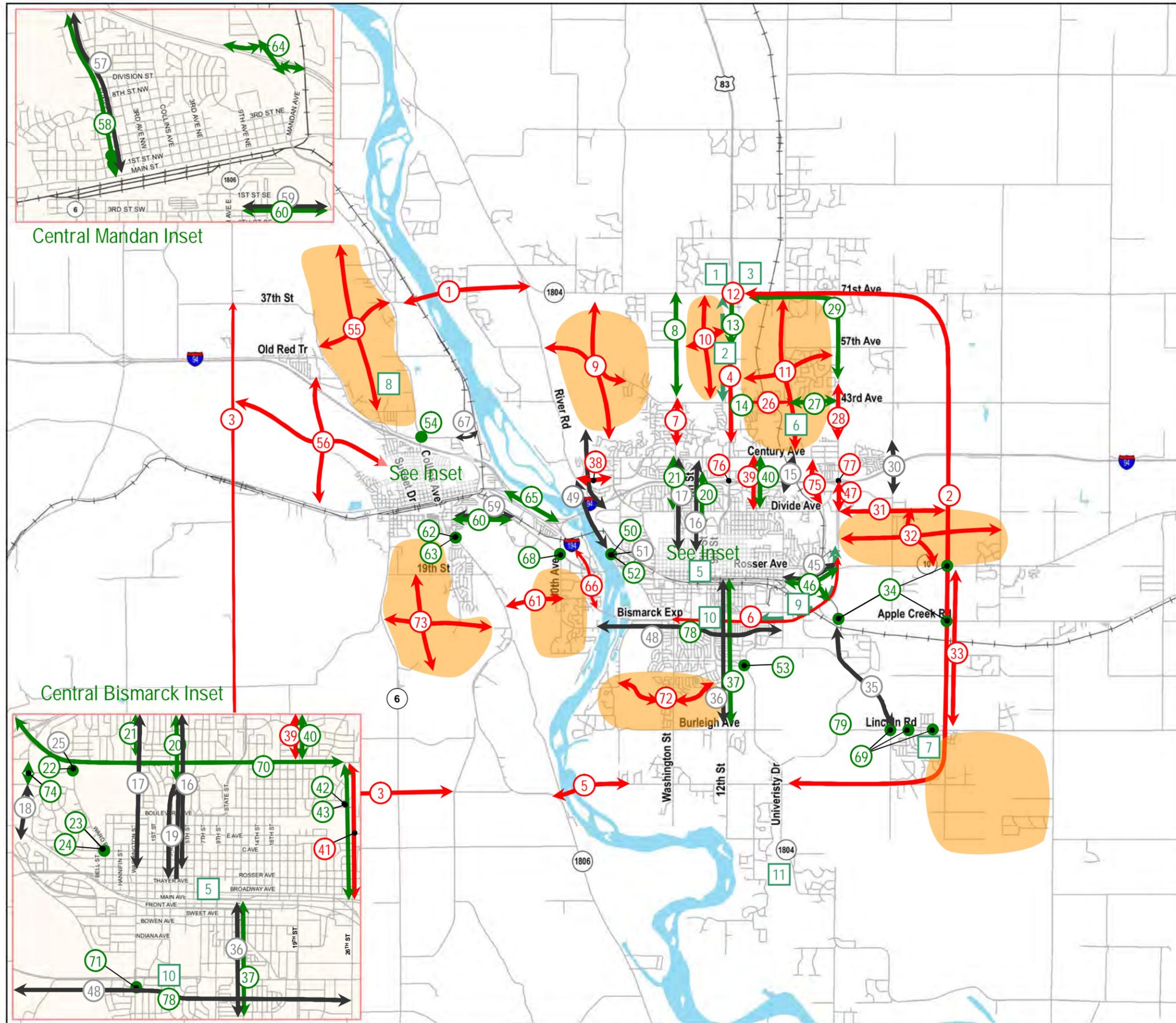
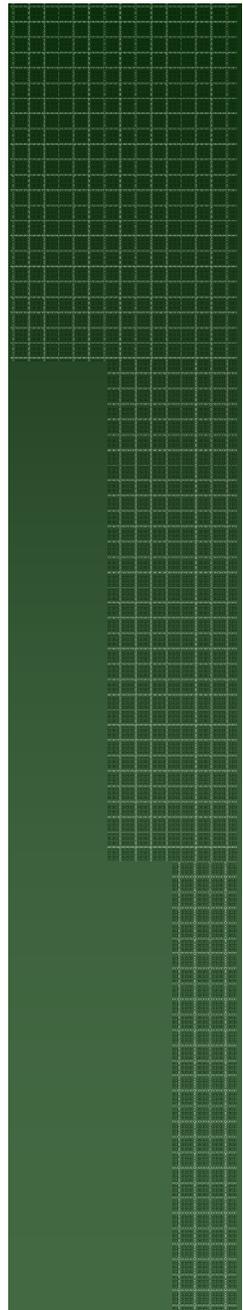


Figure 6: Remaining Roadway Alternatives



**APPENDIX E**  
**AGENCY CONSULTATION SUMMARY**



## ***Agency Consultation List***

Name	Company Name	Address	City
Robin Were	Bis Man Transit Board	3750 E. Rosser	Bismarck, ND 58501
Mark Liebig	Bis/Man Bicycle Commuter Group	3238 Impala Ln SE	Bismarck, ND 58503
Gary Stockert	Bismarck Emergency Mgmt.	221 N. 5th Street	Bismarck, ND 58501
Mr. Steve Neu	Bismarck Parks & Rec	420 East Front Avenue	Bismarck, ND 58504
Russ Staiger	BMDA	400 E. Broadway / P.O. Box 2615	Bismarck, ND 58502
Lynn Liebfried, Public Projects Manager	BNSF Railway Company	80 44th Avenue NE	Minneapolis, MN 55421
Gerry Foell, Reg'l Transportation Engr.	Bureau of Indian Affairs	115 Fourth Avenue SE	Aberdeen, SD 57401-4384
Mary Senger	Burleigh Co. Emergency Mgmt.	221 North 5th Street	Bismarck, ND 58501
Bruce Lange	Burleigh Co. Water Resource Dist.	PO Box 5518	Bismarck, ND 58502-5518
Michael Gunsch	Burleigh Co. Water Resource Dist.	C/O Houston Eng./3712 Lockport Street	Bismarck, ND 58503
Kelvin Hullet	Chamber of Commerce	P.O. Box 1675	Bismarck, ND 58502-1675
Mr. Darrell Farland	Com on Empl of People w/Disabilities	P.O. Box 5503	Bismarck, ND 58506-5503
Ms. Stephanie Hickman	Federal Highway Administration	1471 Interstate Loop	Bismarck ND 58501
Wendall Meyer, Division Admin.	Federal Highway Administration	1471 Interstate Loop	Bismarck ND 58503-0567
Larry Squires	Federal Transit Administration	12300 West Dakota Avenue Ste 310	Lakewood, CO 80228-2583
Dennis Kemmesat	North Dakota Cycling Federation	2020 Frontier Dr	Bismarck, ND 58504
Cheryl Kulas	Indian Affairs Commission	600 East Boulevard Avenue, 1st Floor	Bismarck, ND 58505-0300
Mr. Paul Rechlin	Lewis & Clark Regl. Dev. Cncl.	200 1st Avenue NW	Mandan, ND 58554
Cole Higlin	Mandan Parks and Recreation	Mandan Community Center, 901 Division St	Mandan, ND 58554
Tammy Lapp-Harris	Mandan/Morton Emergency Mgmt	210 2nd Avenue NW	Mandan, ND 58554
Mr. David Glatt	ND Department of Health	918 E. Divide Avenue	Bismarck, ND 58501-1947
Mr. Terry Steinwand	ND Game and Fish Dept.	100 Bismarck Expressway	Bismarck, ND 58501-5095
Ed Murphy	ND Geological Survey	600 East Boulevard Avenue, Dept. 405	Bismarck, ND 58505-0840
Doug Prchal	ND Parks & Recreation Dept	1600 East Century Ave., Suite 3	Bismarck, ND 58503-0649
Mr. Merl Paaverud	ND State Historical Society	612 East Boulevard Avenue	Bismarck, ND 58505
Stacey Hanson	NDDOT / Local Government Div	608 E. Boulevard Avenue	Bismarck, ND 58505
Jack Olson	NDDOT/Planning Division	608 E. Boulevard Avenue	Bismarck, ND 58505-0700
	North Dakota Wildlife Federation	1605 E Capital Ave Halkirk Offices #102	Bismarck, ND 58501
Jason Tomanek	Renaissance Zone Authority	PO Box 5503	Bismarck, ND 58506-5503
Mr. Scott Hochhalter	Soil Conservation Committee	2718 Gateway Ave, Suite 104	Bismarck, ND 58503-0585
Clarence Greene	Spirit Lake Nation Roads	206 2nd Avenue North / PO Box 129	Fort Totten ND 58335-0129
Mr Pete Red Tomahawk	Standing Rock Nation	PO Box D	Fort Yates ND 58538
Mr. Ron His Horse Is Thunder	Standing Rock Sioux Tribe	P.O. Box D	Fort Yates, ND 58538
Mr. Dale Frink	State Water Commission	900 East Boulevard	Bismarck, ND 58505-0850
	Three Affiliated Tribes	404 Frontage Road / P.O. Box 100	New Town ND 58763
Chairman Marcus Wells, Jr.	Three Affiliated Tribes	404 Frontage Road / P.O. Box 100	New Town, ND 58763
Mr Jeremy Laducer	Turtle Mtn Band of Chippewa	PO Box 900	Belcourt ND 58316
Dan Cimarosti	U.S. Army Corps of Engineers	1513 South 12th Street	Bismarck, ND 58504
Mr. Jeffrey K. Towner	U.S. Fish and Wildlife Service	3425 Miriam Avenue, E	Bismarck, ND 58501
Mr. Gregg Wiche	U.S. Geological Survey	LK Property Bldg., 821 E Interstate Ave	Bismarck, ND 58501-1199
	Sierra Club	311 East Thayer, Suite 113	Bismarck, ND 58501
	ND State Land Department	1707 North 9th St, PO Box 5523	Bismarck, ND 58506-5523
	North Dakota Forest Service	307 First Street East	Botineau, ND 58318-1100
Greg Haug	Bismarck Airport	2301 University Dr, PO Box 991	Bismarck, ND 58502
Jim Lawler	Mandan Airport	PO Box 250	Mandan, NE 58554
Paul Johnson, Superintendent	Bismarck Public Schools	806 N. Washington St.	Bismarck, ND 58501-3623
Wilfred Volesky, Superintendent	Mandan Public School District	309 Collins Avenue	Mandan, ND 58554
Thomas Balzer	North Dakota Motor Carriers Association	1031 East Interstate Ave, PO Box 874	Bismarck, ND 58502
Gloria David	Bismarck City Administration	221 N. 5th Street	Bismarck ND 58506
Linda Foolbear	Bismarck City Administration	221 N. 5th Street	Bismarck, ND 58501
Kermit Schaefer	Bismarck Fire Department	1020 East Central Avenue	Bismarck, ND 58501
Steve Kilde	Bismarck Police Department	700 S. 9th Street	Bismarck ND 58504
Mr. Kevin J. Glatt	Burleigh County Auditor	P.O. Box 5518	Bismarck ND 58502
	Burleigh County Sherrif Department	P.O. Box 1416	Bismarck, ND 58502-1416
Melanie Chaska	Lincoln Auditor	74 Santee Road	Lincoln, ND 58504
	Lincoln Police Department	74 Santee Road	Lincoln, ND 58504

Name	Company Name	Address	City
Dave Bechtel	Mandan Engineering Department	205 2nd Avenue NW	Mandan, ND 58554
	Mandan Fire Department	110 Collins Avenue	Mandan, ND 58554
	Mandan Police Department	205 1st Avenue NW	Mandan, ND 58554
Mr. Paul E. Trauger	Morton County Auditor	210 2nd Avenue NW	Mandan ND 58554
	Morton County Rural Fire Department	P.O. Box 187	Mandan, ND 58554
	Morton County Sheriff Department	205 1st Avenue NW	Mandan, ND 58554
	ND Aeronautics Commission	P.O. Box 5020	Bismarck, ND 58502-5020
Jan Webb	ND Council on the Arts	1600 East Century Ave., Suite 6	Bismarck, ND 58503-0649
Ben Kubischta	ND DOT Local Government	608 East Boulevard Avenue	Bismarck ND 58505
Pam Wenger	ND DOT Local Government	608 East Boulevard Avenue	Bismarck ND 58505
Adjutant General	ND National Guard	P.O. Box 5511	Bismarck, ND 58506-5511
Serena Schmit	ND Safety Council	1640 Burnt Boat Drive	Bismarck, ND 58503
	ND Tourism Department	P.O. Box 2057	Bismarck, ND 58502-2057
Mr Kevin Levi	NDDOT/Bismarck District Office	218 Airport Road	Bismarck ND 58504
Darcy Rosendahl	NDDOT/Office of Operations	608 East Boulevard Avenue	Bismarck ND 58505
Scott Zainhofsky	NDDOT/Planning Division	608 E. Boulevard Avenue	Bismarck, ND 58505-0700
Acting Regional Administrator	U.S. Department of HUD - Regional Of	1670 Broadway	Denver, CO 80202-4801
	U.S. EPA, Region VIII, 80C-EISC	1595 Wynkopp Street	Denver, CO 80202-1129
Tammy Wagner	U.S. Federal Railroad Administration	200 West Adams Suite 310	Chicago IL 60606
Spenser Arndt, Asst. Dir., Public Projects	BNSF Railway Company	80 44th Avenue NE	Minneapolis, MN 55421
Mont Hurt	Burleigh Co. Water Resource Dist.	1811 East Thayer Avenue	Bismarck, ND 58501
Bob Hruby	Captain's Landing Township	36 Captain Marsh Drive	Mandan ND 58554
Wade Kline, Exec. Director	FM Metro COG	Case Plaza Ste 232, 1 - 2nd Street North	Fargo, ND 58102
Earl Haugen, Exec. Director	Grand Forks MPO	PO Box 5200	Grand Forks, ND 58206-5200
Brian Morris	Western Area Power Association	P.O. Box 1173	Bismarck, ND 58502-1173
AARP		107 West Main Avenue, Ste. 125	Bismarck, ND 58501
Aid, Inc.		314 West Main Street	Mandan, ND 58554
Baptist Home Social Services		1100 East Boulevard Avenue	Bismarck, ND 58501
Burleigh County Housing Authority	Dwight Barden, Executive Director	410 South 2nd Street	Bismarck, ND 58504-5534
Burleigh County Seniors		315 N. 20th Street	Bismarck, ND 58501
Community Action		2105 Lee Avenue	Bismarck, ND 58504
Community Health Care Association		1003 E. Interstate Avenue, Ste. 6	Bismarck, ND 58503
Community Options, Inc.		3831 Lockport Street, Ste. B	Bismarck, ND 58503
Enable, Inc.		1836 Raven Drive	Bismarck, ND 58501
Great Plains Rehabilitation		PO Box 5510	Bismarck, ND 58506-5510
Guardian & Protective Services		316 N. 5th Street, Ste. 112	Bismarck, ND 58501
Lutheran Social Services		1616 Capitol Way	Bismarck, ND 58501
Mandan Golden Age Services		PO Box 267	Bismarck, ND 58554
Marillac Manor		1016 N. 28th Street	Bismarck, ND 58502
MedCenter One Social Services		300 North 7th Street	Bismarck, ND 58501
Missouri Slope Area United Way		PO Box 2111	Bismarck, ND 58502
Missouri Slope Lutheran Care Center Social		2425 Hillview Avenue	Bismarck, ND 58501
ND Vocational Rehabilitation		1237 West Divide Avenue	Bismarck, ND 58501
Pride, Inc.		1200 Missouri Avenue	Bismarck, ND 58504
Primrose Retirement Communities		1144 College Drive	Bismarck, ND 58501
Senior Center		315 North 20th Street	Bismarck, ND 58501
Senior Health Insurance Counseling		600 E. Boulevard Avenue, Dept. 401	Bismarck, ND 58505
St. Alexius Eldercare		PO Box 5510	Bismarck, ND 58502
St. Alexius Medical Center Social Services		900 East Broadway Avenue	Bismarck, ND 58501
St. Vincent's Care Center		1021 N. 26th Street	Bismarck, ND 58501
Sunrise of Bismarck		114 North 3rd Street	Bismarck, ND 58501
Volunteer Caregiver Exchange		600 S. 2nd Street, Ste. 8	Bismarck, ND 58504
Waterford on West Century		1000 West Century Avenue	Bismarck, ND 58503
West River Transportation		3750 East Rosser Avenue	Bismarck, ND 58501
LeAnn Eckroth	Bismarck Tribune	P.O. Box 5516	Bismarck, ND 58506
Ernestine Chasing-Hawk, Editor	Dakota Journal Office	P.O. Box 31	Flandreau SD, 57028

<b>Name</b>	<b>Company Name</b>	<b>Address</b>	<b>City</b>
	Mandan News	2401 46th Avenue SE, Suite 201	Mandan, ND 58554
Dennis J. Neumann	United Tribes Newsletter	3315 University Drive	Bismarck, ND 58504
Clear Channel Communications, Inc. (KFYR & KYYY)		3500 East Rosser Avenue	Bismarck, ND 58501
Cumulus Broadcasting (KKCT, KBYZ, KACL and KLXX)		1830 North 11th Street	Bismarck, ND 58501
Dakota Media Access, Inc.		307 N. 4th Street	Bismarck, ND 58501
KACL-FM		PO Box 1377	Bismarck, ND 58502
KBMR-AM		PO Box 1377	Bismarck, ND 58502
KBYZ-FM		PO Box 1377	Bismarck, ND 58502
KFYR-AM		PO Box 1658	Bismarck, ND 58502
KFYR-TV		P.O. Box 1738	Bismarck, ND 58502
KKCT-FM		PO Box 1377	Bismarck, ND 58502
KLND-FM 89.5 FM		11420 SD Hwy 63	McLaughlin, SD 57642
KLXX		4303 Memorial Hwy	Mandan, ND 58544
KNDX-TV		P.O. Box 4026	Bismarck, ND 58502
KSSS-FM		PO Box 2156	Bismarck, ND 58502
KXMB-TV		P.O. Box 1617	Bismarck, ND 58502
KXMR-AM		3500 East Rosser Avenue	Bismarck, ND 58501
KYYY-Y93-FM		PO Box 1738	Bismarck, ND 58502

## ***Agency Consultation Correspondence***

## *Bismarck-Mandan MPO Long Range Transportation Plan Resource Agency Consultation*

The Bismarck-Mandan Metropolitan Planning Organization is in the process of updating its Long Range Transportation Plan (LRTP). Part of the LRTP update includes consulting with agencies like yours. We are inviting you to attend upcoming public meetings being held April 20, 21 and 22 (meeting information included to the right).

We would also like to invite you to review and comment on the set of potential transportation system alternatives currently being considered for inclusion of the plan. Not all of the projects shown will be included in the final Plan, but the memo includes those projects which are still being evaluated for potential inclusion. It is requested that you review alternatives and comment on any issues you or your agency might have. The Alternatives Analysis document is available to you from the Plan update website at:  
[www.bis-manplan2009.com/PDFs/Alternatives1.pdf](http://www.bis-manplan2009.com/PDFs/Alternatives1.pdf).

*For more information about the plan, visit:  
[www.bis-manplan2009.com](http://www.bis-manplan2009.com)*

### *LRTP Public Meetings, April 20- 22, 2009*

*April 20: Mandan Middle School  
2901 12th Avenue NW, Mandan  
6:00 PM to 7:30 PM*

*April 21: Bismarck Public Works Building  
601 South 26th Street, Bismarck  
6:00 PM to 7:30 PM*

*April 22: TV Presentation and Call-in Show  
Community Access TV Cable Channel 2  
7:00 PM or after Planning Commission  
Meeting*

**Thank You**

If you have any questions or would like hard copies of the Alternatives memorandum, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan  
Long Range Transportation Plan  
2035**

## *Bismarck-Mandan MPO Long Range Transportation Plan Resource Agency Consultation*

The Bismarck-Mandan Metropolitan Planning Organization is in the process of updating its Long Range Transportation Plan (LRTP) for the period 2009 - 2035. Part of the LRTP update includes consulting with agencies like yours. We are inviting you to attend upcoming public meetings being held August 31 and September 1, 2009.

As part of the consultation, we would also like to invite you to review and comment on the draft recommended roadway, trail and transit improvements being considered for inclusion in the plan. As with our earlier request in April, we are requesting that you review the potential transportation improvements we are considering and comment on any issues you or your agency might have. The draft transportation plan elements are available for your review at the Plan update website at:

[www.bis-manplan2009.com/PrelimPlan.html](http://www.bis-manplan2009.com/PrelimPlan.html).

*For more information about the plan, visit:  
[www.bis-manplan2009.com](http://www.bis-manplan2009.com)*

### *LRTP Public Meetings, Aug 31-Sept 1, 2009*

*August 31: Bismarck City / County Building  
Tom Baker Room, 221 North 5th St, Bismarck  
6:30 PM to 8:00 PM*

*September 1: Morton County Commission  
Room  
210 2nd Ave NW, Mandan  
5:30 PM to 7:00 PM*

*August 31: TV Presentation and Call-in Show  
Community Access TV Cable Channel 2  
Beginning at 6:30 PM*

**Thank You**

If you have any questions or would like hard copies of the Alternatives Memorandum, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov)



**Bismarck-Mandan  
Long Range Transportation Plan  
2035**

October 23, 2009

Dear Sir or Madam:

The Bismarck-Mandan Metropolitan Planning Organization (MPO) is in the process of updating its Long Range Transportation Plan (LRTP). Since we last contacted you, we have completed a Draft of the *2009-2035 Bismarck-Mandan LRTP* document, including a draft recommended fundable multimodal transportation improvement list for the 2009 to 2035 period. We have initiated the 30-day review period, as outlined in our approved Public Participation Plan. Public comment on the Draft of the *2009-2035 Bismarck-Mandan LRTP* will be accepted until November 30, 2009. Over the review period, we are soliciting comments from the public and stakeholders regarding the plan recommendations.

As with our previous correspondences, we are inviting you to review and comment on the draft LRTP content. The LRTP document is available at the project website at: [www.bis-manplan2009.com/draftLRTP.html](http://www.bis-manplan2009.com/draftLRTP.html). If you are unable to review the entire document within the designated review period, we would appreciate it if you could provide comment on the *Recommended Projects Chapter*. The majority of the projects on the list have already been offered for your review and comment, but the multimodal project list has been narrowed down to account for funding availability since the last correspondence.

A hard copy of the document is available for review at the Bismarck-Mandan MPO offices located at:

City-County Office Building  
221 North 5<sup>th</sup> Street  
Bismarck, ND 58506

If you have any questions or would like to submit comments, please contact Ben Ehreth, Transportation Planner, Bismarck-Mandan MPO at (701) 355-1850 or email at [bjehreth@nd.gov](mailto:bjehreth@nd.gov).

Sincerely,



Ben Ehreth, Transportation Planner



"Ben Ehreth" <bjehreth@nd.gov>

10/28/2009 03:01 PM

To <Jason\_Carbee@URSCorp.com>

cc

bcc

Subject FW: Bismarck-Mandan MPO Draft Long Range  
Transportation Plan

**From:** Ben Ehreth [mailto:bjehreth@nd.gov]

**Sent:** Wednesday, October 28, 2009 8:05 AM

**To:** 'robinw.bisman@midconetwork.com'; 'liebigs@bis.midco.net'; 'gstockert@nd.gov'; 'sneu@bisparks.org'; 'rstaiger@bmda.org'; 'lynn.liebfried@bnsf.com'; 'gerry.foell@bia.gov'; 'msenger@nd.gov'; 'mgunsch@houstonengineering.com'; 'info@bismarckmandan.com'; 'Larry.Squires@dot.gov'; 'fpind@frontierprecision.com'; 'ckulas@state.nd.us'; 'lcrdc@lewisandclarkrdc.org'; 'mandanparksinfo@gmail.com'; 'tlapp@nd.gov'; 'dglatt@nd.gov'; 'ndgf@nd.gov'; 'emurphy@nd.gov'; 'parkrec@nd.gov'; 'histsoc@nd.gov'; 'smhanson@nd.gov'; 'jolson@nd.gov'; 'ndwf@ndwf.org'; 'jtomanek@nd.gov'; 'scott.hochhalter@ndsu.edu'; 'roadsbia@stellarnet.com'; 'swc@nd.gov'; 'valberts@mhanation.com'; 'mwellsjr.@mhanation.com'; 'daniel.e.cimarosti@usace.army.mil'; 'missouririverfishandwildlife@fws.gov'; 'gjwiche@usgs.gov'; 'paul\_johnson@bismarckschools.org'; 'timatk@bis.midco.net'; 'g david@nd.gov'; 'lfoolbea@nd.gov'; 'skilde@nd.gov'; 'kglatt@nd.gov'; 'dbechtel@cityofmandan.com'; 'ptrauger@nd.gov'; 'ndaero@nd.gov'; 'pwenger@nd.gov'; 'ndgf@nd.gov'; 'jwebb@nd.gov'; 'smhanson@nd.gov'; 'szainhofsky@nd.gov'; 'kline@fmmetrocog.org'; 'ehaugen@grandforksgov.com'

**Cc:** 'Steve Saunders'; Carl Hokenstad

**Subject:** Bismarck-Mandan MPO Draft Long Range Transportation Plan

Greetings,

The Bismarck-Mandan Metropolitan Planning Organization (MPO) is updating its Long Range Transportation Plan (LRTP). The LRTP is the guiding document for transportation in the Bismarck-Mandan area. With the exception of air travel the document considers all modes of transportation significant to the Bismarck-Mandan area.

We have completed a Draft of the *2009-2035 Bismarck-Mandan LRTP* document, including a draft recommended fundable multimodal transportation improvement list for the 2009 to 2035 period. We have initiated the 30-day review period, as outlined in our approved Public Participation Plan. Public comment on the Draft of the 2009-2035 Bismarck-Mandan LRTP will be accepted until November 30, 2009. Over the review period, we are soliciting comments from the public and stakeholders regarding the plan recommendations.

We are inviting you to review and comment on the draft LRTP content. The LRTP document is available at the project website at: [www.bis-manplan2009.com/draftLRTP.html](http://www.bis-manplan2009.com/draftLRTP.html).

If you are unable to review the entire document within the designated review period, we would appreciate it if you could provide comment on the Recommended Projects Chapter.

A hard copy of the document is available for review at the Bismarck-Mandan MPO offices located at:

City-County Office Building  
221 North 5th Street  
Bismarck, ND 58506

Your organization has also been mailed a letter asking for your review. If you have any questions or would like to submit comments, please contact me.

Thanks,

Ben

**Ben Ehreth, AICP**

Planner

Bismarck-Mandan, Metropolitan Planning Organization

221 North 5th Street

P.O. Box 5503

Bismarck, ND 58506-5503

Phone: 701-355-1850

Fax: 701-222-6450



"Ben Ehreth" <bjehreth@nd.gov>

10/28/2009 03:31 PM

To "Wendy Berg" <wberg@bisparks.org>

cc "Steve Neu" <SNeu@bisparks.org>, <Jason\_Carbee@URSCorp.com>, <Bill\_Troe@URSCorp.com>

bcc

Subject RE: MPO Long-Range Transportation Plan - Initial thoughts

History:

 This message has been forwarded.

Hello Wendy,

Thank you very much for the great comments. As you have indicated the Northwest Subarea Study is considering a "full buildout" scenario which is very likely well beyond the scope of the 2035 LRTP. Also the final alignments have not been set as of yet for the North West Subarea study. However, there is a "Northwest Bismarck Arterial Improvements" project identified in the roadways section of the document. There will likely be either trails and/or bikelanes associated with the improvements depending on the outcome of the Northwest Subarea Study which are currently not identified in the LRTP. We will seek to address this issue on the LRTP Trail and On-stree Bicycle Facility map.

Thanks again,

Ben

**From:** Wendy Berg [mailto:wberg@bisparks.org]

**Sent:** Wednesday, October 28, 2009 2:06 PM

**To:** Ben Ehreth

**Cc:** Steve Neu

**Subject:** MPO Long-Range Transportation Plan - Initial thoughts

Hi Ben! I have a couple of questions as I look at the new plan update. Firstly, I like the long section on non-motorized transportation.

We talked with Ulteig about the Bismarck Sub-Area Study in the northwest, and I am wondering where that plan fits in. I asked for the typical profiles and it looked to me like all of the new arterial and collector streets would include an easement for trail on one side and sidewalk on the other. So, the trail map on the long-range transportation plan should mimic the sub-area study map? Or would those proposed alignments be past 2035? Steve Windish left the sub-area plan with me to look at trail alignments in the NW that would not be along the roadway... generally in the coulee area. Should those be part of the long-range plan, or again, would we be talking about past 2035?

Also, typo on pg. 68.. reads "Reconstruction I-194 Memorial ....

I will keep reviewing.

Thanks!



**BISMARCK PARKS AND RECREATION DISTRICT**  
Est. 1927

**Wendy Anderson-Berg**  
Park Planner

400 East Front Avenue, Bismarck, ND 58504  
P: (701) 222-6455  
[www.bisparcs.org](http://www.bisparcs.org)  
F: (701) 221-6838





"Ben Ehreth" <bjehreth@nd.gov>

11/04/2009 10:58 AM

To <Bill\_Troe@URSCorp.com>,  
<Jason\_Carbee@URSCorp.com>  
cc ""Steve Saunders"" <ssaunder@nd.gov>

bcc

Subject FW: Bismarck-Mandan Draft LRTP

Greetings,

Please find following the response from FTA regarding the Long Range Transportation Plan.

Thanks,  
Ben

**From:** Larry.Squires@dot.gov [mailto:Larry.Squires@dot.gov]  
**Sent:** Wednesday, November 04, 2009 10:33 AM  
**To:** stephanie.hickman@dot.gov  
**Cc:** bjehreth@nd.gov  
**Subject:** RE: Bismarck-Mandan Draft LRTP

Good Morning, Stephanie

The FTA Region VIII has reviewed the Bis-Man MPO DRAFT LRTP, including the multi-modal transportation improvements list and other projects list. The FTA notes no inconsistencies in the LRTP. Moreover, TDM and TSM initiatives in the multi-modal transportation alternatives analysis appear to be significant elements of the livability initiative underway by the present administration, and the integration of park-n-rides under TDM, as noted in the transit projects, is commendable. Thank you for allowing the participation of the FTA, and all apologies for any delay.

Sincerely,

Larry Squires  
Community Planner  
FTA/Region VIII  
720-963-3305

---

**From:** Hickman, Stephanie (FHWA)  
**Sent:** Wednesday, October 21, 2009 1:07 PM  
**To:** Stewart, Jennifer (FTA); Squires, Larry (FTA)  
**Subject:** Bismarck-Mandan Draft LRTP

Later this week I should be shipping you a copy of the draft LRTP for Bismarck-Mandan. If you should have the opportunity to review it, I can coordinate our comments with NDDOT and submit them to the MPO by mid-November. I realize you're short on time, so if you don't have the time to review the document, that's fine, too. At least you'll have a draft for future reference if need be.

S

Stephanie J. Hickman  
Transportation Planning and Research Manager  
1471 Interstate Loop  
Bismarck, ND 58503  
(ph) 701-250-4343 ext 105  
(fax) 701-250-4395



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, OMAHA DISTRICT  
NORTH DAKOTA REGULATORY OFFICE  
1513 SOUTH 12<sup>TH</sup> STREET  
BISMARCK ND 58504-6640  
November 5, 2009

RECEIVED

NOV 06 2009

North Dakota Regulatory Office

[NWO-2009-02772-BIS]

Ben Ehreth, AICP  
Bismarck-Mandan, Metropolitan Planning Organization  
221 North 5<sup>th</sup> Street  
P.O. Box 5503  
Bismarck, North Dakota 58506-5503

Dear Mr. Ehreth:

This is in response to your October 28, 2009 e-mail, requesting Department of the Army (DA), United States Army Corps of Engineers (Corps) comments on the **Bismarck-Mandan Metropolitan Planning Organization (MPO) Draft Long Range Transportation Plan**. The proposed plan covers the metropolitan areas of Bismarck and Mandan within Burleigh and Morton Counties.

Corps Regulatory Offices administer Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Section 10 of the Rivers and Harbors Act regulates work in or affecting navigable waters. This would include work over, through, or under Section 10 water. Section 10 waters in North Dakota include the Missouri River (including Lakes Oahe and Sakakawea), Yellowstone River, James River south of Jamestown, North Dakota, Bois de Sioux River, Red River of the North, and the Upper Des Lacs Lake. Section 404 of the Clean Water Act regulates the discharge of dredge or fill material (temporarily or permanently) in waters of the United States. Waters of the United States may include, but are not limited to, rivers, streams, ditches, coulees, lakes, ponds, and their adjacent wetlands. Fill material includes, but is not limited to, rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mines or other excavation activities and materials used to create any structure or infrastructure in waters of the United States.

Based on the information provided, the only Section 10 water within the proposed project area is the Missouri River. The Missouri River would be regulated in accordance with Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. However, there are other water bodies considered waters of the United States that would be regulated in accordance with Section 404 of the Clean Water Act. Named water bodies considered waters of the United States within the project area include but are not limited to, Hay Creek, Apple Creek, Square Butte Creek and the Heart River along with their adjacent wetlands. Unnamed tributaries and their adjacent wetlands may be determined to be waters of the United States. Finally, wetlands that appear to be isolated may, based on current guidance and regulation at the time of review, be determined to be waters of the United States and would then be regulated in accordance with Section 404. If this project would require a Section 10/404 permit, please complete and submit the enclosed Department of the Army permit application (ENG Form 4345) to the U.S. Army Corps of Engineers, North Dakota Regulatory Office, 1513 South 12<sup>th</sup> Street,

Bismarck, North Dakota 58504. If you are unsure if a permit is required, you may submit an application; include a project location map, description of work, and construction methodology.

Customer Survey. The Omaha District, North Dakota Regulatory Office is committed to providing quality and timely service to your customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at <http://per2.nwp.usace.army.mil/survey.html>. If you do not have Internet access, you can call and request a paper copy of the survey that you can complete and return to us by mail or fax.

If we can be of further assistance or should you have any questions regarding our program, please do not hesitate to contact this office by letter or phone at (701) 255-0015.

Sincerely,

A handwritten signature in black ink that reads "Daniel E. Cimarosti". The signature is written in a cursive style with a large initial 'D'.

Daniel E. Cimarosti  
Regulatory Program Manager  
North Dakota

Enclosure  
ENG Form 4345

**Instructions for Preparing a  
Department of the Army Permit Application**

**Blocks 1 through 4.** To be completed by Corps of Engineers.

**Block 5. Applicant's Name.** Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

**Block 6. Address of Applicant.** Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

**Block 7. Applicant Telephone Number(s).** Please provide the number where you can usually be reached during normal business hours.

**Blocks 8 through 11.** To be completed, if you choose to have an agent.

**Block 8. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

**Blocks 9 and 10. Agent's Address and Telephone Number.** Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

**Block 11. Statement of Authorization.** To be completed by applicant, if an agent is to be employed.

**Block 12. Proposed Project Name or Title.** Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

**Block 13. Name of Waterbody.** Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

**Block 14. Proposed Project Street Address.** If the proposed project is located at a site having a street address (not a box number), please enter it here.

**Block 15. Location of Proposed Project.** Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

**Block 16. Other Location Descriptions.** If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

**Block 17. Directions to the Site.** Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known

**Block 18. Nature of Activity.** Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

**Block 19. Proposed Project Purpose.** Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

**Block 20. Reasons for Discharge.** If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

**Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards.** Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

**Block 22. Surface Areas of Wetlands or Other Waters Filled.** Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

**Block 23. Description of Avoidance, Minimization, and Compensation.** Provide a brief explanation describing how impacts to waters of the United States are being avoided and minimized on the project site. Also provide a brief description of how impacts to waters of the United States will be compensated for, or a brief statement explaining why compensatory mitigation should not be required for those impacts.

**Block 24. Is Any Portion of the Work Already Complete?** Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identify the authorization, if possible.

**Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site.** List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

**Block 26. Information about Approvals or Denials by Other Agencies.** You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

**Block 27. Signature of Applicant or Agent.** The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

## DRAWINGS AND ILLUSTRATIONS

### General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

**APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**  
(33 CFR 325)

**OMB APPROVAL NO. 0710-0003**

**EXPIRES: 31 August 2012**

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please **DO NOT RETURN** your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

**PRIVACY ACT STATEMENT**

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

1. APPLICATION NO. <i>NW-2009-2772-BTS</i>	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
---	----------------------	------------------	------------------------------

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

5. APPLICANT'S NAME: First - Middle - Last - Company - E-mail Address -			8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First - Middle - Last - Company - E-mail Address -		
6. APPLICANT'S ADDRESS. Address - City - State - Zip - Country -			9. AGENT'S ADDRESS Address - City - State - Zip - Country -		
7. APPLICANT'S PHONE NOS. W/AREA CODE. a. Residence      b. Business      c. Fax			10. AGENT'S PHONE NOS. W/AREA CODE a. Residence      b. Business      c. Fax		

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, \_\_\_\_\_ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

\_\_\_\_\_  
APPLICANT'S SIGNATURE

\_\_\_\_\_  
DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions)			
13. NAME OF WATERBODY, IF KNOWN (if applicable)		14. PROJECT STREET ADDRESS (if applicable) Address	
15. LOCATION OF PROJECT Latitude: °N Longitude: °W		City - State - Zip -	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID      Municipality Section - Township - Range -			
17. DIRECTIONS TO THE SITE			

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

**USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED**

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres  
Or  
Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? Yes  No  IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address –  
City – State – Zip –

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
--------	----------------	-----------------------	--------------	---------------	-------------

\* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

\_\_\_\_\_  
SIGNATURE OF APPLICANT

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE OF AGENT

\_\_\_\_\_  
DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.



"Ben Ehreth" <bjehreth@nd.gov>

11/25/2009 11:51 AM

To <Jason\_Carbee@URSCorp.com>,  
<Bill\_Troe@URSCorp.com>

cc

bcc

Subject FW: MPO Comments: 2009-2035 Bismarck- Mandan LR  
Document

Greetings,

Please find following comments from the Bismarck Airport regarding the LRTP.

Have a great Thanksgiving,  
Ben

**From:** Tim Thorsen [mailto:tthorsen@nd.gov]

**Sent:** Tuesday, November 24, 2009 1:30 PM

**To:** bjehreth@nd.gov

**Cc:** 'Gregory Haug'; ggreenquist@nd.gov; chokenst@nd.gov; 'Melissa'; Nicole Johnson

**Subject:** MPO Comments: 2009-2035 Bismarck- Mandan LRTP Document

Ben:

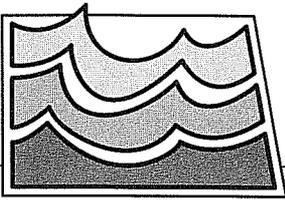
The purpose of this email is to provide MPO Draft comments to the 2009-2035 Bismarck-Mandan LRTP Document ( <http://www.bis-manplan2009.com/draftLRTP.html> ). Bismarck Airport staff wants to commend MPO officials. We know the amount of effort it took to produce this document. We do have just two comments.

- Reference Figure 27 and table 5 of the Recommended Projects Chapter: Bismarck Airport Staff asks that long term project labeled #2 (North South Beltway(Burleigh County Only)-Centennial Road to Lincoln, Century Avenue and 43<sup>rd</sup> Ave Extensions, 48<sup>th</sup> Ave South Extension and I-94 Interchange at 66<sup>th</sup> street) be retained as part of the LRP document. A planned future runway expansion (Runway 31 approach) to the South East will require relocation of Airway Avenue between the National Guard and Lincoln Road. The Airport Master Plan recommends "that the future alignment tie into the future beltway that is proposed along 48<sup>th</sup> Avenue", pg 4-21 Bismarck Airport Master Plan Update, May 2008. The new beltway will provide a route for traffic south to University Drive and will allow the removal of Airway Avenue between the intersection of Lincoln road/ Airway Avenue and Airway Avenue/National Guard to accommodate the runway expansion (see Bismarck Airport Master Plan chap 3, and 4 <http://www.bismarckairport.com/uploads/resources/374/final-report.pdf> ).
- Right of way should be preserved now for Bridges North and South across the Missouri river. This should be by zoning or by fee title to the locations needed in the timeframe beyond 25 years. This will prevent unnecessary dislocation and expense of purchasing homes that may build in those areas before new bridge crossings are needed. It would prevent undesirable actions such as condemnation from becoming necessary in the future. (An ounce of prevention is worth a pound of cure!)

TN

Timothy J. Thorsen  
Airport Operations Manager  
Bismarck Airport  
PO Box 991  
Bismarck, ND 58502  
Phone: (701) 355-1808  
Fax: (701) 221-6886  
E-mail: [tthorsen@nd.gov](mailto:tthorsen@nd.gov)

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# North Dakota State Water Commission

900 EAST BOULEVARD AVENUE, DEPT 770 • BISMARCK, NORTH DAKOTA 58505-0850  
701-328-2750 • TDD 701-328-2750 • FAX 701-328-3696 • INTERNET: <http://swc.nd.gov>

RECEIVED

NOV 30 2009

November 27, 2009

Ben Ehreth  
Bismarck Mandan Planning Organization  
City-County Office Building  
221 N 5<sup>th</sup> Street  
Bismarck, ND 58506

Dear Mr. Ehreth:

This is in response to your request for review of environmental impacts associated with the Long Range Transportation Plan (LRTP).

The proposed project have been reviewed by State Water Commission staff and the following comments are provided:

- Comments regarding the floodplain provided by this office previous still apply to the Long Range Transportation Plan.

There are no other concerns associated with this project that affect State Water Commission or State Engineer regulatory responsibilities.

Thank you for the opportunity to provide review comments. If you have any questions, please call me at 328-4969.

Sincerely,

Larry Knudtson  
Research Analyst

LJK:ds/1570



November 2, 2009

RECEIVED

NOV 02 2009

Mr. Ben Ehreth  
Transportation Planner  
Bismarck-Mandan MPO  
P.O. Box 5503  
Bismarck, ND 58506-5503

Re: 2009-2035 Bismarck-Mandan Long Range Transportation Plan  
Burleigh and Morton Counties

Dear Mr. Ehreth:

This department has reviewed the information concerning the above-referenced project submitted under date of October 23, 2009, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. All necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective manner.
2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. Guidelines for minimizing degradation to waterways during construction are attached.
3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the Department's website or by calling the Division of Water Quality (701-328-5210). Projects disturbing less than one acre are also required to have a permit to discharge storm water runoff if the site is part of a larger common plan of development or sale, and the larger common plan will ultimately disturb equal to or greater than one acre. A permit is not required for routine maintenance activities performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

The City of Bismarck, City of Lincoln, City of Mandan, Burleigh County, Morton County, Bismarck State College, and the North Dakota Department of Transportation are required to consider and address post-construction storm water quality as part of the North Dakota Pollutant Discharge Elimination System (NDPDES) Small Municipal Separate Storm Sewer System (MS4) General Permit requirements. Check with local officials to be sure any local storm water management considerations are addressed.

Projects that have a discharge point located within 2000 feet of, and flow to, a water body listed as impaired due to sediment or parameters associated with sediment transport under section 303(d) of the Federal CWA (see the Department's 303(d) List) must use caution to prevent sediment from impacting the water body. A copy of the Storm Water Pollution Prevention Plan for these projects must be submitted to the Department when applying for permit coverage.

Slurry, residue and concrete wash water resulting from concrete paving or repair activities must be managed or treated to prevent the material from adversely affecting waters of the state. This may include the use of concrete washout areas, vegetated buffers, sediment control devices or filtering devices to capture fines.

4. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,



L. David Glatt, P.E., Chief  
Environmental Health Section

LDG:cc  
Attach.



## Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

### **Soils**

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

### **Surface Waters**

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

### **Fill Material**

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.



# North Dakota Department of Transportation

Francis G. Ziegler, P.E.  
*Director*

John Hoeven  
*Governor*

RECEIVED

FEB 11 2010

February 10, 2010

Mr. Carl Hokenstad  
Executive Director  
Bismarck/Mandan MPO  
PO Box 5503  
Bismarck, ND 58506

## ARTERIAL STREET NETWORK

The North Dakota Department of Transportation continues to be concerned with congestion on the interstate system due to its usage for local trips. The purpose of the interstate system is to facilitate interstate traffic. Each city, along the interstate, needs to maintain an arterial street network that can adequately handle these local trips. We are also concerned with congestion on US Highway 83/State Street. Adequate north-south arterial streets should be developed to ease this congestion. The Metropolitan Planning Organization should continue to work on this issue through its Long Range Transportation Planning efforts. The cities should work to insure the internal streets can accommodate local movements through planning, zoning, and corridor preservation.

If you have any comments or questions, please contact me at (701) 328-4334 or Stacey Hanson at (701) 328-4469.

DAVE LEFTWICH – INTERIM TRANSPORTATION PROGRAMS DIRECTOR

38/smh

c: Francis Ziegler – Director  
Grant Levi – Deputy Director for Engineering  
Kevin Levi – Bismarck District Engineer  
Denny Johnson – MPO Coordinator