Envision 2040

Appendices

November 2014

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

APPENDIX A: BISMARCK-MANDAN-LINCOLN COMMUNITY TRANSPORTATION SURVEY

ITEMS INCLUDED:

- Community Transportation Survey Report from ETC Institute

Bismarck-Mandan Regional Travel Survey

Final Report

...helping organizations make better decisions since 1982

2013

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Bismarck·Mandan
METROPOLITAN PLANNING ORGANIZATION

Contents

Main Report

Executive Summary i

Section 1: Charts and Graphs 1

Section 2: Importance-Satisfaction Analysis 18
Importance-Satisfaction Matrix Chart 22

Section 3: Overall Tabular Data 24

Section 4: Survey Instrument 54

2013 Bismarck-Mandan Regional Travel Survey Executive Summary

Overview and Methodology

During the winter of 2013-2014, ETC Institute administered a survey for the Bismarck-Mandan MPO study area to provide an update to the Bismarck-Mandan Metropolitan Planning Organization's Long Range Transportation Plan. This is the first "Regional Travel" survey that ETC Institute has completed for the Bismarck-Mandan MPO study area.

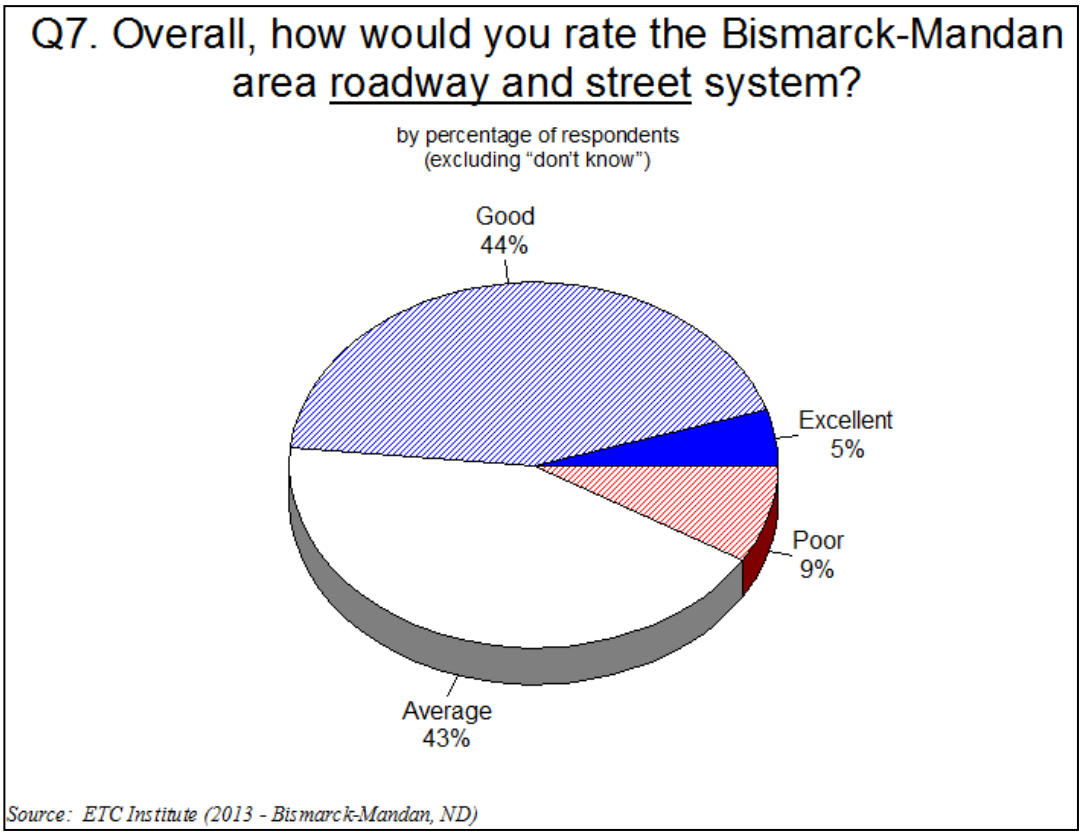
Methodology. The survey was administered by mail, phone and online to a random sample of 632 residents in the Bismarck-Mandan MPO study area. The results for the random sample of 632 respondents have a 95% level of confidence with a precision of at least +/- 3.9%. The results of the survey were then weighted to reflect the population distribution of the 7 major areas of the MPO study region, as provided by MPO staff.

Major Survey Findings. Some of the major findings from the survey are listed below.

- **Perceptions of Current Transportation Issues**. Approximately eighty-two percent (82.1%) of those surveyed, who had an opinion, indicated that they were satisfied (combination of "very satisfied" and "satisfied") with the maintenance of I-94; 78.9% were satisfied with the flow of traffic during non-peak times, and 72.0% were satisfied with the ease of traveling between Bismarck and Mandan. The transportation issues with the lowest satisfaction were: 1) the flow of traffic during peak times, and 2) the availability of parking.
- **Transportation Issues That Are the Most Important to Address**. Respondents were asked to identify which transportation issues they thought were the most important to address, the top three issues to address were:
    - The flow of traffic at peak times
    - The maintenance of current roads, in and around Bismarck-Mandan
    - (tie) Ease of North-South travel and Availability of parking
- **Which two corridors do you think should be the top priorities for improvement in Burleigh County?** Respondents were asked to identify the two corridors that they thought should be top priorities for improvement in Burleigh County. The top three responses were: 1) Washington Street, 2) 43rd Avenue, and 3) Divide Avenue.
- **Which two corridors do you think should be the top priorities for improvement in Morton County?** Respondents were asked to identify the two corridors that they thought should be top priorities for improvement in Morton County. The top three

responses were: 1) Old Red Trail, 2) Memorial Highway, and 3 (tie) Sunset Drive and Collins Road.

- **Overall, how would you rate the Bismarck-Mandan area roadway and street system?** Respondents were asked to rate the overall Bismarck-Mandan area roadway and street system. Approximately five percent (4.5%) of those surveyed, who had an opinion, rated the system as "Excellent", 44.0% rated the system as "Good", 42.8% indicated an "Average" rating, and 8.7% indicated a "Poor" rating.



Other Findings.

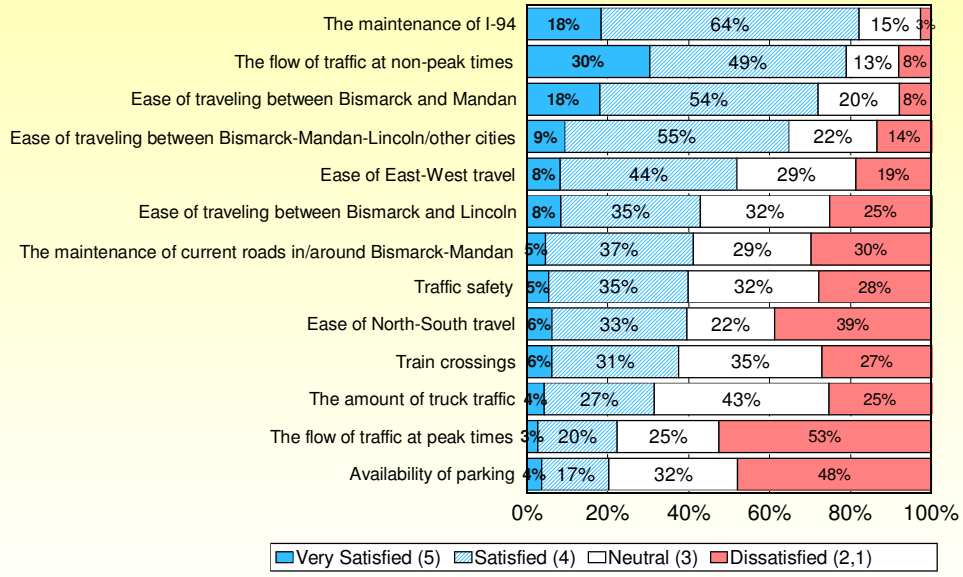
- Approximately nine percent (9.2%) of those surveyed indicated that they or someone in their household had used the bus system in the Bismarck-Mandan area. Of those 9.2%, 62.5% rated the bus system as either "Excellent" or "Good", 21.4% rated the bus system as "Average" and 16.1% rated the system as "Poor".

- Approximately fifty-two percent (52.4%) of those surveyed indicated that they or someone in their household had ridden a bike in the last year. Of those 52.4%, 80.4% indicated the primary reason for bike use was recreational, 18.7% indicated the primary use was for both recreational and for commuting purposes, and 2.7% indicated the primary use was for commuting.

Section 1:
Charts and Graphs

Q1. Perceptions of Current Transportation Issues

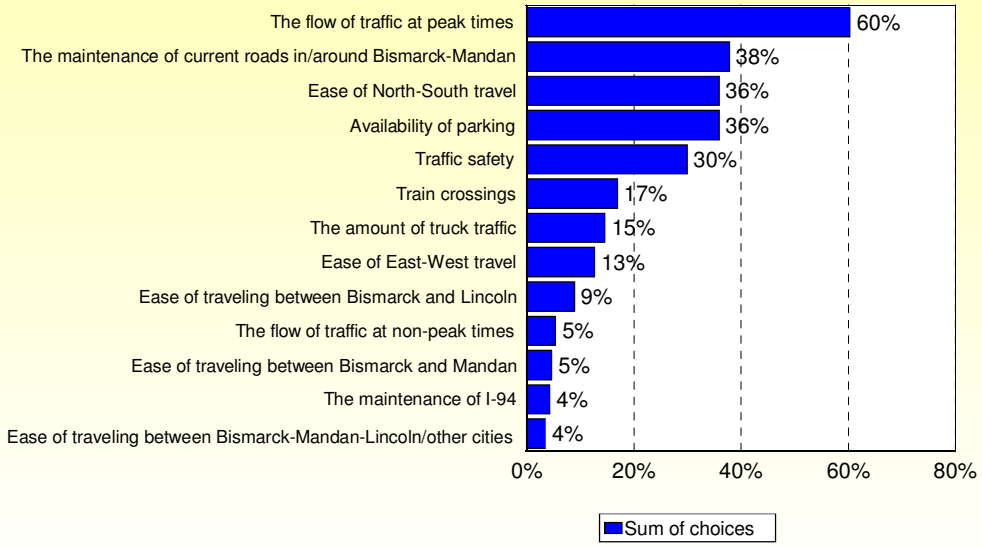
by percentage of respondents who rated the item as a 1 to 5 on a 5-point scale (excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q2. Transportation Issues That Are the Most Important to Address

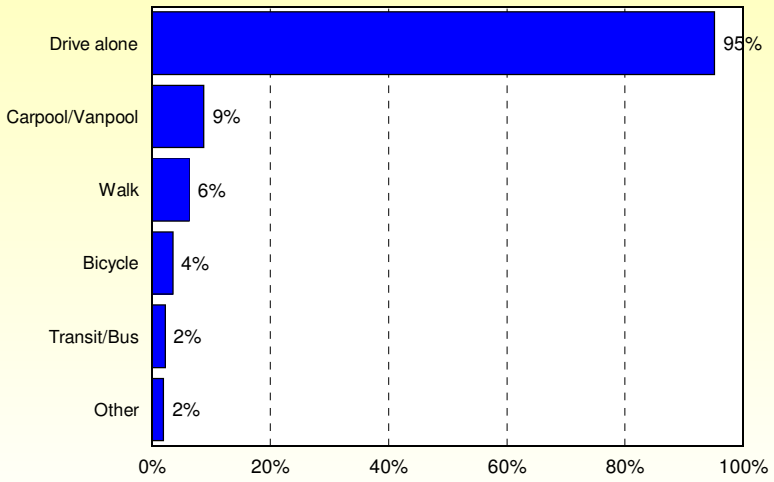
by percentage of respondents who selected the item as one of their top three choices



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q3. What method of transportation do you typically use to get to and from routine destinations, including work?

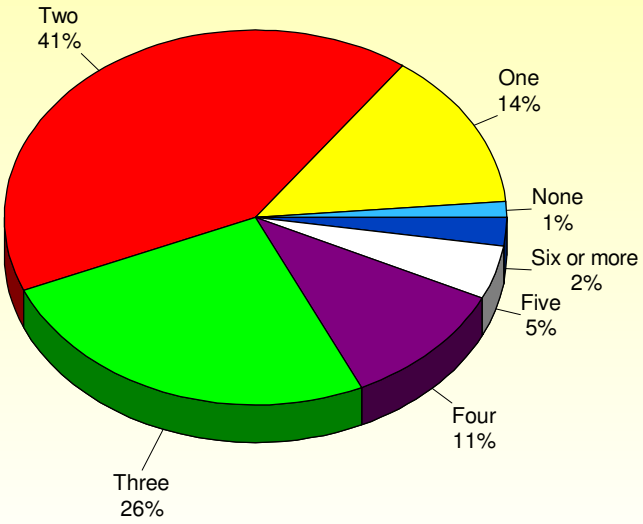
by percentage of respondents (multiple selections could be made)



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q4. Number of Vehicles in the Household

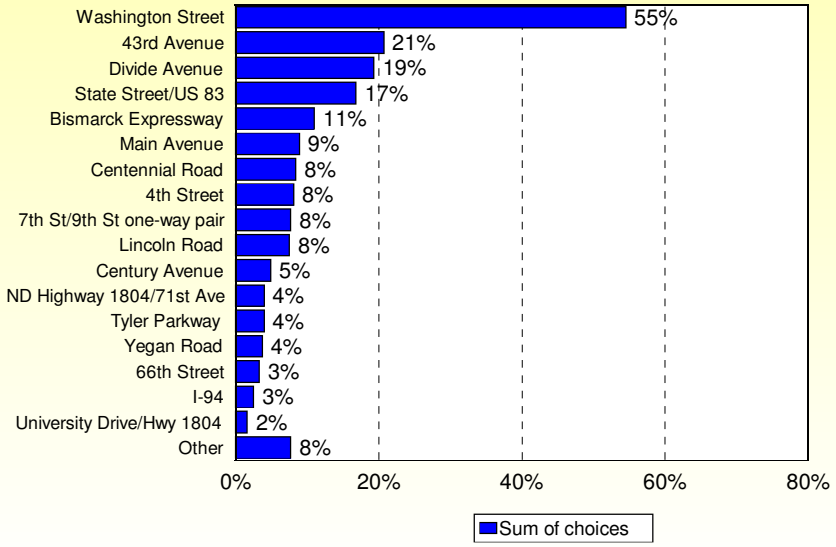
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q5. Which two corridors do you think should be the top priorities for improvement in Burleigh County?

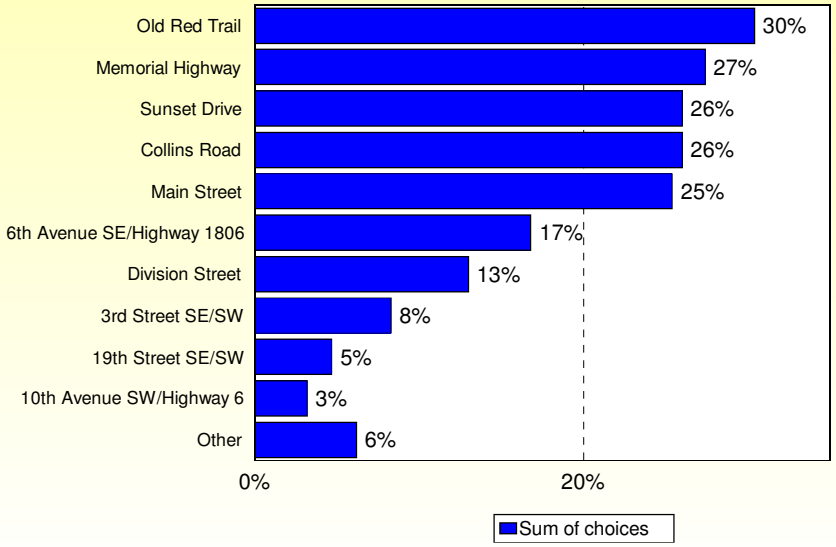
by percentage of respondents who selected the item as one of their top two choices
(excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q6. Which two corridors do you think should be the top priorities for improvement in Morton County?

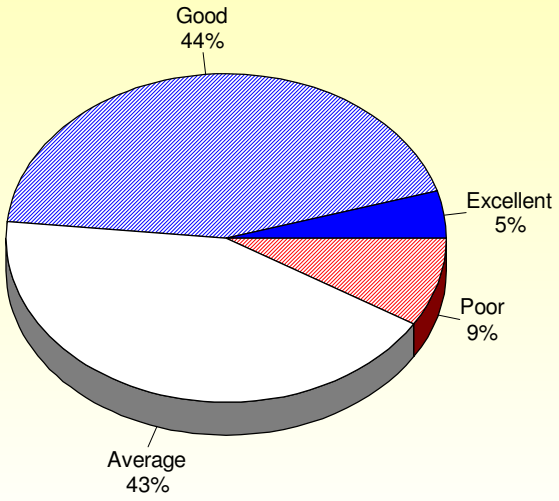
by percentage of respondents who selected the item as one of their top two choices
(excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q7. Overall, how would you rate the Bismarck-Mandan area roadway and street system?

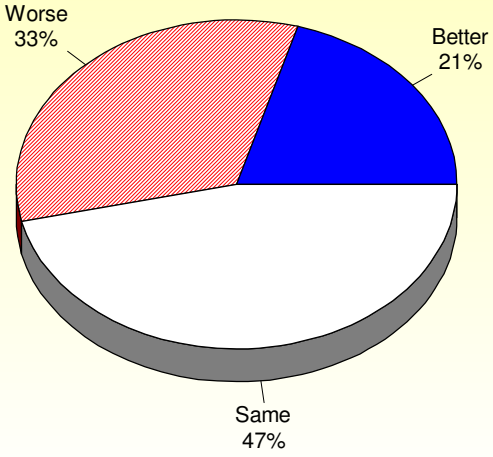
by percentage of respondents
(excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q8. How do you feel peak hour congestion in the Bismarck-Mandan area compares to other cities of the same size?

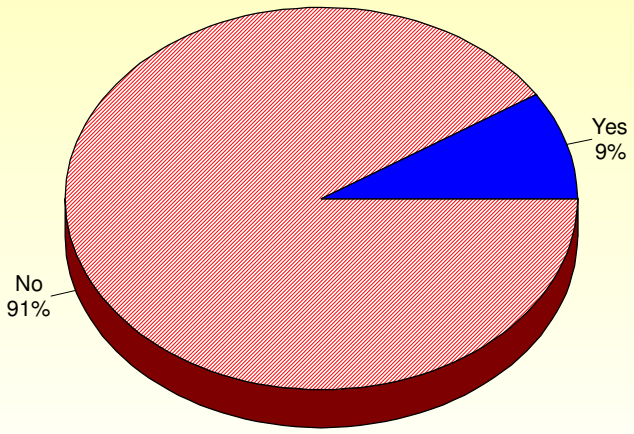
by percentage of respondents (excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q9. Has anyone in your household used the bus system in the Bismarck-Mandan area?

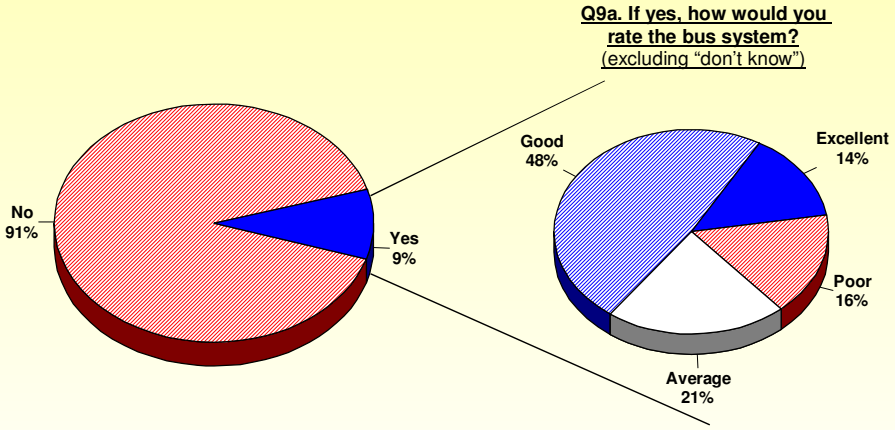
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q9. Has anyone in your household used the bus system in the Bismarck-Mandan area?

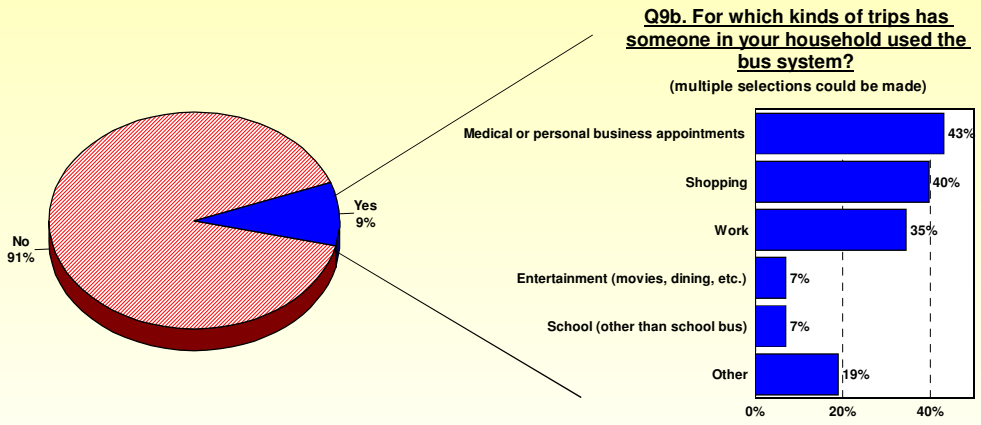
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q9. Has anyone in your household used the bus system in the Bismarck-Mandan area?

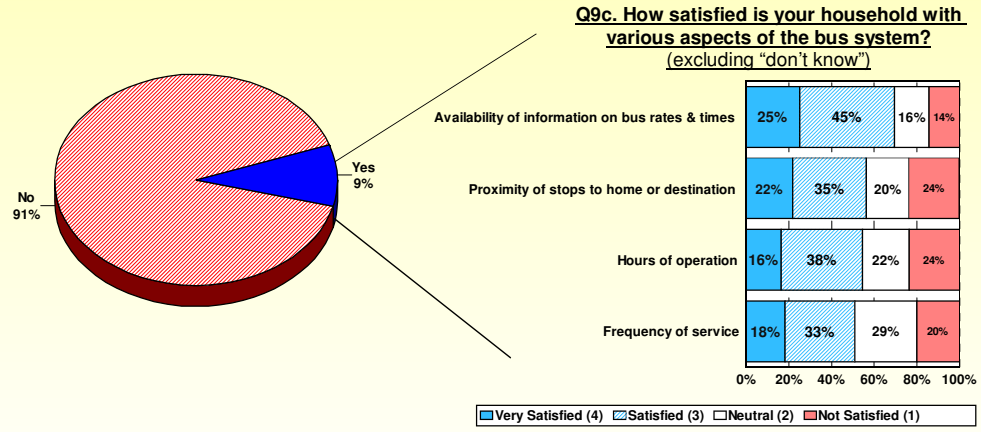
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q9. Has anyone in your household used the bus system in the Bismarck-Mandan area?

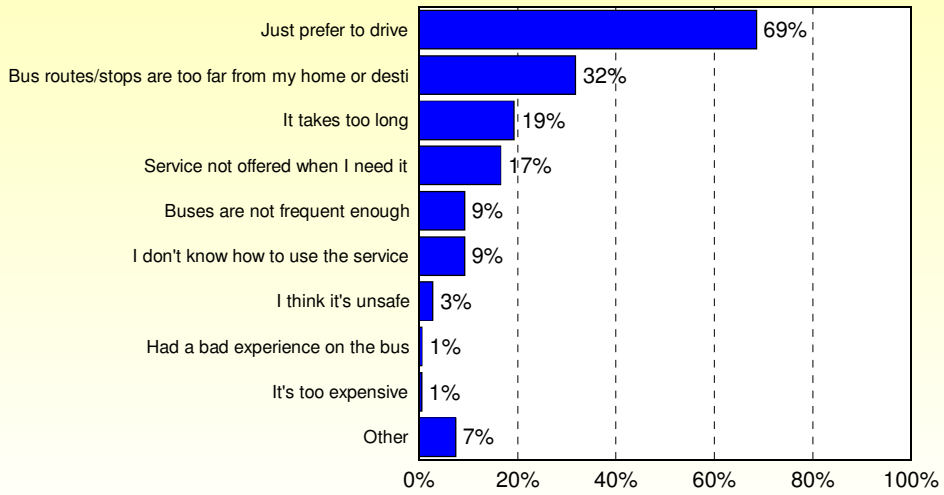
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q10. Which of the following reasons address why you or your household do not ride public transit/bus system more often?

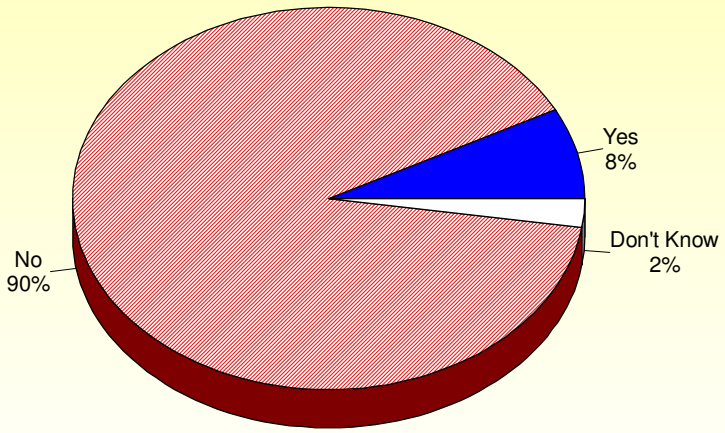
by percentage of respondents (multiple selections could be made)



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q11. Are you, or is anyone in your household, dependent on transit or friends and relatives to get you to where you want to go?

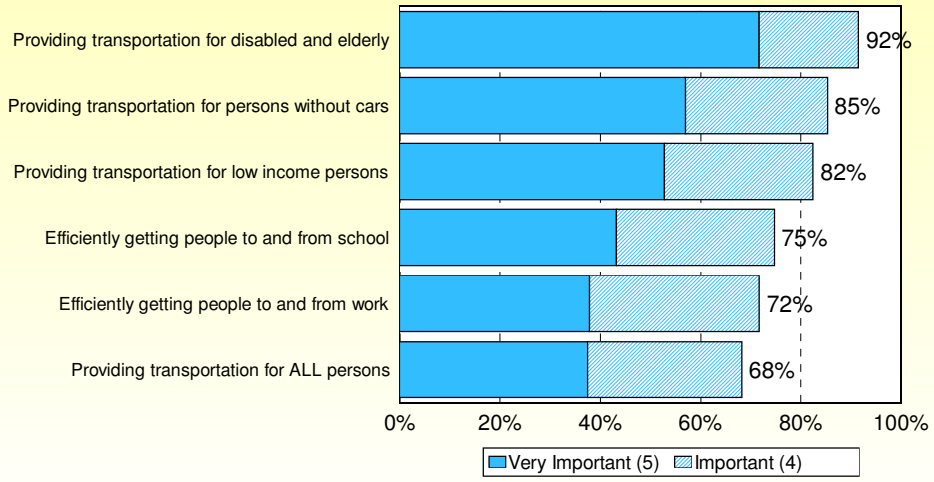
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q12. How important do you think the following public transit/bus system objectives are for the Bismarck-Mandan area?

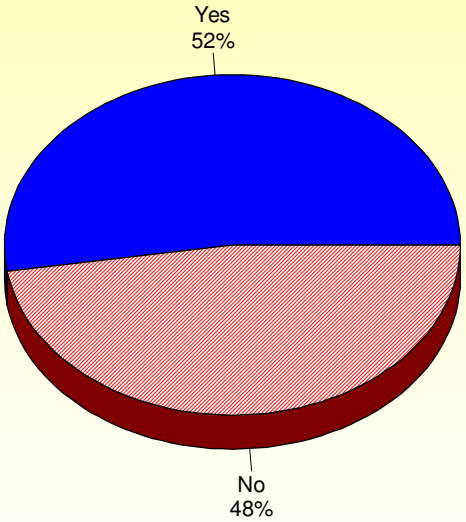
by percentage of respondents who rated the item as a 1 to 5 on a 5-point scale



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q13. Has anyone in your household ridden a bike in the last year?

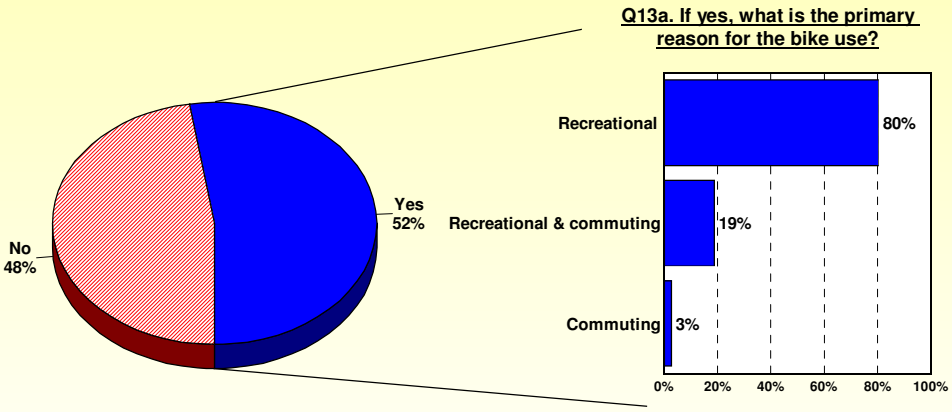
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q13. Has anyone in your household ridden a bike in the last year?

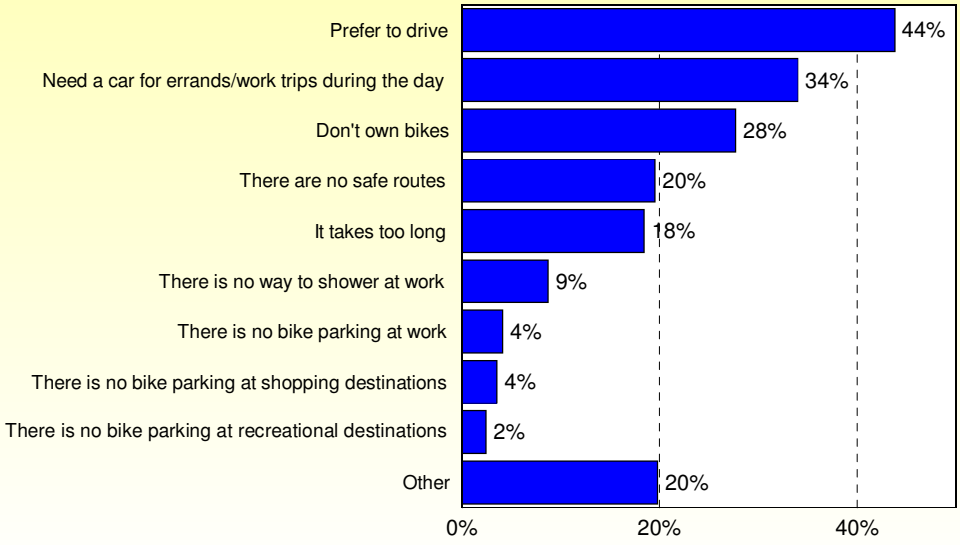
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q14. Which of the following reasons address why you or members of your household do not ride bikes more often?

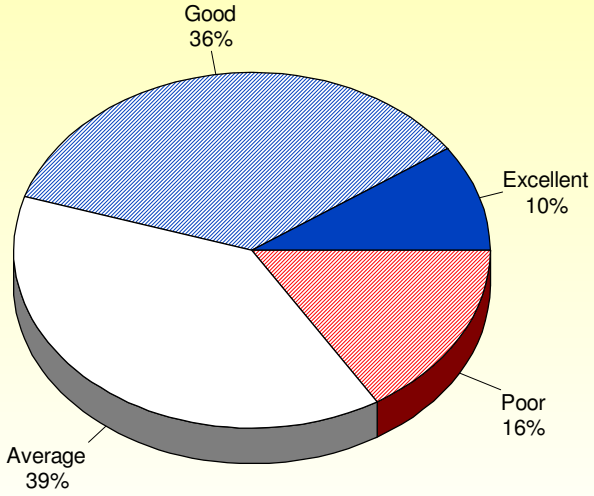
by percentage of respondents (multiple selections could be made)



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q15. How would you rate the convenience of biking in Bismarck-Mandan?

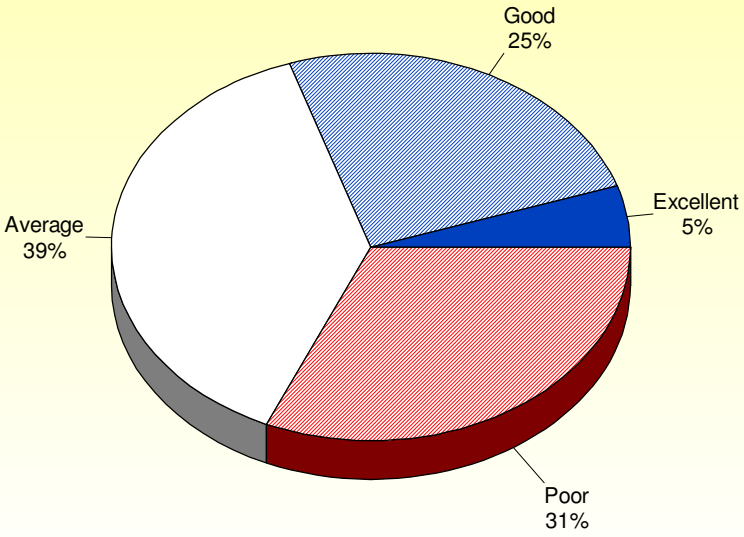
by percentage of respondents (excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q16. How would you rate the safety of biking in Bismarck-Mandan?

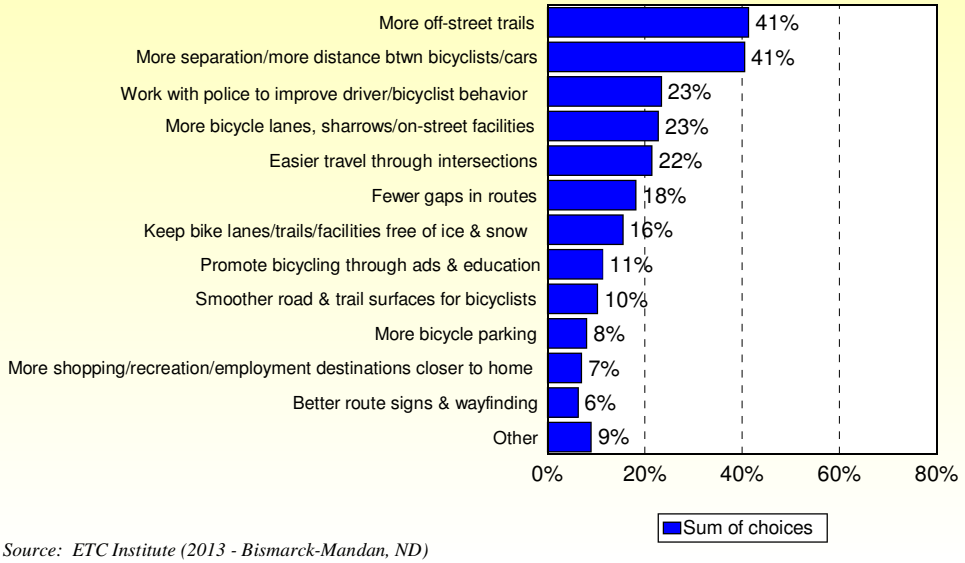
by percentage of respondents (excluding "don't know")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q17. How can we make it safer and more convenient for more people to choose to ride a bicycle for at least some of their trips?

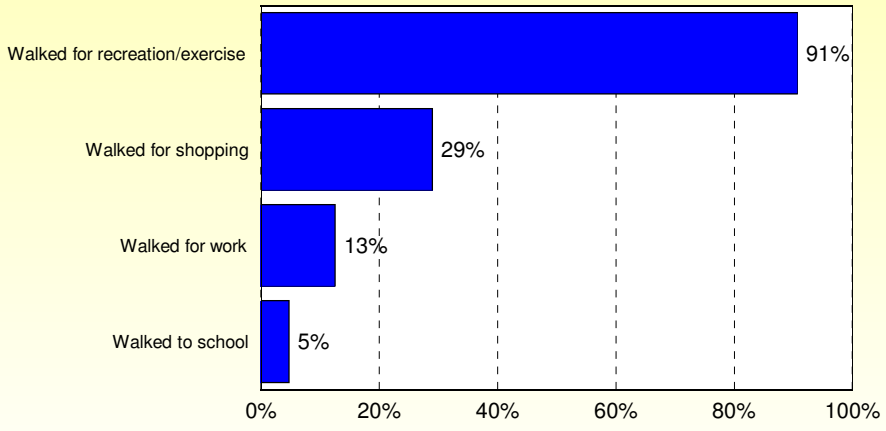
by percentage of respondents who selected the item as one of their top three choices



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q18. Have you walked for any of these reasons in the past year?

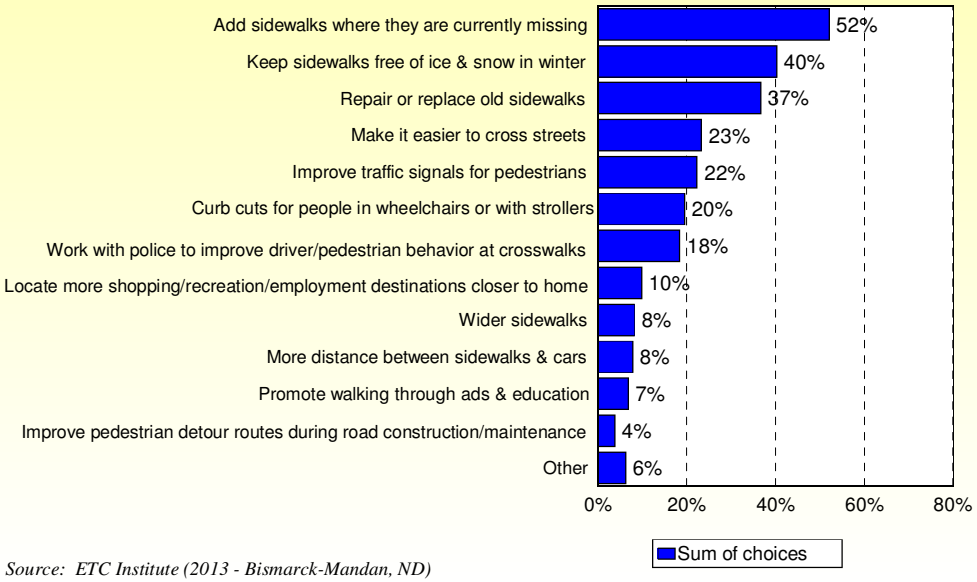
by percentage of respondents (multiple selections could be made)



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q19. How can we make it safer and more convenient for more people to walk?

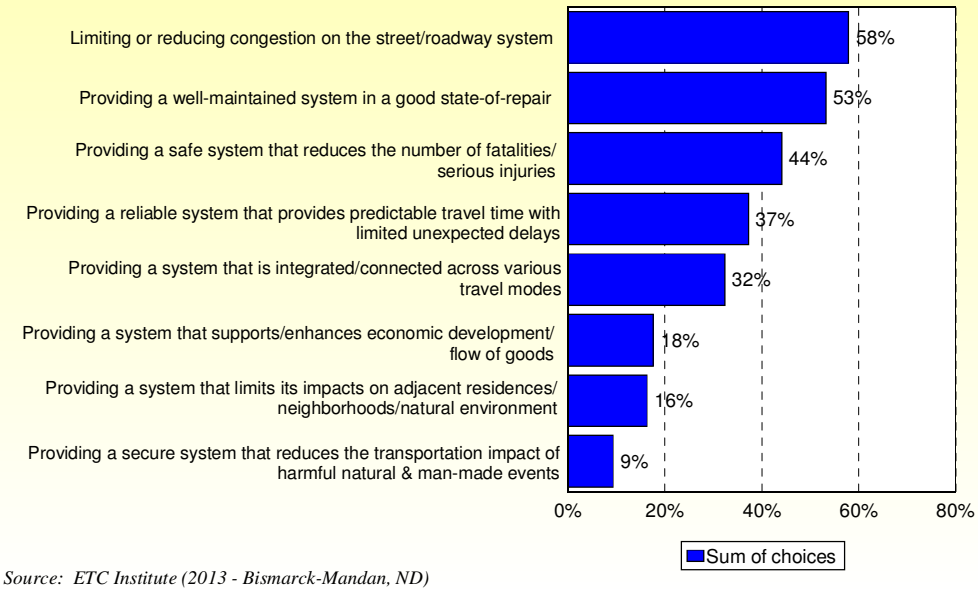
by percentage of respondents who selected the item as one of their top three choices



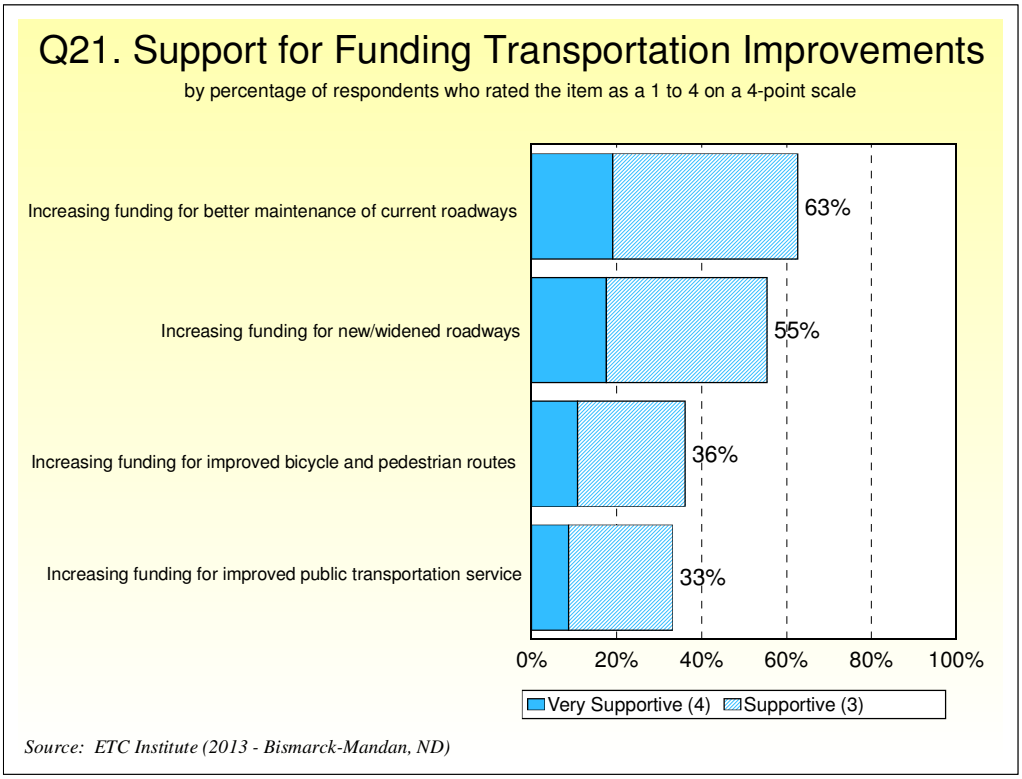
Source: ETC Institute (2013 - Bismarck-Mandan, ND)

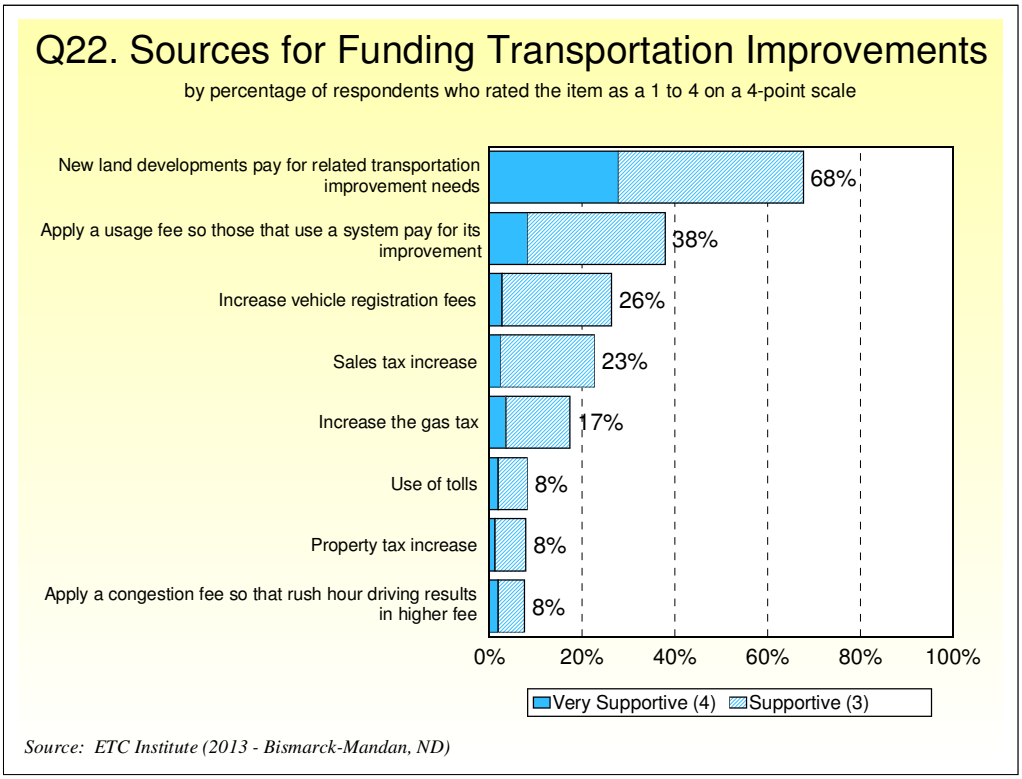
Q20. Which of these transportation goal areas do you think should be most important to Bismarck-Mandan?

by percentage of respondents who selected the item as one of their top three choices



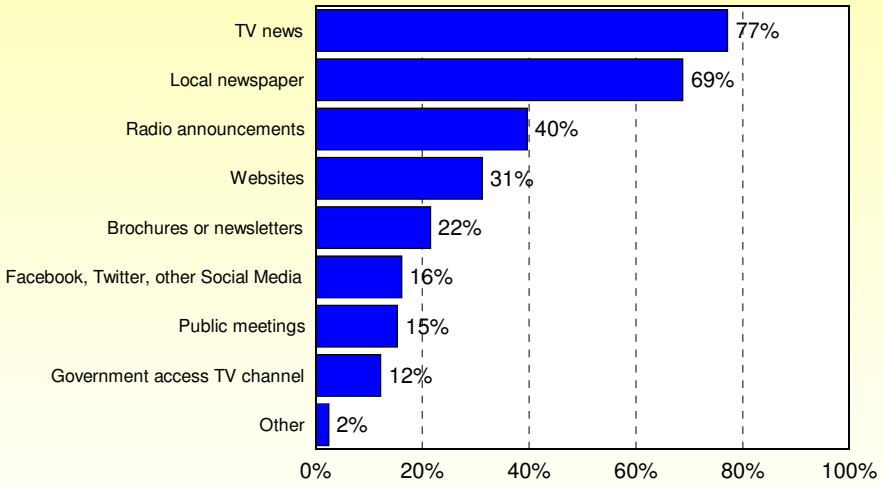
Source: ETC Institute (2013 - Bismarck-Mandan, ND)


Q21. Support for Funding Transportation Improvements
by percentage of respondents who rated the item as a 1 to 4 on a 4-point scale
Increasing funding for better maintenance of current roadways
63%
Increasing funding for new/widened roadways
55%
Increasing funding for improved bicycle and pedestrian routes
36%
Increasing funding for improved public transportation service
33%
0%
20%
40%
60%
80%
100%
Very Supportive (4)
Supportive (3)
Source: ETC Institute (2013 - Bismarck-Mandan, ND)


Q22. Sources for Funding Transportation Improvements
by percentage of respondents who rated the item as a 1 to 4 on a 4-point scale
New land developments pay for related transportation improvement needs
68%
Apply a usage fee so those that use a system pay for its improvement
38%
Increase vehicle registration fees
26%
Sales tax increase
23%
Increase the gas tax
17%
Use of tolls
8%
Property tax increase
8%
Apply a congestion fee so that rush hour driving results in higher fee
8%
0%
20%
40%
60%
80%
100%
Very Supportive (4)
Supportive (3)
Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q23. From which of the following sources would you prefer to receive news and information about the region?

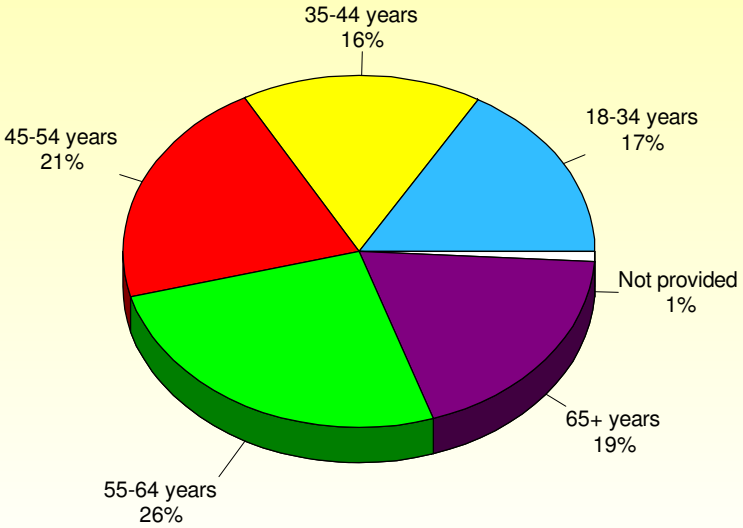
by percentage of respondents (multiple selections could be made)



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q24. Demographics: What is your age?

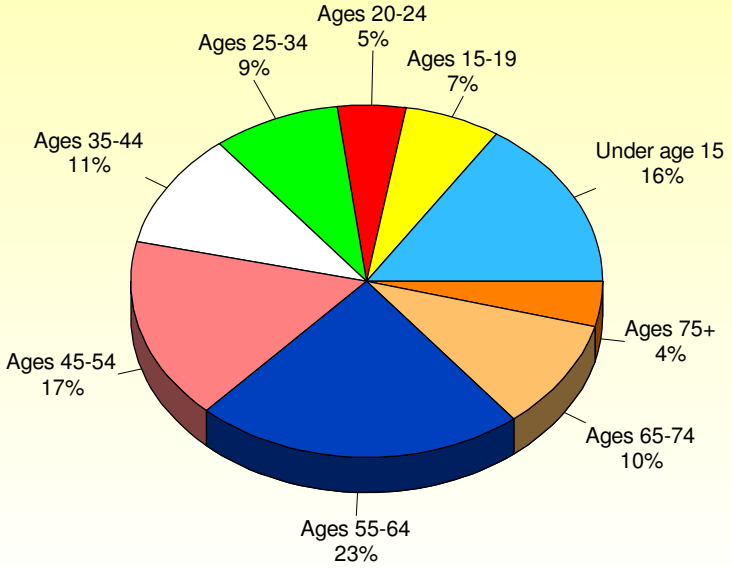
by percentage of respondents



Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q25. Demographics: Counting yourself, how many people in your household are:

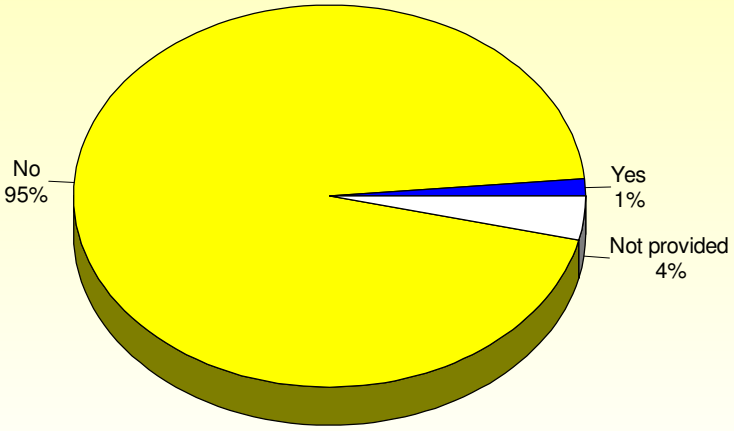
by percentage of respondents



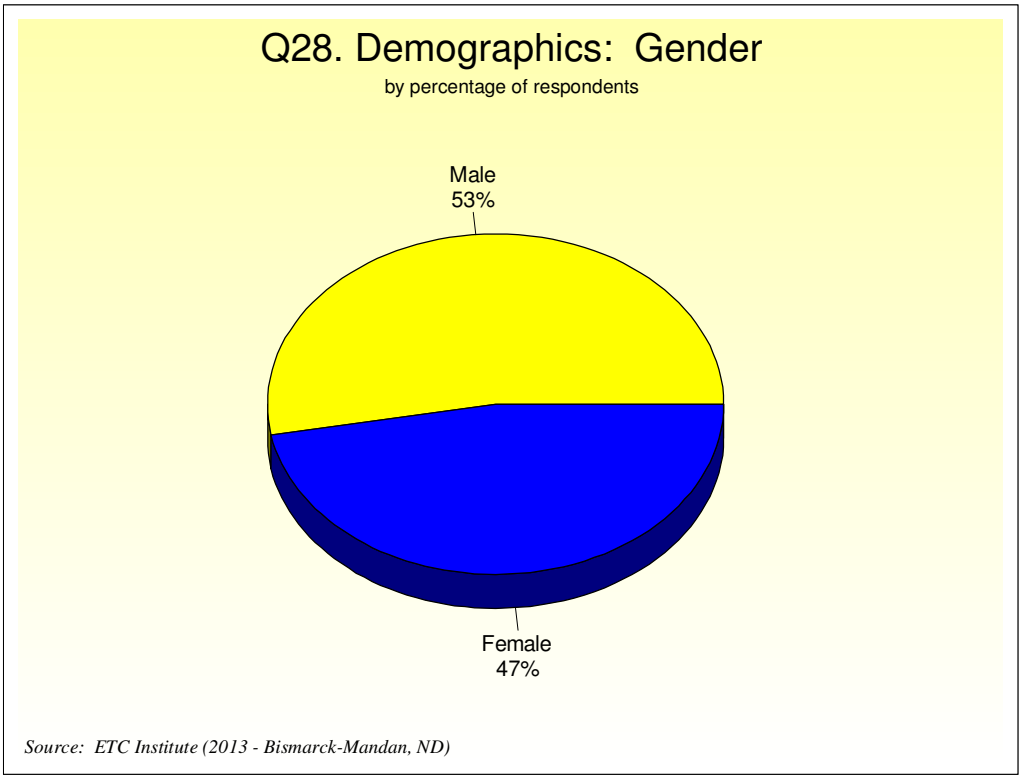
Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Q26. Are you or other members of your household of Hispanic or Latino ancestry?

by percentage of respondents (excluding "not provided")



Source: ETC Institute (2013 - Bismarck-Mandan, ND)


Q28. Demographics: Gender
by percentage of respondents
Male
53%
Female
47%
Source: ETC Institute (2013 - Bismarck-Mandan, ND)

Section 2:
Importance-Satisfaction Analysis

Importance-Satisfaction Analysis
Bismarck-Mandan, North Dakota

Overview

Today, public officials have limited resources which need to be targeted to activities that are of the most benefit to their residents. Two of the most important criteria for decision making are (1) to target resources toward services of the highest importance to residents; and (2) to target resources toward those services where residents are the least satisfied.

The Importance-Satisfaction (IS) rating is a unique tool that allows public officials to better understand both of these highly important decision making criteria for each of the services they are providing. The Importance-Satisfaction rating is based on the concept that communities will maximize overall satisfaction among residents by emphasizing improvements in those categories where the level of satisfaction is relatively low and the perceived importance is relatively high.

Methodology

The rating is calculated by summing the percentage of responses for items selected as the most important issues to address. This sum is then multiplied by 1 minus the percentage of respondents that indicated they were positively satisfied with the performance in the related area (the sum of the ratings of 4 and 5 on a 5-point scale excluding "don't knows"). "Don't know" responses are excluded from the calculation to ensure that the satisfaction ratings among service categories are comparable. [IS=Importance x (1-Satisfaction)].

Example of the Calculation. Respondents were asked to identify the transportation issues they felt were the most important for Bismarck-Mandan leaders to address. Approximately, thirteen percent (12.7%) of residents selected *the ease of east-west travel* as one of the most important issues to address.

With regard to satisfaction, 51.9% of those surveyed rated *the ease of east-west travel* as a "4" or a "5" on a 5-point scale excluding "don't know" responses. The I-S rating for *the ease of east-west travel* was calculated by multiplying the sum of the most important percentages by 1 minus the sum of the satisfaction percentages. In this example, 12.7% was multiplied by 48.1% (1-

0.519). This calculation yielded an I-S rating of 0.0611, which was eighth out of the thirteen transportation issues that were assessed.

The maximum rating is 1.00 and would be achieved when 100% of the respondents selected an activity as one of their top choices to address and 0% indicated that they are positively satisfied with that issue.

The lowest rating is 0.00 and could be achieved under either one of the following two situations:

- if 100% of the respondents were positively satisfied
- if none (0%) of the respondents selected the service as one of the most important areas to address.

Interpreting the Ratings

Ratings that are greater than or equal to 0.20 identify areas that should receive significantly more emphasis. Ratings from .10 to .20 identify service areas that should receive increased emphasis. Ratings less than .10 should continue to receive the current level of emphasis.

- *Definitely Increase Emphasis (IS>=0.20)*
- *Increase Current Emphasis (0.10<=IS<0.20)*
- *Maintain Current Emphasis (IS<0.10)*

The I-S Ratings for Bismarck-Mandan are provided on the following page.

Importance-Satisfaction Rating
Bismarck-Mandan
Transportation Issues

Category of Service	Most Important %	Most Important Rank	Satisfaction %	Satisfaction Rank	Importance-Satisfaction Rating	I-S Rating Rank
Very High Priority (IS >.20)						
The flow of traffic at peak times	60%	1	22%	12	0.4685	**1**
Availability of parking	36%	3	20%	13	0.2861	**2**
The maintenance of current roads in/around Bismarck-Mandan	38%	2	41%	7	0.2226	**3**
Ease of North-South travel	36%	4	40%	9	0.2172	**4**
High Priority (IS .10-.20)						
Traffic safety	30%	5	40%	8	0.1797	**5**
Train crossings	17%	6	38%	10	0.1056	**6**
The amount of truck traffic	15%	7	32%	11	0.1000	**7**
Medium Priority (IS <.10)						
Ease of East-West travel	13%	8	52%	5	0.0611	**8**
Ease of traveling between Bismarck and Lincoln	9%	9	43%	6	0.0508	**9**
Ease of traveling between Bismarck and Mandan	5%	11	72%	3	0.0132	**10**
Ease of traveling between Bismarck-Mandan-Lincoln/other cities	4%	13	65%	4	0.0123	**11**
The flow of traffic at non-peak times	5%	10	79%	2	0.0114	**12**
The maintenance of I-94	4%	12	82%	1	0.0077	**13**

Note: The I-S Rating is calculated by multiplying the "Most Important" % by (1-'Satisfaction' %)

Most Important %:
The "Most Important" percentage represents the sum of the first, second, and third most important responses for each item. Respondents were asked to identify the items they thought were the most important to address.

Satisfaction %:
The "Satisfaction" percentage represents the sum of the ratings "4" and "5" excluding 'don't knows.' Respondents ranked their level of satisfaction with the each of the items on a scale of 1 to 5 with "5" being very satisfied and "1" being very dissatisfied.

Importance-Satisfaction Matrix Analysis.

The Importance-Satisfaction rating is based on the concept that public agencies will maximize overall customer satisfaction by emphasizing improvements in those areas where the level of satisfaction is relatively low and the perceived importance of the item is relatively high. ETC Institute developed an Importance-Satisfaction Matrix to display the perceived importance of major issues that were assessed on the survey against the perceived satisfaction. The two axes on the matrix represent Satisfaction (vertical) and relative Importance (horizontal).

The I-S (Importance-Satisfaction) matrix should be interpreted as follows.

- **Continued Emphasis (above average importance and above average satisfaction).** This area shows where Bismarck-Mandan is meeting customer expectations. Items in this area have a significant impact on the customer's overall level of satisfaction. Bismarck-Mandan should maintain (or slightly increase) emphasis on items in this area.

- **Exceeding Expectations (below average importance and above average satisfaction).** This area shows where Bismarck-Mandan is performing significantly better than customers expect Bismarck-Mandan to perform. Items in this area do not significantly affect the overall level of satisfaction that residents have with community issues. Bismarck-Mandan should maintain (or slightly decrease) emphasis on items in this area.

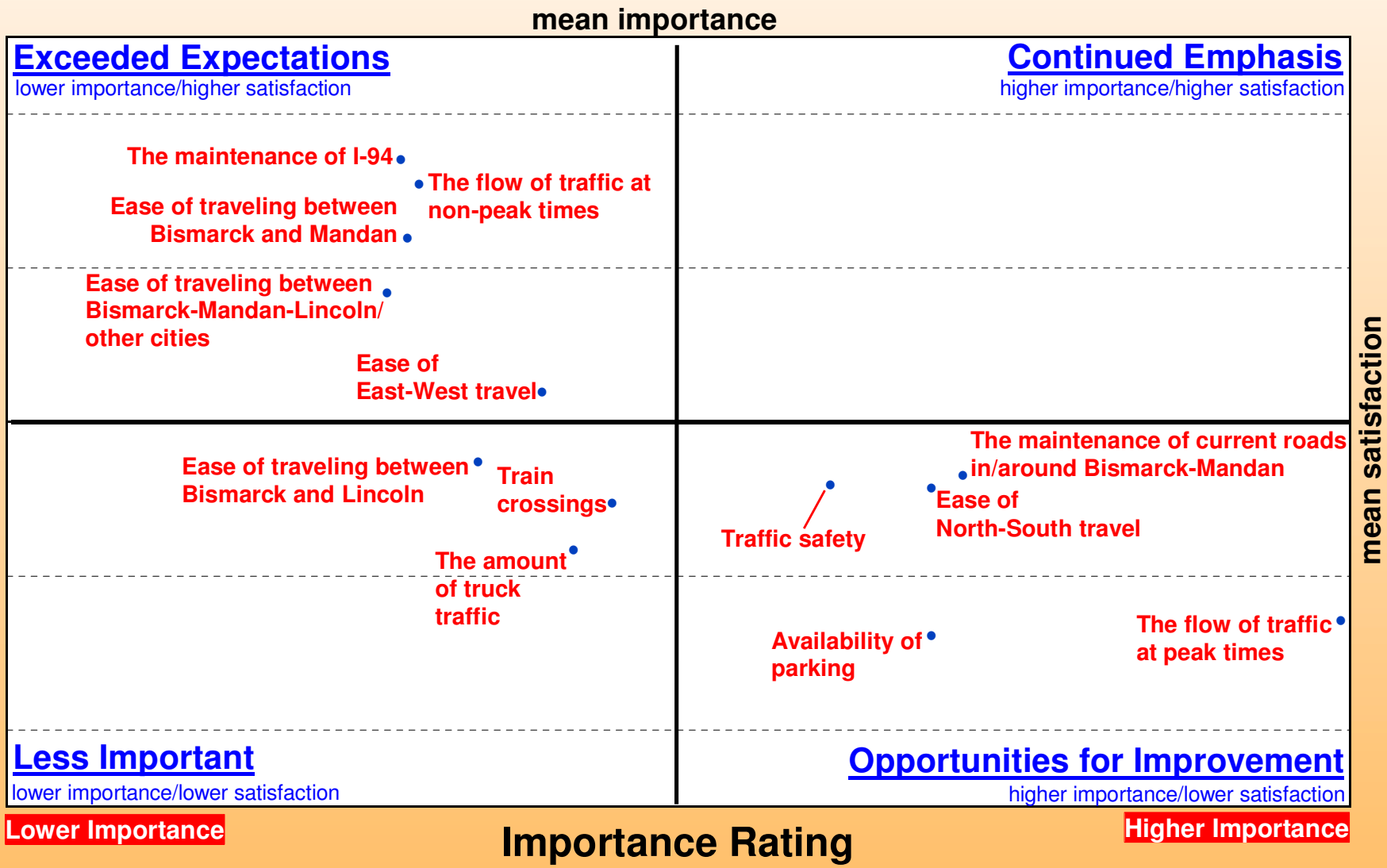
- **Opportunities for Improvement (above average importance and below average satisfaction).** This area shows where Bismarck-Mandan is not performing as well as residents expect Bismarck-Mandan to perform. This area has a significant impact on customer satisfaction, and Bismarck-Mandan should DEFINITELY increase emphasis on items in this area.

- **Less Important (below average importance and below average satisfaction).** This area shows where Bismarck-Mandan is not performing well relative to Bismarck-Mandan's performance in other areas; however, this area is generally considered to be less important to residents. This area does not significantly affect overall satisfaction with community issues because the items are less important to residents. The agency should maintain current levels of emphasis on items in this area.

A matrix showing the results for Bismarck-Mandan are provided on the following page.

2013 Bismarck-Mandan Regional Travel Survey
Importance-Satisfaction Assessment Matrix
-Overall-

(points on the graph show deviations from the mean importance and satisfaction ratings given by respondents to the survey)



Source: ETC Institute

Section 3:
Overall Tabular Data

Q1. Perceptions of Current Transportation Issues: Please rate your satisfaction with the following:

(N=632)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
Q1a. Flow of traffic at peak times	2.5%	18.7%	24.1%	37.0%	13.0%	4.7%
Q1b. Flow of traffic at non-peak times	29.6%	47.5%	12.7%	7.0%	0.9%	2.4%
Q1c. Maintenance of current roads in & around Bismarck-Mandan	4.4%	35.3%	28.2%	22.8%	6.0%	3.3%
Q1d. Maintenance of I-94	17.6%	61.2%	14.6%	2.4%	0.3%	4.0%
Q1e. Amount of truck traffic	4.1%	25.9%	41.3%	16.3%	7.9%	4.4%
Q1f. Ease of traveling between Bismarck-Mandan-Lincoln & other cities	9.0%	53.0%	20.7%	9.7%	3.3%	4.3%
Q1g. Ease of traveling between Bismarck & Mandan	17.4%	52.2%	19.5%	5.1%	2.5%	3.3%
Q1h. Ease of traveling between Bismarck & Lincoln	6.0%	25.2%	23.3%	13.3%	5.1%	27.2%
Q1i. Ease of North South travel	6.0%	32.1%	21.0%	25.3%	12.0%	3.5%
Q1j. Ease of East West travel	7.9%	42.4%	28.5%	15.8%	2.4%	3.0%
Q1k. Traffic safety	5.2%	33.2%	31.0%	19.9%	6.8%	3.8%
Q1l. Availability of parking	3.5%	16.1%	30.7%	33.9%	12.5%	3.3%
Q1m. Train crossings	5.9%	30.4%	34.2%	18.8%	7.4%	3.3%

Excluding Don't Know

Q1. Perceptions of Current Transportation Issues: Please rate your satisfaction with the following: (Excluding "don't know")

(N=632)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Q1a. Flow of traffic at peak times	2.7%	19.6%	25.2%	38.9%	13.6%
Q1b. Flow of traffic at non-peak times	30.3%	48.6%	13.0%	7.1%	1.0%
Q1c. Maintenance of current roads in & around Bismarck-Mandan	4.6%	36.5%	29.1%	23.6%	6.2%
Q1d. Maintenance of I-94	18.3%	63.8%	15.2%	2.5%	0.3%
Q1e. Amount of truck traffic	4.3%	27.2%	43.2%	17.1%	8.3%
Q1f. Ease of traveling between Bismarck-Mandan-Lincoln & other cities	9.4%	55.4%	21.7%	10.1%	3.5%
Q1g. Ease of traveling between Bismarck & Mandan	18.0%	54.0%	20.1%	5.2%	2.6%
Q1h. Ease of traveling between Bismarck & Lincoln	8.3%	34.6%	32.0%	18.3%	7.0%
Q1i. Ease of North South travel	6.2%	33.3%	21.8%	26.2%	12.5%
Q1j. Ease of East West travel	8.2%	43.7%	29.4%	16.3%	2.4%
Q1k. Traffic safety	5.4%	34.5%	32.2%	20.7%	7.1%
Q1l. Availability of parking	3.6%	16.7%	31.8%	35.0%	12.9%
Q1m. Train crossings	6.1%	31.4%	35.4%	19.5%	7.7%

First Choice

Q2. Which THREE of the items in Question #1 do you think are the most important Transportation issues to address?

Q2. 1st choice	Number	Percent
Flow of traffic at peak times	218	34.5 %
Flow of traffic at non-peak times	4	0.6 %
Maintenance of current roads in & around Bismarck-Mandan	64	10.1 %
Maintenance of I-94	3	0.5 %
Amount of truck traffic	27	4.3 %
Ease of traveling between Bismarck-Mandan-Lincoln & other cities	6	0.9 %
Ease of traveling between Bismarck & Mandan	3	0.5 %
Ease of traveling between Bismarck & Lincoln	20	3.2 %
Ease of North South travel	76	12.0 %
Ease of East West travel	7	1.1 %
Traffic safety	80	12.7 %
Availability of parking	61	9.7 %
Train crossings	31	4.9 %
None chosen	32	5.1 %
Total	632	100.0 %

Second Choice

Q2. Which THREE of the items in Question #1 do you think are the most important Transportation issues to address?

Q2. 2nd choice	Number	Percent
Flow of traffic at peak times	99	15.7 %
Flow of traffic at non-peak times	22	3.5 %
Maintenance of current roads in & around Bismarck-Mandan	100	15.8 %
Maintenance of I-94	7	1.1 %
Amount of truck traffic	35	5.5 %
Ease of traveling between Bismarck-Mandan-Lincoln & other cities	7	1.1 %
Ease of traveling between Bismarck & Mandan	15	2.4 %
Ease of traveling between Bismarck & Lincoln	14	2.2 %
Ease of North South travel	90	14.2 %
Ease of East West travel	29	4.6 %
Traffic safety	50	7.9 %
Availability of parking	76	12.0 %
Train crossings	30	4.7 %
None chosen	58	9.2 %
Total	632	100.0 %

Third Choice

Q2. Which THREE of the items in Question #1 do you think are the most important Transportation issues to address?

Q2. 3rd choice	Number	Percent
Flow of traffic at peak times	64	10.1 %
Flow of traffic at non-peak times	8	1.3 %
Maintenance of current roads in & around Bismarck-Mandan	75	11.9 %
Maintenance of I-94	17	2.7 %
Amount of truck traffic	30	4.7 %
Ease of traveling between Bismarck-Mandan-Lincoln & other cities	9	1.4 %
Ease of traveling between Bismarck & Mandan	12	1.9 %
Ease of traveling between Bismarck & Lincoln	22	3.5 %
Ease of North South travel	61	9.7 %
Ease of East West travel	44	7.0 %
Traffic safety	59	9.3 %
Availability of parking	90	14.2 %
Train crossings	46	7.3 %
None chosen	95	15.0 %
Total	632	100.0 %

Sum of All Three Choices

Q2. Which THREE of the items in Question #1 do you think are the most important Transportation issues to address? (top 3)

Q2. Top choice	Number	Percent
Flow of traffic at peak times	381	60.3 %
Flow of traffic at non-peak times	34	5.4 %
Maintenance of current roads in & around Bismarck-Mandan	239	37.8 %
Maintenance of I-94	27	4.3 %
Amount of truck traffic	92	14.6 %
Ease of traveling between Bismarck-Mandan-Lincoln & other cities	22	3.5 %
Ease of traveling between Bismarck & Mandan	30	4.7 %
Ease of traveling between Bismarck & Lincoln	56	8.9 %
Ease of North South travel	227	35.9 %
Ease of East West travel	80	12.7 %
Traffic safety	189	29.9 %
Availability of parking	227	35.9 %
Train crossings	107	16.9 %
None chosen	32	5.1 %
Total	1743	

Q3. What method of transportation do you typically use to get to and from routine destinations, including work?

Q3. What method of transportation do you typically use	Number	Percent
Drive alone	601	95.1 %
Carpool/Vanpool	55	8.7 %
Walk	40	6.3 %
Bicycle	22	3.5 %
Transit/Bus	14	2.2 %
Other	12	1.9 %
None chosen	2	0.3 %
Total	746	

Q3. Other

Q3 Other
DRIVE WITH FAMILY
DRIVE WITH SPOUSE
FAMILY/FRIENDS
HORSE
MOTORCYCLE
MOTORCYCLE
MOTORCYCLE
MOTORCYCLE
MOTORCYCLLE
SCOOTER
TRUCK

Q4. How many vehicles (i.e. car, truck, SUV) are in your household?

Q4. How many vehicles are in your household	Number	Percent
None	8	1.3 %
One	86	13.8 %
Two	257	41.1 %
Three	160	25.6 %
Four	70	11.2 %
Five	29	4.6 %
Six or more	15	2.4 %
Total	625	100.0 %

Q5. Which two (2) corridors do you think should be the top priorities for improvement in Burleigh County. Please choose the two (2) corridors that should be addressed first.

Q5. Which two corridors should be top priorities for improvement in Burleigh County	Number	Percent
43rd Avenue	118	18.7 %
Century Avenue	28	4.4 %
Divide Avenue	110	17.4 %
Main Avenue	51	8.1 %
Bismarck Expressway	63	10.0 %
University Drive/Hwy 1804	9	1.4 %
Washington Street	311	49.2 %
4th Street	46	7.3 %
7th St/9th St one-way pair	44	7.0 %
ND Highway 1804/71st Ave	23	3.6 %
State Street/US 83	96	15.2 %
Centennial Road	48	7.6 %
Tyler Parkway	23	3.6 %
Lincoln Road	43	6.8 %
Yegan Road	21	3.3 %
66th Street	19	3.0 %
I-94	14	2.2 %
Other	44	7.0 %
Don't know	62	9.8 %
Total	1173	

Excluding Don't Know

Q5. Which two (2) corridors do you think should be the top priorities for improvement in Burleigh County. Please choose the two (2) corridors that should be addressed first. (Excluding "don't know")

Q5. Which two corridors should be top priorities for improvement in Burleigh County	Number	Percent
43rd Avenue	118	20.7 %
Century Avenue	28	4.9 %
Divide Avenue	110	19.3 %
Main Avenue	51	8.9 %
Bismarck Expressway	63	11.0 %
University Drive/Hwy 1804	9	1.6 %
Washington Street	311	54.5 %
4th Street	46	8.1 %
7th St/9th St one-way pair	44	7.7 %
ND Highway 1804/71st Ave	23	4.0 %
State Street/US 83	96	16.8 %
Centennial Road	48	8.4 %
Tyler Parkway	23	4.0 %
Lincoln Road	43	7.5 %
Yegan Road	21	3.7 %
66th Street	19	3.3 %
I-94	14	2.5 %
Other	44	7.7 %
Total	1111	

Q5. Other

Q5 Other
12TH ST S
12TH ST-SOUTH END
19TH ST
19TH ST
19TH ST-NORTH OF DIVIDE
26TH ST
26TH ST BISMARCK
26TH ST NEEDS UNDERPASS
26TH ST TO UNDER INTERSTATE
3RD ST
3RD ST
3RD ST
3RD ST
52ND ST SE FROM LINCOLN RD
71ST AVE NE
A DECENT NORTH/SOUTH
APPLE CREEK RD
APPLE CREEK RD
APPLE CREEK RD
AVE C
AVENUE C
BLVD/ST STREET STOP SIGN
BOULEVARD
CALGARY
CALGARY AVE
EAST DIVIDE
INTERSECTION OF I-94 & US-83
MAIN STREET
NE CORRIDOR
NO OF 43RD OVER MO RIVER BYPASS
NORTH SOUTH TRAFFIC
RAILROAD CROSSING ON S 26TH ST
RIVER RD
RIVER RD
ROAD FR LINCOLN CENEX GAS STATION
ROSSER
S 3RD ST
SIDE STREETS
WASHINGTON ST
WE HAVE EXCELLENT ROADS

Q6. Which two (2) corridors do you think should be the top priorities for improvement in Morton County. Please choose the two (2) corridors that should be addressed first.

Q6. Which two corridors should be top priorities for improvement in Morton County	Number	Percent
Main Street	86	13.6 %
Memorial Highway	93	14.7 %
Sunset Drive	88	13.9 %
Collins Road	88	13.9 %
Old Red Trail	103	16.3 %
6th Avenue SE/Highway 1806	57	9.0 %
10th Avenue SW/Highway 6	11	1.7 %
Division Street	44	7.0 %
3rd Street SE/SW	28	4.4 %
19th Street SE/SW	16	2.5 %
Other	21	3.3 %
Don't know	294	46.5 %
Total	929	

Excluding Don't Know

Q6. Which two (2) corridors do you think should be the top priorities for improvement in Morton County. Please choose the two (2) corridors that should be addressed first. (Excluding "don't know")

Q6. Which two corridors should be top priorities for improvement in Morton County	Number	Percent
Main Street	86	25.4 %
Memorial Highway	93	27.4 %
Sunset Drive	88	26.0 %
Collins Road	88	26.0 %
Old Red Trail	103	30.4 %
6th Avenue SE/Highway 1806	57	16.8 %
10th Avenue SW/Highway 6	11	3.2 %
Division Street	44	13.0 %
3rd Street SE/SW	28	8.3 %
19th Street SE/SW	16	4.7 %
Other	21	6.2 %
Total	635	

Q6. Other

Q6 Other
1806 NORTH
1ST ST
1ST STREET WEST
2ND AVE NE/NW
2ND ST
2ND ST
2ND ST NE
2ND ST NW
40TH ST
4TH AVE
52ND ST SE FROM LINCOLN RD
9TH AVE SE
ALL SIDE STREETS
BOUNDRY RD
I94 EXIT BY 7 SEAS
NORTH/SOUTH BY OLD HIGH SCHOOL
REFINERY RD

Q7. Overall, how would you rate the Bismarck-Mandan area roadway and street system?

Q7. How would you rate Bismarck-Mandan area roadway & street system	Number	Percent
Excellent	28	4.4 %
Good	277	43.8 %
Average	269	42.6 %
Poor	55	8.7 %
Don't Know	3	0.5 %
Total	632	100.0 %

Excluding Don't Know

Q7. Overall, how would you rate the Bismarck-Mandan area roadway and street system? (Excluding "don't know")

Q7. How would you rate Bismarck-Mandan area roadway & street system	Number	Percent
Excellent	28	4.5 %
Good	277	44.0 %
Average	269	42.8 %
Poor	55	8.7 %
Total	629	100.0 %

Q8. How do you feel peak hour congestion in the Bismarck-Mandan area compares to other cities of the same size?

Q8. Peak hour congestion in Bismarck-Mandan area compares to other cities of same size	Number	Percent
Better	103	16.3 %
Worse	165	26.1 %
Same	233	36.9 %
Don't know	131	20.7 %
Total	632	100.0 %

Excluding Don't Know

Q8. How do you feel peak hour congestion in the Bismarck-Mandan area compares to other cities of the same size? (Excluding "don't know")

Q8. Peak hour congestion in Bismarck-Mandan area compares to other cities of same size	Number	Percent
Better	103	20.6 %
Worse	165	32.9 %
Same	233	46.5 %
Total	501	100.0 %

Q9. Has anyone in your household used the bus system in the Bismarck-Mandan area?

Q9. Has anyone in your household used bus system in Bismarck-Mandan area	Number	Percent
Yes	58	9.2 %
No	574	90.8 %
Total	632	100.0 %

Q9a. If yes, how would you rate the bus system?

Q9a. How would you rate bus system	Number	Percent
Excellent	8	13.8 %
Good	27	46.6 %
Average	12	20.7 %
Poor	9	15.5 %
Don't Know	2	3.4 %
Total	58	100.0 %

Excluding Don't Know

Q9a. If yes, how would you rate the bus system?

Q9a. How would you rate bus system	Number	Percent
Excellent	8	14.3 %
Good	27	48.2 %
Average	12	21.4 %
Poor	9	16.1 %
Total	56	100.0 %

Q9b. For which kinds of trips has someone in your household used the bus system?

Q9b. For which kinds of trips has someone in your household used bus system	Number	Percent
Work	20	34.5 %
Shopping	23	39.7 %
Medical or personal business appointments	25	43.1 %
Entertainment (movies, dining, etc.)	4	6.9 %
School (other than school bus)	4	6.9 %
Other	11	19.0 %
None chosen	1	1.7 %
Total	88	

Q9b. Other

Q9b Other
AIRPORT
CAR REPAIR
CASUAL TRAVEL
CHURCH
ERRAND
MEDI TRANSIT
RIDE HOME AFTER LONG WALKS
TO THE AIRPORT AND BACK

Q9c. How satisfied is your household with various aspects of the bus system?

(N=632)

	Very Satisfied	Satisfied	Neutral	Not Satisfied	Don't Know
Q9c-a. Availability of information on bus rates & times	24.1%	43.1%	15.5%	13.8%	3.4%
Q9c-b. Frequency of service	17.2%	31.0%	27.6%	19.0%	5.2%
Q9c-c. Proximity of stops to home or destination	20.7%	32.8%	19.0%	22.4%	5.2%
Q9c-d. Hours of operation	15.5%	36.2%	20.7%	22.4%	5.2%

Excluding Don't Know

Q9c. How satisfied is your household with various aspects of the bus system? (Excluding "don't know")

(N=632)

	Very Satisfied	Satisfied	Neutral	Not Satisfied
Q9c-a. Availability of information on bus rates & times	25.0%	44.6%	16.1%	14.3%
Q9c-b. Frequency of service	18.2%	32.7%	29.1%	20.0%
Q9c-c. Proximity of stops to home or destination	21.8%	34.5%	20.0%	23.6%
Q9c-d. Hours of operation	16.4%	38.2%	21.8%	23.6%

Q10. Which of the following reasons address why you or your household do not ride public transit/bus system more often.

Q10. Reasons why you or your household do not ride public transit/bus system more often	Number	Percent
Just prefer to drive	433	68.5 %
It takes too long	122	19.3 %
Bus routes/stops are too far from my home or destination	201	31.8 %
Service not offered when I need it	105	16.6 %
Buses are not frequent enough	58	9.2 %
I don't know how to use the service	58	9.2 %
It's too expensive	3	0.5 %
Had a bad experience on the bus	4	0.6 %
I think it's unsafe	18	2.8 %
Other	47	7.4 %
None chosen	17	2.7 %
Total	1066	

Q10. Other

Q10 Other

AM GOING TO CHECK IT SOON
BUS DOESNT COME OUT THIS WAY
CHILD IN INFANT CAR SEAT
CONVENIENT TO USE A CAR
DOESNT WORK WITH MY SCHEDULE
DONT NEED IT
DONT NEED IT ROUTINELY
GO TO WORK TOO EARLY
HAVENT CHECKED INTO USING BUS
HAVENT CHECKED IT OUT
I AM RETIRED
INCONVENIENCE
INCONVENIENT
IT DOESNT WORK FOR ME
KIDS ARE TOO YOUNG
KIDS TOO YOUNG TO USE ALONE
LATER BUSES FOR BAR PATRONS!
LIVE IN COUNTRY NOT IN BISMARCK
LIVE IN COUNTRY NOT IN BISMARCK
LIVE IN RURAL BISMARCK
LIVE OFF OF 71ST. NO BUS
LIVE OUT OF CITY LIMITS
LIVE OUT OF TOWN
LIVE OUT OF TOWN/NO SERVICES
LIVE OUTSIDE CITY LIMITS
LIVE TOO FAR OUT OF TOWN
MEDICAL NEEDS,CANTWALK TOO FAR
MULTIPLE TRANSFERS FOR TRAVEL
NEED CAR AT WORK
NEED CAR FOR WORK
NEED CAR FOR WORK
NEED TO DROP/PICKUP KIDS
NEVER THINK OF IT
NEVER TRIED. DO ERRANDS A/WORK
NOT AVAILABLE
NOT FEASABLE WHEN SHOPPING
NOT IN MY AREA
NOT NEEDED YET
POOR BUS STOP SHELTERS
STAND IN 20-40 BELOW WIND CHILL
TAKE TRANSIT
THEY SPEED ON MY STREET
TOO COLD TO WAIT
TRANSPORT KIDS IN CARSEATS

Q10. Other (CONTINUED)

Q10 Other

TRAVEL OUT OF TOWN OFTEN
UGLY AD-MOBILE. HATE TO SEE
UNQUALIFIED DRIVERS
USUALLY HAVE MULTIPLE STOPS
WASTE OF PUBLIC FUNDS
WE HAVE BEEN TOO LAZY!
WE LIVE OUT OF CITY LIMITS

Q11. Are you, or is anyone in your household, dependent on transit or friends and relatives to get you to where you want to go?

Q11. Are you dependent on transit or friends and relatives to get you to where you want to go	Number	Percent
Yes	48	7.6 %
No	569	90.0 %
Don't Know	15	2.4 %
Total	632	100.0 %

Q12. Public transportation systems can be designed to serve many purposes. How important do you think the following public transit/bus system objectives are for the Bismarck-Mandan area?

(N=632)

	Very important	Important	Neutral	Not important	Not at all important	Don't know
Q12a. Providing transportation for all persons	37.5%	30.7%	17.2%	7.6%	4.1%	2.8%
Q12b. Providing transportation for persons without cars	57.0%	28.3%	8.9%	2.2%	0.8%	2.8%
Q12c. Providing transportation for low income persons	52.8%	29.6%	11.1%	1.9%	1.1%	3.5%
Q12d. Providing transportation for disabled & elderly	71.7%	19.8%	4.4%	1.3%	0.2%	2.7%
Q12e. Efficiently getting people to & from work	37.8%	33.9%	19.3%	4.6%	1.6%	2.8%
Q12f. Efficiently getting people to & from school	43.2%	31.5%	16.8%	3.6%	2.1%	2.8%

Q13. Has anyone in your household ridden a bike in the last year?

Q13. Has anyone in your household ridden a bike last year	Number	Percent
Yes	331	52.4 %
No	301	47.6 %
Total	632	100.0 %

Q13a. If yes, what is the primary reason for the bike use?

Q13a. Primary reason for bike use	Number	Percent
Recreational	266	80.4 %
Commuting	9	2.7 %
Recreational & commuting	62	18.7 %
Total	337	

Q14. Which of the following reasons address why you or members of your household do not ride bikes more often.

Q14. Reasons why you or members of your household do not ride bikes more often	Number	Percent
Don't own bikes	175	27.7 %
Prefer to drive	277	43.8 %
It takes too long	116	18.4 %
There are no safe routes	123	19.5 %
Need a car for errands/work trips during the day	215	34.0 %
There is no way to shower at work	55	8.7 %
There is no bike parking at work	26	4.1 %
There is no bike parking at shopping destinations	22	3.5 %
There is no bike parking at recreational destinations	15	2.4 %
Other	125	19.8 %
None chosen	30	4.7 %
Total	1179	

Q14. Other

Q14 Other
ADVERSE WEATHER
AGE
AGE
AGE
AGE
AGE
ASTHMA
BAD KNEES
BIKE RIDERS ARE (JERKS)
CANT CARRY TOOLS FOR WORK
CARS DONT RESPECT RIGHT OF WAY
CO AREA TO SAFELY CONN TO CITY
COMMUTE TOO FAR/TRANSPORT KIDS
COUNTRY RDS NOT SAFE FOR BIKES
DISABILITY
DISABLED-WHEELCHAIR
DISTANCE- WORK 10 MILES AWAY
DISTANCE TO WORK
DO NOT FEEL SAFE
DROP/PICKUP CHILD AT DAYCARE
GETTING OLD
HANDICAPPED
HAVE A CRIPPLED LEG
HAVE YOUNG KIDS WHO TIRE EASY
HAZARDOUS INCLEMENT WEATHER
HEALTH
HEALTH-BALANCE PROBLEMS
HEALTH REASONS & WEATHER
HILLS
HILLS
I AM 63/DONT FEEL SAFE ON BIKE
I CANT TRUST DRIVERS
I DONT FEEL SAFE
I HAVE SEVERE ARTHRITIS
INTERSECTIONS-WASHINGTN & EXPY
IT ISNT SAFE WHEN IT IS DARK
ITS COLD IN WINTER
ITS ND. GOOD LUCK YEAR ROUND
KIDS RIDE BIKE WHEN NO SNOW!
KNEE PROBLEMS
KNEE REPLACEMENTS-PHYS DIFFICULT
LAZY
LAZY
LAZY
LAZY

Q14. Other (CONTINUED)

Q14 Other

LAZY
LAZY
LIVE 18 MILES OUT CITY LIMITS
LIVE IN COUNTRY
LIVE IN LINCOLN (NO PATH)
LIVE IN RURAL BISMARCK
LIVE NORTH OF BISMARCK
LIVE ON GRAVEL ROADS
LIVE OUT OF CITY LIMITS
LOOKING PRESENTABLE A/RIDING
MEDICAL
MEDICAL REASONS
ND WEATHER NOT GOOD FOR BIKING
NO BIKE PARKING NEAR APARTMENT
NO EASY WAY TO GET TO WORK
NO SAFE BIKE PATHS IN MY AREA
NO SAFE ROUTE ON HWY 10
NO TIME
NO TIME
NOT A BIKER
NOT CENTRAL LOCATED REC TRAILS
NOT GOOD AT IT
NOT INTERESTED AT MY AGE
OFTEN CARRIER BACKPACK/BRIEFCASE
PHYSICAL HEALTH-DISABLED
PHYSICAL PROBLEMS
POOR CONNECTIONS BETTER TRL SYSTM
POOR WEATHER
PREFER TO WALK OR DRIVE
RETIRED
RUMBLE STRIPS OUTSIDE TOWN!
SAFETY
SENIOR CITIZENS
SHARE ROADS SIGNS NOT NEEDED
SMALL CHILD TO TAKE TO DAYCARE
SMALL CHILDREN & BABY
SNOW
TOO COLD HERE
TOO COLD/SNOWY MAJORITY YEAR
TOO ELDERLY
TOO FAR
TOO FAR
TOO FAR FROM WORK
TOO FAR TO GET TO THINGS
TOO FAR TO WORK

Q14. Other (CONTINUED)

Q14 Other
TOO FAT-BAD KNEES
TOO MANY HILLS
TOO OLD
TOO OLD
TOO OLD
TOO OLD!
TOO OLD!
TWO TODDLERS TO TRANSPORT
USUALLY NEED CAR AT WORK
VISUALLY IMPAIRED
WALK
WE ARE TOO LAZY!
WE LIVE TOO FAR OUT OF TOWN
WEATHER
WEATHER
WEATHER
WEATHER
WEATHER
WEATHER
WEATHER
WEATHER. TOO COLD 6-8 MONTHS
WEATHER-ICY ROADS
WEATHER-WINTER LASTS 6 MONTHS
WINTER
WINTER
WINTER MONTHS LAST TOO LONG
WINTER/SNOW/COLD
WORK 50 MILES AWAY
WORK IN PROFESSIONAL ENVIRONMENT
WORK OUT OF TOWN
WOULD HURT MYSELF

Q15. How would you rate the convenience of biking in Bismarck-Mandan?

Q15. How would you rate convenience of biking in Bismarck-Mandan	Number	Percent
Excellent	46	7.3 %
Good	171	27.1 %
Average	185	29.3 %
Poor	78	12.3 %
Don't know	152	24.1 %
Total	632	100.0 %

Excluding Don't Know
Q15. How would you rate the convenience of biking in Bismarck-Mandan? (Excluding "don't know")

Q15. How would you rate convenience of biking in Bismarck-Mandan	Number	Percent
Excellent	46	9.6 %
Good	171	35.6 %
Average	185	38.5 %
Poor	78	16.3 %
Total	480	100.0 %

Q16. How would you rate the safety of biking in Bismarck-Mandan?

Q16. How would you rate safety of biking in Bismarck-Mandan	Number	Percent
Excellent	25	4.0 %
Good	126	19.9 %
Average	195	30.9 %
Poor	159	25.2 %
Don't know	127	20.1 %
Total	632	100.0 %

Excluding Don't Know
Q16. How would you rate the safety of biking in Bismarck-Mandan? (Excluding "don't know")

Q16. How would you rate safety of biking in Bismarck-Mandan	Number	Percent
Excellent	25	5.0 %
Good	126	25.0 %
Average	195	38.6 %
Poor	159	31.5 %
Total	505	100.0 %

Q17. How can we make it safer and more convenient for more people to choose to ride a bicycle for at least some of their trips?

Q17. How can we make it safer & more convenient for more people to choose to ride a bicycle	Number	Percent
More bicycle lanes, sharrows & on-street facilities	144	22.8 %
More off-street trails	261	41.3 %
Fewer gaps in routes	115	18.2 %
Easier travel through intersections	136	21.5 %
Better route signs & wayfinding	40	6.3 %
More separation/more distance between bicyclists & cars	256	40.5 %
More bicycle parking	51	8.1 %
Smoother road & trail surfaces for bicyclists	65	10.3 %
Keep bicycle lanes, trails, & other facilities free of ice & snow in winter	98	15.5 %
Work with police to improve driver & bicyclist behavior	148	23.4 %
Promote bicycling through ads & education	72	11.4 %
More shopping, recreation, & employment destinations closer to home	44	7.0 %
Other	57	9.0 %
None chosen	77	12.2 %
Total	1564	

Q17. Other

Q17 Other

ALREADY HAVE TOO MANY TRAILS
BICYCLING NOT THAT IMPORTANT
BIKE LANE WASTE OF TAX MONEY
BIKER EDUCATION ON LAWS
BIKERS NEED HAVE MORE RESPECT
BIKERS SHOULD LEARN TO DRIVE
BIKES DO NOT BELONG ON HIWAYS
BISMARCK TOO BIG AT MY AGE
CARS MAKE BIKING DANGEROUS
CYCLISTS MUST OBEY TRAFFIC LAW
DOG TRAFFIC ON BIKE TRAILS
DONT KNOW ALL ISSUES INVOLVED
DONT RIDE SO DONT KNOW
DONT RIDE/DONT KNOW
DRIVERS DONT SEE BIKES!
DUE TO WEATHER/TRAFFIC
EDUCATE DRIVERS ABOUT CYCLISTS
EDUCATION ON BIKE SIGNALS
EXTEND BIKE TRL ON N WASHINGTON
GOOD ACCESS NOW
HEATED TUNNELS
I DONT RIDE A BIKE
KEEP BIKE ROUTES OFF OF ROADS
KEEP BIKES OFF MAIN ROADS
LEAVE IT ALONE
LIGHTING
LIVE TOO FAR FROM TIME
MAKE PATH TO HARMON LAKE
MAKE SAFER RE CREEPS HIDING
MORE MOTORIZED BIKING
MORE TRAILS INTO LINCOLN
NEED BE AWARE OF HEALTH BENEFITS
NEED LANES
NEED TO BE SEEN AT NIGHT
NO SANE PERSON RIDES IN WINTER
NOT CONVENIENT
NOT ENOUGH VALUE FOR INVESTMENT
NOT EVERYONE CAN RIDE A BIKE
NOT IN FAVOR OF INC BIKE TRAFFIC
POLICE CARS RUNNING RED LIGHTS
PROVIDE INCENTIVES FOR BIKING
REFER TO QUESTION 5 PAGE 1
RIDE BIKES XCOUNTRY NOT STREET
ROADS TOO NARROW IN BISMARCK
THEY NEED TO OBEY BIKE LAWS

Q17. Other (CONTINUED)

Q17 Other
TOO FAR TO TOWN FROM HOME
USE STOP SIGNS LIKE CARS
VEHICLE DRIVERS ARE HORRIBLE
WARMER WINTER! TOO COLD
WEATHER IS AN ISSUE
WEATHER WET, HOT, COLD, WINDY
WHAT WE HAVE IS GOOD ENOUGH
WIDER BIKE PATHS-CENTER LINE
WIDER ROADS ON BUSY STREETS
WINTER

Q18. Have you walked for any of these reasons in the past year?

Q18. Have you walked for any reasons in past year	Number	Percent
Walked for recreation/exercise	573	90.7 %
Walked for work	79	12.5 %
Walked for shopping	183	29.0 %
Walked to school	30	4.7 %
None chosen	38	6.0 %
Total	903	

Q19. How can we make it safer and more convenient for more people to walk?

Q19. How can we make it safer & more convenient for more people to walk	Number	Percent
Wider sidewalks	52	8.2 %
More distance between sidewalks & cars	49	7.8 %
Add sidewalks where they are currently missing	329	52.1 %
Make it easier to cross streets	147	23.3 %
Curb cuts for people in wheelchairs or with strollers	123	19.5 %
Improve traffic signals for pedestrians	141	22.3 %
Improve pedestrian detour routes during road construction & maintenance	24	3.8 %
Repair or replace old sidewalks	232	36.7 %
Keep sidewalks free of ice & snow in winter	255	40.3 %
Work with police to improve driver & pedestrian behavior at crosswalks	116	18.4 %
Promote walking through ads & education	43	6.8 %
Locate more shopping, recreation, & employment destinations closer to home	62	9.8 %
Other	39	6.2 %
None chosen	37	5.9 %
Total	1649	

Q19. Other

Q19 Other

ALLOW VENDORS ON SIDEWALKS
ANYONE CAN WALK IN THIS TOWN
AWARENESS OF CROSSING
BEAUTIFUL TREES TO BLOCK WIND
BETTER SPEED CONTROL ON STREET
CHAIN PETS
DONT USE WALKWAYS MUCH
FINE PEOPLE FOR WALK ON STREET
FOOT TRAFFIC NEAR TRAILER CRTS
HAS TO BE A PERSONAL CHOICE
HEATED TUNNELS
IT ISNT SAFE TO WALK IN BISMARCK
LONGER CROSSING LIGHT TIMES
MAKE A SIDEWALK TO HARMEN LAKE
MORE POLICE BIKE PATROLLING
MORE WALKATHONS
MORE WALKING PATHS/TRAILS
MORE WALKING TRAILS
NO IMPROVEMENT NEEDED
NO IMPROVEMENTS
NOTHING-ALL IS GOOD
PARKING AT TRAILHEADS
PARKING SO CAN WALK DOWNSTAIRS
PEOPLE DONT STOP FOR WALKERS
POLICE IGNORE PEDEST RIGHT WAY
POUND DOWN EXPOSED WATER MAINS
REFER TO QUESTION 5 PAGE 1
SAFE & CONVENIENT NOW
SAFETY-CROSSING AT OWN PERIL!
STREET LIGHTING
TOO OLD TO WALK TOO FAR
TRAFFIC ENFORCEMENT/RED LIGHTS
TRIM TREES OVER SIDEWALKS
TURN CITY STREET INTO A MALL
UNDERPASSES UNDER BUSY ROADS
UNSAFE FOR KIDS TO WLK TO SCHL
WALKNG PATHS BY ALL MAIN ROADS
WALK AROUND TOM OLEARY IS ASSET

Q20. Which of these transportation goal areas do you think should be most important to Bismarck-Mandan?

Q20. Which transportation goal areas should be most important to Bismarck-Mandan	Number	Percent
Limiting or reducing congestion on street & roadway system	366	57.9 %
Providing a safe system that reduces number of fatalities & serious injuries	279	44.1 %
Providing a reliable system that provides predictable travel times with limited unexpected delays	235	37.2 %
Providing a well maintained system in a good state-of-repair	336	53.2 %
Providing a system that limits its impacts on adjacent residences, neighborhoods & natural environment	103	16.3 %
Providing a system that supports & enhances economic development & flow of goods	111	17.6 %
Providing a system that is integrated & connected across various travel modes, including automobile, transit, bicycle, pedestrian & freight movement	204	32.3 %
Providing a secure system that reduces transportation impact of harmful natural & man-made events	59	9.3 %
Don't know	24	3.8 %
Total	1717	

Q21. How supportive are you of providing additional funding for the following transportation issues?

(N=632)

	Very Supportive	Supportive	Neutral	Not Supportive	Don't Know
Q21a. Increasing funding for new or widened roadways in your area	17.6%	37.8%	22.2%	18.2%	4.3%
Q21b. Increasing funding for better maintenance of current roadways in your area	19.1%	43.5%	24.4%	8.9%	4.1%
Q21c. Increasing funding for improved public transportation service in your area	8.7%	24.5%	38.6%	24.1%	4.1%
Q21d. Increasing funding for improved bicycle & pedestrian routes in your area	10.8%	25.3%	32.1%	28.6%	3.2%

Q22. Transportation improvements are critical, but also costly. The funding for transportation improvements can come from several sources. Which of the following sources of funding would you most support?

(N=632)

	Very Supportive	Supportive	Neutral	Not Supportive	Don't Know
Q22a. New land developments pay for related transportation improvement needs	27.8%	39.9%	15.5%	8.5%	8.2%
Q22b. Increase gas tax	3.6%	13.8%	18.7%	57.8%	6.2%
Q22c. Use of tolls	1.9%	6.3%	12.5%	71.0%	8.2%
Q22d. Increase vehicle registration fees	2.8%	23.6%	25.0%	41.9%	6.6%
Q22e. Apply a usage fee so that those that use a system pay for its improvement	8.2%	29.7%	20.9%	32.9%	8.2%
Q22f. Sales tax increase	2.4%	20.3%	19.5%	50.9%	7.0%
Q22g. Apply a congestion fee so that when you drive in rush hour, fee is higher	1.9%	5.7%	14.1%	67.6%	10.8%
Q22h. Property tax increase	1.3%	6.6%	15.2%	70.4%	6.5%

Q23. From which of the following sources would you prefer to receive news and information about the region?

Q23. From which sources would you prefer to receive news & information about the region	Number	Percent
Local newspaper	435	68.8 %
Government access TV channel	77	12.2 %
Radio announcements	250	39.6 %
Websites	197	31.2 %
Brochures or newsletters	136	21.5 %
TV news	488	77.2 %
Facebook, Twitter, other Social Media	102	16.1 %
Public meetings	97	15.3 %
Other	15	2.4 %
None chosen	6	0.9 %
Total	1803	

Q23. Other

Q23 Other
BILLBOARDS&ELECTRONIC SIGNS
E-MAIL
EMAIL
GOSSIP
GOVN DELIVERY EMAIL SYSTEM
MAIL
MAIL
NEIGHBORHOOD TAVERN
WORD OF MOUTH
WORD OF MOUTH
WORD OF MOUTH
WORK

Q24. What is your age?

Q24. What is your age	Number	Percent
18-34 years	105	16.6 %
35-44 years	103	16.3 %
45-54 years	133	21.0 %
55-64 years	164	25.9 %
65+ years	121	19.1 %
Not provided	6	0.9 %
Total	632	100.0 %

Q25. Counting yourself, how many people in your household are?

	Mean	Sum
number	2.5	1565
Under age 15	0.4	248
Ages 15-19	0.2	103
Ages 20-24	0.1	71
Ages 25-34	0.2	137
Ages 35-44	0.3	169
Ages 45-54	0.4	260
Ages 55-64	0.6	353
Ages 65-74	0.3	161
Ages 75+	0.1	63

Q26. Are you or other members of your household of Hispanic or Latino ancestry?

Q26. Are you of Hispanic or Latino ancestry	Number	Percent
Yes	9	1.4 %
No	600	94.9 %
Not provided	23	3.6 %
Total	632	100.0 %

Q27. What is your race?

Q27. Your race	Number	Percent
Non-White	18	2.8 %
White	599	94.8 %
Not provided	17	2.7 %
Total	634	

Q28. Respondent's gender:

Q28. Respondent's gender	Number	Percent
Male	334	52.8 %
Female	298	47.2 %
Total	632	100.0 %

Distribution of Results Across MPO

Area of MPO	Number	Percent
Bismarck	414	65.5 %
Burleigh North of I-94	36	5.7 %
Burleigh South of I-94	26	4.1 %
Lincoln	20	3.2 %
Mandan	115	18.2 %
Morton North of I-94	14	2.2 %
Morton South of I-94	7	1.1 %
Total	632	100.0 %

Section 4:
Survey Instrument

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@nd.gov
Web www.bismarck.org

October 29, 2013

RE: BISMARCK-MANDAN METROPOLITAN PLANNING ORGANIZATION LONG RANGE TRANSPORTATION PLAN SURVEY

Dear Sir or Madam:

Your household has been randomly selected to participate in a survey which will help shape the transportation future of the Bismarck-Mandan area. Your input will be used by community leaders to set transportation priorities for our region. We thank you in advance for taking time out of your day to provide input for this effort.

The Bismarck-Mandan Metropolitan Planning Organization (MPO) is an organization of the local governments of Bismarck, Lincoln, Mandan, and Burleigh and Morton Counties, responsible for the planning and programming of federally-funded transportation projects within the region. We are in the process of updating the area's Long Range Transportation Plan, which seeks to identify transportation needs from now to the year 2040. The results of this survey will help in identifying which transportation improvements are needed most in the region. Currently, many large-scale transportation improvements within the area depend heavily on federal transportation funds. The information you provide will not only help to prioritize transportation improvements but also determine what additional funding sources (if necessary) may be acceptable within the region.

Since only a limited number of households in the region were selected at random to receive the survey, your participation will ensure residents in your area are well represented in the development of the Long Range Transportation Plan.

We have selected ETC Institute to assist our organization with this survey. A postage-paid return envelope addressed to ETC Institute has been provided for your convenience. Upon receiving the survey responses ETC Institute will compile the results which will be considered for inclusion in the Long Range Transportation Plan. If you prefer to take the survey in another format, it is available on-line at: www.2013bismarck-mandantravelstudy.com or via telephone at (888) 801-5368.

If you have any questions please call Ben Ehreth, with the Bismarck-Mandan MPO at (701) 355-1840.

Thanks again for your assistance.

Sincerely,

Carl Hokenstad, AICP
Executive Director of the Bismarck-Mandan MPO

Bismarck-Mandan
METROPOLITAN PLANNING ORGANIZATION

Regional TRAVEL SURVEY

We would like your help today in shaping the future of the Bismarck-Mandan Region. Thank you for taking time to complete the survey. When you are finished, please return your completed survey in the postage-paid envelope addressed to ETC Institute, 725 W. Frontier Circle, Olathe, KS 66061.

1. Perceptions of Current Transportation Issues Please rate your satisfaction with the following:		Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Don't Know
A.	The flow of traffic at peak times	5	4	3	2	1	9
B.	The flow of traffic at non-peak times	5	4	3	2	1	9
C.	The maintenance of current roads in and around Bismarck-Mandan	5	4	3	2	1	9
D.	The maintenance of I-94	5	4	3	2	1	9
E.	The amount of truck traffic	5	4	3	2	1	9
F.	Ease of traveling between Bismarck-Mandan-Lincoln and other cities	5	4	3	2	1	9
G.	Ease of traveling between Bismarck and Mandan	5	4	3	2	1	9
H.	Ease of traveling between Bismarck and Lincoln	5	4	3	2	1	9
I.	Ease of North South travel	5	4	3	2	1	9
J.	Ease of East West travel	5	4	3	2	1	9
K.	Traffic safety	5	4	3	2	1	9
L.	Availability of parking	5	4	3	2	1	9
M.	Train crossings	5	4	3	2	1	9

2. **Which THREE of the items in Question #1 do you think are the most important Transportation issues to address?** [Write in the letters below using the letters from the list in Question 1 in the priority of their importance to you].

1st:____ 2nd:____ 3rd: ____

3. **What method of transportation do you typically use to get to and from routine destinations, including work?** (Check all that apply)

___(1) Drive alone
___(2) Carpool/Vanpool
___(3) Walk
___(4) Bicycle
___(5) Transit/Bus
___(6) Other_____

4. **How many vehicles (i.e. car, truck, SUV) are in your household?** _____

5. **Which two (2) corridors do you think should be the top priorities for improvement in Burleigh County. Please choose the two (2) corridors that should be addressed first.**

____(01) 43rd Avenue
____(02) Century Avenue
____(03) Divide Avenue
____(04) Main Avenue
____(05) Bismarck Expressway
____(06) University Drive/Hwy 1804
____(07) Washington Street
____(08) 4th Street
____(09) The 7th St./9th St. one-way pair
____(10) ND Highway 1804/71st Ave.
____(11) State Street/US 83
____(12) Centennial Road
____(13) Tyler Parkway
____(14) Lincoln Road
____(15) Yegan Road
____(16) 66th Street
____(17) I-94
____(18) Other_____
____(99) don't know

6. **Which two (2) corridors do you think should be the top priorities for improvement in Morton County. Please choose the two (2) corridors that should be addressed first.**

____(01) Main Street
____(02) Memorial Highway
____(03) Sunset Drive
____(04) Collins Road
____(05) Old Red Trail
____(06) 6th Avenue SE/Highway 1806
____(07) 10th Avenue SW/Highway 6
____(08) Division Street
____(09) 3rd Street SE/SW
____(10) 19th Street SE/SW
____(11) Other_____
____(99) don't know

7. **Overall, how would you rate the Bismarck-Mandan area <u>roadway and street</u> system?**
___(1) Excellent ___(3) Average
___(2) Good ___(4)Poor

8. **How do you feel peak hour congestion in the Bismarck-Mandan area compares to other cities of the same size?**
___(1) Better ___(3) Same
___(2) Worse ___(4) Don't know

<u>BUS/PUBLIC TRANSIT</u>

9. **Has anyone in your household used the bus system in the Bismarck-Mandan area?**
___(1) Yes (go to Question 9a-9c) ___(2) No (go to Question 10)

9a. If yes, how would you rate the bus system?
___(1) Excellent ___(3) Average
___(2) Good ___(4)Poor

9b. For which kinds of trips has someone in your household used the bus system? (check all that apply)
___(1) Work
___(2) Shopping
___(3) Medical or personal business appointments.
___(4) Entertainment (movies, dinning, etc.)
___(5) School (other than school bus)
___(6) Other_____

9c. How satisfied is your household with various aspects of the bus system?

Various Aspects of the Bus System	Very Satisfied	Satisfied	Neutral	Not Satisfied
A. Availability of information on bus routes and times	4	3	2	1
B. Frequency of service	4	3	2	1
C. Proximity of stops to home or destination	4	3	2	1
D. Hours of operation	4	3	2	1

10. **Which of the following reasons address why you or your household do not ride public transit/bus system more often.** (check all that apply)
____(01) Just prefer to drive
____(02) It takes too long
____(03) Bus routes/stops are too far from my home or destination
____(04) Service not offered when I need it
____(05) Buses are not frequent enough
____(06) I don't know how to use the service
____(07) It's too expensive
____(08) Had a bad experience on the bus
____(09) I think it's unsafe
____(10) Other_____

11. **Are you, or is anyone in your household, dependent on transit or friends and relatives to get you to where you want to go?**
___(1) Yes ___(2) No

12. **Public transportation systems can be designed to serve many purposes. How important do you think the following public transit/bus system objectives are for the Bismarck-Mandan area?**

Importance of Various Purposes to Public Transportation	Very Important	Important	Neutral	Not important	Not at all Important
A. Providing transportation for ALL persons	5	4	3	2	1
B. Providing transportation for persons without cars	5	4	3	2	1
C. Providing transportation for low income persons	5	4	3	2	1
D. Providing transportation for disabled and elderly	5	4	3	2	1
E. Efficiently getting people to and from work	5	4	3	2	1
F. Efficiently getting people to and from school	5	4	3	2	1

BIKING

13. **Has anyone in your household ridden a bike in the last year?**
    ___**(1) Yes (go to Question 13a)** ___**(2) No (go to Question 14)**

    13a. If yes, what is the primary reason for the bike use?
    ___(1) Recreational ___(2) Commuting ___(3) Recreational and commuting

14. **Which of the following reasons address why you or members of your household do not ride bikes more often.** (check all that apply)
    ____(01) Don't own bikes
    ____(02) Prefer to drive
    ____(03) It takes too long
    ____(04) There are no safe routes
    ____(05) Need a car for errands/work trips during the day
    ____(06) There is no way to shower at work
    ____(07) There is no bike parking at work
    ____(08) There is no bike parking at shopping destinations
    ____(09) There is no bike parking at recreational destinations
    ____(10) Other_____

15. **How would you rate the <u>convenience</u> of biking in Bismarck-Mandan?**
    ___(1) Excellent ___(4)Poor
    ___(2) Good ___(9)Don't know
    ___(3) Average

16. **How would you rate the <u>safety</u> of biking in Bismarck-Mandan?**
    ___(1) Excellent ___(4)Poor
    ___(2) Good ___(9)Don't know
    ___(3) Average

17. **How can we make it safer and more convenient for more people to choose to ride a bicycle for at least some of their trips? (Please check just THREE that are most important in your opinion):**
    ___(01) More bicycle lanes, sharrows and on-street facilities
    ___(02) More off-street trails
    ___(03) Fewer gaps in routes
    ___(04) Easier travel through intersections
    ___(05) Better route signs and wayfinding
    ___(06) More separation / more distance between bicyclists and cars
    ___(07) More bicycle parking
    ___(08) Smoother road and trail surfaces for bicyclists
    ___(09) Keep bicycle lanes, trails, and other facilities free of ice and snow in winter
    ___(10) Work with police to improve driver and bicyclist behavior
    ___(11) Promote bicycling through ads and education
    ___(12) More shopping, recreation, and employment destinations closer to home
    ___(13) Other (please specify) _____

WALKING

18. Have you walked for any of these reasons in the past year?

___(1) Walked for recreation/exercise
___(2) Walked for work
___(3) Walked for shopping
___(4) Walked to school

19. How can we make it safer and more convenient for more people to walk? (Select the THREE most important strategies):

___(01) Wider sidewalks
___(02) More distance between sidewalks and cars
___(03) Add sidewalks where they are currently missing
___(04) Make it easier to cross streets
___(05) Curb cuts for people in wheelchairs or with strollers
___(06) Improve traffic signals for pedestrians
___(07) Improve pedestrian detour routes during road construction and maintenance
___(08) Repair or replace old sidewalks
___(09) Keep sidewalks free of ice and snow in winter
___(10) Work with police to improve driver and pedestrian behavior at crosswalks
___(11) Promote walking through ads and education
___(12) Locate more shopping, recreation, and employment destinations closer to home
___(13) Other (please specify) _____

TRANSPORTATION GOALS

20. Which of these transportation goal areas do you think should be most important to Bismarck-Mandan? (Please check just THREE that are most important in your opinion)

___(1) Limiting or reducing congestion on the street and roadway system
___(2) Providing a safe system that reduces the number of fatalities and serious injuries
___(3) Providing a reliable system that provides predictable travel times with limited unexpected delays
___(4) Providing a well maintained system in a good state-of-repair
___(5) Providing a system that limits its impacts on adjacent residences, neighborhoods and the natural environment
___(6) Providing a system that supports and enhances economic development and the flow of goods.
___(7) Providing a system that is integrated and connected across various travel modes, including automobile, transit, bicycle, pedestrian and freight movement
___(8) Providing a secure system that reduces the transportation impact of harmful natural and man-made events.

FUNDING

21. How supportive are you of providing additional funding for the following transportation issues?

Support for Funding Transportation Improvements Please rate your support for the following:		Very Supportive	Supportive	Neutral	Not Supportive	Don't Know
A.	Increasing funding for new or widened roadways in your area	4	3	2	1	9
B.	Increasing funding for better maintenance of current roadways in your area	4	3	2	1	9
C.	Increasing funding for improved public transportation service in your area	4	3	2	1	9
D.	Increasing funding for improved bicycle and pedestrian routes in your area	4	3	2	1	9

22. Transportation improvements are critical, but also costly. The funding for transportation improvements can come from several sources. Which of the following sources of funding, would you most support?

Sources for Funding Transportation Improvements Please rate your support for the following:		Very Supportive	Supportive	Neutral	Not Supportive	Don't Know
A.	New land developments pay for related transportation improvement needs	4	3	2	1	9
B.	Increase the gas tax	4	3	2	1	9
C.	Use of tolls	4	3	2	1	9
D.	Increase vehicle registration fees	4	3	2	1	9
E.	Apply a usage fee so that those that use a system pay for its improvement	4	3	2	1	9
F.	Sales tax increase	4	3	2	1	9
G.	Apply a congestion fee so that when you drive in rush hour, the fee is higher	4	3	2	1	9
H.	Property tax increase	4	3	2	1	9

23. From which of the following sources would you prefer to receive news and information about the region? (Check all that apply)

___(1) Local newspaper
___(2) Government access TV channel
___(3) Radio announcements
___(4) Websites
___(5) Brochures or newsletters
___(6) TV News
___(7) Facebook, Twitter, other Social Media
___(8) Public meetings
___(9) Other:_____

Demographics

24. What is your age?_____

25. Counting yourself, how many people in your household are?

Under age 16____ Ages 25-34 ____ Ages 55-64 ____
Ages 16-19 ____ Ages 35-44 ____ Ages 65-74 ____
Ages 20-24 ____ Ages 45-54 ____ Ages 75+ ____

26. Are you or other members of your household of Hispanic or Latino ancestry?

___(1) Yes ___(2)No

27. Which of the following best describes your race?

___(1) African American/Black
___(2) American Indian or Alaska Native
___(3) Asian, Hawaiian or Other Pacific Islander
___(4) White
___(5) Other: _____

28. Respondent's gender

___(1) Male
___(2) Female

This concludes the survey. Thank you for your time!

Please return your survey in the postage-paid envelope addressed to ETC Institute

Your responses will remain Completely Confidential. The information printed to the right will ONLY be used to help identify which areas of the Bismarck-Mandan Region are having problems with travel. If your address is not correct, please provide the correct information.

Appendix B: Public Engagement Summary

Items Included:

- Issues summary from first public meetings
- Advertisements / mailings for public workshops
- Print media coverage
- Stakeholder contact list
- Summarized feedback received (all correspondence received and provided by LRTP team)
- Public meeting presentations
- Public and focus group meeting sign-in sheets

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

We need your input to help address future transportation needs in the Bismarck-Mandan area.

Join us at a public open house meeting

Tuesday, January 21
5:30 - 7:30 p.m.
Bismarck Municipal Library
Meeting Room A
515 N. Fifth St, Bismarck, ND

Wednesday, January 22
5:30 - 7:30 p.m.
Mandan City Hall
Ed "Bosh" Froehlich Meeting Room
205 2nd Ave NW, Mandan, ND

A formal presentation will begin at 5:30 pm at both meetings

View the meeting information online at:
www.envisionbisman2040.com/meeting
Information will be available online beginning January 21

What is the Envision BisMan 2040 Long Range Transportation Plan (LRTP)?

The Envision BisMan 2040 LRTP is a community-driven process that identifies goals, needs, priorities, and an implementation plan for the future transportation system in Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties.

Follow us on:
Envision BisMan 2040
@envision2040

Contact us at:
Email: info@envisionbisman2040.com
Phone: (701) 335-1850

www.envisionbisman2040.com

Join us at a public open house meeting

We need your input to help us finalize priorities for the Bismarck-Mandan Long Range Transportation Plan

ATTEND an open house

VISIT US ONLINE at www.envisionbisman2040.com

FOLLOW US on Facebook & Twitter

MEETING DETAILS

Wednesday, Sep. 17
5:30 - 7:00 p.m.

Mandan City Hall, Ed "Bosh" Froehlich Meeting Room
205 2nd Ave NW, Mandan

Thursday, Sep. 18
5:30 - 7:00 p.m.

Bismarck Public Library, Meeting Rm A
515 N. Fifth St, Bismarck

A presentation will begin at 6:00 pm at both meetings

HELP US ENVISION BISMARCK MANDAN

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Bismarck-Mandan Metropolitan Planning Organization
c/o HDR Engineering, Inc.
4503 Coleman Street, Suite 105
Bismarck, ND 58503

What is the Envision BisMan 2040 Long Range Transportation Plan (LRTP)? The Envision BisMan 2040 LRTP is a community-driven process that identifies goals, needs, priorities, and an implementation plan for the future transportation system in Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties.

Prefer email communication? Send us your email address to info@envisionbisman2040.com

www.envisionbisman2040.com

HDR | ONE COMPANY *Many Solutions*℠

Memorandum

To: Ben Ehreth	envision2040 2015-2040 BISMARCK-MANDAN Long Range Transportation Plan
From: Jason Carbee	
Date: February 10, 2014	

RE: Summary of January 21-22 Public Workshop Meetings

Overview

The purpose of this memorandum is to summarize the input received at the January 21 and 22 public meeting workshops in Bismarck and Mandan.

Multimodal Issues / Opportunities Meeting Summary

Public meeting workshops were held at the following locations to collect multimodal issues and opportunities from the public in attendance:

Tuesday, January 21, 2014
Bismarck Municipal Library
Meeting Room A
515 N Fifth St, Bismarck, ND 58501

Wednesday, January 22, 2014
Mandan City Hall
Ed "Bosh" Froehlich Meeting Room
205 2nd Ave NW, Mandan, ND 58554

MPO and HDR staff worked with residents at the meetings to gather input on transportation issues, opportunities and their vision for the regional transportation system. A short presentation was provided at each workshop that provided:

- Background on the LRTP update.
- Preliminary results of the existing transportation conditions evaluation.
- How the public could stay active in the study.

Not including staff, the attendance at the Bismarck workshop was 21 citizens and the attendance at the Mandan workshop was 22 citizens. The presentation was followed by an exercise where the attendees at each public workshop broke into smaller discussion groups, to gather two different types of workshop input:

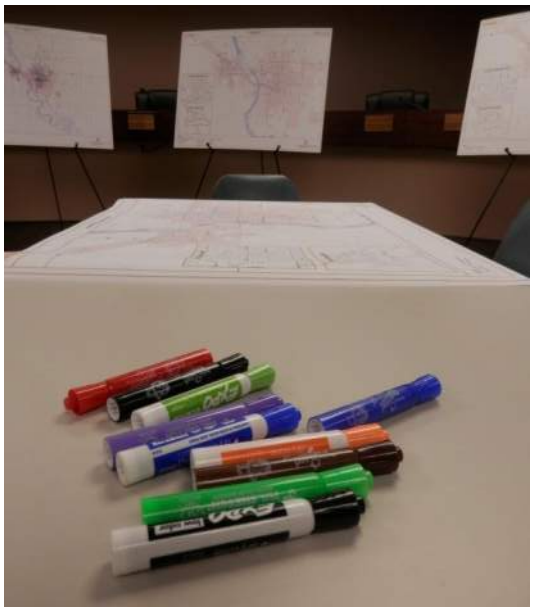
- **Geographic issues (problems) and opportunities (solutions) mapping exercise.** Three large basemaps were provided to each group for them to write on: 1) a blank street map for recording street / roadway issues and opportunities, 2) a map of current trails and on-street

bike facilities for bicycle and pedestrian issues and opportunities, and 3) an aerial base map with current transit routes shown for reference for transit issues and opportunities.

- **Regional issues and opportunities**. It was emphasized that these were big picture issues and opportunities that impacted the region everywhere, not location-specific issues. The groups recorded the geographic-specific and regional issues separately as we went through the workshop.

The geographic responses we received from each small group have been combined into a set of modal issues and opportunities maps for each meeting.
Figures 1 through 6 reflect this input:

- **Figure 1**: Bismarck Meeting Identified Roadway Issues and Opportunities
- **Figure 2**: Bismarck Meeting Identified Bicycle and Pedestrian Issues and Opportunities
- **Figure 3**: Bismarck Meeting Identified Transit Issues and Opportunities
- **Figure 4**: Mandan Meeting Identified Roadway Issues and Opportunities
- **Figure 5**: Mandan Meeting Identified Bicycle and Pedestrian Issues and Opportunities
- **Figure 6**: Mandan Meeting Identified Transit Issues and Opportunities



A summary of the regional issues and opportunities identified in the public workshop is provided in the next section.

Stakeholder-Identified Regional Issues and Opportunities

There were several instances where multiple small groups came up with the same issue or opportunity. To facilitate categorizing the feedback received into a transportation vision for Bismarck-Mandan, the issues and opportunities presented below have been organized into general themes. Each regional issue is also followed by a note in parenthesis to indicate if it was received at the (*Bismarck meeting*), the (*Mandan meeting*), or (*both meetings*).

Mobility Theme

- New growth areas need sufficient access to regional transportation system (e.g., I-94, US 83, etc) via arterial roadways and interchanges. (*Bismarck meeting*)
- There are problems with traveling north-south in Bismarck-Mandan, due to congestion and lack of connections. (*both meetings*)
- Consider one-way conversions to improve traffic flow. (*Bismarck meeting*)

- Improve traffic signal coordination and implementation of Technology or Intelligent Transportation Systems to improve corridor mobility. (*Bismarck meeting*)
- Consider alternative types of intersection control, including implementing roundabouts. (*both meetings*)
- Begin long-range planning to have 1-mile spaced interchanges for relief of existing interchanges as they become overloaded. (*Bismarck meeting*)
- Consider enhancing mobility through implementation of roundabouts, 4-lane to 3-lane "road diets", and adding pedestrian facilities for new developments. (*Bismarck meeting*)

Alternate Mode Strategies Theme

- In the long term, consider park and ride lots for carpooling and potentially express transit service. (*Bismarck meeting*)
- CAT bus hours of operation should be extended; current service levels limit many potential bus trips. (*both meetings*)
- Indirect CAT routes increase trip travel times – identify ways to reduce trip times. (*both meetings*)
- Completing an assessment of on-street bike route usage and on-street bicycle safety would be beneficial. (*Bismarck meeting*)
- CAT system should develop hub stations for coordinated route transfers – hub and spoke system. (*both meetings*)
- CAT should maximize the number of bike racks on buses. (*Bismarck meeting*)
- The new bike lanes / signage provide improved awareness of bikes for drivers. (*Bismarck meeting*)
- Bicycle travel would be more feasible with bicycle racks / parking in areas like downtown and medical centers. (*both meetings*)
- Connect the following major generators with a bus route: (*both meetings*)
    - Airport
    - Downtowns
    - Medical center
    - Civic Center / community centers
    - Movie Theater
    - Malls
    - Churches

- Regular bicycle commuting is difficult due to several factors. (*Bismarck Meeting*)
- Need to address trail maintenance and

safety, including improved trail lighting. (*Mandan meeting*)

- Mandan needs an additional bus route and more frequent service; and potentially a Mandan-only route. (*Mandan meeting*)
- The region needs a trail master plan. (*Mandan meeting*)
- Improve reliability of the dial-a-ride / paratransit service. (*Mandan meeting*)
- Consider allocating paratransit priority by trip purpose, and increasing paratransit eligibility age to prioritize rides to those that need it most. (*Mandan meeting*)
- Continue adding bike lanes on existing roadways to encourage more bicycle commuters. (*Bismarck meeting*)
- Some residents do not like bike lanes. (*Mandan Meeting*)
- In some cases, non-paved trails might be more cost-effective. (*Mandan meeting*)
- Should provide a public trail corridor along the Missouri River in Mandan. (*Mandan meeting*)
- Traveling on CAT requires too many transfers. (*Mandan meeting*)
- Consider a leading pedestrian interval – where the pedestrian "walk" indicator happens at least three (3) seconds before the "green" traffic signal – at some intersections such as downtown. (*Bismarck meeting*)
- There is no alternate wheel chair accessible taxi available outside of the dial-a-ride operating hours. This limits the opportunities for wheelchair riders. (*Bismarck meeting*)

Safety Theme

- Safety concern where bike lanes conflict with vehicular traffic at intersections. (*Mandan meeting*)
- Bikes on sidewalks are a safety issue. (*Bismarck meeting*)
- Red light running is a safety concern. (*Bismarck meeting*)
- Some roads in Bismarck-Mandan are wider than they need to be - leads to higher speeds. (*Bismarck meeting*)
- Enhance safety for bus travelers. (*Mandan meeting)*

Freight and Economic Development Theme

- Find a new truck route through Mandan other than via Main Street. (*Mandan meeting)*
- Emphasize corridors leading into Mandan as development opportunities; for instance Highway 1806 allows outside communities to spend money in Mandan. (*Mandan meeting)*

Land Use Theme

- New schools drive adjacent development, which leads to transportation demand. School planning / transportation planning should be coordinated. (*Bismarck meeting*)

- Need to designate future transportation corridors for development and preserve these corridors. (*Mandan meeting)*
- North – south corridors have adjacent residences that access the streets – limits mobility / safety issues along these routes. (*Mandan meeting)*

Project Development / Policy / Funding Theme

- Identify opportunities for public-private partnerships, including: (*Bismarck meeting*)
    - Trails built by developers
    - Park and Ride lots on private, underutilized land
    - Shared private parking
    - Clearing trails and landscaping by private user groups like running clubs, bicycle groups and snowmobiling groups.
    - Bike rack sponsorship.
- Look at local funding sources to address transportation funding concerns. (*Bismarck meeting*)
- Private developers should build trails with new developments. (*Mandan meeting)*

System Maintenance Theme

- Snow removal / hauling trucks drive through neighborhoods in Mandan, which adds congestion and noise in Winter. (*Mandan meeting)*
- Commit to on-going maintenance of on-street bike lanes, including signing and striping. (*Mandan meeting)*

Education Theme

- Need education to inform public on the benefits of biking and walking, and enhancing available information about bike route and trail system. (*both meetings*)
- Enhance image and awareness of CAT transit through marketing. (*Bismarck meeting*)
- Need to educate drivers regarding the rules of on-street bike routes and giving bicyclists the right-of-way. (*Mandan meeting)*

Conclusion and Next Steps

Based on the feedback we received at the public meetings, the earlier Stakeholder meetings, and the finalized Community Survey from ETC, we will finalize the 2040 Long Range Transportation Plan Goals and Objectives. We will then begin developing alternatives to address the identified issue areas / problems.

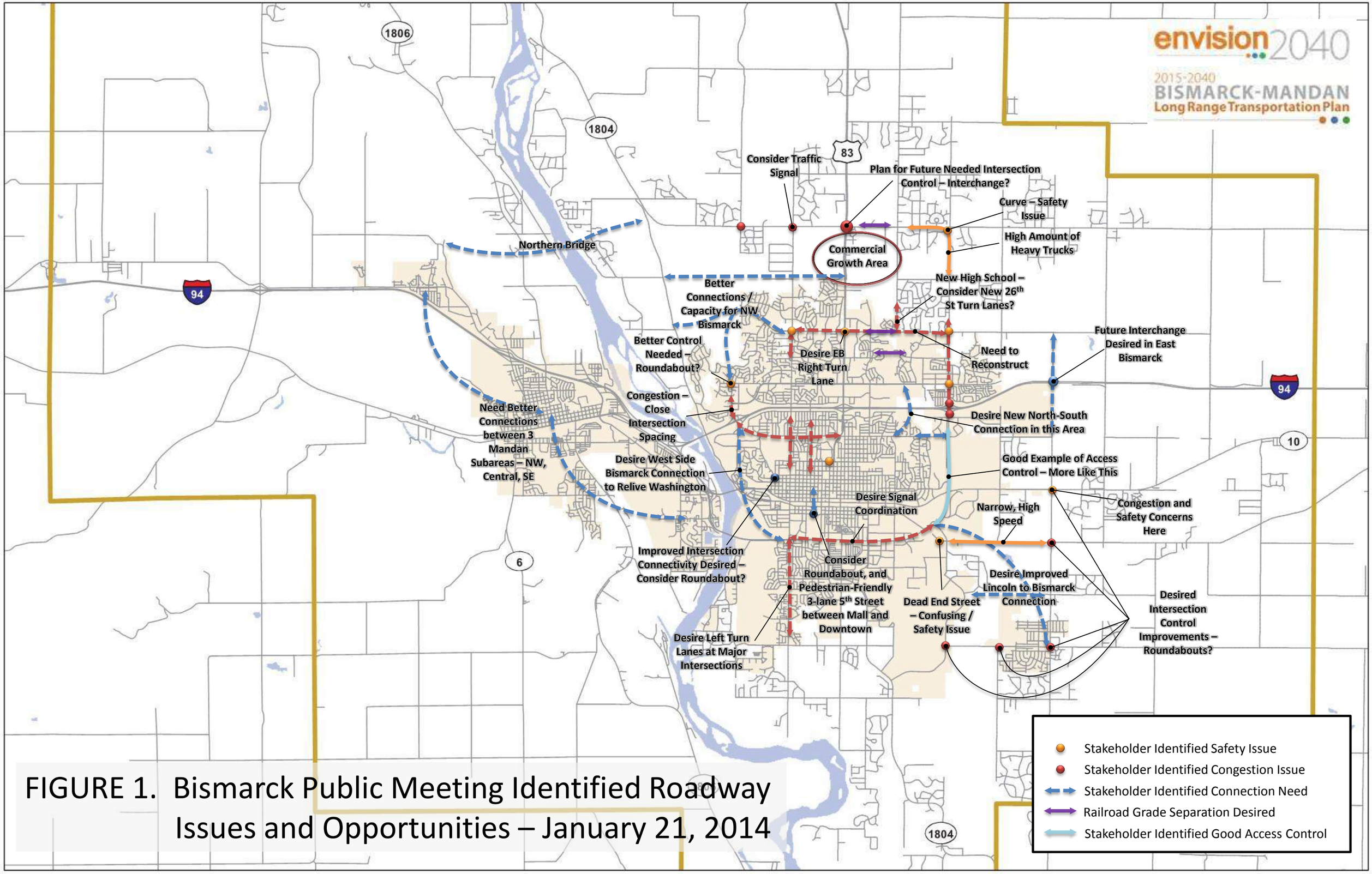


FIGURE 1. Bismarck Public Meeting Identified Roadway Issues and Opportunities – January 21, 2014

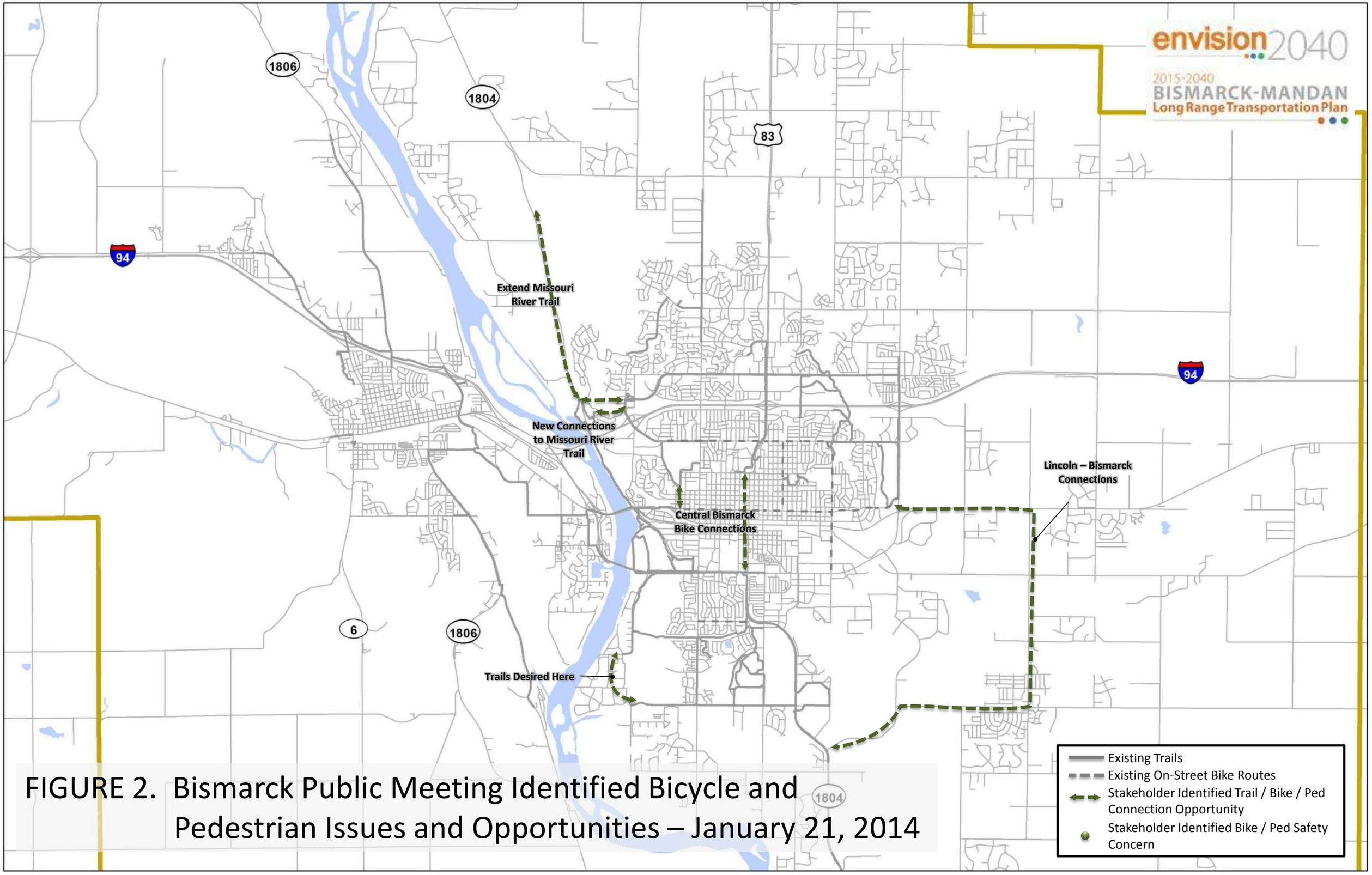


FIGURE 2. Bismarck Public Meeting Identified Bicycle and Pedestrian Issues and Opportunities – January 21, 2014

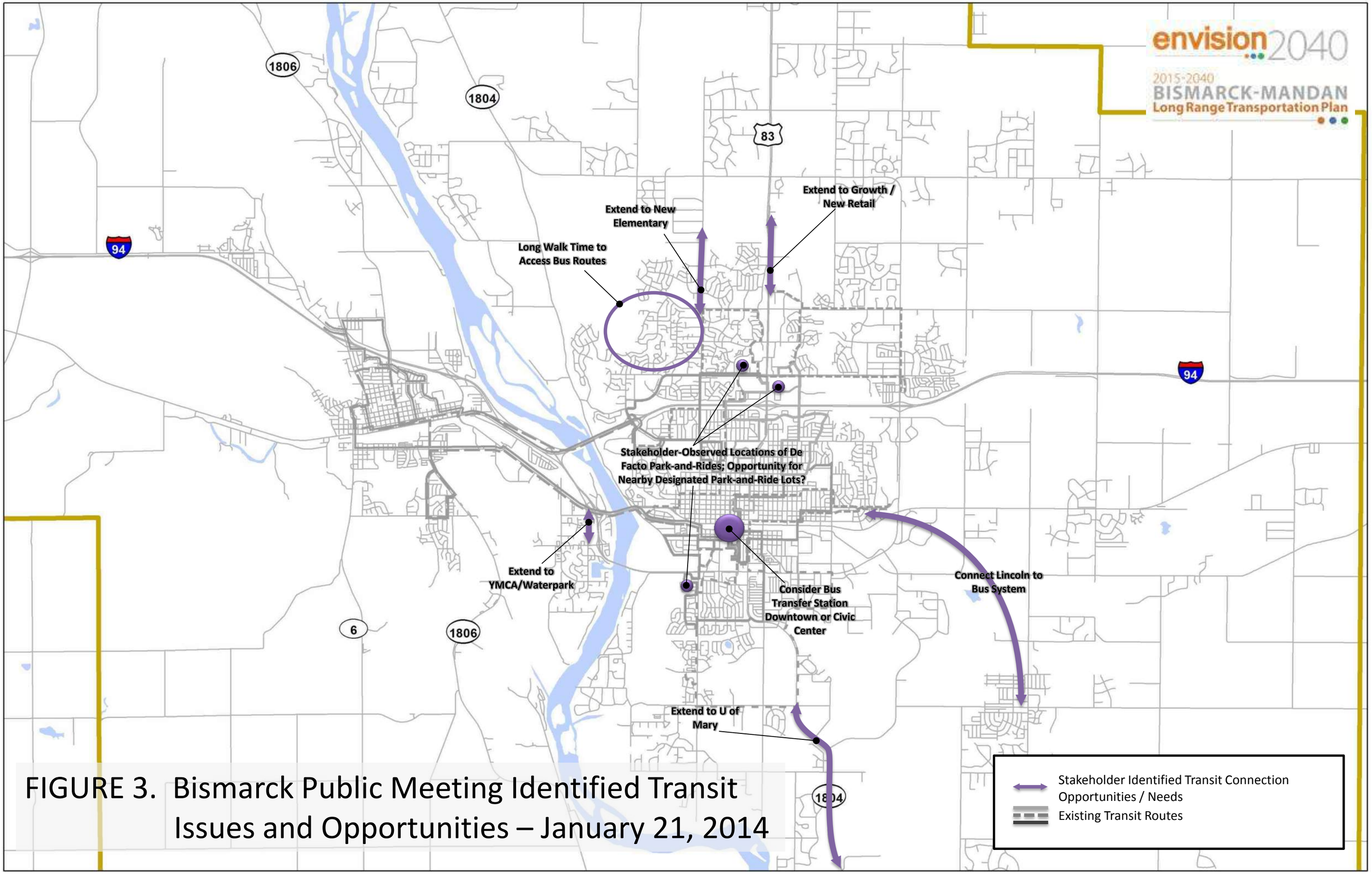


FIGURE 3. Bismarck Public Meeting Identified Transit Issues and Opportunities – January 21, 2014

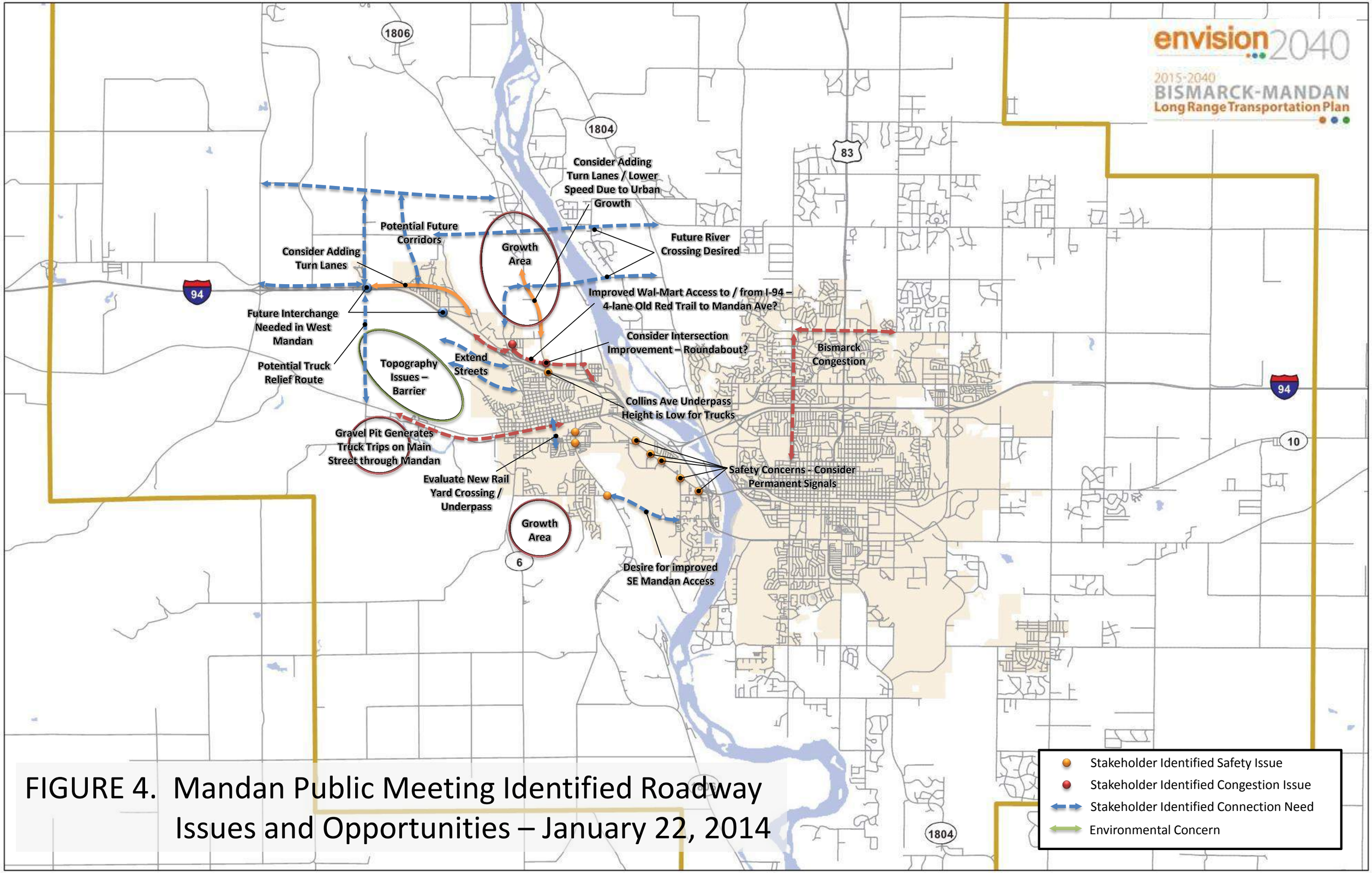


FIGURE 4. Mandan Public Meeting Identified Roadway Issues and Opportunities – January 22, 2014

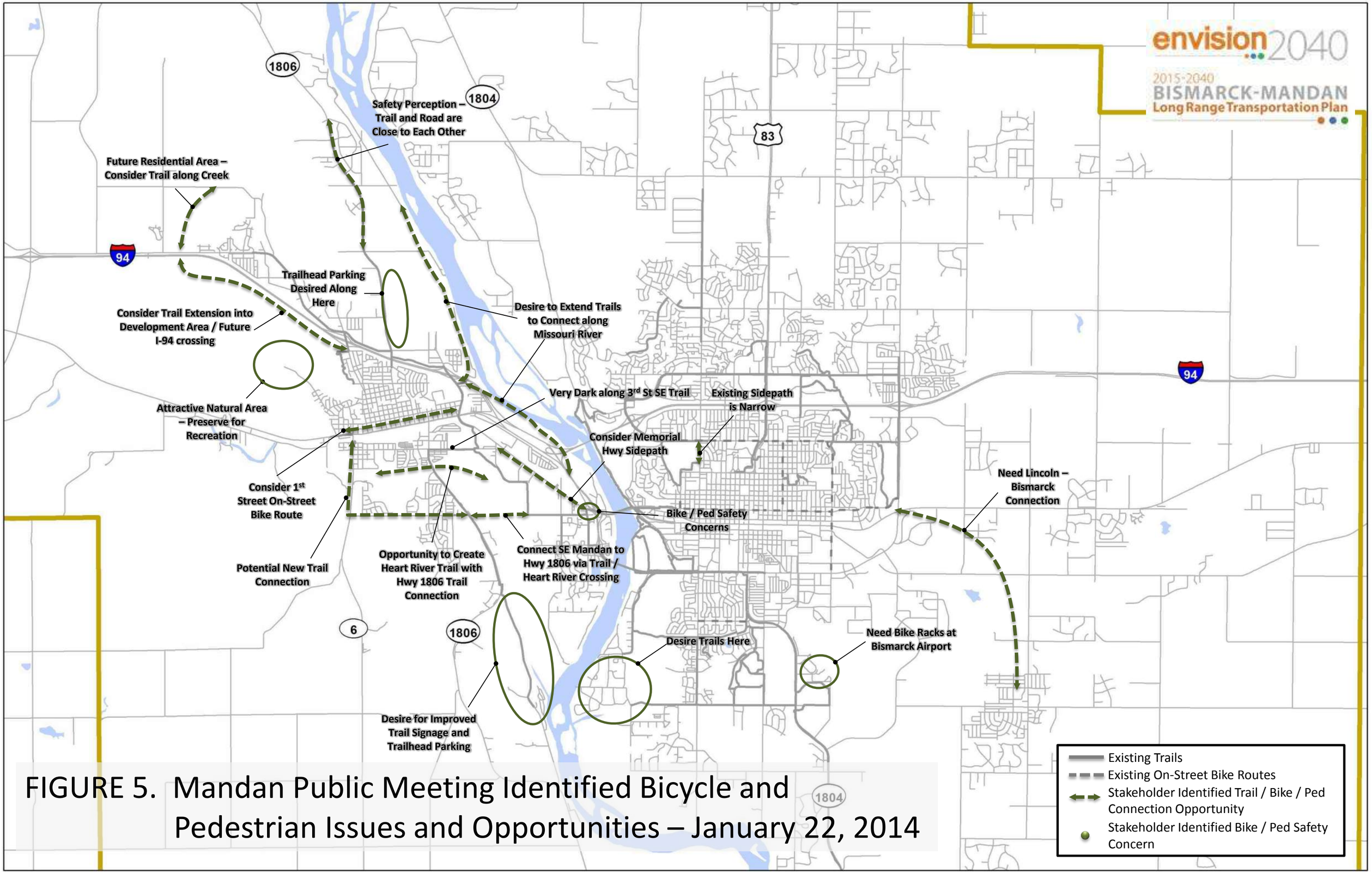


FIGURE 5. Mandan Public Meeting Identified Bicycle and Pedestrian Issues and Opportunities – January 22, 2014

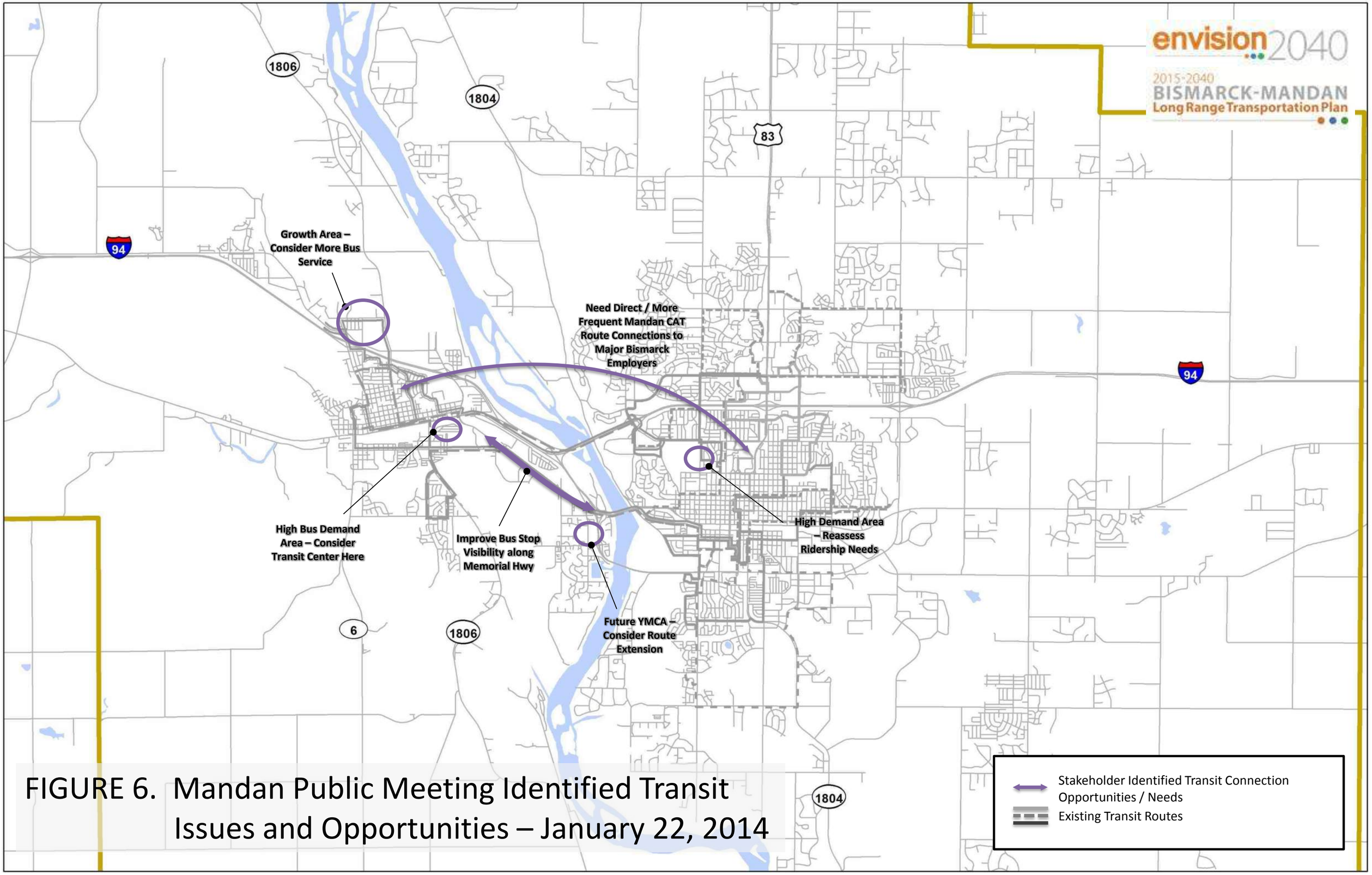


FIGURE 6. Mandan Public Meeting Identified Transit Issues and Opportunities – January 22, 2014

RECEIVED

OCT 17 2013

Transportation plan

The Bismarck Mandan Metropolitan Organization is preparing its 25-year long-range transportation plan. MPO planner Ben Ehreth said a public hearing will be scheduled sometime in 2014, but the organization also will offer a number of online options to allow residents to comment about needs in public transportation, road improvements, biking and pedestrians in the Lincoln, Bismarck and Mandan areas and their counties through 2040.

Reports about the plan can be found at wwww.envisionbisman2040.com. At the site, residents will find directions about how to comment online and interactive maps, said Ehreth.

Residents may comment through kiosks set up at the Bismarck Public Library, Mandan library and the state Capitol.

"We will be holding an online public meeting and run a household survey that we will mail to 400 households," Ehreth said.

He said users also can sign up for the transportation plan updates through Facebook and Twitter.

Residents also may call Ehreth with comments and questions at 701-355-1840.

(Reach LeAnn Eckroth at 701-250-8264 or leann.eckroth@bismarcktribune.com.)

Better north-south routes, transit wanted in long-range transportation plan

JANUARY 23, 2014 5:05 PM • BY LEANN ECKROTH

BISMARCK, N.D. --Two meetings held this week about area long-term transportation needs yielded several comments about north-south travel routes, improved transit service, needs for bicyclists and walkers and freight routes, said Ben Ehreth, planner for the Bismarck Mandan Metropolitan Planning Organization.

Bismarck and Mandan each hosted a meeting about Envision 2040, the long-range transportation plan for 2015-2040. “It was a good turnout. We saw about 25 people at each meeting,” Ehreth said Thursday. The Tuesday meeting was held at the Bismarck Public Library. On Wednesday, Mandan hosted a meeting at City Hall.

The long-range plan will serve as a guide of transportation needs for Bismarck, Mandan, Lincoln and parts of Morton County and Burleigh counties through 2040.

Ehreth said the MPO received comments that:

- Bismarck and Mandan could improve its north-south mobility
- That a better road connection is needed between Lincoln and Bismarck.
- That it is difficult to improve arterial routes near residential areas.
- Some wanted a new bridge to connect Bismarck and Mandan.
- There is a need to identify opportunities for roundabouts.
- There is a need for more signals and turn lanes to decrease traffic congestion.
- There is a need to preserve future roadway corridors for new growth areas.
- Transit bus operations need to be extended, there needs to be more trips to Mandan and a Mandan-only bus route should be considered.
- More direct bus routes are needed with a Bismarck downtown transit center.
- Motorists need more education to improve safety for on-street bike users.
- n There could be more developer and private partnerships to build trails.
- Upkeep is needed for the existing trail system.
- There is a need for alternative truck routes so they do not travel on Main Street in Mandan.

Comments also can be made at the study website: www.envisionbisman2040.com/.

Ehreth said a random study survey of 1,500 households also was sent out to gauge what people feel the transportation needs are. Results of that study are expected in the next few weeks.

Information kiosks also were set up to receive public comment on transportation needs throughout Bismarck, Mandan and Lincoln, he said.

ENVISION2040 NEWS

Moving Bismarck-Mandan from Point A to Point B

A message from the Metropolitan Planning Organization (MPO)

Welcome to our first edition of Envision2040 News!

We will be sending out electronic newsletters periodically to provide information on the progress of the 2015-2040 Long Range Transportation Plan. Watch for upcoming newsletters in your email inbox or on our website.

We encourage you to share this newsletter with family, friends, co-workers, and organizations you're involved with.

The more input and people involved in the planning process, the better the Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties can plan for our future.

In this issue we provide an overview of the Long Range Transportation Plan, including its purpose and schedule. We also discuss a variety of opportunities for you to participate in the development of the plan including:

- Our website (**www.envisionbisman2040.com**)
- Social media:
  - **twitter.com/envision2040** or **@envision2040**
  - **facebook.com/envisionbisman2040**
- Information and input kiosks around town
- And more!

We look forward to receiving your input, suggestions, newsletter topics and ideas over the next several months.

Sincerely,
Ben Ehreth, ACIP • Bismarck-Mandan MPO

WHAT'S INSIDE

- Plan Schedule
- Frequently Asked Questions
- Using social media to connect
- Getting your input

ENVISION2040 NEWS

Moving Bismarck-Mandan from Point A to Point B

YOU MAY BE WONDERING...

What is the Bismarck-Mandan Long Range Transportation Plan (LRTP)?

The LRTP is a community-driven process that establishes a vision for mobility in Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties. The LRTP identifies goals, needs, investment priorities, and an implementation plan for the future transportation system. This includes the street and road network, bicycle and pedestrian facilities, transit (CAT bus and ParaTransit), and freight movement.

The overall goal of the LRTP is to improve mobility, accessibility and safety for the people and freight.

Why do we need an LRTP?

With a population over 50,000, the Bismarck-Mandan region is an urbanized area that is federally-mandated to have a Metropolitan Planning Organization (MPO). The Bismarck-Mandan MPO receives federal funding for transportation projects and programs for the region, and is required to plan for these transportation projects and programs. The Bismarck-Mandan planning process must be **continuing**, **cooperative**, and **comprehensive**, and include all of the local city and county jurisdictions of Bismarck, Mandan, Lincoln, and portions of Burleigh and Morton Counties. In its role as an MPO, it is required to update the region's LRTP every five years.

View more answers to frequently asked questions on our website at **www.envisionbisman2040.com**

GOT AN IDEA?

Using phone and web surveys to collect your input.

To collect additional data across the Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties, a random survey of area residents will be conducted this fall.

Approximately 400 households will be contacted and asked if they have time to answer an assortment of questions over the phone or via the web regarding the current transportation system and ideas of future improvements.

Once the survey is complete, a survey report will be generated and available for review on the website.

Citizens who respond to the survey and their responses will be kept anonymous.

CONTACT US:

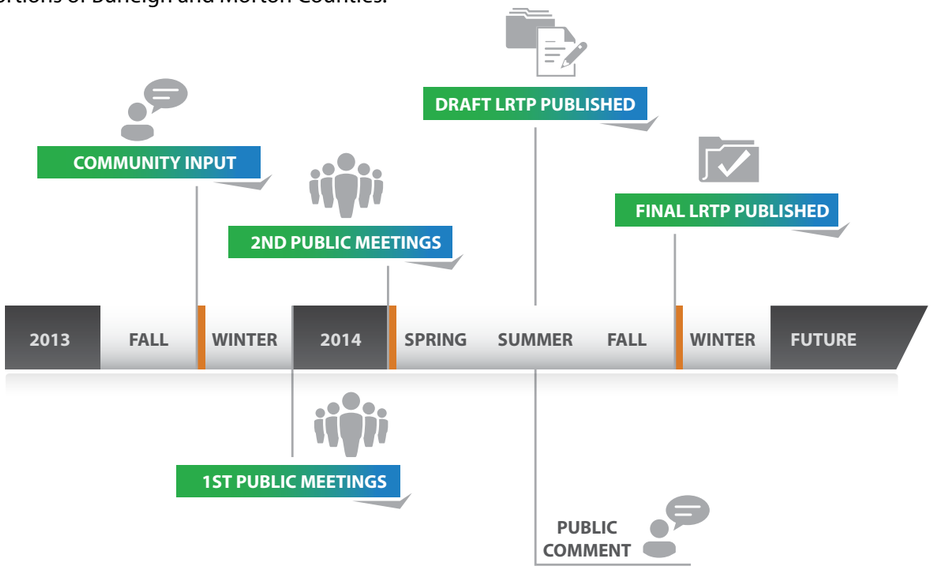
ONLINE:
www.envisionbisman2040.com
facebook.com/envisionbisman2040
twitter.com/envision2040 or @envision2040
info@envisionbisman2040.com

MAIL:
Bismarck-Mandan MPO
Attn: Ben Ehreth
221 N. 5th St., PO Box 5503
Bismarck, ND 58506

PROJECT CONTACT:
Ben Ehreth, AICP
Phone: (701) 335-1850
Fax: (701) 222-6450
Email: bjehreth@nd.gov

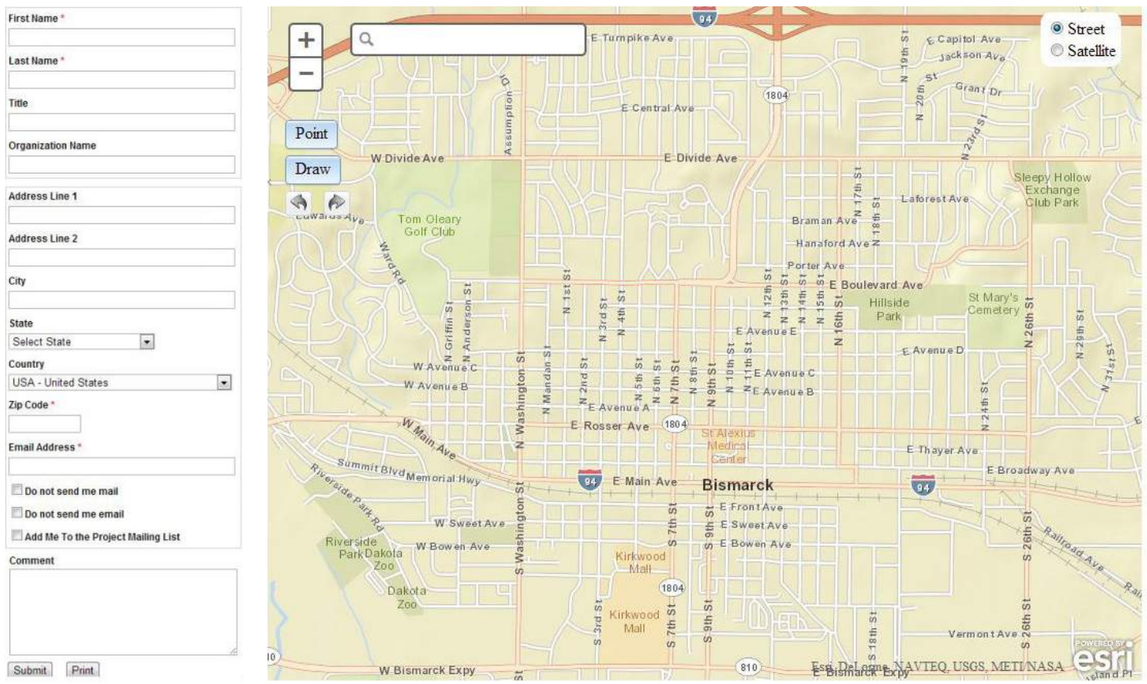
How long will this plan take to develop?

The LRTP update is an 18-month process that involves many stakeholders, including the citizens of Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties.

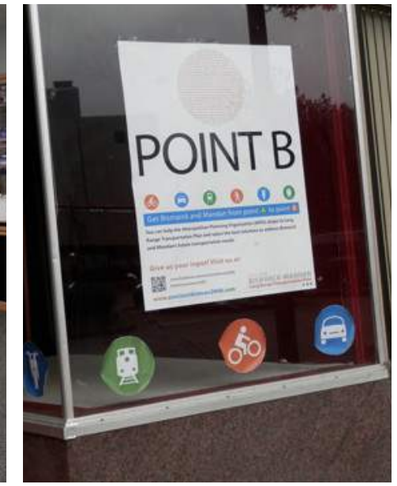


How can you send us ideas about a specific location?

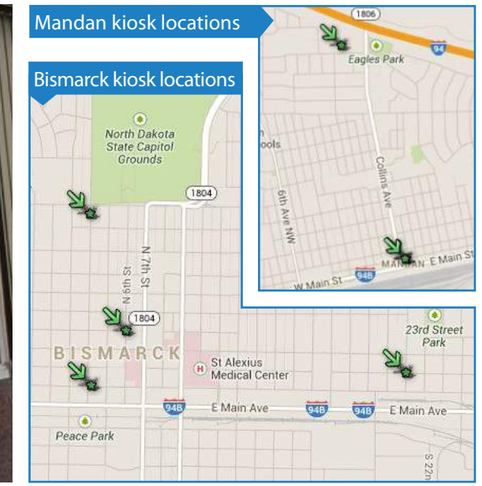
Visit our website at www.envisionbisman2040.com and go to our Get Involved page. You'll be able to draw a point, line, or shape on an interactive map (depicted below) and attach your contact information and idea or comment to it.



Mandan Public Library



Downtown Bismarck



Informational kiosk locations

GETTING YOUR INPUT

Think about your typical day. You wake up, shower, eat breakfast, and then you're on the go. On busy days it's all about getting from Point A to Point B as efficiently as possible. Have you ever thought something like:

- **If there were bike lanes available on my commute, I wouldn't have to sit in traffic and I'd get in a work out.**
- **Everytime I drop my child off at daycare, traffic is backed up because there isn't a turn lane at the intersection.**
- **I would ride the CAT bus if there was a stop in my neighborhood or near my work.**
- **My business loses money every time our trucks are stuck in traffic.**
- **There isn't an easy or safe way to turn left outside of our office building.**

These are the types of everyday transportation issues you can help us understand. In addition to solving today's problems, we want to "Envision2040" by exploring the relationship between community growth and solving potential future transportation issues. This is where we need your input - we want to make sure the whole community is part of Envision2040! The Bismarck-Mandan MPO has created the following ways for input:

- **Visit our website at www.envisionbisman2040.com**
  - » **Submit a comment about a specific location using our interactive map on the Get Involved page**
  - » **Submit a general comment on the Contact Us page**
- **Follow *@envision2040* on Twitter**
- **Like us on Facebook at facebook.com/envisionbisman2040**
- **Visit our information and input kiosks around town**
- **Contact us if your organization is interested in a presentation on the LRTP**
- **Attend one of our future public open house meetings (anticipated in early 2014)**

The average person spends 15.5 minutes on Facebook every day.

Take a minute and Like Us on Facebook or follow us on Twitter to stay engaged in the important conversation about the future of your community's transportation system.

facebook.com/envisionbisman2040

twitter.com/evision2040

Help us improve the way you get from Point A to Point B !

ENVISION2040 NEWS

Moving Bismarck-Mandan from Point A to Point B

A message from the Metropolitan Planning Organization (MPO)

Dear Readers,

With spring just around the corner, we are excited to update you about the progress of the Envision 2040 Bismarck-Mandan Long Range Transportation Plan. Thanks to your help, we've completed two of the four main steps of the planning process:

☑ Gather Community Input (ONGOING)

Over the past few months we've asked you to submit your ideas and opinions through public meetings, our website, Facebook and Twitter, kiosks, and online and mailed surveys. We appreciate your time and we have been carefully evaluating your input as part of the planning process.

☑ Evaluate Existing Conditions

Our technical team has been analyzing the current transportation system in the Bismarck-Mandan area to identify how the system is operating, evaluating how well it connects various locations across the area, and reviewing safety conditions on the system. Full details of this analysis can be found on our website.

☐ Forecast Future Conditions

Our next step is to forecast future land development and traffic levels through 2040, which will help guide our analyses of not only where problems exist today, but where they might emerge by 2040.

☐ Analyze Alternatives

We will use the community input, data, and forecast analysis to develop a range of transportation alternatives to consider for inclusion in the final Long Range Transportation Plan.

We look forward to continuing this process with you!

Sincerely,

Ben Ehreth, ACIP • Bismarck-Mandan MPO

JANUARY 2014 PUBLIC MEETING HIGHLIGHTS

View a meeting summary on Page 4

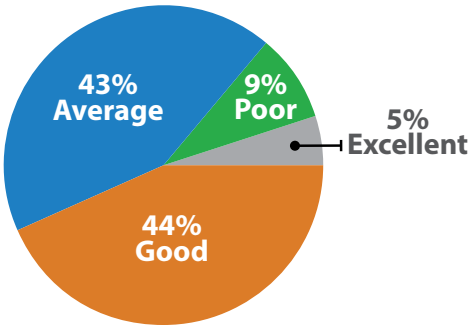
A brief informational presentation was given at each meeting.

Small group exercises allowed attendees to place their ideas and opinions on a map.

THE RESULTS ARE IN...

This winter, we administered a survey by mail, phone, and through our website to collect feedback from a random sample in the greater Bismarck-Mandan area with 632 households responding. View the full results report on our Resources page (www.envisionbisman2040.com/resources) under "Studies and Reports".

How residents rated the Bismarck-Mandan area roadway and street system:

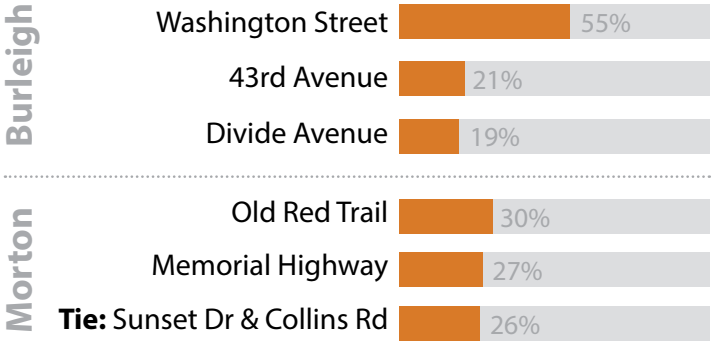


Rated "most important" to address:

1. **Flow of traffic at peak times**
2. **Availability of parking**
3. **Maintenance of current roads**
4. **Ease of North-South travel**

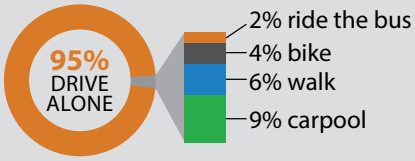
This ranking is based on an analysis of how residents rated their satisfaction and how they rated the importance of each issue.

Top corridor improvement priorities:



TRANSIT SNAPSHOT

How residents get to and from routine destinations:



Why residents don't ride the bus

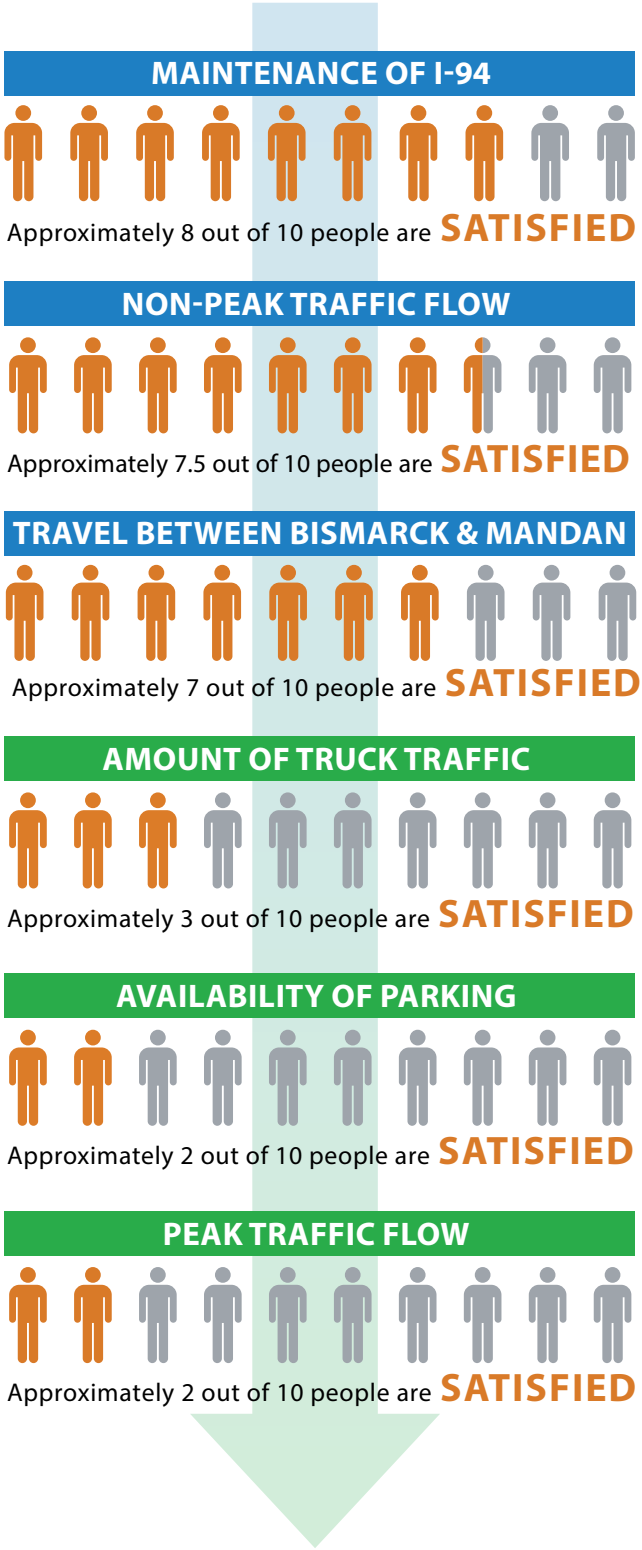
1. Prefer to drive
2. Bus routes/stops too far away
3. Takes too long

In the past year...

52% of households have at least one member who has ridden a bike

9% of households have at least one member who has ridden the bus

Most satisfied



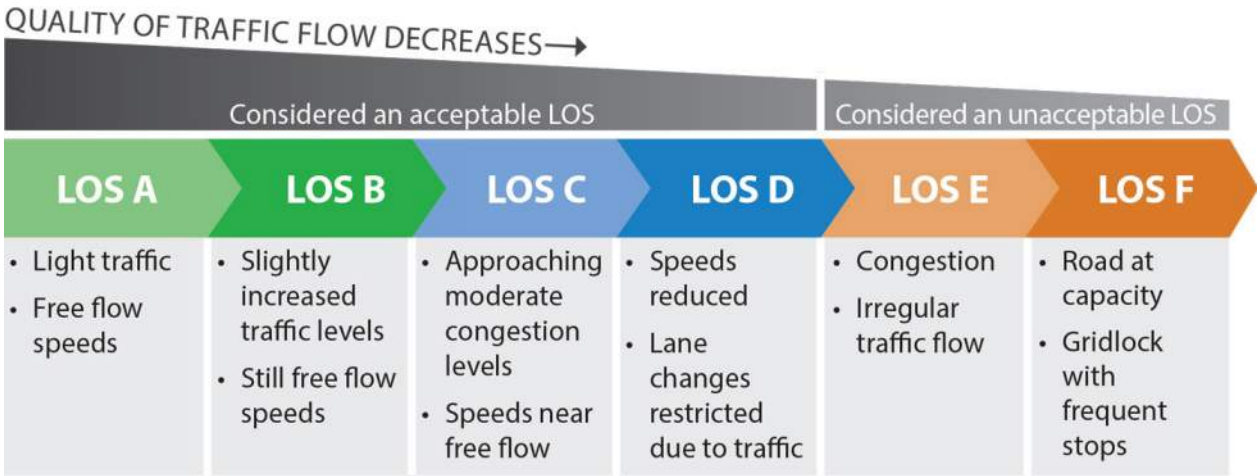
Least satisfied

Existing Conditions Analysis: An Overview

As a part of the 2040 Long Range Transportation Plan update, we evaluated current transportation system conditions in Bismarck-Mandan to identify how the system is operating and how well it connects various locations across the area, and reviewed safety conditions on the system. View a video presentation or read the complete report on our Resources page at www.envisionbisman2040.com/resources.

CURRENT TRAFFIC "LEVEL OF SERVICE"

Level of service (LOS) is a way in which traffic engineers take a quantitative analysis of traffic flow/congestion/delay, and apply descriptive letter grades to that flow. A summary of the levels of service is provided in the graphic below:

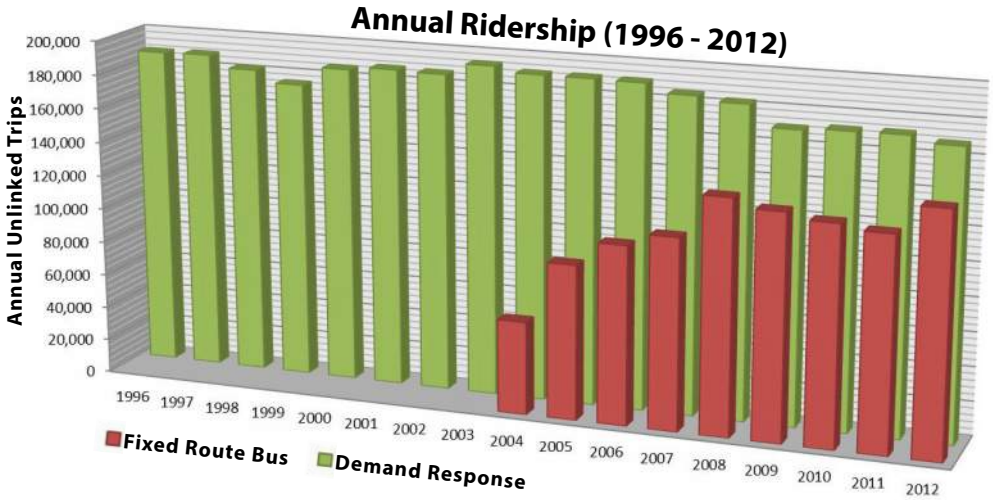


CURRENT TRAFFIC SAFETY CONDITIONS

We reviewed crash data provided by the North Dakota Department of Transportation (NDDOT) to determine locations with high levels of reported crashes. The data covered a 3-year period for the Bismarck-Mandan area, and allowed us to review how many crashes occurred at various locations throughout the area.

CURRENT TRANSIT CONDITIONS

Public transit service in the Bismarck-Mandan MPO area is provided by the Bis-Man Transit Board. The board provides two types of public transit: fixed-route bus service through Capital Area Transit (CAT) and paratransit / demand response service through Bis-Man Transit.



CURRENT BICYCLE AND PEDESTRIAN SYSTEM

The existing bicycle and pedestrian system was evaluated by collecting data, observing and experiencing the bicycle and pedestrian system first-hand, and reviewing comments received from the public. View a video about planning for bike and pedestrian systems on our Resources page at www.envisionbisman2040.com/resources.

BIKE & PED ASSETS

- Extensive sidewalk and walkway network
- Extensive trail network
- Under-utilized street right-of-way
- Pedestrian amenities
- Growing on-road bicycle network
- Calm residential streets

BIKE & PED CHALLENGES

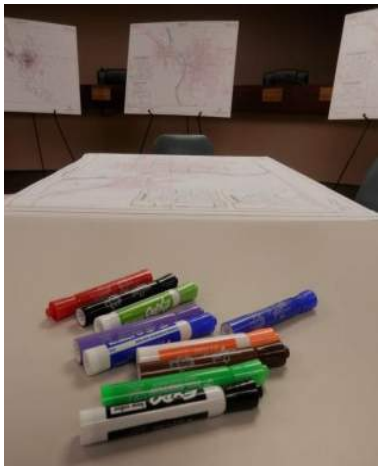
- Bicycle/pedestrian network gaps
- Short pedestrian crossing times
- Room for improved routes and wayfinding
- Driver and bicyclist education

JANUARY 2014 PUBLIC MEETING SUMMARY

KEY THEMES:

There were several instances where multiple small groups came up with the same issue or opportunity.

In order to categorize the input into a transportation vision for Bismarck-Mandan, the issues and opportunities were organized into the general themes below:



MEETING DETAILS:

When and where: Meetings were held on Tuesday, January 21 at the Bismarck Municipal Library, and on Wednesday, January 22 at the Mandan City Hall.

Attendance: 43 citizens attended the meetings (21 in Bismarck and 22 in Mandan)

Meeting Activities: Attendees participated in a small group exercise to gather input on geographic and regional issues and opportunities.

- **Mobility**
- **System Maintenance**
- **Alternate Mode Strategies**
- **Land Use**
- **Education**
- **Freight and Economic Development**
- **Project Development / Policy / Funding**
- **Safety**

View the full summary under Meeting Materials at **www.envisionbisman2040.com/resources**

STAY ENGAGED

Continue to submit your ideas and opinions to us!

CONTACT US:

ONLINE:

www.envisionbisman2040.com
facebook.com/envisionbisman2040
twitter.com/envision2040 or @envision2040
info@envisionbisman2040.com

MAIL:

Bismarck-Mandan MPO
Attn: Ben Ehreth
221 N. 5th St., PO Box 5503
Bismarck, ND 58506

PROJECT CONTACT:

Ben Ehreth, AICP
Phone: (701) 335-1850
Fax: (701) 222-6450
Email: bjehreth@nd.gov

Carbee, Jason

Subject: FW: BMDA Highlights - 10/22/13

AMServiceURLStr: https://Slingshot.hdrinc.com:443/CFSS/control?view=services/FTService

From: BMDA [mailto:bmda@bmda.org]
Sent: Tuesday, October 22, 2013 8:16 AM
To:
Subject: BMDA Highlights - 10/22/13

400 E Broadway | PO Box 2615 | Bismarck, ND 58502 | 701-222-5530 | info@bmda.org

www.bmda.org

BMDA Highlights - 10/22/13

Bismarck-Mandan statistics - The growth of our community is undeniable, but it can be difficult to quantify that growth when it's happening at such a fast pace. So while it's easy to point to specific building projects or anecdotal stories, quantifiable statistics like those in our monthly Economy-at-a-Glance are the best indicators of just how far we've come. So in addition to the Economy-at-a-Glance, we've updated some statistics such as population, business establishments, workforce and wages for your reference and use.

The Bismarck-Mandan Metropolitan Statistical Area (MSA) includes all of Burleigh and Morton Counties including the cities of Bismarck and Mandan. The 2000 Census reported the Bismarck-Mandan MSA was home to 94,719 residents and since then has grown to approximately to 114,000 according to the latest U.S. Census Bureau estimate.

Population of MSA (Burleigh and Morton Counties)

2002	96,084
2003	96,846
2004	97,734
2005	99,371
2006	101,186
2007	103,023
2008	104,629
2009	106,286
2010	108,779

2012	*113,875*
Net Gain	**17,791**

Next, the annual average employment is the total covered employment in the MSA, divided by 12 and then rounded to the nearest person. Covered employment means companies liable for the unemployment insurance of their workers, so it excludes those who are self-employed. This figure comes from the Quarterly Census of Employment and Wages program, so it allows for multiple counting of jobs i.e. if you work two jobs, you're counted twice in the series. It's also by place of work, so if you lived in Steele for example and worked in Bismarck, you're counted in Bismarck.

Annual Average Employment (number of jobs employed with liable businesses)*

2002	50,773
2003	52,002
2004	53,496
2005	55,054
2006	56,923
2007	58,096
2008	59,101
2009	59,699
2010	60,311
2011	62,050
2012	64,739
Net Gain	**13,966**

Business establishments, also known as worksites, are defined as the smallest operating business unit for which information can be provided on the cost of resources, materials, labor, and capital employed to produce output. An establishment is generally a single, physical location where business is conducted or where services or industrial operations are performed (e.g. store, factory, farm, etc.).

Business Establishments (number of sites where business is conducted)*

2002	3,538
2003	3,655
2004	3,778
2005	3,906
2006	4,066
2007	4,062
2008	4,160
2009	4,164
2010	4,213
2011	4,292
2012	4,534
Net Gain	**996**

employed in the Bismarck-Mandan MSA. The average annual salary information is calculated by dividing the total wages paid in the MSA by the annual average employment. The hourly information was then calculated by dividing the average annual salary by the generally accepted work year of 2,080 hours.

Average Annual Salary / Hourly Wage**

2002	$27,993 annually / $13.46 hourly
2003	$29,447 annually / $14.16 hourly
2004	$30,825 annually / $14.82 hourly
2005	$31,505 annually / $15.15 hourly
2006	$32,550 annually / $15.65 hourly
2007	$34,117 annually / $16.40 hourly
2008	$35,388 annually / $17.01 hourly
2009	$36,081 annually / $17.35 hourly
2010	$37,866 annually / $18.20 hourly
2011	$39,725 annually / $19.10 hourly
2012	$42,391 annually / $20.38 hourly
Net Gain	**$14,398 annually / $6.92 hourly**

These statistics are by no means a complete picture of the growth our economy has experienced since 2002; however, they do provide an excellent benchmark from which we can measure our progress as a community. Hopefully, they can be of use to you in your business planning or other processes. A special thanks to Michael Ziesch and Phil Davis at Job Service North Dakota for helping us compile these statistics.

*Source: Job Service North Dakota **Hourly wage determined using work year of 2,080 hours

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Bismarck-Mandan Metropolitan Planning Organization kicks off 'Envision 2040' - The Bismarck-Mandan Metropolitan Planning Organization kicked off their 2015-2040 Long Range Transportation Plan 'Envision2040' at the City Commission meeting October 8th. The Bismarck-Mandan Long Range Transportation Plan (LRTP) is a community-driven process that establishes a vision for mobility in Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties. The LRTP identifies multi-modal transportation goals, needs, investment priorities, and an implementation plan for the future transportation system. Envision2040 is aimed at generating conversation and ideas to create a better transportation system for our future. The Metropolitan Planning Organization is requesting input, potential projects, and ideas to plan for the future to improve the community's transportation system.

Visit the project website at www.envisionbisman2040.com to find information about the plan, opportunities to get involved, interactive comment mapping tool, comment form, frequently asked questions and contact information.

To read the full news release about the Envision 2040 kick off, click HERE.

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ND oil production tops 900,000 barrels per day - Oil production in North Dakota rose 4 percent in August to an all-time high of 911,242 barrels per day according to preliminary figures released by the Department of Mineral Resources. For some perspective, North Dakota only produced 80,000 barrels of oil per day back in 2003. In addition, natural gas production exceeded 1 billion cubic feet per day for the first time. And while the volume of natural gas flared increased from 9.3 billion cubic

percent to 29 percent.

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Chamber leadership program - For the past eleven years, BMDA staff have co-chaired the Leadership Bismarck-Mandan Program's Economic Development / Agriculture Day. It's a great opportunity to educate a group of future leaders about the economic development process and the impact of agriculture on Bismarck-Mandan's economy. This year's edition was held last week at NISC. In addition to BMDA presentations, the day included Stacy Breuer from Bobcat, Evan Anderson from Innovative Solutions, State Ag Commissioner Doug Goehring, Craig Malm from Farm Credit Services, and Peggy Netzer and Tanya Jo Smith from BisMarket, a local farmers market. Thank you to the presenters for being a part of the ED / Ag Day, and to the Bismarck-Mandan Chamber for offering this important program in our community.

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BMDA Highlights - 1/28/14

BMDA Annual Meeting – The 2014 BMDA Annual meeting is scheduled for Tuesday, February 25th beginning at 11:45 am. The luncheon meeting will be held at the Seven Seas Hotel & Waterpark in Mandan.

In 2013, the BMDA embarked on creating a strategic plan that would be pivotal in the development of Bismarck-Mandan and the surrounding region. The greater Bismarck-Mandan community is faced with a unique opportunity during this time of economic strength and diversity. BMDA leadership and Larry Dowell, President, Dowell Management, will present our strategic plan that sets the course for BMDA's role in positioning our economy for sustained growth, and to successfully position our region as an opportunity destination for business, talent and families.

To reserve a seat at the annual meeting, call the BMDA office at 701-222-5530 or email info@bmda.org.

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MPO holds long range transportation plan public input meetings - Last week, the Bismarck-Mandan Metropolitan Planning Organization's (MPO) held public input meetings in Bismarck and Mandan for the 2015-2040 Bismarck-Mandan Long Range Transportation Plan, aka Envision 2040. Envision 2040 is a "community-driven process that identifies goals, needs, priorities, and an implementation plan for the future transportation system in Bismarck, Mandan, Lincoln and portions of Burleigh and Morton Counties." BMDA staff attended the meeting in Bismarck having already participated in the plan's focus group last fall as the community's transportation systems are a vital part of our continued economic development success. If you're interested in learning more, visit the plan's website at http://www.envisionbisman2040.com/

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BISMARCK PLANNING & ZONING COMMISSION
MEETING MINUTES EXCERPT
January 28, 2015

The Bismarck Planning & Zoning Commission met on January 28, 2015 at 5:00 p.m. in the First Floor Conference Room in the City-County Office Building, 221 North 5th Street. Chairman Yeager presided.

Commissioners present were Tom Atkinson, Mel Bullinger, Mike Donahue, Kathleen Jones, Doug Lee, Mike Schwartz, Lisa Waldoch and Wayne Yeager.

Commissioner Seminary participated via telephone.

Commissioners Vernon Laning and Ken Selzler were absent.

Staff members present were Carl Hokenstad – Director of Community Development, Kim Lee – Planning Manager, Jason Tomanek – Planner, Jenny Wollmuth – Planner, Hilary Balzum – Community Development Office Assistant, Steve Saunders – Transportation Planner, William Hutchings – Transportation Planner, Charlie Whitman – City Attorney and Jason Hammes – Assistant City Attorney.

PRESENTATION/PUBLIC HEARING –
2015-2040 LONG RANGE TRANSPORATION PLAN

Chairman Yeager called for the presentation and public hearing on the 2015-2040 Long Range Transportation Plan (LRTP).

Steve Saunders of the Bisarck-Mandan Metropolitan Planning Organization (MPO) introduced Jason Carbee of HDR Engineering. Mr. Saunders explained that the MPO is mandated by the federal government to revise the LRTP every five years in order to receive federal funding for any listed individual project within it.

Jason Carbee, HDR Engineering, gave an overview of the draft LRTP, including how the visions of the community are to be implemented; what the mobility, safety and transit access priorities are; and how overarching trends are impacting the Plan. The Plan also identifies the short-term, mid-term and long-term transportation goals are for the metropolitan area.

Commissioner Seminary asked the Commissioners to go to page 12 of the draft LRTP which shows car crash statistics, noting the locations of those crashes. He then state that he wants to make it clear that he will be lobbying for full funding from the state of North Dakota when it comes time for the interchange at 66th Street NE to be implemented. He said the portion of State Street north of Interstate-94 has issues stretching for three and a half miles due to there being nine traffic signals in that stretch, with a tenth one on the way, which is resulting in increased truck traffic on Centennial Road by vehicles wanting to avoid all of the stop and go traffic on State Street. He said traffic in general has increased on State Street as it is both a US highway and an arterial roadway being used by all types of people

for all types of reasons every single day. He is very concerned for the safety of the citizens utilizing Centennial Road on a daily basis because of the close proximity to the new high school and the amount of truck traffic diverting to Centennial Road to avoid the signals and congested traffic on State Street.

MOTION: Commissioner Seminary made a motion to accept the 2015-2040 LRTP as presented to include his comments and for the draft Plan to be forwarded to the Bismarck City Commission for acceptance and adoption. Commissioner Atkinson seconded the motion and it was unanimously approved with Commissioners Atkinson, Bullinger, Donahue, Jones, Lee, Schwartz, Seminary, Waldoch and Yeager voting in favor of the motion.

ID Date Type Status	Title Summary Notes	Topics	Person Participants	Phone Number Email Address (Suppressed for Report)
8533 8/9/2013 Email Closed	**Jami Wangler Email Comment** Great. I think this would be a great trail and I've seen a lot of people just on the road down there and there is no shoulder at all. So dangerous, but I would love to have it connected as well!South Washington Street…. Continued south of Burleigh Ave towards Sibley park :D.I included a map it looks like it is labeled as future… Let me know if there is anything I can do to Lobby for it soon (See Documents for Full Email Chain)	Bike Paths/Lanes	Jami Wangler City of Bismarck	[redacted]
8534 9/3/2013 Email Closed	**Email- Holly Friesz** Hello Ben,My name is holly Friesz and I currently live in Portland, Oregon, but I am originally from Bismarck,ND. On a recent trip to ND to visit family, I was so excited to see bicycle lanes and streets. I did want to bring to your attention that I think there should be some education classes for pedestrians and cyclists regarding bicycle safety. I saw some teenagers riding and not using the correct hand signals and also not using bicycle lights. I will not be at the upcoming meeting, but I really hope this is an issue the meeting addresses. If you want to see more people walking and cycling, it's a good idea to educate as well as promote the idea. Keep up the great work! I'm excited to see the progress during my next visit.Warmly,Holly(See Documents for original email)	Bike Paths/Lanes Safety	Holly Friesz	[redacted]
8535 9/11/2013 Email Closed	**Cam McCullough Email Comment** Hi Ben,I wish I could make the meeting, but I will be out of town on business that evening.My thoughts:1) I think Bismarck has made great strides the last couple years to become more bike/pedestrian friendly – I really appreciate it - please thank the "powers that be" for me.2) The only area I really have trouble with on bike is the downtown area, heading either north or south and crossing Main. (I live in the older part of Bis, just north of downtown, so Mary and I ride this area quite a bit.)a. Washington & 3rd are hazardous on a bike – pretty much relegated to sidewalks.b. 5th is OK, but you need to navigate the unique downtown traffic flow and any Civic Center activities.c. 7th and 9th are out…d. 12th and east is probably OK; I don't ride in that area very often, as out of the way to get to the Mall, etc.Not sure what the MPO is looking for, but a little bike path from 4th, over the tracks, across Front, and down the hill to Bowen would be great; easy access to/from downtown for the Mall/hotel/restaurant area. I promise not to get hit by a train…Thanks for all your hard work – see you on the trails.Cam McCullough(See documents for original email)	Bike Paths/Lanes Safety	Cameron McCullough MDU Resources	[redacted]
8537 9/11/2013 Email	**Bike/Ped Listening Session Email Invite** Email Subject: Bicycle and Pedestrian Listening Session for the Bismarck-Mandan MPO 2015-2040 Long Range Transportation Plan.	Bike Paths/Lanes Public Involvement	Mark Berg Bismarck Engineering Department Mark Liebig	[redacted]

Closed	See Documents for full email text.	Central Dakota Cyclists
		Ben Kubischta ND DOT Local Government
		Jason Tomanek Renaissance Zone Authority
		Cameron McCullough MDU Resources
		Ben Ehreth NDDOT
		Allen Chompen Central Dakota Cyclists
		Allen Chompen LAB League Cycling Institution
		Bob Shannon
		Carol Aron
		Theresa Felderman
		Annette Deforest
		L. Anita Thomas
		Bryce Bachman Bismarck Parks & Rec

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Jon Darling U.S. Army Corps of Engineers	[redacted]
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Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
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Mark Zimmerman ND Parks & Recreation Department	[redacted]
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Philip Murphy	[redacted]

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Timothy Rector
U.S. Department of Agriculture

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			Dave Howard	[redacted]
				[redacted]
				[redacted]
8560 9/16/2013 Agency Meeting Closed	**Bismarck-Mandan MPO LRTP Update Management Team** Bismarck-Mandan MPO LRTP Update Management Team Meeting	Public Involvement	Jason Carbee HDR	[redacted]
			Marcus Hall Burleigh County Engineer	[redacted]
			Robert Johnston Lincoln City Council	[redacted]
			Justin Froseth Mandan Engineering Department	[redacted]
			Mike Aubol Morton County	[redacted]
			Michael Johnson NDDOT	[redacted]
			Ben Ehreth NDDOT	[redacted]
			Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
			Bob Decker Mandan Planning	[redacted]

			Rick Stoppelmoor	[redacted]
8561 9/16/2013 Workshop Closed	**Focus Group #1** Focus Group #1	Public Involvement	Randy Bina Bismarck Parks & Rec	[redacted]
			Mark Liebig Central Dakota Cyclists	[redacted]
			Chuck Peterson Jobbers Moving & Storage	[redacted]
			Tim Seaworth University of Mary	[redacted]
			David Clark Bismarck State College	[redacted]
			Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]
			Brian Ritter Bismarck-Mandan Development Association	[redacted]
			Cheryl Hess State Council on Developmental Disabilities	[redacted]
			Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
			Allan Klein Burleigh County Rural Fire Department	[redacted]
			Bill Lardy AARP North Dakota	[redacted]
8562 9/16/2013 Workshop Closed	**Bike-Ped Meeting** Bike-Ped Meeting	Bike Paths/Lanes Public Involvement	Mark Liebig Central Dakota Cyclists	[redacted]
			Bob Scarlett	[redacted]
			Allen Chompen Central Dakota Cyclists	[redacted]
			Allen Chompen LAB League Cycling Institution	[redacted]
			Jim Kambeitz	[redacted]
			Bob Shannon	[redacted]
			Carol Aron	[redacted]
8536 9/24/2013 Email	**Ross Degenstein Email Comment ND Stats** Included List of Statistics in North Dakota in 1930, 1984, 1990 and 2012. See Documents for original email	Economic Impacts	Ross Degenstein	[redacted]

Closed				[redacted]
8437 9/25/2013 Website Map Comment Closed	**Web Comment from Spencer Ulvestad** I made a few notes on the map about adding shared use paths. One is on Bismarck expy from 9th st to Rosser Ave. The second is on 43rd Ave NE from Wash. st to Centenial rd, the along Centennial rd from 43rd Ave NE to E Century Ave. The third one is along State st from Calgery ave to skyline blvd. The 4th one is a recreational bike path that extends along the railroad tracks nort of divide ave and meets up with the bike path near Pacific Ave. Thanks for the opportunity to comment.	Bike Paths/Lanes	Spencer Ulvestad	[redacted]
8553 9/27/2013 Kiosk Comment Form	**Kiosk Card - Susan Holweg** My idea in MANDAN BISMARCK CAT BUS is to run longer - go all day and all night - how are people with jobs that work late suppossed to get home?	Bus System	Susan Holweg	[redacted]
8545 9/27/2013 Kiosk Comment Form Closed	**Kiosk Card - Christine Kujewe** My idea in BISMARCK is to 1) add rail transport - right now people have to get to Minot. 2) more stops on the bus route. 3) Cheaper flights to Minneapolis. 4) More bike routes that CONTINUE. Some randomly stop - where to bikes go then?	Bike Paths/Lanes Bus System Cost Transit	Christine Kujewe	[redacted]
8546 9/27/2013 Kiosk Comment Form Closed	**Kiosk Card - Arlene Havig** My idea in LIBRARY is to have the bus service fun the opposite direction a half hour CROSS OVER between points along the route. A lot of stops might only need 15 to 20 minutes to complete business at a certain point. That makes the return trip shorter then to go the whole route around to the beginning point.	Bus System	Arlene Havig	[redacted]
8547 9/27/2013 Kiosk Comment Form	**Kiosk Card - Ken Roubideaux** Run Cat Buses couple hours later on certain days or when special events are in town	Bus System Transit	Ken Roubideaux	[redacted]
8548 9/27/2013 Kiosk Comment Form	**Kiosk Card - ~Anonymous** My idea in BIS-MAN AREA is to make the buss transfer last longer - mine are ALWAYS expired before the next bus.	Bus System	~Anonymous ~Anonymous	[redacted]
8549 9/27/2013 Kiosk Comment Form Closed	**Kiosk Card - Traci Juhala** My idea in BISMARCK is to have passenger rail service in Bismarck to Fargo, Minneapolis, Denver, wherever - please, please - this would be wonderful and well-used. Even a connector to Minot would be better than nothing.	Transit	Traci Juhaln	[redacted]
8550 9/27/2013 Kiosk Comment	**Kiosk Card - ~Anonymous** My idea in MANDAN (LIBERTY HEIGHTS BUS PICK-UP) is to include our new Walmart store on your way back from Bismarck. Cat Bus (from	Bus System	~Anonymous ~Anonymous	[redacted]

Form	Resident at Morton County Housing)			[redacted]
8555 10/1/2013 Local Officials Presentation	**Presentation for the City of Mandan Commissioners** Presentation for the City of Mandan Commissioners @ Mandan City Hall, 5:30 PM	Public Involvement	Jason Carbee HDR	[redacted]
8556 10/3/2013 Local Officials Presentation Closed	**Presentation for the City of Lincoln Commissioners** Presentation for the City of Lincoln Commissioners @ Lincoln City Hall 7:00 PM. Suggestion provided: Looking for more local public outreach in their city. HDR is working on identifying a location for an information kiosk in the City of Lincoln.	Public Involvement	Jason Carbee HDR	[redacted]
8557 10/8/2013 Local Officials Presentation Closed	**Presentation for City of Bismarck Commissioners** Presentation for the City of Bismarck Commissioners, Tom Baker Meeting Room, City\County Office Building 5:15 PM. Suggestion provided: Host a webinar based public involvement meeting during the day	Public Involvement	Jason Carbee HDR	[redacted]
8507 10/8/2013 Join the Mailing List	**Web Comment from Lee Klapprodt** Mailing List Request	Mailing List Request	Lee Klapprodt	[redacted]
8518 10/9/2013 Join the Mailing List	**Web Comment from Kate Herzog** Mailing List Request	Mailing List Request	Kate Herzog Downtowners of BIsmarck	[redacted]
8558 10/9/2013 Local Officials Presentation	**Presentation for the Burleigh County Commissioners** Presentation for the Burleigh County Commissioners, Tom Baker Meeting Room, City\County Office Building 5:00 PM		Jason Carbee HDR	[redacted]
8554 10/11/2013 Kiosk Comment Form	**Kiosk Card - Tom Johnson** PROACTIVE DIRECTOR - have the City of Bismarck take over the CAT bus system. Need a new director.	Transit	Tom Johnson	[redacted]
8551 10/11/2013 Kiosk Comment Form	**Kiosk Card - Carol Barahona** My idea in LIBERTY HEIGHTS to Walmart (Mandan) in the parking lot if possible.	General	Carol Barahona	[redacted]
8552 10/11/2013 Kiosk Comment Form	**Kiosk Card - ~Anonymous** My idea in MANDAN is to Like to see CAT (Capital Area Transit) running on Sundays and Holidays in the Bismarck and Mandan area.	Transit	~Anonymous ~Anonymous	[redacted]
8544 10/15/2013 Website Map Comment Closed	**Web Comment from Sudheer Dhulipala** Adding asphalt overlay on south 26th St south of the Walmart will enable residents living in the south part of town to access the Walmart and Sam's club more easily. The gravel road right now is not comfortable for driving.	Road Improvements	Sudheer Dhulipala Ulteig	[redacted]
8559 10/15/2013	**Presentation for the Morton County Commissioners** Presentation for the Morton County Commissioners, Morton County	Public Involvement	Jason Carbee HDR	[redacted]

Local Officials Presentation	Courthouse 4:00 PM			[redacted]
8574 10/16/2013 Join the Mailing List	**Web Comment from Mary Van Sickle** Mailing List Request	Mailing List Request	Mary Van Sickle	[redacted]
8576 10/17/2013 Join the Mailing List	**Web Comment from Scott Olson**	Mailing List Request	Scott Olson	[redacted]
8579 10/17/2013 Website Map Comment Closed	**Web Comment from Tim Seaworth** Extend Century Ave to River Road to improve traffic flow. Identified a few dangerous intersections (see map). Widen Washington from I-94 to the North to the 5 lane roadPlease extend Divide Ave all the way through to the East to avoid another deadend on this important East-West route. Improve North-South traffic flow from 26th Street across I-94. Currently you have to jog back to 19th Street. Bus service needed to LincolnExtend 48th Ave to LincolnMore direct route to Lincoln(see map for more site specific comments)	Bus System Safety Traffic Congestion Traffic Signals	Tim Seaworth	[redacted]
8582 10/17/2013 Website Comment	**Web Comment from Cody K Strothman** I was unable to figure out how to scroll through the pages of the LRTP Overview presentation. Frustrating.	Public Involvement	Cody K Strothman	[redacted]
8584 10/17/2013 Website Comment	**Web Comment from TEST** Test	General	DELETE DELETE	[redacted]
8603 10/19/2013 Join the Mailing List	**Web Comment from Sean Johnson** Please add me to the project mailing list	Mailing List Request	Sean Johnson	[redacted]
8616 10/21/2013 Website Map Comment	**Web Comment from Lindsay Mayernik** Map Comment: University of Mary Bus Stop Needed.	Bus System	Lindsay Mayernik	[redacted]
8612 10/21/2013 Website Comment	**Web Comment from Joan Weltz** Please consider adding periodic stops to the University of Mary as part of the CAT route.	Bus System	Joan Weltz	[redacted]
8615 10/21/2013 Website Comment	**Web Comment from Madonna Busch** I am wondering if there are plans to complete Santa Fe from 3rd Street South to Washington Street and if those plans include linking Cottonwood Loop, and Boston Drive to Sante Fe. Thank you.	Information Request	Madonna Busch University of Mary	[redacted]
8628 10/21/2013 Website	**Web Comment from Patty Keller** I would love to see a sidewalk down Lincon Road from Yegen and all the way down Yegan to Bismarck Expressway to connect to the trails.	Sidewalks	Patty Keller University of Mary	[redacted]

Comment Closed	The sidewalk down Lincoln Road is especially needed because the new school is going to open and children need somewhere to walk that is safe.			[redacted]
8660 10/21/2013 Mailing Closed	**Envision 2040 News: October 2013** Envision 2040 News: October 2013 emailed to 102 Contacts	Public Involvement	Emily Hyland HDR	[redacted]
			Spencer Ulvestad	[redacted]
			June Herman American Heart Association	[redacted]
			Robin Werre Bis Man Transit Board	[redacted]
			Greg Haug Bismarck Airport	[redacted]
			Gloria David Bismarck City Administration	[redacted]
			Kristi Haas Bismarck City Administration	[redacted]
			Brenda Smith Bismarck City Commission	[redacted]
			Josh Askvig Bismarck City Commission	[redacted]
			John Warford Bismarck City Commission	[redacted]
			Mike Seminary Bismarck City Commission	[redacted]
			Parrell Grossman Bismarck City Commission	[redacted]
			Mel Bullinger Bismarck City Engineer	[redacted]
			Carl Hokenstad Bismarck Community Development	[redacted]
			Gary Stockert Bismarck Emergency Mgmt.	[redacted]
			Mark Berg Bismarck Engineering Department	[redacted]
			Randy Bina Bismarck Parks & Rec	[redacted]
			Mike Donahue Bismarck Planning & Zoning	[redacted]
			Doug Lee Bismarck Planning & Zoning	[redacted]
			Mike Schwartz Bismarck Planning & Zoning	[redacted]

Ken Selzler Bismarck Planning & Zoning	[redacted]
Lisa Waldoch Bismarck Planning & Zoning	[redacted]
Mark Armstrong Bismarck Planning & Zoning	[redacted]
John Warford Bismarck Planning & Zoning	[redacted]
Tom Atkinson Bismarck Planning & Zoning	[redacted]
Vernon Laning Bismarck Planning & Zoning	[redacted]
Wayne Yeager Bismarck Planning & Zoning	[redacted]
Steve Kilde Bismarck Police Department	[redacted]
Darin Scherr Bismarck Public Schools	[redacted]
Becky LaBella Bismarck Public Schools	[redacted]
Tamara Uselman Bismarck Public Schools	[redacted]
LeAnn Eckroth Bismarck Tribune	[redacted]
Russ Staiger Bismarck-Mandan Development Association	[redacted]
Lynn Liebfried BNSF Railway Company	[redacted]
Gerry Foell Bureau of Indian Affairs	[redacted]
Mary Senger Burleigh County Emergency Management	[redacted]
Michael Gunsch Burleigh County Water Resource District	[redacted]
Kevin Glatt Burleigh County Auditor	[redacted]
Doug Schonert Burleigh County Commission	[redacted]
Jerry Woodcox Burleigh County Commission	[redacted]

Jim Peluso Burleigh County Commission	[redacted]
Marcus Hall Burleigh County Engineer	[redacted]
David Andahl Burleigh County Planning Commission	[redacted]
Ervin Mund Burleigh County Planning Commission	[redacted]
James Small Burleigh County Planning Commission	[redacted]
John Warford Burleigh County Planning Commission	[redacted]
Neil Effertz Burleigh County Planning Commission	[redacted]
Pat Whalen Burleigh County Planning Commission	[redacted]
Bob Hruby Captain's Landing Township	[redacted]
Mark Liebig Central Dakota Cyclists	[redacted]
Kelvin Hullet Chamber of Commerce	[redacted]
Ron Beck Committee on Employment of People w/Disabilities	[redacted]
Dawn Kopp Downtown Business Association	[redacted]
Stephanie Hickman Federal Highway Administration	[redacted]
Wendall Meyer Federal Highway Administration	[redacted]
Larry Squires Federal Transit Administration	[redacted]
Wade Kline Fargo Morehead Metro Council of Governments	[redacted]
Wendy Anderson-Berg Go! Bismarck-Mandan/Parks n Rec	[redacted]

Earl Haugen Grand Forks Metropolitan Planning Organization	[redacted]
Dave Pearce Hay Creek Township	[redacted]
Cheryl Kulas Indian Affairs Commission	[redacted]
Chuck Peterson Jobbers Moving & Storage	[redacted]
Joel Boespflug Bismarck Fire Department	[redacted]
Paul Rechlin Lewis & Clark Regional Development Council	[redacted]
Melanie Kitzan Lincoln City Auditor	[redacted]
Karen Daly Lincoln City Council	[redacted]
Robert Johnston Lincoln City Council	[redacted]
Steve Urlacher Lincoln City Council	[redacted]
Mike Ulmen Lincoln Planning & Zoning	[redacted]
Jim Lawler Mandan Airport	[redacted]
Dennis Rohr Mandan City Commission	[redacted]
Dot Frank Mandan City Commission	[redacted]
Arlyn Van Beek Mandan City Commission	[redacted]
Mike Braun Mandan City Commission	[redacted]
Sandra Tibke Mandan City Commission	[redacted]
Justin Froseth Mandan Engineering Department	[redacted]
Cole Higlin Mandan Parks and Recreation	[redacted]
Mike Bitz Mandan Public School District	[redacted]
Tom Doering Mandan/Morton Emergency Management	[redacted]

Dawn Rhone Morton County Auditor	[redacted]
Bruce Strinden Morton County Commission	[redacted]
Ron Leingang Morton County Commission	[redacted]
Aaron Nelson Morton County Planning & Zoning	[redacted]
Andy Zachmeier Mandan Planning Commission	[redacted]
Andy Zachmeier Morton County Commission	[redacted]
Andy Zachmeier Morton County Planning Commission	[redacted]
Cody Schulz Morton County Commission	[redacted]
Cody Schulz Morton County Planning Commission	[redacted]
Jackie Buckley Morton County Planning Commission	[redacted]
Mike Aubol Morton County	[redacted]
Larry Taborsky ND Aeronautics Commission	[redacted]
Janice Webb ND Council on the Arts	[redacted]
David Glatt ND Department of Health	[redacted]
Ben Kubischta ND DOT Local Government	[redacted]
Pam Wenger ND DOT Local Government	[redacted]
Terry Steinwand ND Game and Fish Dept.	[redacted]
Ed Murphy ND Geological Survey	[redacted]
Mark Zimmerman ND Parks & Recreation Department	[redacted]
Merl Paaverud ND State Historical Society	[redacted]
Darcy Rosendahl NDDOT	[redacted]
Kevin Levi NDDOT	[redacted]

Michael Johnson NDDOT	[redacted]
Stacey Hanson NDDOT	[redacted]
Jack Olson NDDOT	[redacted]
North Dakota Wildlife Federation	[redacted]
Thomas Balzer North Dakota Motor Carriers Association	[redacted]
Jason Tomanek Renaissance Zone Authority	[redacted]
Scott Hochhalter Soil Conservation Committee	[redacted]
Clarence Greene Spirit Lake Nation Roads	[redacted]
Pete Red Tomahawk Standing Rock Nation	[redacted]
Dale Frink State Water Commission	[redacted]
Vonnie Alberts Three Affiliated Tribes	[redacted]
Tex "Red Tipped Arrow" Hall Three Affiliated Tribes	[redacted]
Jeremy Laducer Turtle Mtn Band of Chippewa	[redacted]
Dan Cimarosti U.S. Army Corps of Engineers	[redacted]
Jeffrey Towner U.S. Fish and Wildlife Service	[redacted]
Gergg Wiche U.S. Geological Survey	[redacted]
Dennis Neumann United Tribes Newsletter	[redacted]
Doug Herzog United Way Transportation Task Force	[redacted]
Michael Anderson	[redacted]
Scott Zainhofsky NDDOT	[redacted]
Clear Channel Communications, Inc. KBMR-KFYR-KQDY-KSSS-KXMR-KYYY	[redacted]

City Magazine Kilee Dobogai	[redacted]
Cumulus Broadcasting KACL, KBYZ, KKCT, KLXX, & KUSB	[redacted]
Dakota Media Access, Inc.	[redacted]
KFYR-TV	[redacted]
KLND-FM 89.5 FM	[redacted]
KNDX-TV	[redacted]
KXMB-TV	[redacted]
Mandan News	[redacted]
The Chamber Connection Bismarck/Mandan Chamber	[redacted]
Lee Klapprodt	[redacted]
Kate Herzog Downtowners of BIsmarck	[redacted]
Jami Wangler City of Bismarck	[redacted]
Holly Friesz	[redacted]
Cameron McCullough MDU Resources	[redacted]
Ross Degenstein	[redacted]
Ben Ehreth NDDOT	[redacted]
Sudheer Dhulipala Ulteig	[redacted]
Christine Kujewe	[redacted]
Ken Roubideaux	[redacted]
Traci Juhaln	[redacted]
Carol Barahona	[redacted]
Susan Holweg	[redacted]
Tim Seaworth University of Mary	[redacted]

David Clark Bismarck State College	[redacted]
Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]
Brian Ritter Bismarck-Mandan Development Association	[redacted]
Cheryl Hess State Council on Developmental Disabilities	[redacted]
Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
Allan Klein Burleigh County Rural Fire Department	[redacted]
Bill Lardy AARP North Dakota	[redacted]
Bob Scarlett	[redacted]
Allen Chompen Central Dakota Cyclists	[redacted]
Allen Chompen LAB League Cycling Institution	[redacted]
Jim Kambeitz	[redacted]
Bob Shannon	[redacted]
Carol Aron	[redacted]
Theresa Felderman	[redacted]
Annette Deforest	[redacted]
L. Anita Thomas	[redacted]
Bryce Bachman Bismarck Parks & Rec	[redacted]
	[redacted]
	[redacted]
	[redacted]

[redacted]

Eric Hardmeyer
Bank of North Dakota

[redacted]

[redacted]

Jon Darling
U.S. Army Corps of Engineers

[redacted]

	[redacted]
Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
	[redacted]
	[redacted]
	[redacted]
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Mark Zimmerman ND Parks & Recreation Department	[redacted]
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Philip Murphy	[redacted]
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Timothy Rector U.S. Department of Agriculture	[redacted]
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	[redacted]
	[redacted]
	[redacted]
Dave Howard	[redacted]
	[redacted]
	[redacted]
Blaine Nordwall Sierra Club of North Dakota	[redacted]
Neil Modin Hay Creek Township	[redacted]

8634 10/22/2013 Join the Mailing List	**Web Comment from Joel Quanbeck** Add to Mailing List	Mailing List Request	Joel Quanbeck	[redacted]
8643 10/23/2013 Website Comment Closed	**Web Comment from Lana Anderson** 10-23-13 I would like to see bus service out to the University of Mary to help the students that don't have transportation get back and forth to town. I feel they have a lot to contribute to our businesses in town. Also I would like to see transportation for the workers to be able to be transported to and from work.. Thank you Lana Anderson	Bus System Transit	Lana Anderson University of Mary	[redacted]
8651 10/24/2013 Website Map Comment Closed	**Web Comment from Matthew Leidholm** The "Problem Intersection" and the road leading south to the "affected intersection" is poorly marked. Between the two roads, ND-6 is apparently four lanes, but that is not entirely clear by the non-standard series of solid and dashed lines hastily drawn onto the road. Cars turning left from the east (from Walmart) often nearly collide with cars turning right from the west (from the Seven Seas).	Safety Traffic Signals	Matthew Leidholm	[redacted]
8697 10/25/2013 Kiosk Comment Form	**Kiosk Card - ~Anonymous** myidea in MANDAN is to Smaller busses, Posted times, more bus stops, better organized.	Bus System	~Anonymous ~Anonymous	[redacted]
8698 10/25/2013 Kiosk Comment Form	**Kiosk Card - ~Anonymous** Downtown area should get rid of one way streets except seventh and ninth	Road Improvements	~Anonymous ~Anonymous	[redacted]
8654 10/25/2013 Join the Mailing List	**Web Comment from Marvin Lein** Join Mailing List	Mailing List Request	marvin lein	[redacted]
8657 10/25/2013 Website Comment Closed	**Web Comment from Ed Konieczka** We live in a growing subdivision with a number of children and teens across 1804 from the bike path. 1804 is too busy and unsafe to cross on foot or on bike. If there were an opportunity to safely get across 1804 to the bike path we would have access to most anywhere in the city. Living in the Vista South subdivision near University of Mary we often have runners from that community in our neighborhood. It would be wise to have safe crossing for them as well.	Recreation Safety	Ed Konieczka	[redacted]
8699 10/25/2013 Kiosk Comment Form Closed	**Kiosk Card - Jay Schechter** My idea in BISMARCK is to Provide bus service to Airport to coordinate with flights as well as other transportation facilities for special events and arrange for special charters	Bus System Transit	Jay Schechter	[redacted]
8700	**Kiosk Card - Jay Schechter**	Bus System	Jay Schechter	[redacted]

10/25/2013 Kiosk Comment Form Closed	My idea in BISMARCK is to alternate thoroughfares on North-South and East-West main routes as one-way. Increase frequency of buses during rush hours every ten-minutes in conjunction with coordinated transfer points. Last use main streets as Bismarck Expressway, RTE 83 amd Washington Street as designated truck routes.	Trucks and Freight		[redacted]
8701 10/25/2013 Kiosk Comment Form Closed	**Kiosk Card - Brigid Dorman** My idea in Bismarck downtown residential areas - surrounding hospitals is to Introduce resident parking permits and 90 minute or 2 hour parking limits for non-residents or pay locations - generate revenue for City through parking payments and/or fines. Improve quality of life for local residents. (also voters and taxpayers!)	Parking	Brigid Dorman	[redacted]
8663 10/28/2013 Join the Mailing List	**Web Comment from Tyler Merkel** Mailing List Request	Mailing List Request	Tyler Merkel	[redacted]
8702 10/29/2013 Kiosk Comment Form Closed	**Kiosk Card - Senior Center** My idea in MANDAN CITY is to Have a bus come over from 6 am to 6 pm stationed in Mandan. It seems ridiculous to have a bus come over from east Bismarck each time.My idea in MANDAN CITY is to seperation of transit and taxi services - I ordered a taxi for delivery to the hospital only to crowd into the back seats and two already transit passengers to insist on being delivered to their jobs before us. Being physically handicapped this was very distressing and the ... we had ordered taxi instead of bus service.My idea in Mandan City is to 1. have a transit barn with a bus in the City of Mandan 2. This would save gas, tires and other expense 3. No long waiting times - even trips to Bismarck 4. City trips to clinic, pharmacy, grocery, bank, library, post offices - with Walmart and Sanford on the north there will be many more trips. I do not use transit now but I will be giving up my car soon.(23 signatures, but not all legible)	Bus System Elderly People with Disabilities Transit	M Thilmony	[redacted]
			D.M. Ritz	[redacted]
			Jeanette Henke	[redacted]
			Marjorie	[redacted]
			Violet Zuber	[redacted]
			Mary Ternes	[redacted]
			Mary Kessler	[redacted]
			Pat	[redacted]
			Kathi	[redacted]
			Elizabeth Vollmuth	[redacted]
			L Kraft	[redacted]
			Davis Moffit	[redacted]
			Betty Mae Johnson	[redacted]
			Florence Bauer	[redacted]
			Kenneth Blazer	[redacted]

			Ginny Blazer	[redacted]
			J G	[redacted]
			Theresa Fergel	[redacted]
			Myrna Anderson	[redacted]
			Rose Aken	[redacted]
			Emma Loeb	[redacted]
			Pauline Roll	[redacted]
			Maggie Thilmony	[redacted]
8692 10/31/2013 Website Map Comment Closed	**Web Comment from Matthew Leidholm** Cars waiting at the intersection of 26th St and Main Ave line up so far back that it blocks several intersections, including Rosser Ave on occasion. As a commuter who needs to get from E Broadway Ave onto 26th St, I either have to go North to try my luck at the Rosser intersection (sometimes waiting for multiple green lights before there's a break to turn left) or go even further north to try my luck at an unlighted intersection at Ave A or Gary Ave.	Traffic Congestion Traffic Signals	Matthew Leidholm	[redacted]
8898 11/14/2013 Website Map Comment Closed	**Web Comment from Josh Kadrmas** 1) First on my list and on the list of many people I visit with in Bismarck is the Washington St bottleneck. I know many people that avoid Washington St at all costs (me included) and find a different route. This is the only road I believe in Bismarck that extends all the way North and South through the city and as important as the historical district is, this street is not feasible to remain 2-lanes. There is far too much traffic in West Bismarck that needs to go North and South and the fact is, there are no roads in that part of the city that are 4-lanes. 2) I-94 is dangerous at peak hours due to slow traffic in the main lane and others trying to stay at interstate speeds in the passing lane, but then they are not able to get back into the driving lane because of the congestion. Due to explosive growth and a good amount of growth from Mandan, many people from both cities travel to the other city for work purposes. I've been to many metro areas smaller than Bis-Man that have 3 freeway lanes going through their city (Mankato, MN) and traffic flow did not seem to be a great issue. For the size of our metro area, this area will need to be looked at by the NDDOT and soon as it will take many years to convert I-94 to 3 lanes throughout the metro area.	Safety Traffic Congestion	Josh Kadrmas KFYR-TV	[redacted]
8900 11/15/2013	**Web Comment from Dustin Walcker** With all the building in North Bismarck and Mandan, I believe we	Road Improvements	Dustin Walcker	[redacted]

Website Map Comment Closed	should look at a new North Bridge connecting Bis/Man. that way people wanting to go North from the interstate in Mandan dont have to take interstate all the way into Bismarck and get off on States St. to go N. As for those traveling from N Bismarck, the dont have to drive S to get to the interstate to get on, whereas they can bypass the city and get the interstate easier taking the N. Bridge See Diagram. Thinking somwhere around 71st (1804) connecting to 37th in Mandan then onto Highland Rd which could bring you out at 56th Ave NW Mandan. Thanks			[redacted]
8902 11/15/2013 Website Map Comment	**Web Comment from Dustin Walcker** Create an underpass on 3rd St for trafffic to continue if trains are passing through. Traffic gets backed up where they come through	Traffic Congestion Trucks and Freight	Dustin Walcker	[redacted]
8903 11/15/2013 Website Map Comment	**Web Comment from Dustin Walcker** Street should be widened and curbs put in on 19th St. N Bismarck, from Koch Dr. to 43rd Ave. Lots of traffic goes N. to Walmart. Thanks	Road Improvements Traffic Congestion	Dustin Walcker	[redacted]
8904 11/15/2013 Website Map Comment	**Web Comment from Dustin Walcker** My last idea would be to make Centennial Rd. from Jerico Rd. past 43rd Ave a 4 lane. With the new high school going up lots of traffic already use that road and it will only increase.	Road Improvements Traffic Congestion	Dustin Walcker	[redacted]
8899 11/15/2013 Website Comment Closed	**Web Comment from David Zimmerman** I appreciate the opportunity to review these plans and to provide input as they develop. Key issues from my perspective include overall safety of travel, especially as it relates to an aging population; and, options that may exist to minimize dangerous behaviors such as red light running. Thanks for this opportunity, Ben ... Very impressive strategic planning format!	Elderly Safety Traffic Signals	David Zimmerman NDID	[redacted]
8901 11/15/2013 Website Comment	**Web Comment from Dustin Walcker** Connect E. Century Ave to the Interstate from the East. Creating an on/off ramp. Thanks	Road Improvements	Dustin Walcker	[redacted]
8937 11/19/2013 Join the Mailing List	**Gabe Schell Contact Information**	Mailing List Request	Gabe Schell	[redacted]
8948 11/20/2013 Website Map Comment Closed	**Web Comment from Jessy Scholl** Basically I feel that I-94 Exit 156 needs to be reconstructed to eliminate the left exit from I-94 and entrance to I-194. This would be a mid-term project done later this decade and replace the old loop ramp with a new flyover ramp while bringing the westbound lanes of I-94 closer to the eastbound lanes. This would allow the return of land to Mandan. This land is currently part of the interstate's median. As for the flyover ramp, It would be a Right exit from I-94 West and Right entrance to I-194 south. Ramp speeds would be about 40 to 45 mph instead of the currently employed 25 mph for the loop ramp.	Road Improvements	Jessy Scholl	[redacted]
8966	**Web Comment from Jack Kavaney**	General	JACK KAVANEY	[redacted]

11/22/2013 Website Comment	As a 30+ year Realtor/Developer, and former City Commissioner, I have many comments about The Bismarck Traffic Flow and growth patterns.		ALADDIN REALTY INC.	[redacted]
8988 11/26/2013 Website Map Comment	**Web Comment from Carla Usselman** E. Hyland responded via project email on 12/4/2013 requesting	Information Request	Carla Usselman	[redacted]
9013 12/3/2013 Email Closed	**Matt Schafer Email Comment** Email to Ben Ehreth: Hi, I see that 32nd ave nw in Mandan is being considered for a over/underpass. Since I would be the only house affected by this I would like to be kept in the know of what is going on. Thank you.Matt Schafer (contact info surpressed)	Mailing List Request Road Improvements	Matt Schafer	[redacted]
9017 12/5/2013 Website Map Comment Closed	**Web Comment from Justine Thompson** I feel that with the amount of homes being developed out east on 71st Street is causing the intersection at 71st and Centennial very dangerous. I feel that 71st Street should be looked at as it is a narrow road with no shoulder and steep ditches. I feel 43rd St and Centenial should also be looked at to have a stop light. I feel the area right off Interstate 94 could use longer left turn lanes on Centennial Road to allow for the semi's turning onto interstate 94 or a longer left turn lane to turn onto Divide for the Gas station (Oasis). State Street and Captial Ave is a poor design intersection, the road between east/west is not square and the turn lanes are hard to see if someone is coming straight. Then just north of there on State Street and Interchange when there is heavy traffic and it is backed up people turning left on/off these roads are putting themselves in a dangerous position. One lane will stop to let them turn left and the other two lanes don't see the car trying to turn left, Or coming out of the gas station to the west people will pull out into the middle of the intersection "guessing" there will be an opening in the traffic flow, only to be stuck sitting out in the oncomming traffic. Thank you for allowing the public to have a place to go with concerns.	Road Improvements Safety Traffic Signals Trucks and Freight	Justine Thompson	[redacted]
9107 12/11/2013 Mailing	**Matt Thompson Letter** Mr. Hokenstad, thank you for including my household in the Bismarck-Mandan MPO Long Range Transportation Plan Survey. I'd like to take a	Parking Road Improvements	Matt Thompson	[redacted]

Closed	moment to share with you my three primary concerns with the Transportation system in Bismarck. First, the City of Bismarck should consider updating it's Snow and Ice Control Plan. The city is not effectively clearing snow when it falls. The trucks head out way too late during a snow storm and they have an insufficient number of trucks when they do head out to clear the roads before cards and trucks drive through the snow creating compacted snow and ice on the roads. Bismarck needs more plows and more salt. The city should also adpot the newsly developed and effective NDDOT anti-icing, de-icing and pre-wetting strategies. The roads in Bismarck are unsafe following snowstorms and a danger to public safety. Second, the City of Bismarck should consider disallowing on street parking for heavily traveled roads. There should be no on street parking on Washington St., Divide Ave., 4th St., 7th St., 9th St., Tyler Parkway, for instance. The parked cards impede traffic flow and endanger those who are parking and drivers. Third, the City of Bismarck should consider widening Washington St. to five lanes, four driving lanes and one turning land throughout it's entire length. Again, thank-you for your work for our community.	Safety		[redacted]
9106 12/16/2013 Mailing Closed	**Terry and Rebecca Swift Letter** December 16, 2013Mr. Ben Ehreth:We have completed the questionnaire sent to us regarding the Long Range Transportation Plan for Bismarck but we believe some of the questions require further comment and explanations.We have lived in Bismarck for over 40 years and have lived at our current residence for 29 years. We have personally experienced the growth of Bismarck over the last 40 years and especially so over the last 5 – 10 years. For the last few years, it has been obvious to us that Bismarck is going to have to route traffic differently than it does now because the current traffic arteries will not handle traffic flows much greater than they now are. Since Bismarck will continue growing, probably quite rapidly, we believe alternative routes around the city using 4-lane/6-lane freeways will be the best way to move traffic from north to south/south to north in Bismarck. We saw	Bus System Funding Road Improvements Sidewalks Traffic Congestion	Terry and Rebecca Swift	[redacted]

	to move traffic from north to south/south to north in Bismarck. We saw this happen in the growth of Fargo and Minneapolis.The main traffic arteries, and congestion points, during rush hour are currently Washington St., State St., and the two one-ways of 7th and 9th streets. Washington Street and the combination of State St. and the two one-ways are the only traffic routes that can move traffic all the way from north to south and vice versa. Both of these are totally jammed at rush hours and quite busy even at non-peak hours. As Bismarck traffic increases over the next few years we believe the only solution is to move north/south traffic on freeways around the city as does Fargo and Mpls. We don't know the best way to accomplish this but suggest that the city look at converting River Road to a 4-lane freeway on the west side of Bismarck and building a 4-lane/6-lane freeway on the east side of Bismarck that would route traffic quickly; i.e., at freeway speeds, from north to south and vice versa.Additional Comments on Certain Questions in the Questionnaire5. The two corridors we have checked are the only traffic arteries (along with State Street) that will move traffic all the way from north to south and vice versa. We think the condition of these arteries is critical for now but they are NOT the long term solution to Bismarck's traffic problem.9. Does Bismarck really need the massive busses that we now see running around Bismarck? We have never used one but can't imagine there are more than a few people in these things at any one time. They are far more bus than Bismarck needs, at least for a very long time.17. As explained on the questionnaire, we are NOT in favor of traffic routes that commingle cars, trucks, and bicycles on the same streets. We believe it is far too great of a safety hazard for both the bikers and the drivers of the vehicles.19. Both of us walk for exercise but for the vast majority of residents in Bismarck, it is not feasible to walk the miles from their house to where they work, shop, etc.21. We do not support widened roadways of the current high-traffic arteries. It is just not feasible to do so. State Street is blocked by State property on one side and commercial property and residential property on the other. Washington St. and the one-ways are all limited by residential or commercial property on both sides. It is just not feasible to attempt to widen these streets. It can't be done to the degree necessary to accommodate the increased traffic flow in Bismarck over the coming	Trucks and Freight		[redacted]
9203 1/7/2014 Email Closed	**Open House #1 Email Notification** An email was sent to 312 contacts to provide information regarding the upcoming open house meetings. See documents for email sent.	Public Involvement	Jason Carbee HDR	[redacted]
			Emily Hyland HDR	[redacted]
			Spencer Ulvestad	[redacted]
			Josh Askvig AARP North Dakota	[redacted]
			June Herman American Heart Association	[redacted]
			Robin Werre Bis Man Transit Board	[redacted]

Greg Haug Bismarck Airport	[redacted]
Gloria David Bismarck City Administration	[redacted]
Kristi Haas Bismarck City Administration	[redacted]
Brenda Smith Bismarck City Commission	[redacted]
Josh Askvig Bismarck City Commission	[redacted]
John Warford Bismarck City Commission	[redacted]
Mike Seminary Bismarck City Commission	[redacted]
Parrell Grossman Bismarck City Commission	[redacted]
Mel Bullinger Bismarck City Engineer	[redacted]
Carl Hokenstad Bismarck Community Development	[redacted]
Gary Stockert Bismarck Emergency Mgmt.	[redacted]
Mark Berg Bismarck Engineering Department	[redacted]
Randy Bina Bismarck Parks & Rec	[redacted]
Mike Donahue Bismarck Planning & Zoning	[redacted]
Doug Lee Bismarck Planning & Zoning	[redacted]
Mike Schwartz Bismarck Planning & Zoning	[redacted]
Ken Selzler Bismarck Planning & Zoning	[redacted]
Lisa Waldoch Bismarck Planning & Zoning	[redacted]
Mark Armstrong Bismarck Planning & Zoning	[redacted]
John Warford Bismarck Planning & Zoning	[redacted]
Tom Atkinson Bismarck Planning & Zoning	[redacted]
Vernon Laning Bismarck Planning & Zoning	[redacted]

Wayne Yeager Bismarck Planning & Zoning	[redacted]
Steve Kilde Bismarck Police Department	[redacted]
Darin Scherr Bismarck Public Schools	[redacted]
Becky LaBella Bismarck Public Schools	[redacted]
Tamara Uselman Bismarck Public Schools	[redacted]
LeAnn Eckroth Bismarck Tribune	[redacted]
Russ Staiger Bismarck-Mandan Development Association	[redacted]
Lynn Liebfried BNSF Railway Company	[redacted]
Gerry Foell Bureau of Indian Affairs	[redacted]
Mary Senger Burleigh County Emergency Management	[redacted]
Michael Gunsch Burleigh County Water Resource District	[redacted]
Kevin Glatt Burleigh County Auditor	[redacted]
Brian Bitner Burleigh County Commission	[redacted]
Doug Schonert Burleigh County Commission	[redacted]
Jim Peluso Burleigh County Commission	[redacted]
Marcus Hall Burleigh County Engineer	[redacted]
David Andahl Burleigh County Planning Commission	[redacted]
Ervin Mund Burleigh County Planning Commission	[redacted]
James Small Burleigh County Planning Commission	[redacted]

John Warford Burleigh County Planning Commission	[redacted]
Neil Effertz Burleigh County Planning Commission	[redacted]
Pat Whalen Burleigh County Planning Commission	[redacted]
Mark Liebig Central Dakota Cyclists	[redacted]
Ron Beck Committee on Employment of People w/Disabilities	[redacted]
Dawn Kopp Downtown Business Association	[redacted]
Stephanie Hickman Federal Highway Administration	[redacted]
Wendall Meyer Federal Highway Administration	[redacted]
Larry Squires Federal Transit Administration	[redacted]
Wade Kline Fargo Morehead Metro Council of Governments	[redacted]
Wendy Anderson-Berg Go! Bismarck-Mandan/Parks n Rec	[redacted]
Earl Haugen Grand Forks Metropolitan Planning Organization	[redacted]
Dave Pearce Hay Creek Township	[redacted]
Cheryl Kulas Indian Affairs Commission	[redacted]
Chuck Peterson Jobbers Moving & Storage	[redacted]
Joel Boespflug Bismarck Fire Department	[redacted]
Paul Rechlin Lewis & Clark Regional Development Council	[redacted]
Melanie Kitzan Lincoln City Auditor	[redacted]

Karen Daly Lincoln City Council	[redacted]
Robert Johnston Lincoln City Council	[redacted]
Steve Urlacher Lincoln City Council	[redacted]
Jim Lawler Mandan Airport	[redacted]
Dennis Rohr Mandan City Commission	[redacted]
Dot Frank Mandan City Commission	[redacted]
Arlyn Van Beek Mandan City Commission	[redacted]
Mike Braun Mandan City Commission	[redacted]
Sandra Tibke Mandan City Commission	[redacted]
Justin Froseth Mandan Engineering Department	[redacted]
Cole Higlin Mandan Parks and Recreation	[redacted]
Mike Bitz Mandan Public School District	[redacted]
Tom Doering Mandan/Morton Emergency Management	[redacted]
Dawn Rhone Morton County Auditor	[redacted]
Bruce Strinden Morton County Commission	[redacted]
Ron Leingang Morton County Commission	[redacted]
Aaron Nelson Morton County Planning & Zoning	[redacted]
Andy Zachmeier Mandan Planning Commission	[redacted]
Andy Zachmeier Morton County Commission	[redacted]
Andy Zachmeier Morton County Planning Commission	[redacted]
Cody Schulz Morton County Commission	[redacted]
Cody Schulz Morton County Planning Commission	[redacted]

Jackie Buckley Morton County Planning Commission	[redacted]
Mike Aubol Morton County	[redacted]
Larry Taborsky ND Aeronautics Commission	[redacted]
Janice Webb ND Council on the Arts	[redacted]
David Glatt ND Department of Health	[redacted]
Ben Kubischta ND DOT Local Government	[redacted]
Pam Wenger ND DOT Local Government	[redacted]
Terry Steinwand ND Game and Fish Dept.	[redacted]
Ed Murphy ND Geological Survey	[redacted]
Mark Zimmerman ND Parks & Recreation Department	[redacted]
Merl Paaverud ND State Historical Society	[redacted]
Darcy Rosendahl NDDOT	[redacted]
Kevin Levi NDDOT	[redacted]
Michael Johnson NDDOT	[redacted]
Stacey Hanson NDDOT	[redacted]
Jack Olson NDDOT	[redacted]
North Dakota Wildlife Federation	[redacted]
Thomas Balzer North Dakota Motor Carriers Association	[redacted]
Jason Tomanek Renaissance Zone Authority	[redacted]
Scott Hochhalter Soil Conservation Committee	[redacted]
Clarence Greene Spirit Lake Nation Roads	[redacted]
Pete Red Tomahawk Standing Rock Nation	[redacted]

Dale Frink State Water Commission	[redacted]
Vonnie Alberts Three Affiliated Tribes	[redacted]
Tex "Red Tipped Arrow" Hall Three Affiliated Tribes	[redacted]
Dan Cimarosti U.S. Army Corps of Engineers	[redacted]
Jeffrey Towner U.S. Fish and Wildlife Service	[redacted]
Gergg Wiche U.S. Geological Survey	[redacted]
Dennis Neumann United Tribes Newsletter	[redacted]
Doug Herzog United Way Transportation Task Force	[redacted]
Michael Anderson	[redacted]
Scott Zainhofsky NDDOT	[redacted]
Clear Channel Communications, Inc. KBMR-KFYR-KQDY-KSSS-KXMR-KYYY	[redacted]
City Magazine Kilee Dobogai	[redacted]
Cumulus Broadcasting KACL, KBYZ, KKCT, KLXX, & KUSB	[redacted]
Dakota Media Access, Inc.	[redacted]
KFYR-TV	[redacted]
KLND-FM 89.5 FM	[redacted]
KNDX-TV	[redacted]
KXMB-TV	[redacted]
Mandan News	[redacted]
Lee Klapprodt	[redacted]
Kate Herzog Downtowners of BIsmarck	[redacted]
Jami Wangler City of Bismarck	[redacted]

Holly Friesz	[redacted]
Cameron McCullough MDU Resources	[redacted]
Ross Degenstein	[redacted]
Ben Ehreth NDDOT	[redacted]
Sudheer Dhulipala Ulteig	[redacted]
Christine Kujewe	[redacted]
Ken Roubideaux	[redacted]
Traci Juhaln	[redacted]
Carol Barahona	[redacted]
Susan Holweg	[redacted]
Tim Seaworth University of Mary	[redacted]
David Clark Bismarck State College	[redacted]
Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]
Brian Ritter Bismarck-Mandan Development Association	[redacted]
Cheryl Hess State Council on Developmental Disabilities	[redacted]
Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
Allan Klein Burleigh County Rural Fire Department	[redacted]
Bill Lardy AARP North Dakota	[redacted]
Bob Scarlett	[redacted]
Allen Chompen Central Dakota Cyclists	[redacted]
Allen Chompen LAB League Cycling Institution	[redacted]

Jim Kambeitz	[redacted]
Bob Shannon	[redacted]
Carol Aron	[redacted]
Theresa Felderman	[redacted]
Annette Deforest	[redacted]
L. Anita Thomas	[redacted]
Bryce Bachman Bismarck Parks & Rec	[redacted]
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Eric Hardmeyer
Bank of North Dakota [redacted]

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Jon Darling U.S. Army Corps of Engineers	[redacted]
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Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
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Mark Zimmerman ND Parks & Recreation Department	[redacted]
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Philip Murphy	[redacted]
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Timothy Rector
U.S. Department of Agriculture

[redacted]

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	[redacted]
	[redacted]
	[redacted]
Mary Van Sickle	[redacted]
Scott Olson	[redacted]
Tim Seaworth	[redacted]
Cody K Strothman	[redacted]
DELETE DELETE	[redacted]
gigi DesRosiers	[redacted]
Sean Johnson	[redacted]
Madonna Busch University of Mary	[redacted]
Lindsay Mayernik	[redacted]
Patty Keller University of Mary	[redacted]
Joel Quanbeck	[redacted]
Lana Anderson University of Mary	[redacted]
Matthew Leidholm	[redacted]
marvin lein	[redacted]
Ed Konieczka	[redacted]
Tyler Merkel	[redacted]

Jay Schechter	[redacted]
Brigid Dorman	[redacted]
Terry A Fleck Burleigh County Water Resource District	[redacted]
Larry Kotchman North Dakota Forest Service	[redacted]
Blaine Nordwall Sierra Club of North Dakota	[redacted]
Pat Heinert Burleigh County Sheriff Department	[redacted]
Steve Nardello Mandan Fire Department	[redacted]
Chief Dennis Bullinger Mandan Police Department	[redacted]
Dave Shipman Morton County	[redacted]
Vern Davis Morton County	[redacted]
Serena Schmit ND Safety Council	[redacted]
Sara Otte Coleman ND Tourism Department	[redacted]
Shaun McGrath U.S. EPA, Region VIII, 8OC-EISC	[redacted]
Tammy Wagner Federal Highway Administration	[redacted]
Neil Modin Hay Creek Township	[redacted]
Monsignor James Patrick Shea University of Mary	[redacted]
Aspen Group	[redacted]
Bitz Realty	[redacted]
Century 21 Morrison Realty	[redacted]
Daniel Companies	[redacted]

			Northwest Realty	[redacted]
			Josh Kadrmas KFYR-TV	[redacted]
			David Zimmerman NDID	[redacted]
			Dustin Walcker	[redacted]
			Gabe Schell	[redacted]
			Jessy Scholl	[redacted]
			JACK KAVANEY ALADDIN REALTY INC.	[redacted]
			Matt Schafer	[redacted]
			Justine Thompson	[redacted]
			Matt Thompson	[redacted]
9207 1/8/2014 Website Map	**Web Comment from Sean Johnson** I feel many of the traffic congestion concerns along 66th street going north out of Lincoln and along Lincoln Rd from Airway to 66th St can be	Road Improvements Traffic Congestion	Sean Johnson	[redacted]

Comment Closed	addressed by using a combination of roundabouts and a stoplight. I have traveled in Europe where they use roundabouts quite a bit, even with two lane roads as feeders. They don't take much to get used to (that has been the real objection I have heard- people just are not used to them and have false impressions about truck or other large vehicle traffic difficulties in them) and they do an awesome job of keeping traffic moving safely. The one caveat I realize it there is now a 4 way stop at 66th-Lincoln due to the school, which would probably have to stay for the safety of pedestrians. A stoplight at 66th and Old 10 would go a long ways towards ensuring rapid but controlled movement off of 66th, especially for those vehicles turning west. The big reason traffic backs up so bad on 66th is waiting for traffic to clear on Old 10 vs. more usage (although yes this plays in). Then when there is an opening, cars rush to get onto Old 10; sometimes not coming to full stops at the stopsign. Metering the traffic flow with lights will alleviate many of these concerns, especially if light times favor movement off 66th onto Old 10 as there is plenty of room to back that traffic up to the east. All these options would go quite far towards alleviating any traffic congestion concerns (granted, I grew up in Mpls and I don't think they are a big deal). Traffic does get heavy along these routes, but what I have found since I traveled them at all times of day is that congestion really only occurs during very narrow windows of time (maybe 10-15 minute pockets) in the morning and afternoon. Because of this, I don't feel widening the roads is the answer due to the short amounts of time traffic gets somewhat congested. It is also not feasible to widen Lincoln Rd due to the cost of a new bridge at Apple Creek and the subsequent costs and environmental/ floodplain impacts. Roundabouts would be a more cost effective solution that minimizes environmental/ floodplain impacts while keeping traffic moving. I also do not favor widening 66th St south of Lincoln Rd or paving 48th St due to the proximity of residential and rural residential properties in this area. 48th St would also have very significant floodplain management issues due to Apple Creek	Traffic Signals		[redacted]
9264 1/21/2014 Join the Mailing List Closed	**Web Comment from Andrew Thierolf** Mailing List Request - No Comment	Mailing List Request	Andrew Thierolf	[redacted]
14317 1/21/2014 Open House Meeting Closed	**Open House Meeting- Bismarck** Tuesday, January 21,2014Bismarck Municipal LibraryMeeting Room A515 N Fifth St, Bismarck, ND 58501	General Public Involvement	Jason Carbee HDR	[redacted]
			Emily Hyland HDR	[redacted]
			Mel Bullinger Bismarck City Engineer	[redacted]
			Carl Hokenstad Bismarck Community Development	[redacted]

David Andahl Burleigh County Planning Commission	[redacted]
Dave Pearce Hay Creek Township	[redacted]
Michael Johnson NDDOT	[redacted]
Scott Zainhofsky NDDOT	[redacted]
Ben Ehreth NDDOT	[redacted]
Rick Stoppelmoor	[redacted]
Brian Ritter Bismarck-Mandan Development Association	[redacted]
Bob Shannon	[redacted]
Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
Sean Johnson	[redacted]
Pat Heinert Burleigh County Sheriff Department	[redacted]
Bob Neugebauer	[redacted]
Donovan Slag	[redacted]
Carmen Banta HDR	[redacted]
Stephanie Burt Minot State University	[redacted]
James Warne	[redacted]
Zac Smith Bismarck/Mandan Chamber	[redacted]
Brett Gurholt	[redacted]
Paul Benning ND DOT Local Government	[redacted]
Ken Nysether	[redacted]
Bob Swanson	[redacted]

			Jackie Andahl	[redacted]
			Rhonda Lowenstein	[redacted]
			Joe Seago	[redacted]
14318 1/21/2014 Meeting Comment Form Closed	**Meeting Comment Joe Seago** -Utilization of more ITS + Signal sequence-Implement aggressive corridor preservations-Utilize hub/spoke system for transit siation-Reduce ride times to get from point A to B-Study to increase Nios routes for the traffic +bikes-Increase public awareness of transit, bike routes + trails-Have park and ride for AM inbound express routes and PM outbound express routes-Look at new local funding mechanism-Build E/W crossing of River using 1804-Begin LRPing to have interchanges spaced one mile for relief of existing interchanges when they become overloaded	Bike Paths/Lanes Public Involvement Transit	Joe Seago	[redacted]
14319 1/21/2014 Meeting	**Meeting Comment Anonymous** My biggest concern centers on North-South Movements especially in the Northwest part of the city. Thank you.	Transit		
14320 1/21/2014 Meeting Comment Form Closed	**Meeting Comment Donovan Slay** I favor roundabouts, "road diets" (4-lane to 3-lane), pedestrian facilities for new developments. Continue adding bike lanes on existing roadways. I think this will encourage more bicycle commuters.-5th/bowen-consider a roundabout here-Ward Rd/Ace C (5 way intersection) good location for a roundabout as well-consider "Leading Pedestrian Interval" at some signals (downtown)	Bike Paths/Lanes	Donovan Slay	[redacted]
14321 1/21/2014 Meeting Comment Form Closed	**Meeting Comment Bob Shannon** There is no alternate wheelchair accessible taxi available for outside the operating hours of dial-a-ride. This limits opportunities extremely for wheelchair riders.	People with Disabilities	Bob Shannon	[redacted]
9763 1/22/2014 Meeting Comment Form	**Bernice Hilfer Comment Form** Join the mailing list (cannot read email address)	Mailing List Request	Bernice Hilfer Mandan Planning Commission	[redacted]
9764 1/22/2014 Meeting Comment Form	**Tom Doering Comment Form** Join the mailing list	Mailing List Request	Tom Doering Mandan/Morton Emergency Management	[redacted]
9765 1/22/2014 Meeting Comment Form	**Lee Klapprodt Comment Form** My interest is along property we own along Old Red Trail new Rough Rider Estates. Join the mailing list.	Mailing List Request	Lee Klapprodt	[redacted]
9759 1/22/2014 Open House	**Open House Meeting - Mandan** Meeting 2:Wednesday, January 22 from 5:30 - 7:30 p.m.Mandan City Hall, Ed “Bosh” Froehlich Meeting Room205 2nd Ave NW, Mandan,	Public Involvement	Dennis Rohr Mandan City Commission	[redacted]

Meeting Closed	NDA formal presentation will begin at 5:30 pm at both meetings. Meeting information will also be available online at www.envisionbisman2040.com/meeting beginning January 21.

Arlyn Van Beek Mandan City Commission	[redacted]
Mike Braun Mandan City Commission	[redacted]
Justin Froseth Mandan Engineering Department	[redacted]
Bernice Hilfer Mandan Planning Commission	[redacted]
Tom Doering Mandan/Morton Emergency Management	[redacted]
James Boehm Morton County Commission	[redacted]
Andy Zachmeier Mandan Planning Commission	[redacted]
Andy Zachmeier Morton County Commission	[redacted]
Andy Zachmeier Morton County Planning Commission	[redacted]
Cody Schulz Morton County Commission	[redacted]
Cody Schulz Morton County Planning Commission	[redacted]
Lee Klapprodt	[redacted]
Ben Ehreth NDDOT	[redacted]
Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
Bob Decker Mandan Planning	[redacted]
Andrew Thierolf	[redacted]
Stan Boehm	[redacted]
Daniel Nairn	[redacted]
Randee Sailer	[redacted]
Carmen Banta HDR	[redacted]
Bob Lengang Mandan Planning	[redacted]
Jim Neubauer	[redacted]

			Jeff Wright Mandan Planning	[redacted]
			Steve Windish	[redacted]
			Jeremy Smerage	[redacted]
			Dan Schneider	[redacted]
			Loretta Movchan	[redacted]
			Tom Floer	[redacted]
			Kevin Vannett	[redacted]
			Paula Floer	[redacted]
			Kim Fettig Mandan Engineering Department	[redacted]
			Paul Truger	[redacted]
			J.D. Nash	[redacted]
9284 1/22/2014 Join the Mailing List	**Web Comment from Stan Boehm** Mailing List Request - No Comment	Mailing List Request	Stan Boehm	[redacted]
9279 1/22/2014 Website Map Comment	**Web Comment from Emily Hyland**	General	Emily Hyland HDR	[redacted]
9767 1/22/2014 Meeting Comment Form	**Randee Sailer Comment From** Join the mailing list	Mailing List Request	Randee Sailer	[redacted]
9379 1/23/2014 Media	**Bismarck Tribune Article** Better North-South Routes, transit wanted in long-range transportation plan. - see documents for full article.	Public Involvement Road Improvements Transit		
9302 1/24/2014 Email Closed	**Bob Neugebauer Email Comment** I feel that we need a few things here. 1) We need a direct four-lane route to Lincoln. There is undeveloped land that can be used between Bismarck and Lincoln. Forget the notion that you must go indirectly on	Bus System General Road Improvements	Bob Neugebauer	[redacted]

	existing section lines and make the trip considerably longer. Make a "hypotenuse road". Remember from math: the shortest distance between two points is a straight line. 2) Highway 10 East of Bismarck has way too much traffic on it and should have been four-laned years ago. Go to the top of the Midwest Motor Hill some morning between 7 and 8 AM and look east. The 66th Street intersection is particularly dangerous. 66th is full of people coming north and then waiting to make a left turn onto County Highway 10. A roundabout would help there a lot. The ideal situation would be to get the Lincoln traffic off of 66th Street to start with by building a road to Bismarck for them (see item #1 above). That would also negate the need to widen Highway 10. 3) The bus routes are very poorly planned. They don't go anywhere. You can not get across twon without making one or two transfers. Run long parallel routes down select through streets all the way across town both east/west and north/south. More feasible yet would be to have a one-transfer point in downtown Bismarck with routes radiating out from there. 4) We do not need to wait until 2040 to see things implemented that should already have been done years ago. 5) Some time in the future, people will decide that they would like another interstate crossing in Bismarck. The ideal spot would have been 26th Street but it is probably too late for that now. The best we can do now is to designate Hamilton Street as the site of a future I-94 crossing. It would still be feasible to do this before it is too late. Otherwise there will never be a crossing between 19th Street and Centennial Road.Bob Neugebauer	Traffic Congestion		[redacted]
9323 1/29/2014 Website Map Comment Closed	**Web Comment from Kevin Nelson Peace Lutheran Churc** The congregation at Peace Lutheran Church in Lincoln is very concerned about our access on 66th Street. We are particularly concerned about what will happen to our access if/when 66th Street is improved to carry more traffic. Losing our access on 66th Street will be devastating to our burgeoning faith family. It is imperative that our access on 66th Street be maintained. We recognize that the present location might not be desirable in the future. However, if this is moved, then we will require access off of the right-of-way north of our property (Pierce Road?).	Road Improvements	Kevin Nelson Peace Lutheran Church	[redacted]
9341 1/29/2014 Website Map Comment Closed	**Web Comment from Sheldon Wolf** [Comments Associated with Map Points]With the additional of the new school up here, need to widen Old Red Trail and put in turning lanesNeed another road connecting 1806 and the area to the westNeed new bridge hereWith new subdivision going in North of this street. Need to add a turning lane hereNeed more access to the interstate, such as an interchange here (1806 & Collins Ave)This street needs to be finished on the east side. Very narrow, especially if there are cards parked on one sideNew lights in this area are Dangerous. No one knows where to stop, not enough room etc. There intersections need to be fixed soon	Road Improvements Traffic Signals	Sheldon Wolf	[redacted]
9758	**Dennis Rohr Comment Form**	Public Involvement	Dennis Rohr	[redacted]

1/30/2014 Title IV Survey Closed	Found the public input meeting on January 22nd to be interesting. As city commissioner, your data is very important to me and the city.		Mandan City Commission	[redacted]
9387 2/5/2014 Website Map Comment Closed	**Web Comment from Daniel Nairn** There should be more access points for cyclists and pedestrians between the central neighborhoods of Bismarck and the Missouri River, especially some that do not require travel on or near major roadways. My family has been in the home search process, and the Highland Acres neighborhood seemed very attractive because of the proximity to the river, but the only access point is fenced off, and there is no way to bike or walk to the river without going around to the north of south and using a major road. I understand the need to reduce through traffic, but perhaps this access could be opened to bike and pedestrian use only, and one of the informal paths to the river could be improved and added to the city's system. This would be a great amenity for that neighborhood, and I imagine would be used as a recreational access to the river by other central Bismarck neighborhoods. It could have a transportation function as well, since it improves the overall connectivity of the multiuse trail system.	Bike Paths/Lanes Recreation	Daniel Nairn	[redacted]
9390 2/5/2014 Website Map Comment Closed	**Web Comment from Donovan Slag** There needs to be improvements for pedestrians crossing S 3rd St. Often there are pedestrians crossing between the mall and the Ramkota Hotel. A refuge island may be helpful or bulb outs at the crossing to reduce the exposure to traffic. Also consider a road diet from 5-lanes to 3-lanes on S 3rd St.	Bike Paths/Lanes Road Improvements	Donovan Slag	[redacted]
9766 3/24/2014 Meeting Comment Form	**Jeremy Smerage Comment Form** Join the mailing list	Mailing List Request	Jeremy Smerage	[redacted]
9984 3/28/2014 Media	**KXNews Story - Washington Street** Article Title: Washington Street has the Worst Traffic in Bismarck. See full article in documents.	Traffic Congestion Transit		
12879 6/11/2014 Website Comment Closed	**Web Comment from Sean Johnson** I have been a supporter of roundabouts in the BisMan area, especially along Lincoln Rd and 66th St. I came across this video which may be useful for others not familiar with roundabouts to see the benefit of them http://www.wimp.com/testroundabout/	Road Improvements	Sean Johnson	[redacted]
14182 7/3/2014 Email Closed	**Email- HDR Invitation** Greetings,We were happy to be able to speak with many of you last fall at our Bicycle and Pedestrian listening session for the Bismarck-Mandan MPO's Long Range Transportation Plan update, Envision2040. We are hoping you and others will be able to join us for our next Envision2040 bicycle and pedestrian meeting.Since our meeting last fall, Community Design Group, our partner that is leading up the Bike and Pedestrian planning element of Envision2040, has	Bike Paths/Lanes	Jason Carbee HDR Spencer Ulvestad Mark Liebig Central Dakota Cyclists	[redacted] [redacted] [redacted]

	up the Bike and Pedestrian planning element of Envision2040, has developed a preliminary list of Bike and Pedestrian "alternatives", or options to consider for inclusion in the Transportation Plan. Antonio Rosell with Community Design Group, will be presenting the draft list of alternatives for your consideration and feedback. The Bismarck-Mandan MPO will host a meeting to discuss the bicycle and pedestrian alternatives at:Date: July 23, 2014Time: 7:00 PMLocation: Bismarck Veterans Memorial Public LibraryThe meeting will be a workshop where we present some bicycle and pedestrian alternatives, get your feedback on those ideas, and talk about some potential adjustments. We anticipate the workshop will last approximately 90 minutes.The bike and pedestrian alternatives are based on your input, additional community input we received at meetings and via the website, work completed by Bismarck and Mandan parks and recreation departments, and our experiences riding and walking around Bismarck and Mandan. The draft bike and pedestrian alternatives are available in a memorandum for your preview at: http://www.envisionbisman2040.com/files/6014/0425/0574/CDG_PedBikeProjectMemo-070114-v2.pdf Please forward this e-mail notification to any other members of your organization who may be interested in participating. Let me or Steve Saunders, Transportation Planner for the MPO, know if you have additional questions. You can respond to me directly or email Steve at ssaunders@bismarcknd.gov.Thank you in advance for you and your organization's participation. Have a happy and safe 4th of July. Jason Carbee, AICPSenior Transportation Planner.		Cole Higlin Mandan Parks and Recreation	[redacted]
			Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
			Bob Scarlett	[redacted]
			Allen Chompen Central Dakota Cyclists	[redacted]
			Allen Chompen LAB League Cycling Institution	[redacted]
			Jim Kambeitz	[redacted]
			Bob Shannon	[redacted]
				[redacted]
			Wendy Berg	[redacted]
			Alicia Berger	[redacted]
			Karen Ehrens	[redacted]
				[redacted]
			carolaron@yahoo.com	[redacted]
			Antonio Rosell Community Design Group	[redacted]
14183 7/3/2014 Email Closed	**Email- HDR Envision2040 Focus Group Invite** Envision2040 Focus Group Members:The Bismarck-Mandan Metropolitan Planning Organization (MPO) is having the next workshop for the area's Long Range Transportation Plan update, Envision 2040. Since we last met a couple of months back, we have taken the ideas we received from the Focus Group, our study management team, and other members of the Bismarck-Mandan community and developed the list of projects and programs that we are considering for the transportation plan. We are currently analyzing the performance of each of these "alternatives". At this coming meeting with you, we hope to get your feedback to help us rank and prioritize the roadway, bicycle and pedestrian, and transit alternatives for potential inclusion in the 2040 Long Range Transportation Plan. We are asking that you or someone from your organization come to our third focus group meeting, the "alternatives prioritization workshop" to tell us what you think should be priorities for improving transportation in the Bismarck-Mandan region. The next Envision 2040 Transportation Focus Group workshop will be:Date: July 23, 2014Time: 5:30 PM – 7:00 PMLocation: Bismarck Veterans Memorial Public LibraryPlease respond to me or Steve Saunders, Transportation Planner for the MPO, and let us know	Bike Paths/Lanes	Darin Scherr Bismarck Public Schools	[redacted]
			Chuck Peterson Jobbers Moving & Storage	[redacted]
			Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
			Rick Stoppelmoor	[redacted]
			Tim Seaworth University of Mary	[redacted]
			David Clark Bismarck State College	[redacted]
			Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]

	if you can join us for the meeting, or if you have additional questions. You can respond to me directly or email Steve at ssaunders@bismarcknd.gov or call him at 355-1848. If you cannot attend the meeting, we would ask that you identify someone within your organization to come in your place. I will be distributing materials related to the alternatives for your preview in a follow up email next week.Have a happy and safe 4th of July.Jason Carbee, AICPSenior Transportation Planner.		Brian Ritter Bismarck-Mandan Development Association	[redacted]
			Cheryl Hess State Council on Developmental Disabilities	[redacted]
			Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
			Tim Seaworth	[redacted]
			Antonio Rosell Community Design Group	[redacted]
				[redacted]
				[redacted]
				[redacted]
				[redacted]
14253 7/11/2014 Email Closed	**Email- HDR to Focus Group Members** Envision2040 Focus Group Members:As I mentioned in the Focus Group invitation email last week, we now have the alternatives posted on the study website. You can view them at: http://envisionbisman2040.com/resources/transportation-alternatives/ These are the various roadway, bicycle and pedestrian, and transit options we'd like your input on.Looking forward to seeing those of you able to attend the July 23 meeting. Thank you. Jason Carbee	Bike Paths/Lanes	Jason Carbee HDR	[redacted]
			Randy Bina Bismarck Parks & Rec	[redacted]
			Darin Scherr Bismarck Public Schools	[redacted]
			Mark Liebig Central Dakota Cyclists	[redacted]
			Chuck Peterson Jobbers Moving & Storage	[redacted]
			Tim Seaworth University of Mary	[redacted]
			David Clark Bismarck State College	[redacted]
			Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]
			Brian Ritter Bismarck-Mandan Development Association	[redacted]

			Cheryl Hess State Council on Developmental Disabilities	[redacted]
			Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
			Allan Klein Burleigh County Rural Fire Department	[redacted]
			Bill Lardy AARP North Dakota	[redacted]
			Tim Seaworth	[redacted]
				[redacted]
				[redacted]
				[redacted]
				[redacted]
				[redacted]
14254 7/14/2014 Join the Mailing List	**Web Comment from Bernice Hilfer** No comment left - join the mailing list	Mailing List Request	Bernice Hilfer Mandan Planning Commission	[redacted]
14272 7/16/2014 Website Map Comment	**Web Comment from Carol Aron** 1. The bike path crossing 94 on Centennial is incredibly dangerous - the traffic exiting 94 and turning right is going fast and doesn't really even slow down much for a red light and doesn't look right. Would be nice to	Bike Paths/Lanes Safety Traffic Congestion	Carol Aron	[redacted]
14268 7/16/2014 Email	**Email-Ed Konieczka** Dear Mr. Carbee,Thank you for all the work being done on the Bismarck-Mandan Transportation Alternatives. It is obvious from the	Bike Paths/Lanes	Jason Carbee HDR	[redacted]

Open	documents that much planning and work has been done. I received an email asking for review of the document. I live in the Vista South subdivision (Across 1804 from the University of Mary). When 1804 was redone a few years ago we were hoping to get some form of connection to the bike path, which was extended to the University of Mary. My own children and I do not use the bike path because it is difficult and hazardous to cross hwy 1804. The cars are travelling at 55mph and both the hill and the curve of 1804 shorten driver visibility. Our subdivision and the one immediately north of us have seen tremendous growth in homes and in families in recent years-I'm hoping that we are now sufficiently sized to warrant access to the bike paths of Bismarck.When your transportation planning began a few years ago I provided feedback of our desire to be connected to the bike path. I have reviewed your current draft of a plan and I do not see any mention of that in the plan. Do you know if this was ever discussed, and is the committee aware of that there are 2 subdivisions that are across the street from the bike path that have no access to it?I understand that each item on the list will need to be weighed in a cost vs. benefit analysis and that this might not be viable. I do hope, however, that there is some way in this plan to accommodate the families in our 2 subdivisions in this plan. Again, thanks for all of your hard work on this project and for taking time for feedback and questions.Respectfully,Ed Konieczka Vista South Subdivision/ Jason Carbee Response Via Email:Mr. Konieczka:Thank you for taking the time to look through our Envision2040 materials and provide your		Ed Konieczka	[redacted]
14275 7/16/2014 Email Closed	**Email to Loren from Jason Carbee** Loren:I understand you were speaking with Bill Troe at the Fringe Area Roadway Plan meeting last night, and that you are interested in hearing more about the types of roadway options the 2015-2040 Long Range Transportation Plan update is considering for Northeast Bismarck. Bill passed me your contact information, so I am writing you. To give you a little background information on our study, the Long Range Transportation Plan is currently in progress and we just posted a summary of the "alternatives" or options we are considering for potential inclusion in our final Long Range Transportation Plan. You can view those potential concepts at our study website at: http://envisionbisman2040.com/resources/alternatives/. Please feel free to respond with any questions or input you might have about the Long Range Transportation Plan or any alternatives being considered. Thank you for your interest. Jason Carbee	Transit	Jason Carbee HDR Steve Saunders Bismarck-Mandan Metropolitan Planning Organization Loren Bill Troe	[redacted]
14276 7/16/2014 Email	**Email- Ed Konieczka** Mr. CarbeeThank you for the quick response. Our home is between 41st street and Signal street. Those would be the two exists from the	Bike Paths/Lanes	Jason Carbee HDR	[redacted]

Open	subdivision closest to our home. Sentinel Drive would also be close. However, those are all technically south of UMary and south of the existing bike path. Southridge Lane is at the other end of the subdivision from our home, but it may make the most sense because it would cross the road directly to the existing bike path and would avoid the University. I am not sure how good visibility would be for drivers coming up the hill-I will take note of that next time I drive up the hill. Visibility should be good for drivers heading northbound. This would also be closer to most of the new homes built in that area, which have younger kids. If there was an accommodation made to cross the road at Southridge Lane, my family would gladly bike through the subdivision to use it!An additional point to mention-the University of Mary track team and other students routinely jog in our subdivision. There will be 15-20 university students that cross highway 1804 each afternoon in the spring to run through the subdivision, and then cross the hwy. back to the University.Thank you for taking the time to listen to our concerns and for including this in your discussions. I understand that resources are finite and that you will do the best you can.Ed		Ed Konieczka	[redacted]
14273 7/16/2014 Website Comment Open	**Web Comment from Ryan Duletski** I would like to see increased bicycle lanes and signage to increase bicycle mobility and safety for those who use it as transportation. I would also like to see mountain bike trails developed for the community for both recreation and transportation. Possible areas could include an addition to Lions Park in Mandan as the land surrounding it is primed for such activity. I would be willing to help coordinate such efforts but am unsure how to proceed. Thank you	Bike Paths/Lanes Public Involvement Recreation Safety	Ryan Duletski	[redacted]
14269 7/16/2014 Media Closed	**Press Release by Gloria David** NEWS RELEASEFor Immediate Release: For More Information Media Contact:July 16, 2014 Steve Saunders Bismarck-Mandan MPO Phone: 701-355-1840	Bike Paths/Lanes	Gloria David Bismarck City Administration Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
14274 7/17/2014 Website Comment Open	**Web Comment from Curt Pearson** Bismarck has a regressive approach to growth in traffic flow and vehicle count numbers, seeming to clamp down on speed limits and restrict traffic flow in a futile effort to remain a small town, with small-town traffic	Road Improvements Safety Traffic Congestion	Curt Pearson	[redacted]

Open	control mentality. As a city grows, it must address the increased traffic counts and embrace change in traffic control in order to route vehicles in the most expedicious and fuel efficient manner possible. Some examples: Turning left to go west from Highway 83 onto Century avenue, you drive 1/4 block before immediately being stopped by another red light. Turning left to go south from Interstate Avenue onto Highway 83 there is regularly a line of 15-20 vehicles - yet there is plenty of room for two left turn lanes. In fact, people are now starting to make double left turns because the intersection appears to be set up that way - even though the lights and street markings only allow a single left lane. If you maintain the speed limit driving south on Highway 83 into Bismarck, south of the Interstate, you will be regularly stopped at	Traffic Signals		[redacted]
14284 7/17/2014 Facebook Open	**Facebook Comment- Guy Connell** Let's see.How about some long range planning.For example, who's collective bright idea was it to build another school on Washington Street BEFORE improving the street? Why isn't Washington 4 lane all the way to 1804?Is there some sort of penalty in this town for putting in dedicated right turn lanes?Why does EVERY main route from north	Road Improvements Traffic Signals	Guy Connell	[redacted]
14291 7/18/2014 Website Comment Open	**Web Comment from Rita Falconer** Why isn't there an off road trail alternative that goes all the way to McDowell Dam? I have contacted parks & rec about this years ago, and never got a straight forward answer. I live off of Hwy 10 and that traffic speed is 55 mph on that highway. During the summer I see young kids riding their bicycles out to McDowell Dam on the shoulder of the highway. One day on my lunch hour going home, I saw a near accident where a pickup pulling a construction trailer nearly hit a young boy on his bike. The pickup didn't even know that he almost hit that boy. How come it takes a death before something is done about it? Jason Carbee responded via email on August 12, 2014 stating:Ms. Falconer:Thank you for passing along your concern about safety of bicyclists along Highway 10 going to McDowell Dam. I will also pass it along to Bismarck Parks and Recreation staff. A trail out to McDowell Dam is actually part of the range of trail options being considered. Those trail options being considered are included as Figure 4 in the draft bicycle and pedestrian alternatives document, which you can access at: http://envisionbisman2040.com/files/4114/0508/3038/CDG_PedBikeProjectMemo-070114-v2.pdfThanks again. We really appreciate you taking the time to pass this along to us. Please follow up with any additional questions or comments.Jason CarbeeJason Carbee sent an email to Wendy Berg concerning Rita Falconer's comment on August 12, 2014 stating:Wendy:For the 2040 Long Range Transportation Update, over the past 3-4 weeks, we have had a public involvement push to get feedback on the roadway, bicycle and pedestrian, and	Bike Paths/Lanes Safety	Jason Carbee HDR Wendy Berg Rita Falconer	[redacted]
14292 7/19/2014	**Web Comment from Robert Graham** First in regards to your LRTP there is only one stakeholder and that is	Public Involvement Road Improvements	Robert Graham	[redacted]

Website Comment Open	the public. Public input should always be the determining factor related to any planning undertaking by local government entities. Second, the following are two recommendations to alleviate a vast amount of the congestion within the central city of Bismarck 1. Institute a no turn of red program at the intersection of ninth street and boulevard ave. This would clear the state street crossing to boulevard ave. and allow a reduction in the backup of traffic on southbound state st. 2. Institute a left turn lane controlled by turn signal at the seventh st. and and Ave. C intersection to clear out the Bismarck High School traffic at lunch and after school. Comments were passed along to the City of Bismarck.	Traffic Congestion Traffic Signals		[redacted]
14293 7/21/2014 Website Comment Open	**Web Comment from Shane Hanson** I live in a location where a road is essentially being proposed in my backyard (B53). I thought that this issue was resolved in the Northwest Subarea Study (initiated and supported by engineers and their proposal was essentially killed by the commission (or, if not killed, tabled at best)). However, I must have been mistaken. We do not understand why we have to suffer because the City of Bismarck did not adequately plan for the traffic. The engineers of the NW Subarea Study primarily criticized other options due to impact on commercial development. The commercial development was almost all built long after the neighborhood was established. If future traffic would have been considered by Bismarck city planners when Pinehurst was proposed or even when Century was routed, traffic would be a non-issue. Now Bill Clairmont, the developer of the neighborhood, will be the only one to benefit as he will be paid for property that cannot be developed and precious green space will be destroyed. I hope that this time green space and affect on existing neighborhoods is actually considered.	Environmental Impacts Land Use Road Improvements Traffic Congestion	Shane Hanson	[redacted]
14303 7/22/2014 Email Closed	**Email Invite-Jason Carbee** All:Just a quick reminder about our 2040 Bismarck-Mandan Long Range Transportation meeting tomorrow night, July 23, for our Bicycle and Pedestrian group. The meeting is at 7:00 PM at the Bismarck Veterans Memorial Library.We'd love to have as many of you there as possible, to hear Antonio Rosell with Community Design Group provide concepts for improving the bicycle and pedestrian system, and get your feedback on the alternatives. Thank you. Jason Carbee, AICP	Bike Paths/Lanes Public Involvement	Spencer Ulvestad	[redacted]
			Mark Liebig Central Dakota Cyclists	[redacted]
			Cole Higlin Mandan Parks and Recreation	[redacted]
			Bob Scarlett	[redacted]
			Allen Chompen Central Dakota Cyclists	[redacted]
			Allen Chompen LAB League Cycling Institution	[redacted]

			Jim Kambeitz	[redacted]
			Bob Shannon	[redacted]
				[redacted]
			Wendy Berg	[redacted]
			Alicia Berger	[redacted]
			Karen Ehrens	[redacted]
				[redacted]
			Antonio Rosell Community Design Group	[redacted]
				[redacted]
14304 7/22/2014 Email Closed	**Email Follow Up-Jason Carbee** Subject: RE: Bismarck-Mandan LRTP Study Management Team Workshop2015-2040 Long Range Transportation Plan Management Team Members:Per my last e-mail, just a reminder that our steering committee meeting will be held Thursday morning, July 24 (9:15 AM to Noon at the Bismarck Library). Just to remind you all, the bicycle and pedestrian alternatives being considered are available from the study website at: http://envisionbisman2040.com/files/4114/0508/3038/CDG_PedBikeProjectMemo-070114-v2.pdf Thanks. Looking forward to the meeting Thursday.Jason Carbee, AICP	Bike Paths/Lanes Public Involvement	Jason Carbee HDR	[redacted]
			Robin Werre Bis Man Transit Board	[redacted]
			Mel Bullinger Bismarck City Engineer	[redacted]
			Marcus Hall Burleigh County Engineer	[redacted]
			Stephanie Hickman Federal Highway Administration	[redacted]
			Larry Squires Federal Transit Administration	[redacted]
			Robert Johnston Lincoln City Council	[redacted]
			Justin Froseth Mandan Engineering Department	[redacted]
			Mike Aubol Morton County	[redacted]
			Michael Johnson NDDOT	[redacted]
			Bob Decker Mandan Planning	[redacted]
14468 7/22/2014 Facebook Open	**Facebook Comment- Kelly McPhillips** Just no!	General	Kelly McPhillips	[redacted]
14333 7/27/2014	**Facebook Comment- Michael Adams** "Monorail"Response to Envision BisMan 2040 link concerning transit	Transit	Michael Adams	[redacted]

Facebook Open	alternatives			[redacted]
14331 7/27/2014 Email Open	**Email to Shane Hanson from Jason Carbee** Mr. Hanson:We appreciate you taking the time to review the list of potential 2015-2040 Long Range Transportation Plan alternatives we are currently reviewing and considering. A potential Century Avenue extension is just one of many potential options we are evaluating, and not all of those options we are considering will make it into the 2040 Long Range Plan. Part of the Transportation Plan's charge is to have every option "on the table" and to consider the wide range of options across the entire Bismarck-Mandan region. At this stage, we are incorporating the alternatives that other studies have considered, and as you noted this was one that was considered for the Northwest Bismarck study. In addition to assessing potential projects like this one for how well they improve transportation mobility and safety, we also consider the impacts associated with each potential project and its level of public support. We appreciate your comment and it will be taken into consideration as part of our assessment.We anticipate over the next few weeks developing our draft list of projects to include in the 2040 plan. We will add you to our mailing list, and you'll be notified when the draft project list is available for public comment.If you have any additional comments or questions, please feel free to contact me. Jason Carbee, AICP	Bike Paths/Lanes	Jason Carbee HDR Shane Hanson	[redacted]
14395 7/29/2014 Email Open	**Email- Sean M. Johnson** On Jul 29, 2014 10:35 AM, "Sean M. Johnson" <> wrote:>> I have a question on the roadway alternatives posted on your site as part of the envision2040 study. Specifically, my questions pertain to alternatives B5 and B6. >> The terms "rural 2 lane road" and "rural road" are used. Can you please define these a little more, especially as they pertain to speed limits envisioned?>> I plan to provide feedback, but wish to fully understand the alternatives proposed before I do. Thank you!> > Sean M. Johnson>	Information Request	Jason Carbee HDR Sean Johnson	[redacted]
14451 8/12/2014 Email	**Email- Rita Falconer** Hi Jason, After having some time to study the maps on this website, I did see Figure 4 is some alternative routes for off road trails, which	Bike Paths/Lanes Safety	Jason Carbee HDR Rita Falconer	[redacted]

Open	would include the Apple Creek Country Club and McDowell Dam areas. That would be fantastic, if it actually happens! But I also noticed on several maps that the "recommended" off road trails stopped at 66th St., if I'm reading the maps correctly (no street markings). That is basically what I heard a few years ago from Bismarck Parks & Recreation. The heavy traffic flow doesn't stop at 66th Street to Lincoln. The traffic is steady all the way past McDowell Dam area onto Apple Valley Subdivision and all of the new subdivisions south of there.I understand that you can't please everyone, but it would be great if they would actually continued all the way out to McDowell Dam Recreation area....for the safety of the young kids riding their bikes in the summer.Thank you Jason for all of your help in this matter, it is greatly appreciated! Rita Falconer Jason Carbee responded on August 12, 2014 via email:Ms. Falconer:			[redacted]
14442 8/14/2014 Website Comment	**Web Comment from Eric Hart** Routing truck traffic north of 71st is a must. The north part of town is growing fast and needs less commercial traffic along 71st and Centennial.	Trucks and Freight	Eric Hart	[redacted]
14443 8/14/2014 Website Comment Open	**Web Comment from Alix Hart** This is a great website to inform us. I want to comment about the new truck route being put in on the north side of town. I would really like to see that route put further north than 71st. I live off of 71st and that residential area is highly disturbed by all the trucks and it would be wonderful to have the bypass be further north.	Noise Public Involvement Trucks and Freight	Alix Hart	[redacted]
14445 8/14/2014 Email Open	**Email-John Wegerle** To whom it may concern An immediate improvement would be to synchronize the street lights to allow for flow of traffic rather than stopping traffic at every light especially during busy times at 4-6 pm.I drive a semi truck and you can't even get moving over 20 mph in a 40 mph zone for example on State St. or Hwy 83 northbound because you know the light will turn red as soon as you get to it..... Especially if truck is loaded. This creates a definite hazard because the cars are traveling nearly twice the speed the truck traffic is. Also for truck traffic the traffic lights change way to fast to allow for a truck to stop. I also noticed because the lights change so fast and are holding up traffic it is a more than not common practice for people to run the lights as they turn red. Please apply some common sense to your traffic flow and traffic light issues.... ThanksJohn Wegerle PresidentDakota Bio Products, Inc. Comment forwarded to City of Bismarck. Jason Carbee responded August 14, 2014Mr. Wegerle:Thank you for	Safety Traffic Signals Trucks and Freight	Jason Carbee HDR John Wegerle	[redacted]
14454 8/15/2014 Website Map Comment	**Web Comment from Paul Moch** There is no where to walk with my child or family in our neighborhood. Attention should be given to a shared use path continuation for the entirety of NW Mandan.	Bike Paths/Lanes Sidewalks	Paul Moch	[redacted]
14455 8/15/2014 Website Map	**Web Comment from Phil Murdoff** Build a roundabout at the intersection of 43rd Ave and Washington Street. The interim signal that was added a few years ago is very	Road Improvements	Phil Murdoff	[redacted]

Comment Open	inefficient for traffic movement. Also add left turn lanes on Washington Street between Century Ave and 43rd Ave.			[redacted]
14456 8/15/2014 Website Comment Open	**Web Comment from Phil Murdoff** In general, I am disappointed that the overall long range plan does not mention the use of roundabouts. A roundabout should be considered whereever there is discussion about adding or upgrading signals. Another general observation, is the city of Bismarck should do a better job of preserving right-of-way along future major corridors. Along with this, why not construct/reconstruct the major corridors before or at the start of developement in an area? It would be much easier and less expensive. Following are comments relative to specific locations and issues.	Bike Paths/Lanes Road Improvements Safety Traffic Congestion Traffic Signals	Phil Murdoff	[redacted]
14457 8/15/2014 Website Comment Open	**Web Comment from Sean Johnson** Please see below. I would also appreciate an acknowledgement of receipt of my comments to be emailed to I wish to submit the following comments on Roadway Alternatives:B4, B4b, and B5- Support the overall concept. Any overpass of 66th over I-94, however, needs to	Bike Paths/Lanes Environmental Impacts Safety	Sean Johnson	[redacted]

Open	overall concept. Any overpass of 66th over I-94, however, needs to have access to I-94 to maximize it's potential. It was not clear that the alternatives would include that. Wetlands concerns appear manageable (simple culverts?)Parallel bike trails should be considered in conjunction with these improvements.B6- Residential and rural residential development has been authorized by county and municipal authorities to a level where the rural road proposed is a much more acceptable alternative that the original 4 lane envisioned. This statement is based on the understanding a rural road would be a 2 lane with perhaps some turn lanes, and some parallel bike trails. Speed limits must stay at or below 40mph, as these are the maximum safe speeds this close to the residential and rural development which has been allowed by municipal and county officials. Fences along 66th and 48th to block sound, maintain a good level of aesthetics, and most importantly better prevent children from running onto a busy road are a must. With that said, the wetlands, floodplain, and environmental impacts make any further development of 48th Ave unfeasible. There are already enough flooding issues exacerbated by the current road network in the Apple Creek basin. Adding another crossing will make it even worse. There is also a lot of habitat in this area which will be unjustifiably disturbed. The funding which would be required to mitigate the flooding and environmental impacts of improvements to 48th are not justifiable from a fiscal sense, nor a floodplain management or environmental stewardship one. The concerns about a future closure of Airway "someday" due to a runway expansion do not justify further consideration of this alternative. The original justification for airport expansion - specifically the Northern Plains Commerce Center - no longer exists to the level envisioned. The NPCC is not developing as originally envisioned. While it is slowly filling up, the usage of this facility for air cargo is not happening to a level which would justify runway expansion. Also, future aircraft will require less runway length, not more. the airport has also been proven to be able to handle aircraft the size of a C-5 military transport and 747 (Air Force One). If the current runway can handle aircraft this size, it can handle any other existing or current cargo aircraft. Also, if the main runway expands, the crosswind one will also have to (must be 80% of the length of the main). With this	Traffic Congestion		[redacted]
14458 8/15/2014 Website Comment	**Web Comment from Patrick Fischer** On the centennial exit there needs to be a new on/off ramp but in similar to the one on divide/Tyler parkway. There is way to much traffic for a left hand turn onto I-94 westbound to work along with all the traffic	Traffic Congestion Trucks and Freight	Patrick Fischer	[redacted]
14469 8/15/2014 Email Open	**Bismarck-Mandan MPO (Dale Sandstrom)- Comments** An emailed Letter urging to move B53 to rejected proposals list. In this letter, it is recommended that the Northwest Bismarck Sub-Area Study plan should be returned for further work.	Noise Public Involvement Traffic Congestion	Jason Carbee HDR Steve Saunders Bismarck-Mandan Metropolitan Dale Sandstrom Todd Sando State Water Commission Steven Kahl	[redacted]

14467 8/16/2014 Facebook Open	**Facebook Comment- Sean Johnson** I am not in favor of cameras due to potential for violations of privacy but as an alternative that would work equally well I don't oppose the electronic signs that measure your speed and flash if you are speeding. I have seen those used around town and the impact on getting people to slow down is obvious.	Safety Traffic Signals	Sean Johnson	[redacted]
14495 8/22/2014 Email Open	**Email-Nita Sherwin** I currently live in tatley meadows. It is dangerous to try to enter Washington street with the large amount of new traffic. Many mornings I am unable to even enter from the trailor park. Please consider adding a street light along south Washington. Thanks! Nita Sherwin Steve Saunders responded on August 22, 2014 via email:Thanks Nita	Traffic Congestion Traffic Signals	Jason Carbee HDR	[redacted]
			Steve Saunders Bismarck-Mandan Metropolitan	[redacted]
			Nita Sherwin	[redacted]
14523 8/27/2014 Email Open	**BisMan Email**	Public Involvement	Jason Carbee HDR	[redacted]
			Emily Hyland HDR	[redacted]
			Spencer Ulvestad	[redacted]
			Josh Askvig AARP North Dakota	[redacted]
			June Herman American Heart Association	[redacted]
			Robin Werre Bis Man Transit Board	[redacted]
			Greg Haug Bismarck Airport	[redacted]
			Gloria David Bismarck City Administration	[redacted]
			Kristi Haas Bismarck City Administration	[redacted]
			Brenda Smith Bismarck City Commission	[redacted]
			Josh Askvig Bismarck City Commission	[redacted]
			John Warford Bismarck City Commission	[redacted]
			Mike Seminary Bismarck City Commission	[redacted]
			Parrell Grossman Bismarck City Commission	[redacted]
			Mel Bullinger Bismarck City Engineer	[redacted]

Carl Hokenstad Bismarck Community Development	[redacted]
Gary Stockert Bismarck Emergency Mgmt.	[redacted]
Mark Berg Bismarck Engineering Department	[redacted]
Randy Bina Bismarck Parks & Rec	[redacted]
Mike Donahue Bismarck Planning & Zoning	[redacted]
Doug Lee Bismarck Planning & Zoning	[redacted]
Mike Schwartz Bismarck Planning & Zoning	[redacted]
Ken Selzler Bismarck Planning & Zoning	[redacted]
Lisa Waldoch Bismarck Planning & Zoning	[redacted]
Mark Armstrong Bismarck Planning & Zoning	[redacted]
John Warford Bismarck Planning & Zoning	[redacted]
Tom Atkinson Bismarck Planning & Zoning	[redacted]
Vernon Laning Bismarck Planning & Zoning	[redacted]
Wayne Yeager Bismarck Planning & Zoning	[redacted]
Steve Kilde Bismarck Police Department	[redacted]
Darin Scherr Bismarck Public Schools	[redacted]
Becky LaBella Bismarck Public Schools	[redacted]
Tamara Uselman Bismarck Public Schools	[redacted]
LeAnn Eckroth Bismarck Tribune	[redacted]
Russ Staiger Bismarck-Mandan Development Association	[redacted]

Lynn Liebfried BNSF Railway Company	[redacted]
Gerry Foell Bureau of Indian Affairs	[redacted]
Mary Senger Burleigh County Emergency Management	[redacted]
Michael Gunsch Burleigh County Water Resource District	[redacted]
Kevin Glatt Burleigh County Auditor	[redacted]
Brian Bitner Burleigh County Commission	[redacted]
Doug Schonert Burleigh County Commission	[redacted]
Jerry Woodcox Burleigh County Commission	[redacted]
Jim Peluso Burleigh County Commission	[redacted]
Marcus Hall Burleigh County Engineer	[redacted]
David Andahl Burleigh County Planning Commission	[redacted]
Ervin Mund Burleigh County Planning Commission	[redacted]
James Small Burleigh County Planning Commission	[redacted]
John Warford Burleigh County Planning Commission	[redacted]
Neil Effertz Burleigh County Planning Commission	[redacted]
Pat Whalen Burleigh County Planning Commission	[redacted]
Mark Liebig Central Dakota Cyclists	[redacted]
Kelvin Hullet Chamber of Commerce	[redacted]
Ron Beck Committee on Employment of People w/Disabilities	[redacted]

Dawn Kopp Downtown Business Association	[redacted]
Stephanie Hickman Federal Highway Administration	[redacted]
Wendall Meyer Federal Highway Administration	[redacted]
Larry Squires Federal Transit Administration	[redacted]
Wade Kline Fargo Morehead Metro Council of Governments	[redacted]
Wendy Anderson-Berg Go! Bismarck-Mandan/Parks n Rec	[redacted]
Earl Haugen Grand Forks Metropolitan Planning Organization	[redacted]
Dave Pearce Hay Creek Township	[redacted]
Cheryl Kulas Indian Affairs Commission	[redacted]
Chuck Peterson Jobbers Moving & Storage	[redacted]
Joel Boespflug Bismarck Fire Department	[redacted]
Paul Rechlin Lewis & Clark Regional Development Council	[redacted]
Melanie Kitzan Lincoln City Auditor	[redacted]
Karen Daly Lincoln City Council	[redacted]
Robert Johnston Lincoln City Council	[redacted]
Steve Urlacher Lincoln City Council	[redacted]
Jim Lawler Mandan Airport	[redacted]
Dennis Rohr Mandan City Commission	[redacted]
Dot Frank Mandan City Commission	[redacted]
Arlyn Van Beek Mandan City Commission	[redacted]

Mike Braun Mandan City Commission	[redacted]
Sandra Tibke Mandan City Commission	[redacted]
Justin Froseth Mandan Engineering Department	[redacted]
Cole Higlin Mandan Parks and Recreation	[redacted]
Mike Bitz Mandan Public School District	[redacted]
Tom Doering Mandan/Morton Emergency Management	[redacted]
Dawn Rhone Morton County Auditor	[redacted]
Bruce Strinden Morton County Commission	[redacted]
Ron Leingang Morton County Commission	[redacted]
Aaron Nelson Morton County Planning & Zoning	[redacted]
Andy Zachmeier Mandan Planning Commission	[redacted]
Andy Zachmeier Morton County Commission	[redacted]
Andy Zachmeier Morton County Planning Commission	[redacted]
Cody Schulz Morton County Commission	[redacted]
Cody Schulz Morton County Planning Commission	[redacted]
Jackie Buckley Morton County Planning Commission	[redacted]
Mike Aubol Morton County	[redacted]
Larry Taborsky ND Aeronautics Commission	[redacted]
Janice Webb ND Council on the Arts	[redacted]
David Glatt ND Department of Health	[redacted]
Ben Kubischta ND DOT Local Government	[redacted]

Pam Wenger ND DOT Local Government	[redacted]
Terry Steinwand ND Game and Fish Dept.	[redacted]
Ed Murphy ND Geological Survey	[redacted]
Mark Zimmerman ND Parks & Recreation Department	[redacted]
Merl Paaverud ND State Historical Society	[redacted]
Darcy Rosendahl NDDOT	[redacted]
Kevin Levi NDDOT	[redacted]
Michael Johnson NDDOT	[redacted]
Stacey Hanson NDDOT	[redacted]
Jack Olson NDDOT	[redacted]
North Dakota Wildlife Federation	[redacted]
Thomas Balzer North Dakota Motor Carriers Association	[redacted]
Jason Tomanek Renaissance Zone Authority	[redacted]
Scott Hochhalter Soil Conservation Committee	[redacted]
Clarence Greene Spirit Lake Nation Roads	[redacted]
Pete Red Tomahawk Standing Rock Nation	[redacted]
Dale Frink State Water Commission	[redacted]
Vonnie Alberts Three Affiliated Tribes	[redacted]
Tex "Red Tipped Arrow" Hall Three Affiliated Tribes	[redacted]
Dan Cimarosti U.S. Army Corps of Engineers	[redacted]
Jeffrey Towner U.S. Fish and Wildlife Service	[redacted]
Gergg Wiche U.S. Geological Survey	[redacted]

Dennis Neumann United Tribes Newsletter	[redacted]
Doug Herzog United Way Transportation Task Force	[redacted]
Michael Anderson	[redacted]
Scott Zainhofsky NDDOT	[redacted]
Clear Channel Communications, Inc. KBMR-KFYR-KQDY-KSSS-KXMR-KYYY	[redacted]
City Magazine Kilee Dobogai	[redacted]
Cumulus Broadcasting KACL, KBYZ, KKCT, KLXX, & KUSB	[redacted]
Dakota Media Access, Inc.	[redacted]
KFYR-TV	[redacted]
KLND-FM 89.5 FM	[redacted]
KNDX-TV	[redacted]
Mandan News	[redacted]
Lee Klapprodt	[redacted]
Kate Herzog Downtowners of BIsmarck	[redacted]
Jami Wangler City of Bismarck	[redacted]
Holly Friesz	[redacted]
Cameron McCullough MDU Resources	[redacted]
Ross Degenstein	[redacted]
Ben Ehreth NDDOT	[redacted]
Sudheer Dhulipala Ulteig	[redacted]
Christine Kujewe	[redacted]
Ken Roubideaux	[redacted]

Traci Juhaln	[redacted]
Carol Barahona	[redacted]
Susan Holweg	[redacted]
Steve Saunders Bismarck-Mandan Metropolitan Planning Organization	[redacted]
Rick Stoppelmoor	[redacted]
Tim Seaworth University of Mary	[redacted]
Andrew Brown Bismarck-Mandan Young Professionals Network	[redacted]
Brian Ritter Bismarck-Mandan Development Association	[redacted]
Cheryl Hess State Council on Developmental Disabilities	[redacted]
Molly Sullivan Bismarck-Mandan Young Professionals Network	[redacted]
Allan Klein Burleigh County Rural Fire Department	[redacted]
Bill Lardy AARP North Dakota	[redacted]
Bob Scarlett	[redacted]
Allen Chompen Central Dakota Cyclists	[redacted]
Allen Chompen LAB League Cycling Institution	[redacted]
Jim Kambeitz	[redacted]
Bob Shannon	[redacted]
Carol Aron	[redacted]
Theresa Felderman	[redacted]
Annette Deforest	[redacted]
L. Anita Thomas	[redacted]

Bryce Bachman Bismarck Parks & Rec	[redacted]
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Eric Hardmeyer Bank of North Dakota	[redacted]
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Jon Darling U.S. Army Corps of Engineers	[redacted]
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Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
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Mark Zimmerman ND Parks & Recreation Department	[redacted]
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[redacted]

Timothy Rector
U.S. Department of Agriculture

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[redacted]

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[redacted]

[redacted]

[redacted]

Mary Van Sickle

[redacted]

Scott Olson	[redacted]
Tim Seaworth	[redacted]
Cody K Strothman	[redacted]
DELETE DELETE	[redacted]
gigi DesRosiers	[redacted]
Sean Johnson	[redacted]
Joan Weltz	[redacted]
Madonna Busch University of Mary	[redacted]
Lindsay Mayernik	[redacted]
Patty Keller University of Mary	[redacted]
Joel Quanbeck	[redacted]
Lana Anderson University of Mary	[redacted]
Matthew Leidholm	[redacted]
marvin lein	[redacted]
Ed Konieczka	[redacted]
Tyler Merkel	[redacted]
Jay Schechter	[redacted]
Brigid Dorman	[redacted]
Terry A Fleck Burleigh County Water Resource District	[redacted]
Larry Kotchman North Dakota Forest Service	[redacted]
Blaine Nordwall Sierra Club of North Dakota	[redacted]

Pat Heinert Burleigh County Sheriff Department	[redacted]
Steve Nardello Mandan Fire Department	[redacted]
Chief Dennis Bullinger Mandan Police Department	[redacted]
Dave Shipman Morton County	[redacted]
Vern Davis Morton County	[redacted]
Serena Schmit ND Safety Council	[redacted]
Sara Otte Coleman ND Tourism Department	[redacted]
Shaun McGrath U.S. EPA, Region VIII, 8OC-EISC	[redacted]
Tammy Wagner Federal Highway Administration	[redacted]
Neil Modin Hay Creek Township	[redacted]
Monsignor James Patrick Shea University of Mary	[redacted]
Aladdin Realty	[redacted]
Alliance Real Estate	[redacted]
Aspen Group	[redacted]
Assist 2sell	[redacted]
Bianco Realty	[redacted]
Bitz Realty	[redacted]
Century 21 Morrison Realty	[redacted]
Daniel Companies	[redacted]
ND Association of Realtors	[redacted]
Northwest Realty	[redacted]
Trademark Realty	[redacted]

Josh Kadrmas KFYR-TV	[redacted]
David Zimmerman NDID	[redacted]
Dustin Walcker	[redacted]
Gabe Schell	[redacted]
Jessy Scholl	[redacted]
JACK KAVANEY ALADDIN REALTY INC.	[redacted]
Carla Usselman	[redacted]
Matt Schafer	[redacted]
Justine Thompson	[redacted]
Matt Thompson	[redacted]
Andrew Thierolf	[redacted]
Stan Boehm	[redacted]
Bob Neugebauer	[redacted]
Kevin Nelson Peace Lutheran Church	[redacted]
Sheldon Wolf	[redacted]
Daniel Nairn	[redacted]
Donovan Slag	[redacted]
Randee Sailer	[redacted]
Carmen Banta HDR	[redacted]
Jeff Wright Mandan Planning	[redacted]
Steve Windish	[redacted]
Jeremy Smerage	[redacted]
Dan Schneider	[redacted]
Loretta Movchan	[redacted]

Tom Floer	[redacted]
Kevin Vannett	[redacted]
Paula Floer	[redacted]
Kim Fettig Mandan Engineering Department	[redacted]
J.D. Nash	[redacted]
James Warne	[redacted]
Zac Smith Bismarck/Mandan Chamber	[redacted]
Brett Gurholt	[redacted]
Paul Benning ND DOT Local Government	[redacted]
Ken Nysether	[redacted]
Kevin Stankiewicz ND Parks & Recreation Department	[redacted]
Bob Swanson	[redacted]
Jackie Andahl	[redacted]
Rhonda Lowenstein	[redacted]
Joe Seago	[redacted]
Wendy Berg	[redacted]
Alicia Berger	[redacted]
Karen Ehrens	[redacted]
	[redacted]
carolaron@yahoo.com	[redacted]
Antonio Rosell Community Design Group	[redacted]
	[redacted]

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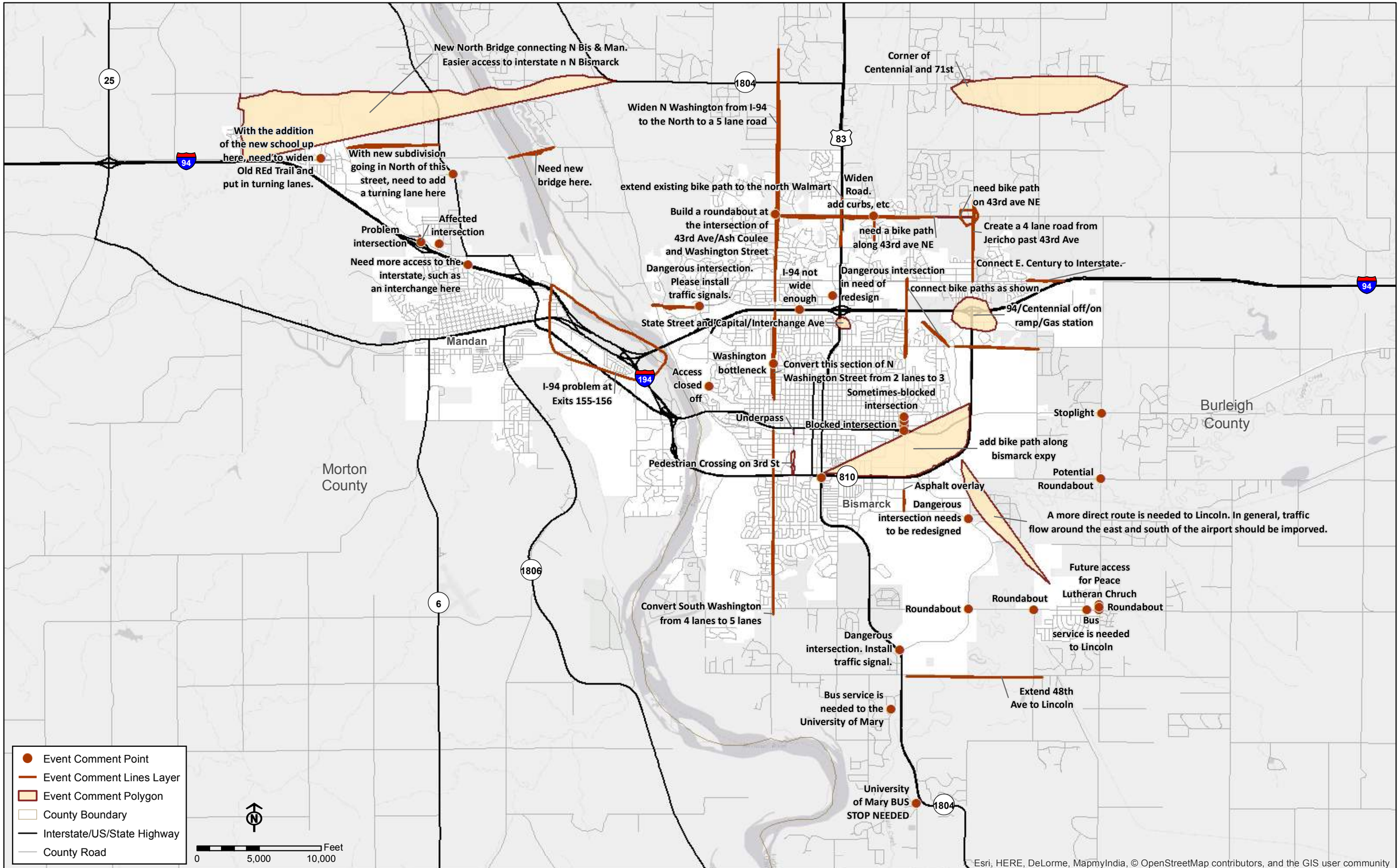
	[redacted]
Dan Donlin Bismarck Police Department	[redacted]
	[redacted]
Steve Neu Bismarck Parks & Rec	[redacted]
Dennis Kemmesat North Dakota Cycling Federation	[redacted]
Mona Livdahl Burleigh County Water Resource District	[redacted]
Ryan Duletski	[redacted]
Curt Pearson	[redacted]
Loren	[redacted]
Rita Falconer	[redacted]
Robert Graham	[redacted]
Shane Hanson	[redacted]
	[redacted]
Eric Hart	[redacted]
Alix Hart	[redacted]
John Wegerle	[redacted]
Paul Moch	[redacted]
Phil Murdoff	[redacted]
Patrick Fischer	[redacted]
Dale Sandstrom	[redacted]
Nita Sherwin	[redacted]

14530 8/29/2014 Website Comment	**Web Comment from Leah Hummel** Join the mailing list	Mailing List Request	Leah Hummel	[redacted]
14536 9/2/2014 Email Open	**Email- Erik Holland** If the CAT bus system went both ways on the routes rather than simply one-way I, for one, would ride daily to and from work. I used bus in St. Paul for 12 years. As a state employee, I bet that I am not alone thinking if the trip to and from the Capitol grounds did not take me on a long loop away from my destination I would be happy to• leave a parking place for someone else• not have to start my vehicle • conserve energy• reduce the congestion and traffic• travel more safelyI agree with the concept of public transit but it must be relatively convenient to ridership. I don't want to go to the State Bank and Kirkwood on my way from the Cathedral district to the Capitol. Thanks for considering. Erik Holland	Bus System Environmental Impacts Parking Transit	Jason Carbee HDR Erik Holland ND State Historical Society	[redacted]
15733 9/15/2014 Email	**Email-Jeffery Long** Jason, I understand there is to be a public input session this Thursday regarding the Bismarck- Mandan Long Range Transportation Plan. I	Bike Paths/Lanes	Jason Carbee HDR	[redacted]

Open	will be out of town that day and not sure if I will be back in time to make the meeting. This comment pertains to Bike transportation element of this plan. My suggestion: 1) link the existing bike trail in Bismarck to the fishing pond at the game and fish and 2) a new trail that would connect Lincoln to the existing Bismarck Mandan trial system, using wildlife demonstration area surrounding the fishing pond to link it all together. The existing bike trail currently ends (or doesn't go any further south) on the north side of River City Sports, I work for the Game and Fish and my section is in charge of managing the pond and associate demonstration area and we would support having this trail lead to and possibly thru the site. I regularly commute via bicycle to and from Lincoln (as well as for fitness and recreation) and would like to see a project to connect Lincoln to the existing Bismarck Mandan trail system also looked at in the planning process. The existing road routes leading away from the Lincoln area are dangerous at best for even seasoned bike riders and seem to get more treacherous every day. With the increased building and traffic if a more direct and safe route were established I have no doubt it would be utilized.There is an abandoned railroad grade that heads N from Lincoln crossing Lincoln about ½ mile from 52nd avenue. I actually believe it intercepts 52nd avenue about ½ mile or so south of Lincoln road. This grade appears to head toward the elevator/livestock area by Old Apple Creek Road. I don't know the current ownership or land use status but this would be an ideal way to connect Lincoln to the Bismarck Mandan bike trail system. This be not only be a great way to link Lincoln to the existing Bismarck Mandan trails for commuters and recreationalists, but the fishing pond itself being one of the highlights of the trail system. Lastly, if possible a trail along the south side of the airport would complete the link from the 1804 section and Mary College to Lincoln, the fishing pond and on up to the north.I would appreciate taking this into consideration. Let me know if there is anything I can do to help.Jeff Long Jason Carbee Responded via Email 9/15/2014:Mr. Long:Thank you for your comments. Your idea of connecting a trail to the fish pond is a new one, and we currently have a couple of options that would connect Bismarck-Lincoln via trail (one of them follows the old rail line you		Jeffery Long ND Game and Fish Dept.	[redacted]
15848 10/13/2014 Website Comment	**Web Comment from Barry Coleman** Mailing List Request	Mailing List Request	Barry Coleman	[redacted]



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2015-2040 Transportation Plan
Public Meeting 1

January 21, 2014
Bismarck Public Library

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Agenda

- Study introduction
- Study progress
- Continuing opportunities for your input
- Small group exercises

Introductions

- **Ben Ehreth**
  Bismarck-Mandan MPO
- **Emily Hyland**
  HDR
- **Carmen Banta**
  HDR
- **Rick Stoppelmoor**
  HDR
- **Jason Carbee**
  HDR

What is the Long Range Transportation Plan (LRTP)?

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Opportunity to Revisit Community Vision / Needs

- What does the community expect for streets, the bicycle and pedestrian system, and buses?
- What is locally considered a transportation "problem"?

Regional Transportation System Technical Analysis

- New and existing data sources.
- Use community specific perspective.

Review / Testing of Potential Solutions ("Alternatives")

- New facilities and programs.
- Improvement to existing facilities and programs.
- Multimodal perspective.

Community Selection of 25-year Implementation and Funding Plan

- Should consider all users and modes of travel.
- Must be a reasonably "fundable" plan.

Anticipated Schedule

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

2013 | **2014**

- **Study Kick Off** *August 2013*
- **Public Meeting** *January 2014* — WE ARE HERE
- **Summarize Issues/ Problems** *February 2014*
- **Summarize Potential Alternatives** *April 2014*
- **Public Meeting** *July/August 2014*
- **Draft LRTP Update Document** *August 2014*

Study Kick Off
August 2013

Gather available data

Solicit public input via information kiosks, website, online survey, online map and comment form.

Public Meeting
January 2014

WE ARE HERE

- Identify goals, priorities, and an implementation plan.
- Gather your input and ideas about the future transportation needs in the area.

Summarize Issues/ Problems
February 2014

Analyze future conditions by forecasting travel and identifying/anticipating problem areas.

Anticipated Schedule

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

2013

- **Study Kick Off** *August 2013*
- **Public Meeting** *January 2014* — WE ARE HERE
- **Summarize Issues/ Problems** *February 2014*

2014

- **Summarize Potential Alternatives** *April 2014*
- **Public Meeting** *July/August 2014*
- **Draft LRTP Update Document** *August 2014*

Summarize Potential Alternatives *April 2014*	Assess travel benefits, cost, and impacts to develop potential solutions ("alternatives") to improve the future transportation system in the Bismarck-Mandan area.
Public Meeting *July/August 2014*	Present potential alternatives to the public and stakeholders and gather input to further refine them.
Draft LRTP Update Document *August 2014*	Develop a draft 25-year LRTP document that fits with the community's needs and is reasonably fundable.

Progress to Date

- Gathered input on community "vision"
  - Website input
  - Information kiosks
  - September stakeholder meetings
  - Community survey
- Assembled transportation information
- Analyzed current transportation conditions

What We've Heard So Far…

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

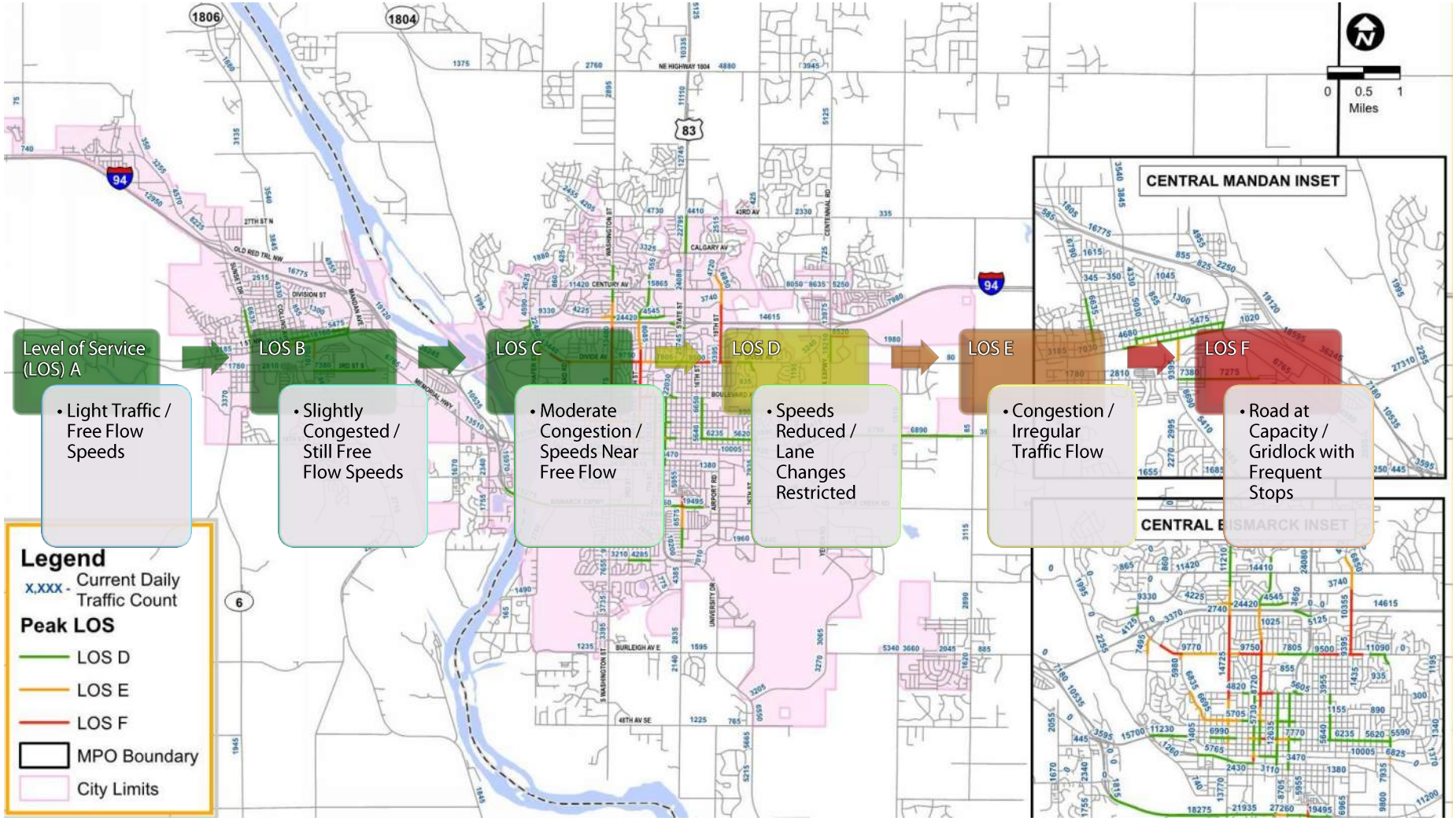
Transportation System Themes

- Maintain Vehicular Mobility
- Safety Concerns
- Transportation Funding Uncertainty
- Enhance Bicycle – Pedestrian System
- Maintain State-of-Good Repair
- Expand Transit Access
- Consider New Land Development Options

The information gathered from the public will be used to help identify top community goals, needs, and priorities for the future of the Bismarck-Mandan transportation system.

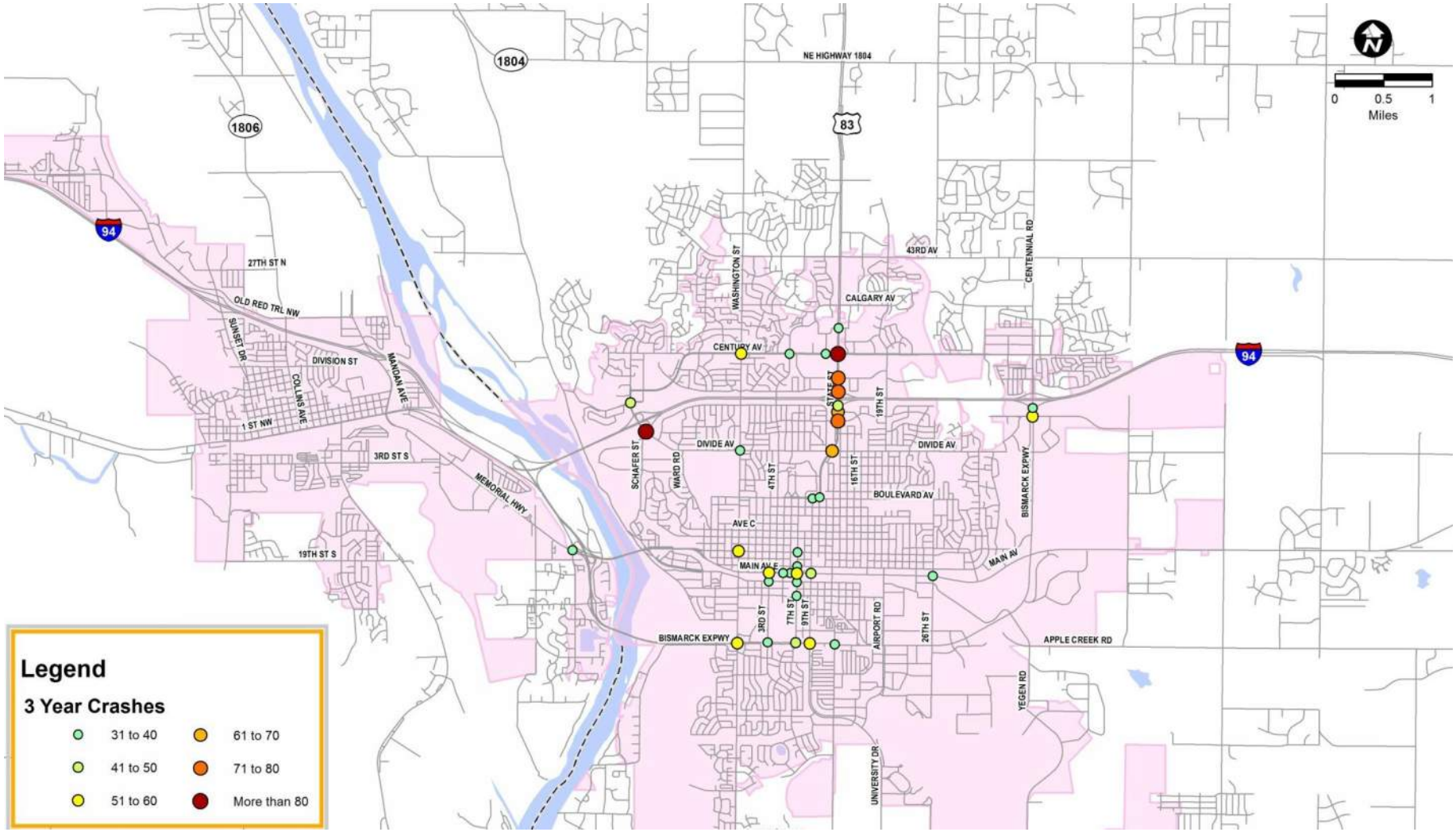
Analysis – Traffic Operations

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



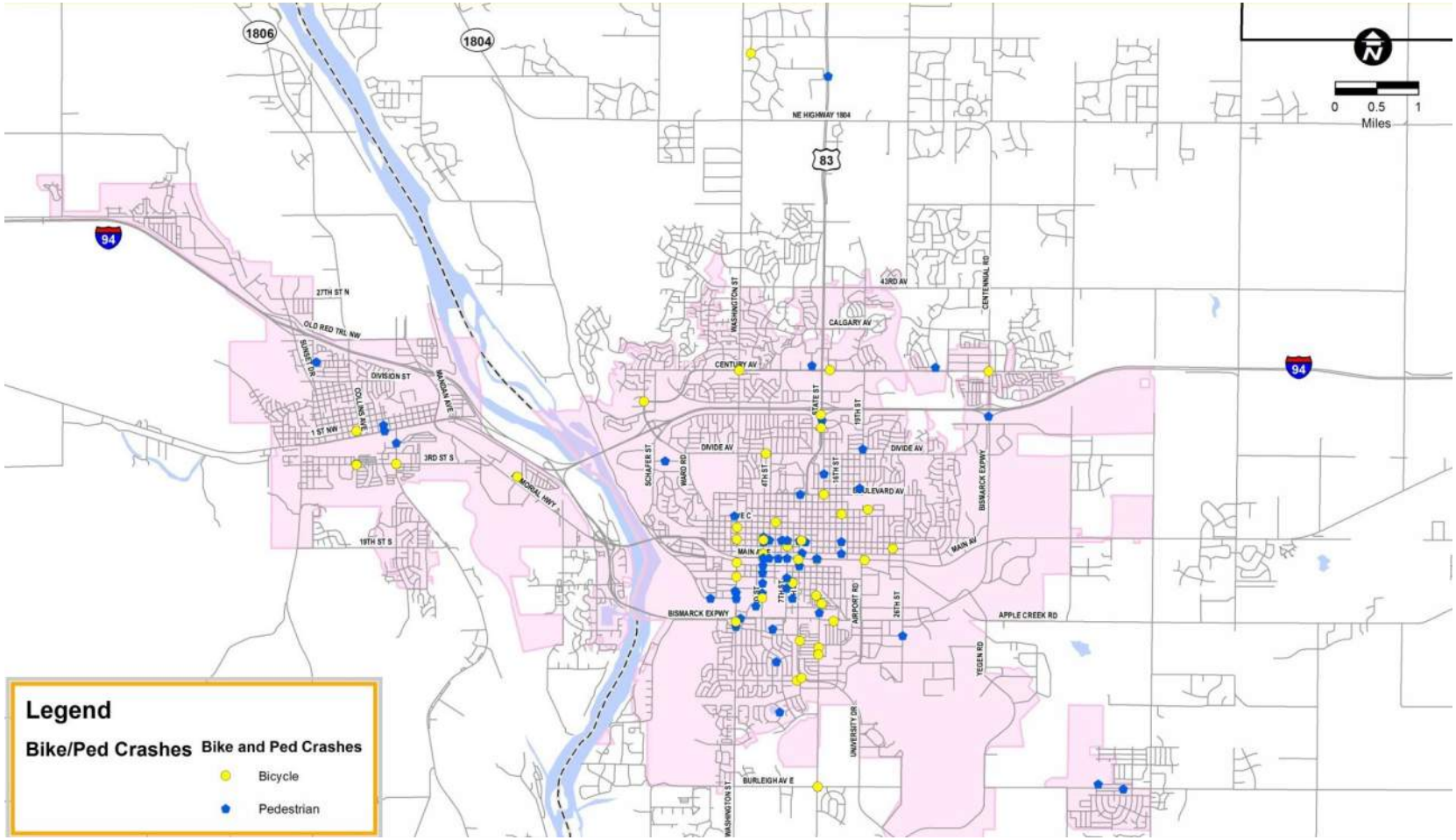
Analysis - Traffic Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



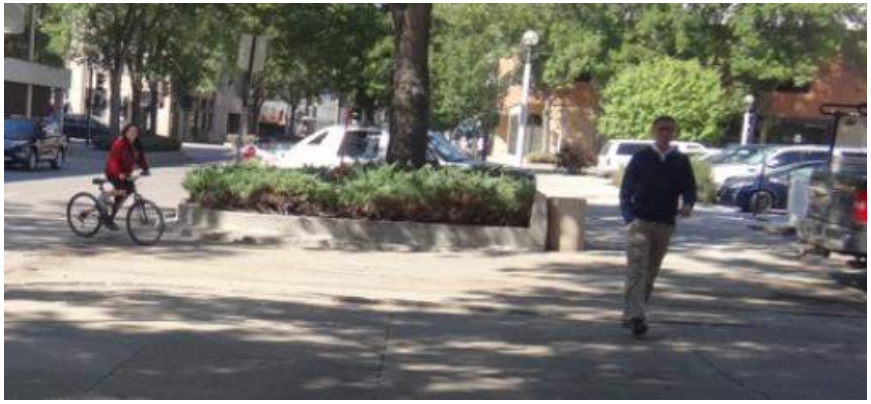
Analysis – Bike / Pedestrian Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

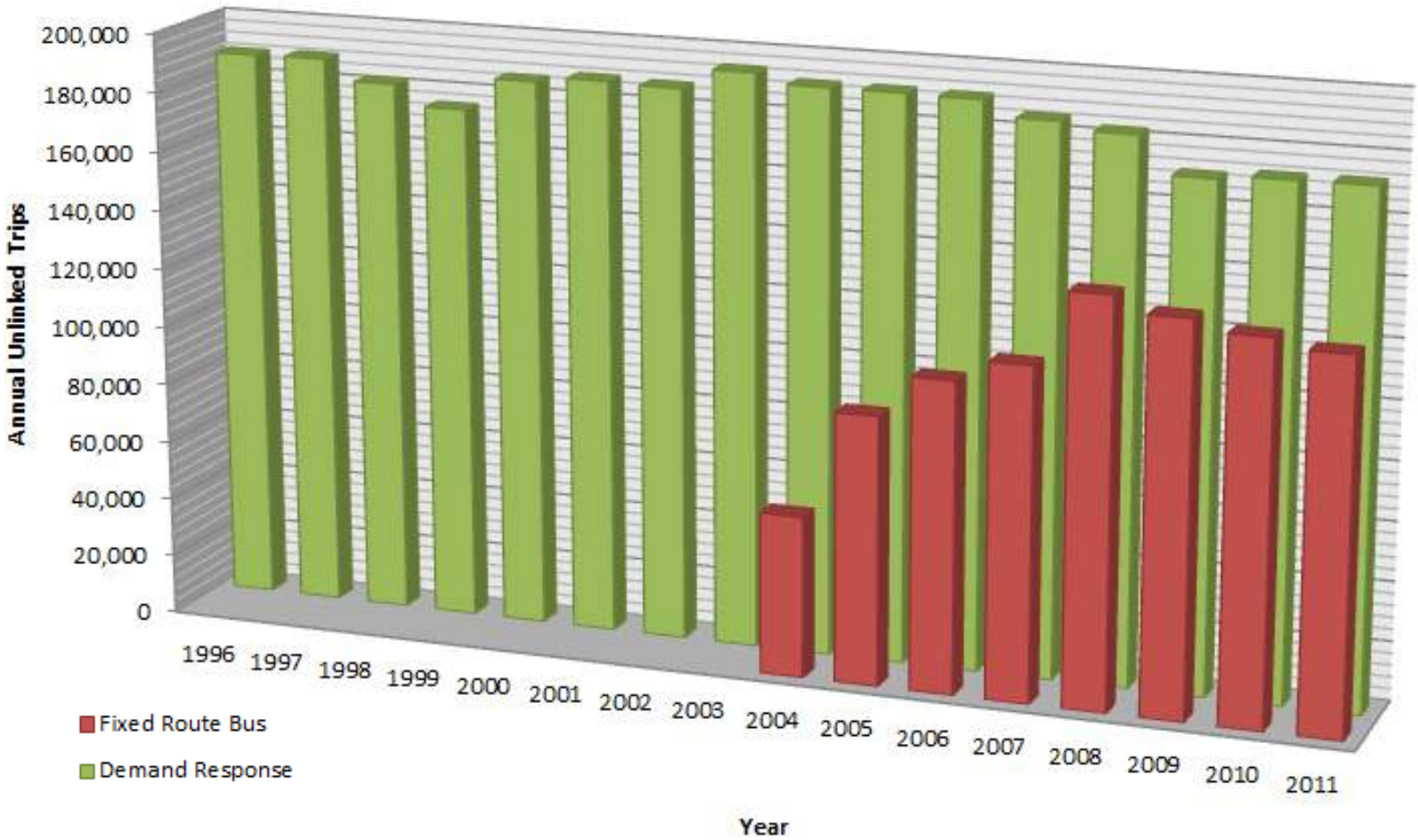


Analysis – Bike / Pedestrian Issues

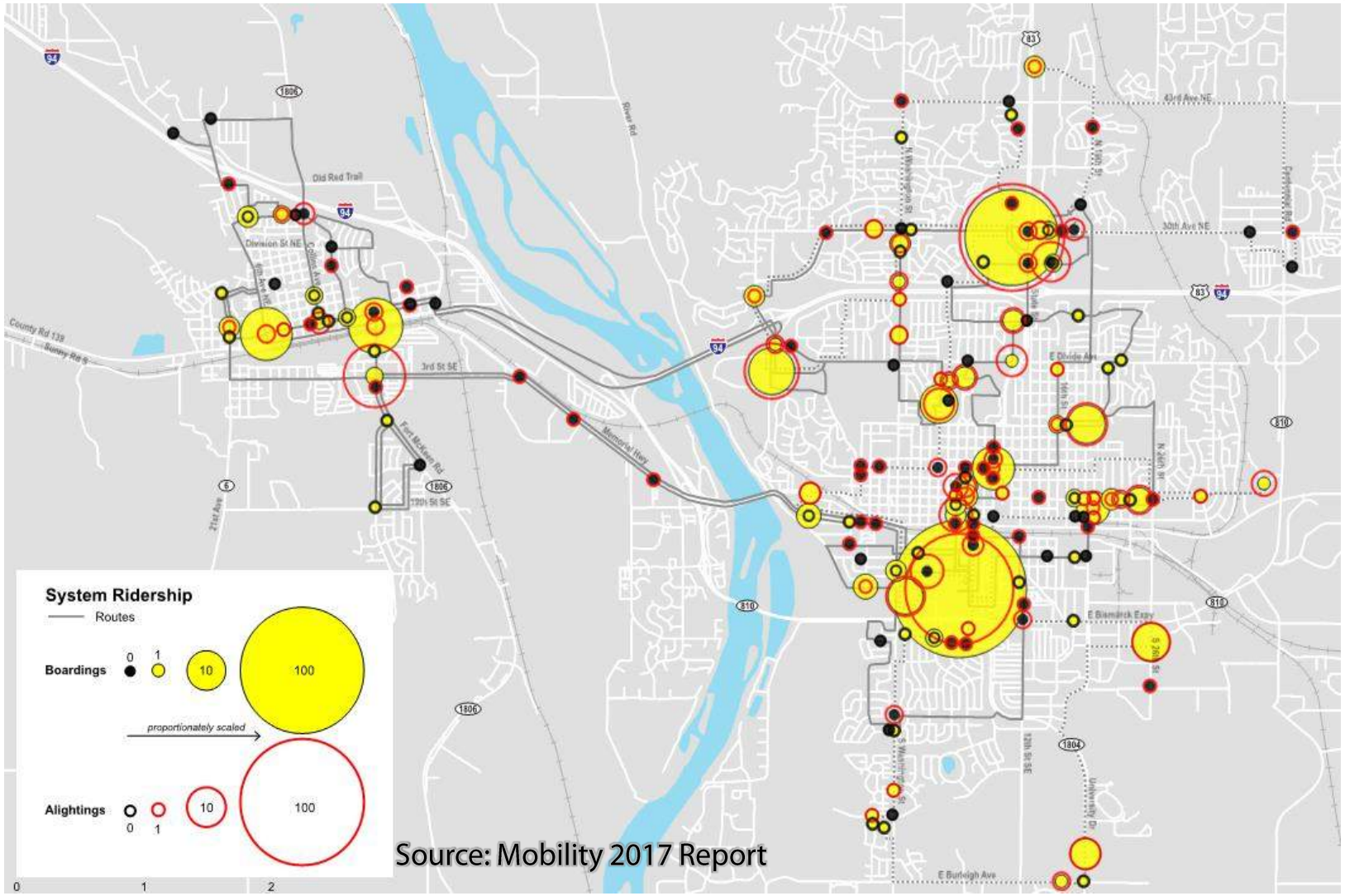
- Identified issues:
  - Gaps in pedestrian network
  - Treatment of pedestrian facilities
  - Gaps in bicycle network
  - Insufficient bicycle parking



Analysis – Transit System



Analysis – Transit System



Vision 2017 Transit Issues Summary

- Transit development plan themes:
  - Service benefit from greater fixed route bus (CAT) resources.
  - Cat service can be upgraded for improved rider convenience and mobility.
  - Bis-man paratransit has very high service quality.
  - Opportunities for improved service through better public information and equipment upgrades.

Transportation Survey

Two different survey efforts:

COMMUNITY SURVEY

- 1,500 randomly selected households
- Scientific / statistical validity
- Results soon

"OPEN" WEB-BASED SURVEY

- Open to public
- Not scientific
- Valuable sounding board/input source

Open Survey Summary

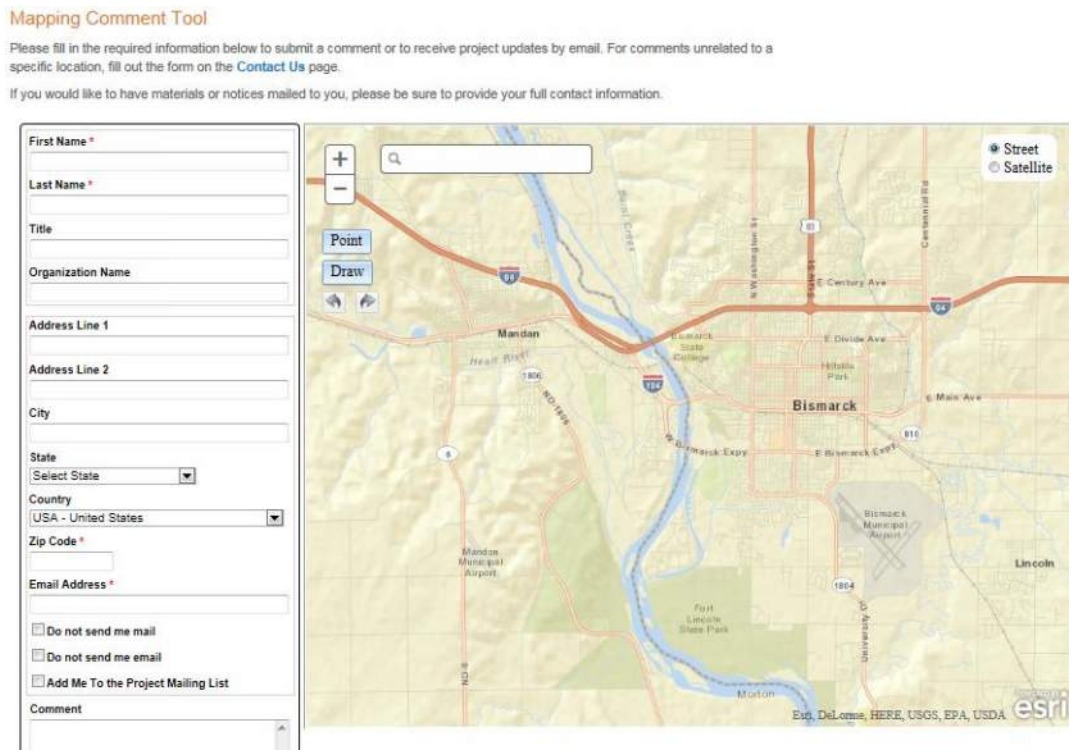
- Still in progress
- Intended to supplement data received from the scientific community survey
- Please participate at:
  - Study website: envisionbisman2040.com, linked from at the "get involved" page

Stay Involved

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

- Go the website
  - Join our mailing list
  - Future public meetings
- Provide additional comments on our website:

Envisionbisman2040.com



Presentation Questions?

- Question and Answer

Small Group Exercises

- Geographic Issues / Opportunities Mapping Exercise (20-30 Minutes)
- Regional Issues / Opportunities Identification (20-30 Minutes)

Exercise #1: Geographic Mapping

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

- Identify table recorder
- 3 separate sets of modal maps:
  - Roadway
  - Bicycle/Pedestrian (On-street and trail)
  - Transit
- What to identify:
  - Issues
  - Gaps
  - Opportunities
- Present highlights to the larger group

Exercise #2: Bismarck-Mandan Transportation Issues / Opportunities

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

- Instructions:
  - Identify Table Recorder
  - Brainstorm List of Regional Transportation Issues (Concerns/Challenges)
  - Brainstorm List of Regional Transportation Opportunities (Ideas/Strategies)
  - Prioritize Issues and Opportunities
  - Present Issues/Opportunities in Round Robin Format
  - Break/Vote
    - Vote for Top 3 Issues
    - Vote for Top 3 Opportunities

Next Steps

Future Conditions

- Forecast travel
- Identify problem areas

Alternatives Development & Assessment

- Assess travel benefits
- Assess cost / impacts

Present Future Alternatives

- Get community input

Develop 25-Year Plan

- Does it fit with community's needs
- Is it fundable?

Thank You!

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

- LRTP website: **envisionbisman2040.com**

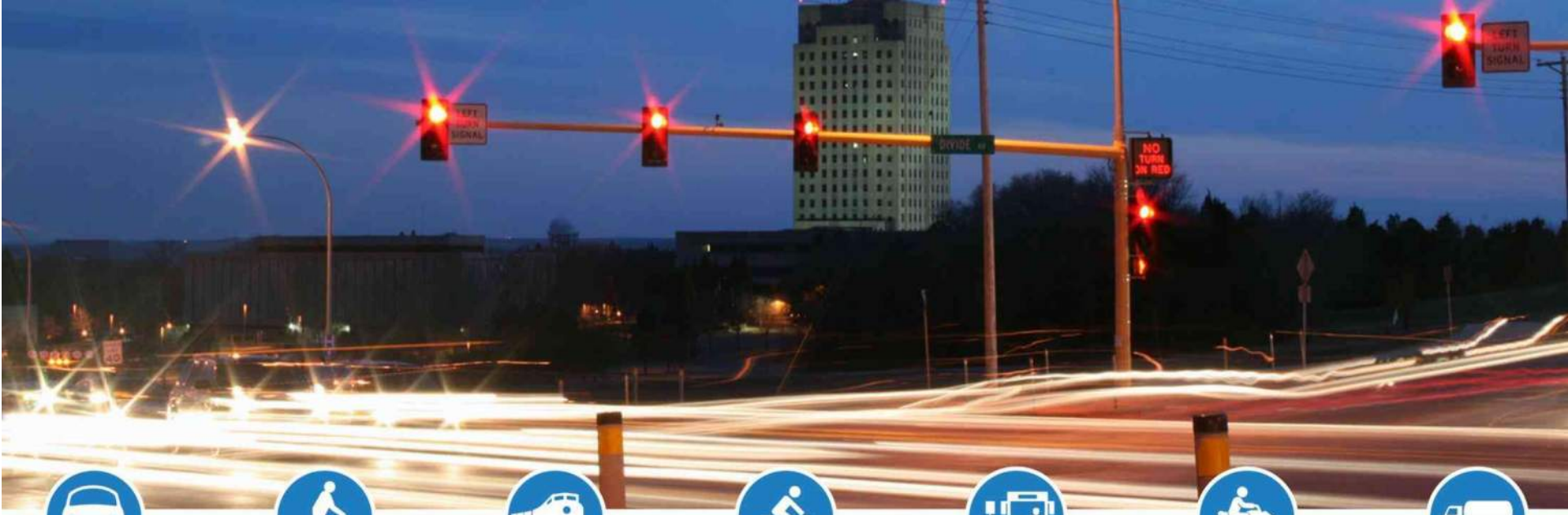
- Mailed Comments:

  Rick Stoppelmoor

  HDR Engineering

  1611 E Century Ave, Suite 302

  Bismarck, ND 58503



2015-2040 Bismarck –Mandan Long Range Transportation Plan

Public Open House

September 17, 2014

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Agenda

- Plan Overview
- System Performance
- Range of Alternatives
- Answer Your Questions
- Get Your Feedback

Plan Overview

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Plan Kick-Off (Sept 2013)

- Focus Group / Steering Committee Meetings
- Initiate Public Engagement
- Initiate Technical Analyses
- Community Survey

First Public Meetings (Jan 2014)

- Present Existing Conditions
- Collect Issues / Opportunities / Vision
- Focus Group Meetings

Summarize Transportation Issues (March 2014)

- Mobility, Safety, Connectivity, Freight Issues
- Establish Performance Measures

Alternatives Development Workshops (April 2014)

- Focus Group Workshop
- Project Management Team Workshop

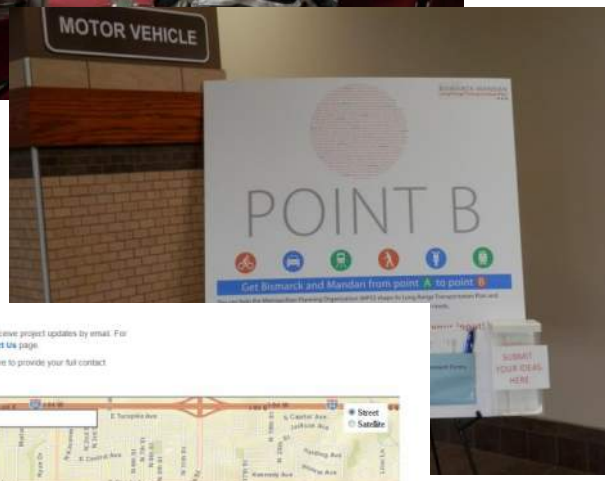
Alternatives Analysis (May-September 2014)

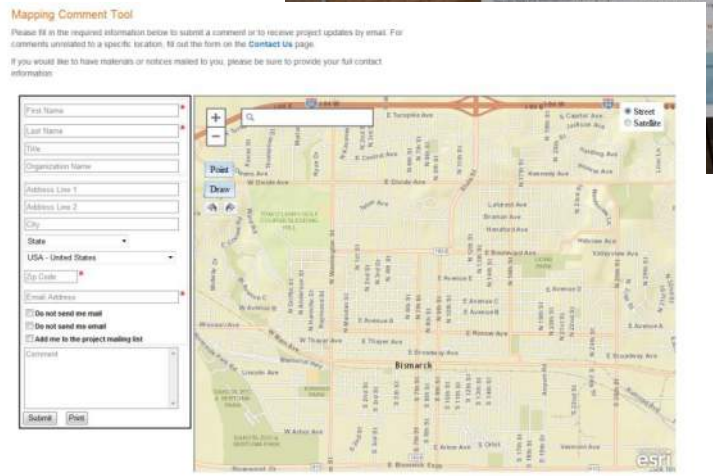
- Technical Analysis
- Performance Assessments
- Public Engagement Effort
- Public Meetings (Sept 17-18)

Draft Plan (Soon)

Public Involvement

- Multifaceted Approach
  - Focus Group Meetings
  - Public Meetings
  - Website Input
  - Information Kiosks
  - Random Household Survey
  - Social Media
- Focus Areas:
  - Community Vision
  - Issues / Problem Areas
  - Alternatives Feedback





What We Heard From Stakeholders…

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Transportation System Themes

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- Enhance Bicycle – Pedestrian System
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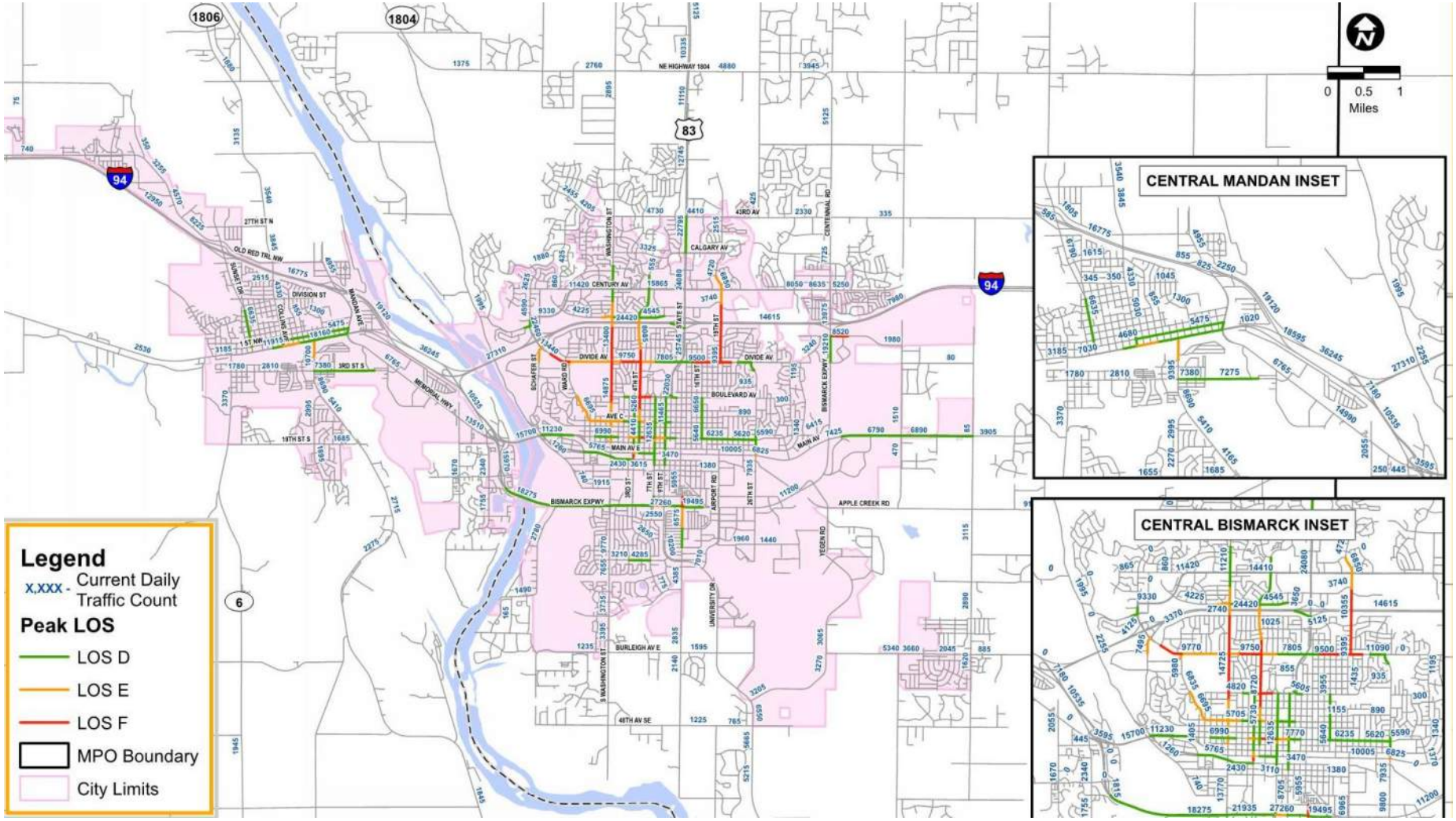
The information gathered from the public will be used to help identify top community goals, needs, and priorities for the future of the Bismarck-Mandan transportation system.

EXISTING / FUTURE CONDITIONS OVERVIEW

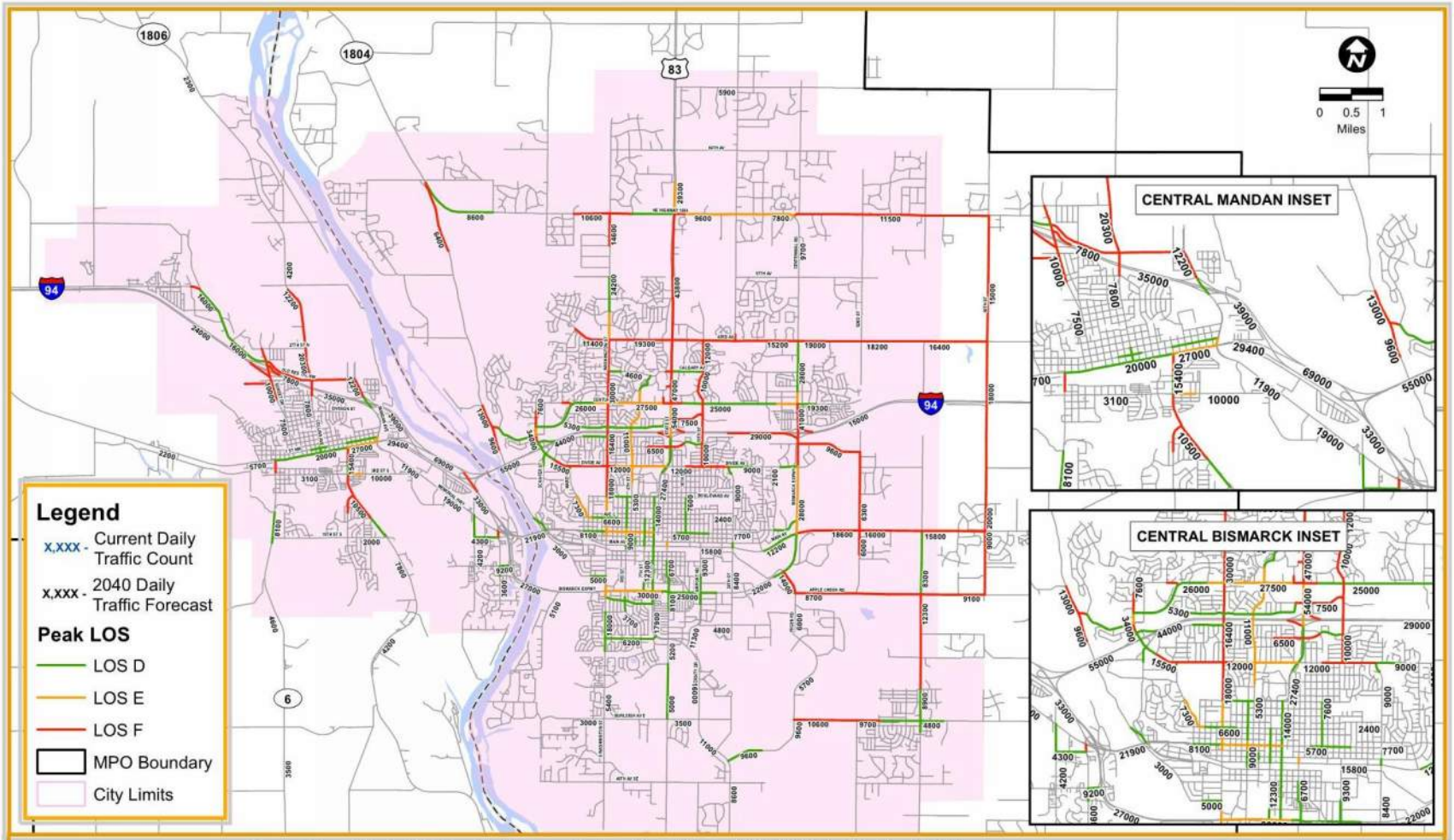
Analysis – Current Traffic Operations

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Analysis – Future Traffic Operations

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Sources: Bismarck-Mandan MPO Travel Model, NDDOT Counts, HCM ARTPLAN, HDR, I-94 Corridor Study, State Street Safety Study

Future Conditions (2040) Daily Traffic, Existing-Plus-Committed Network, and Draft Estimated Peak Hour Level of Service

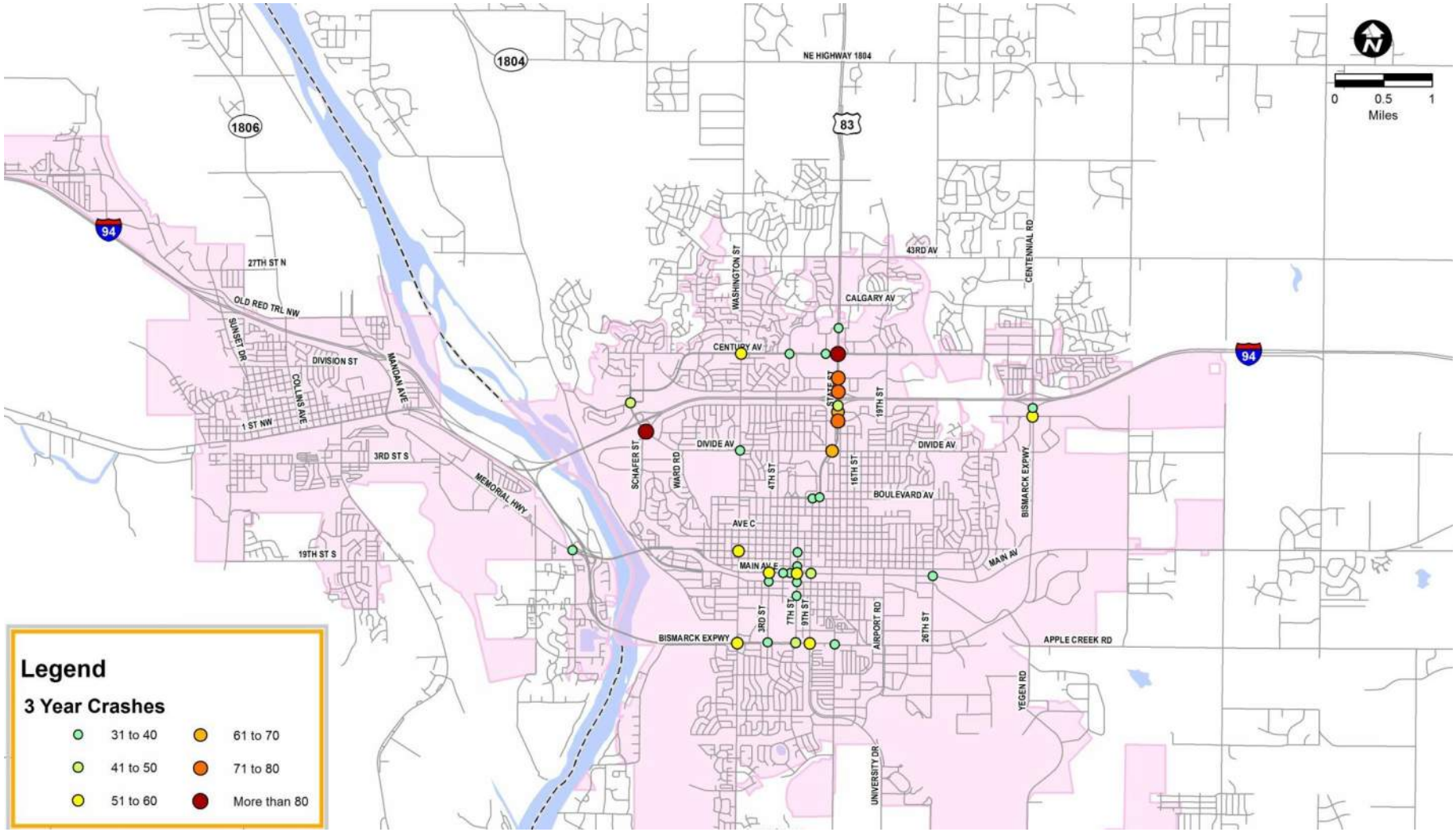
Figure: 1

Date: Apr 2014

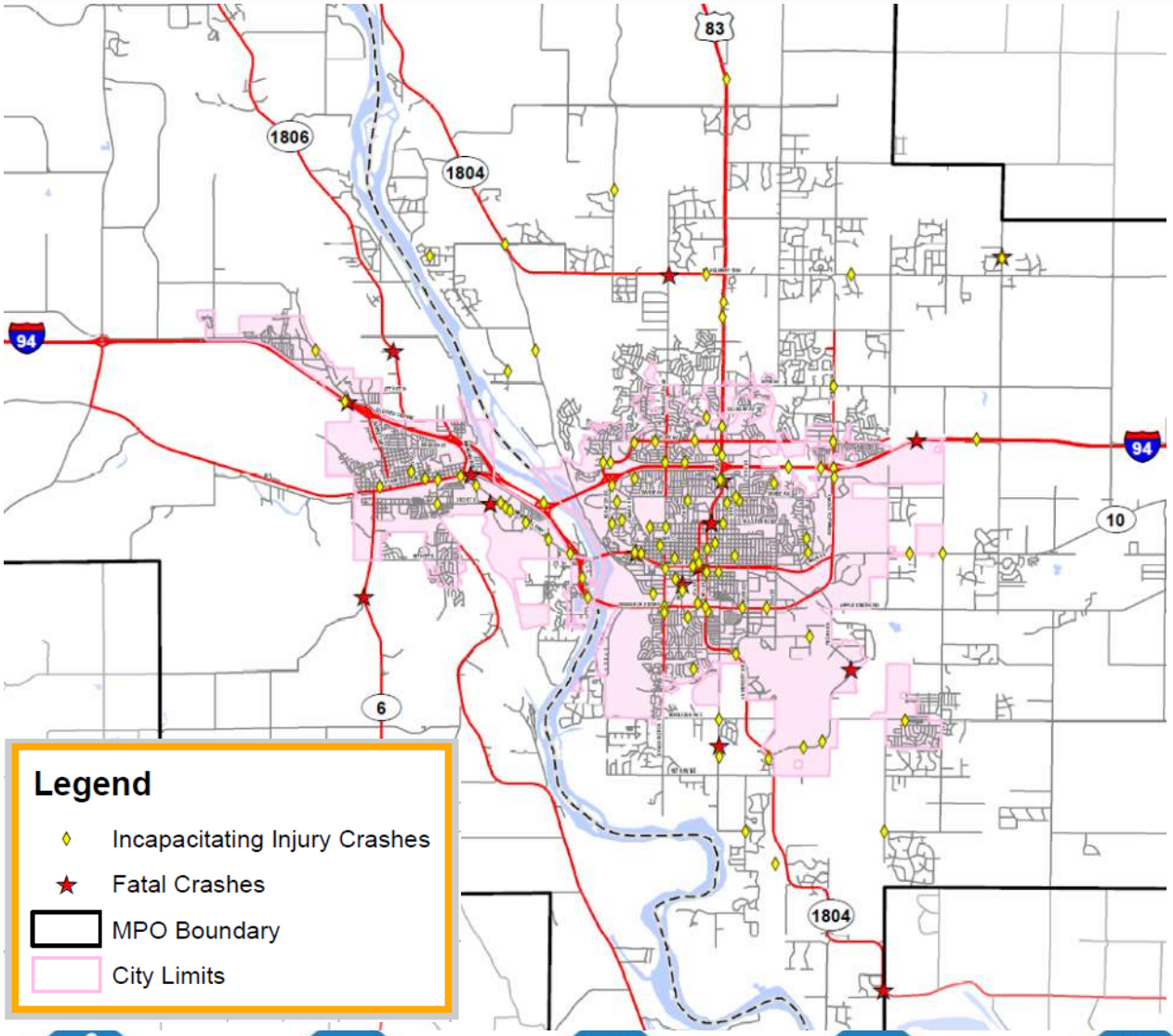
2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Analysis – Most Frequent Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

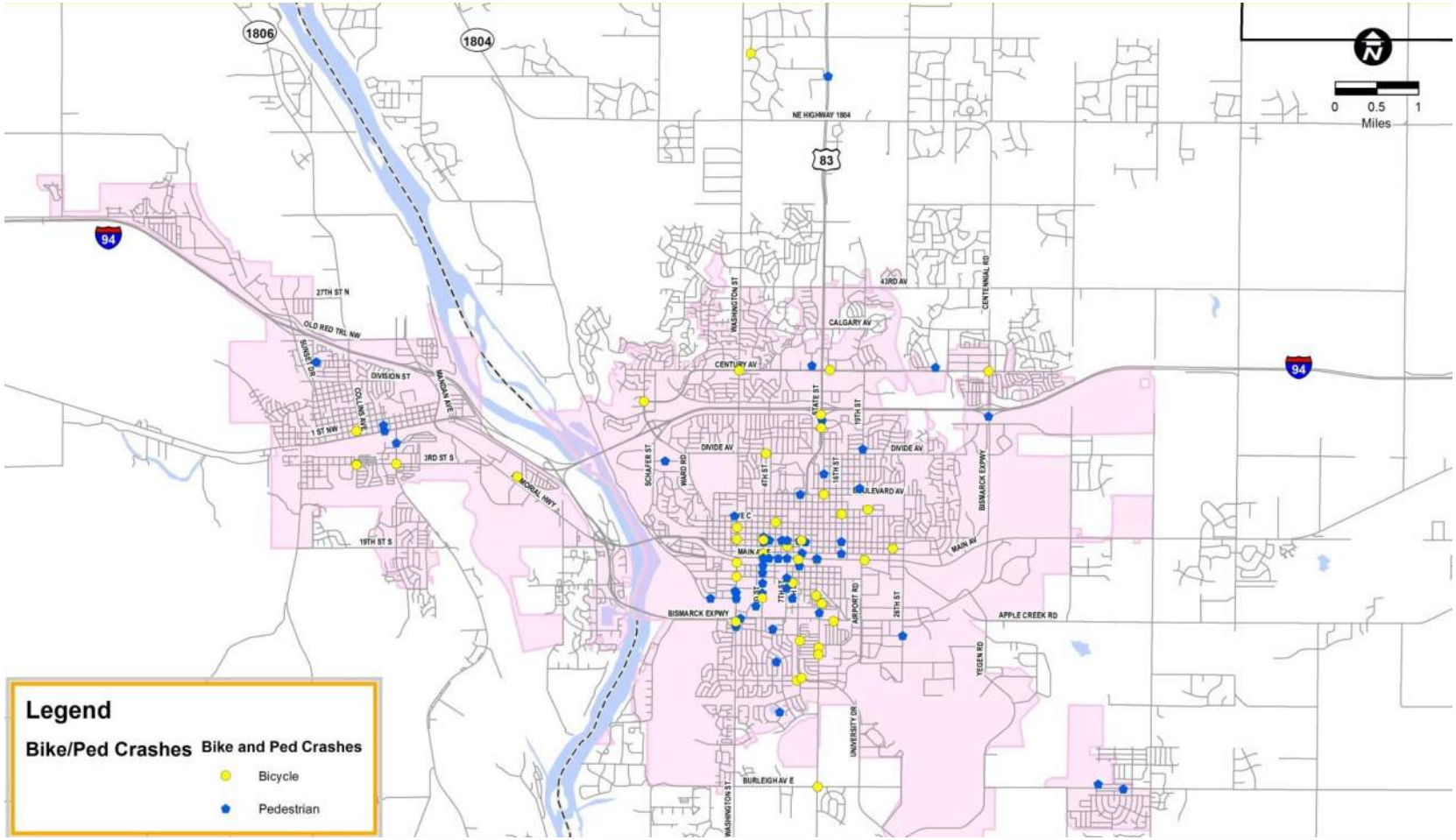


Analysis – Injury and Fatal Crashes

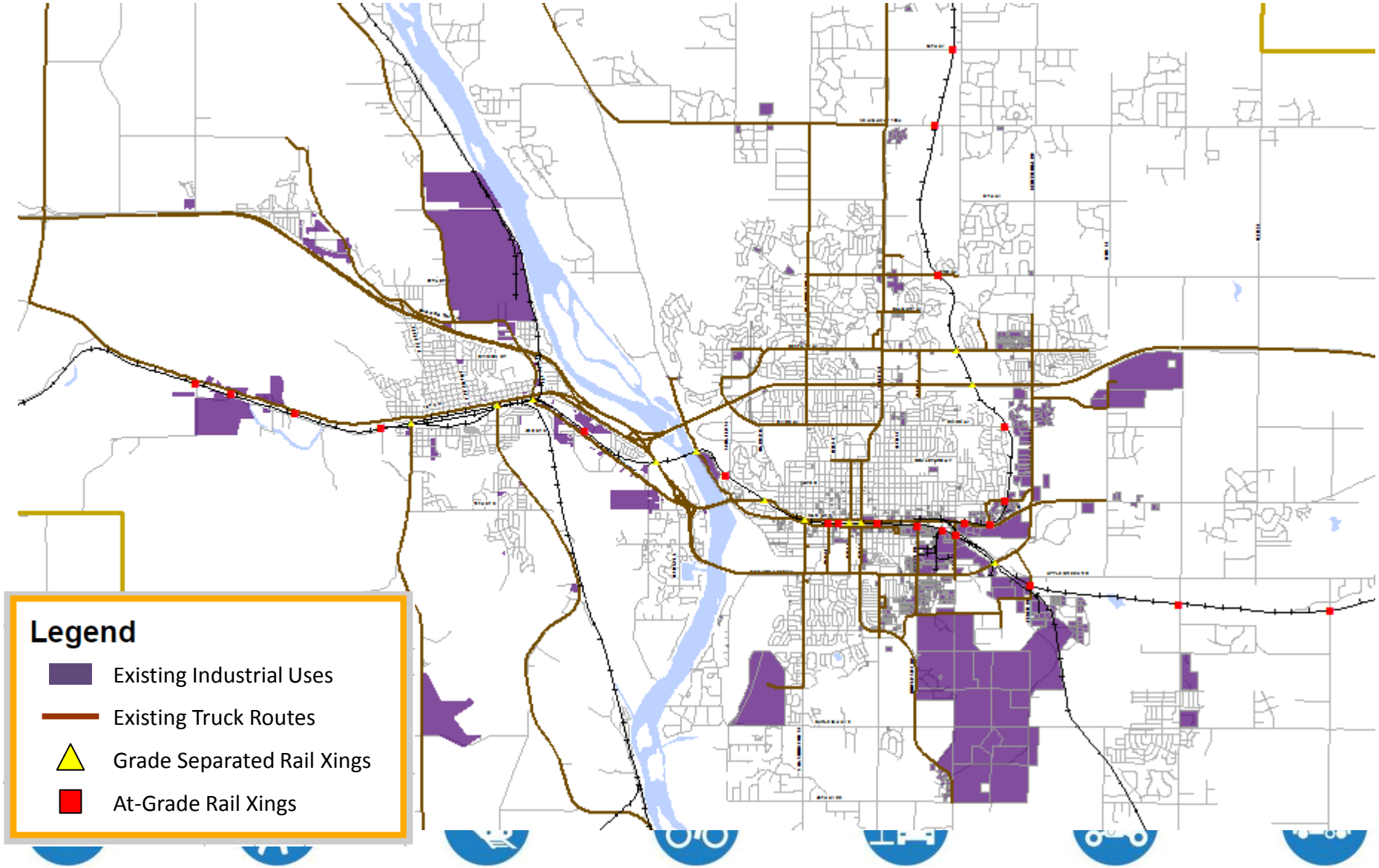


Analysis – Bike / Pedestrian Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Freight Evaluation



Analysis – Bike / Pedestrian Issues

- Identified issues:
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  - Treatment of pedestrian facilities
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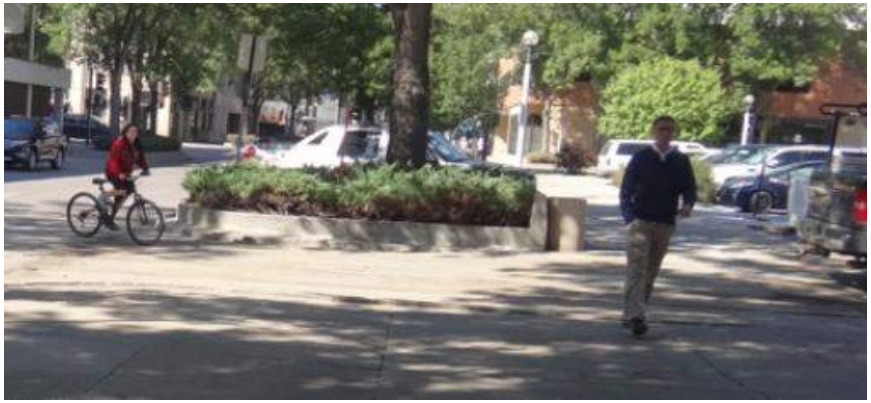
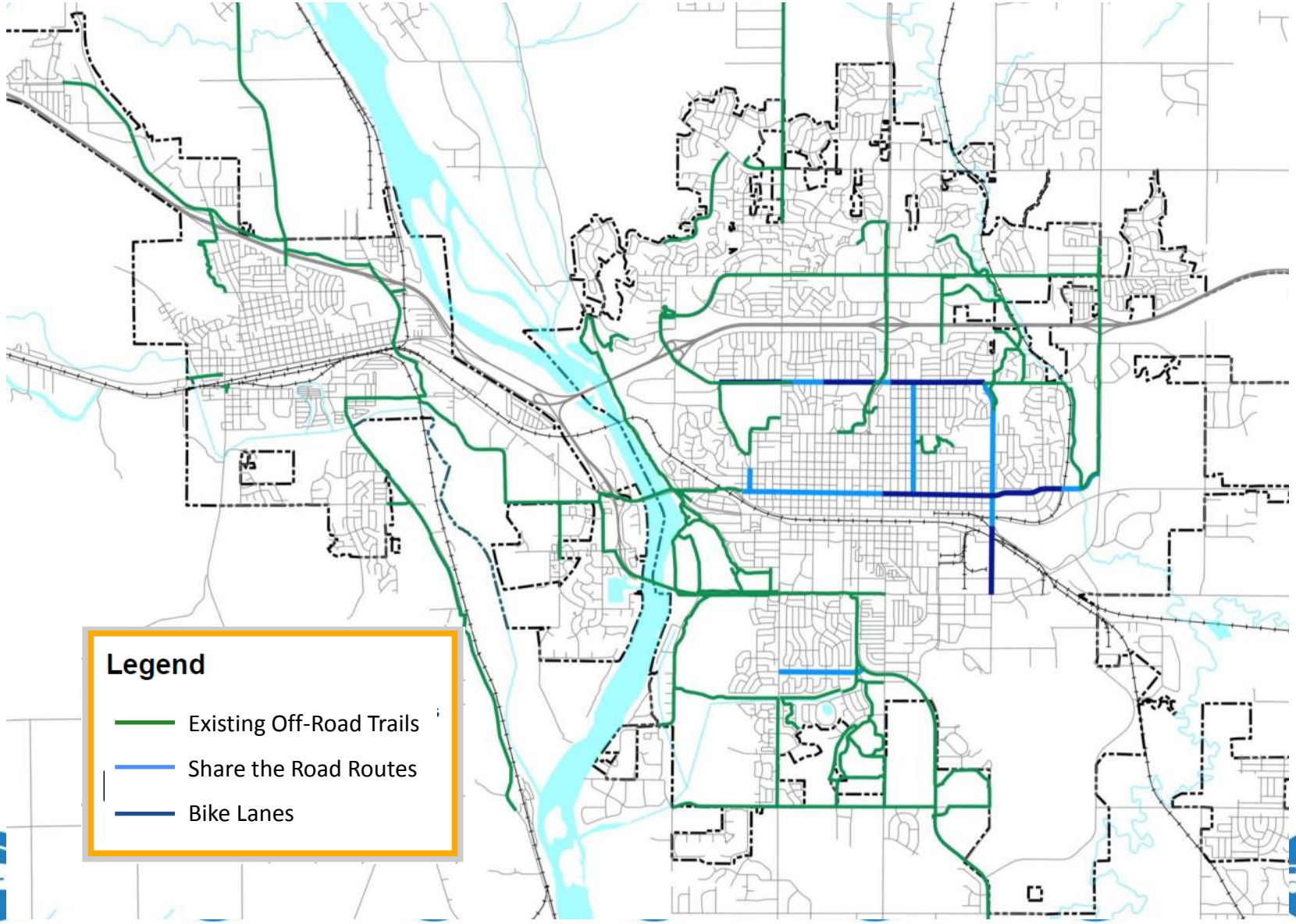
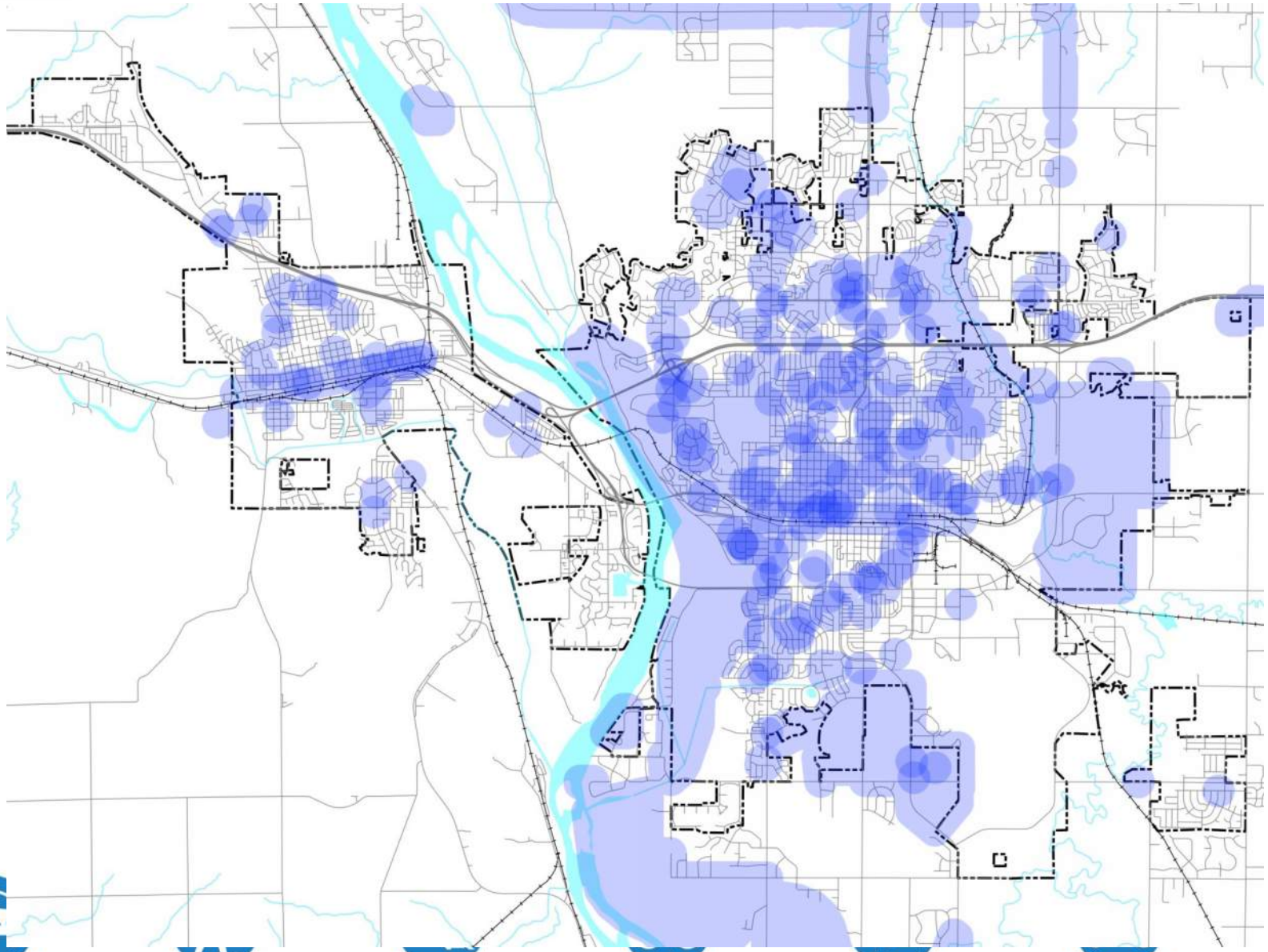


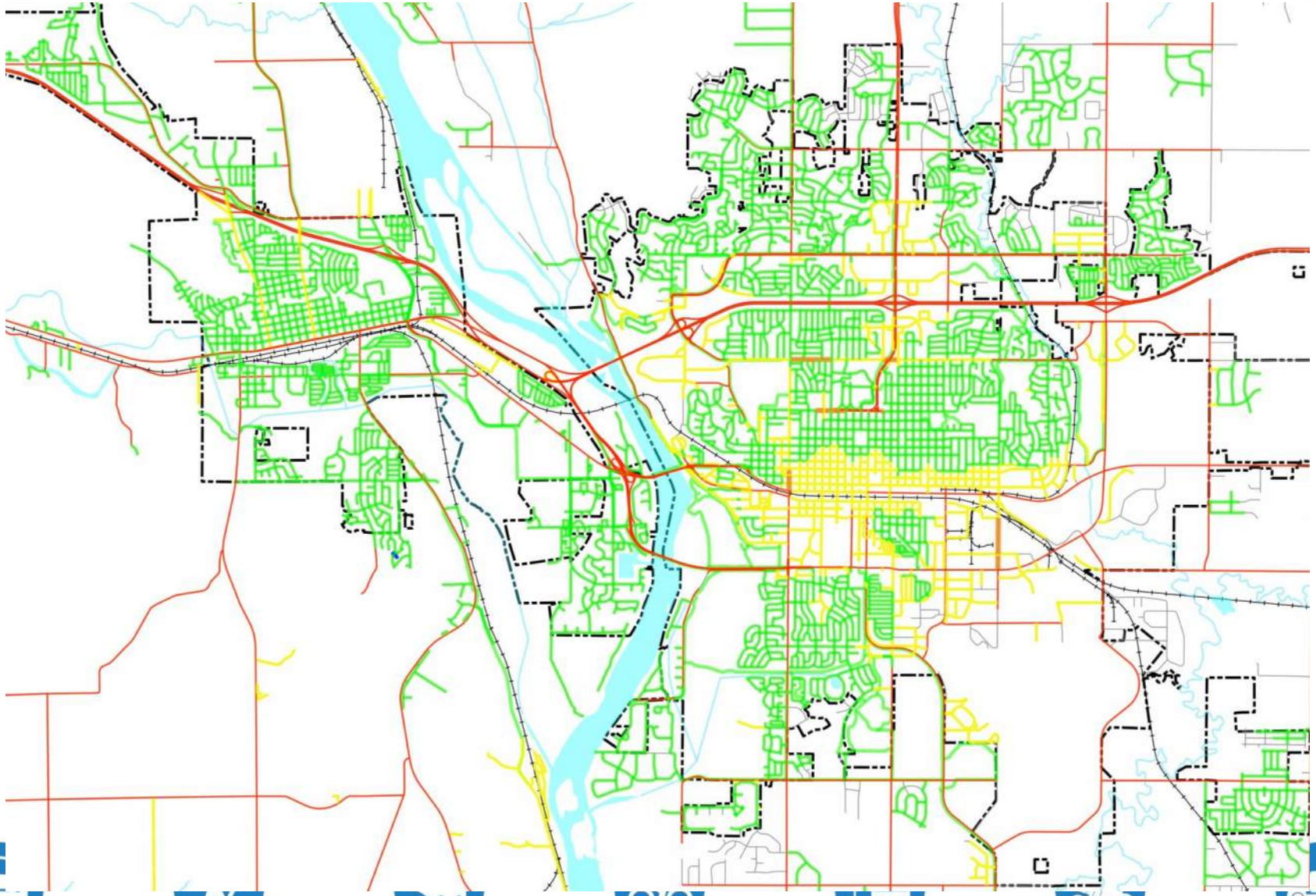
Existing Bicycle System



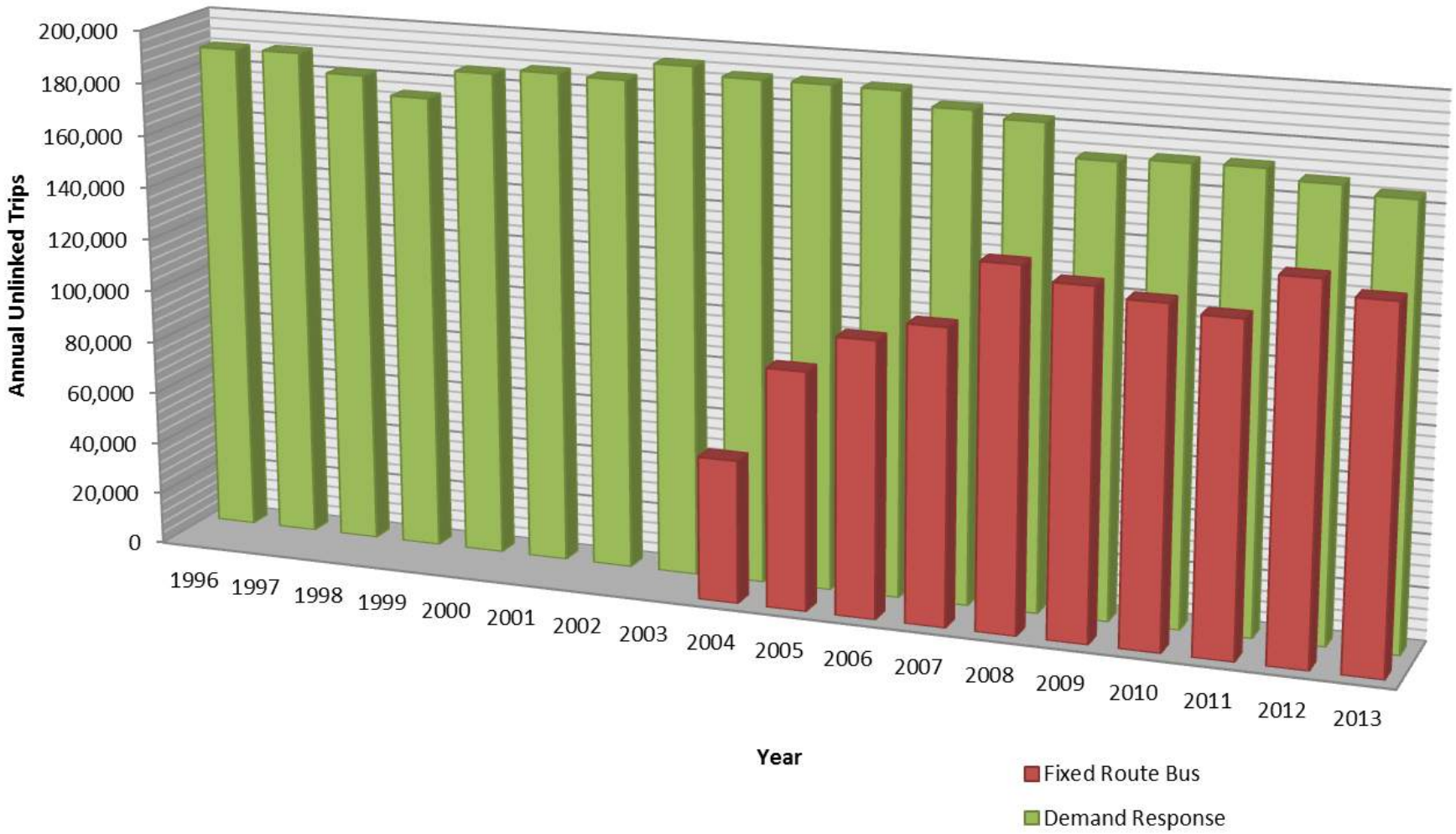
Bicycle / Pedestrian Demand



Bicycle Level of Stress

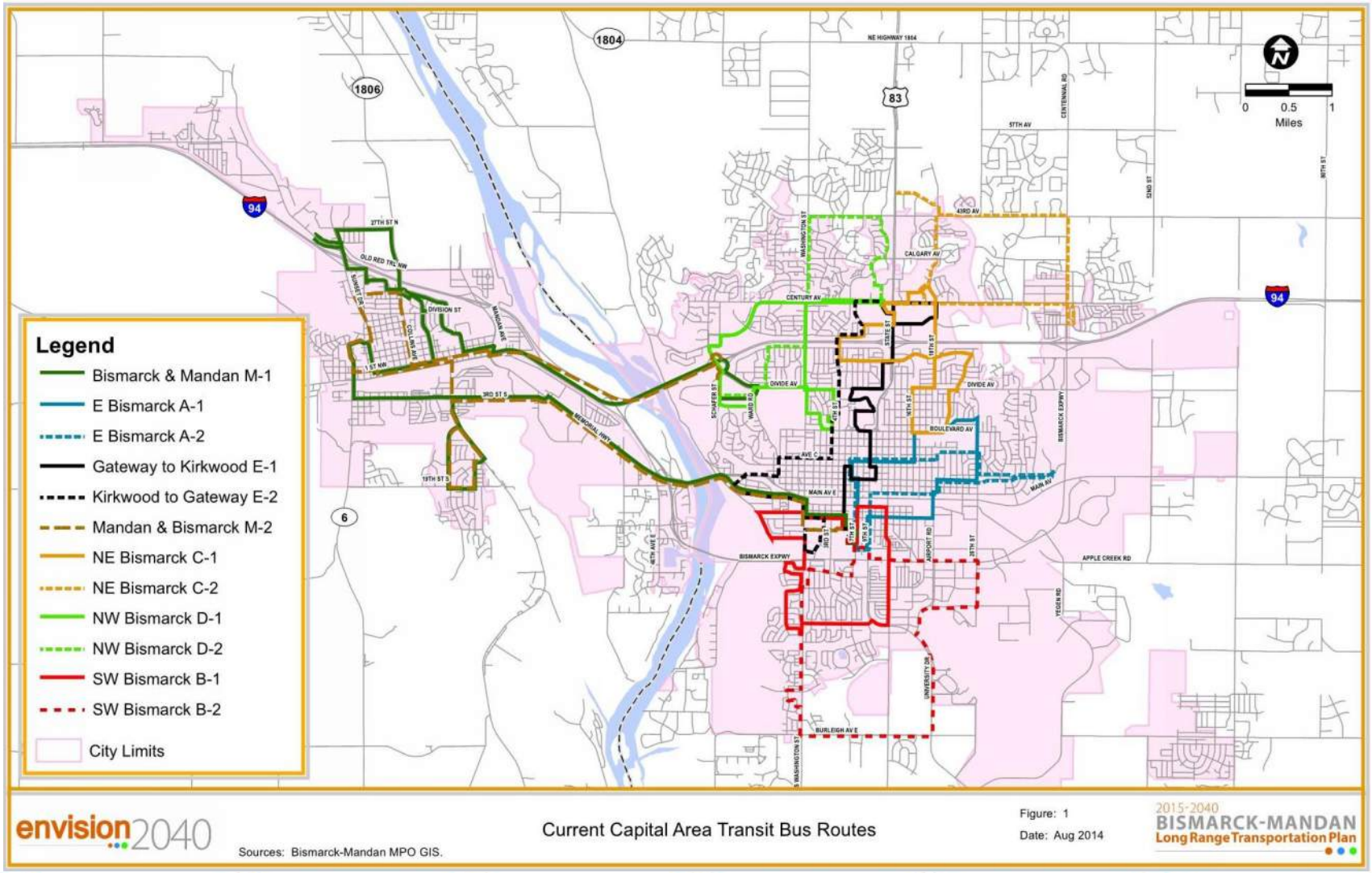


Analysis – Transit System



Existing Transit Routes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



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Sources: Bismarck-Mandan MPO GIS.

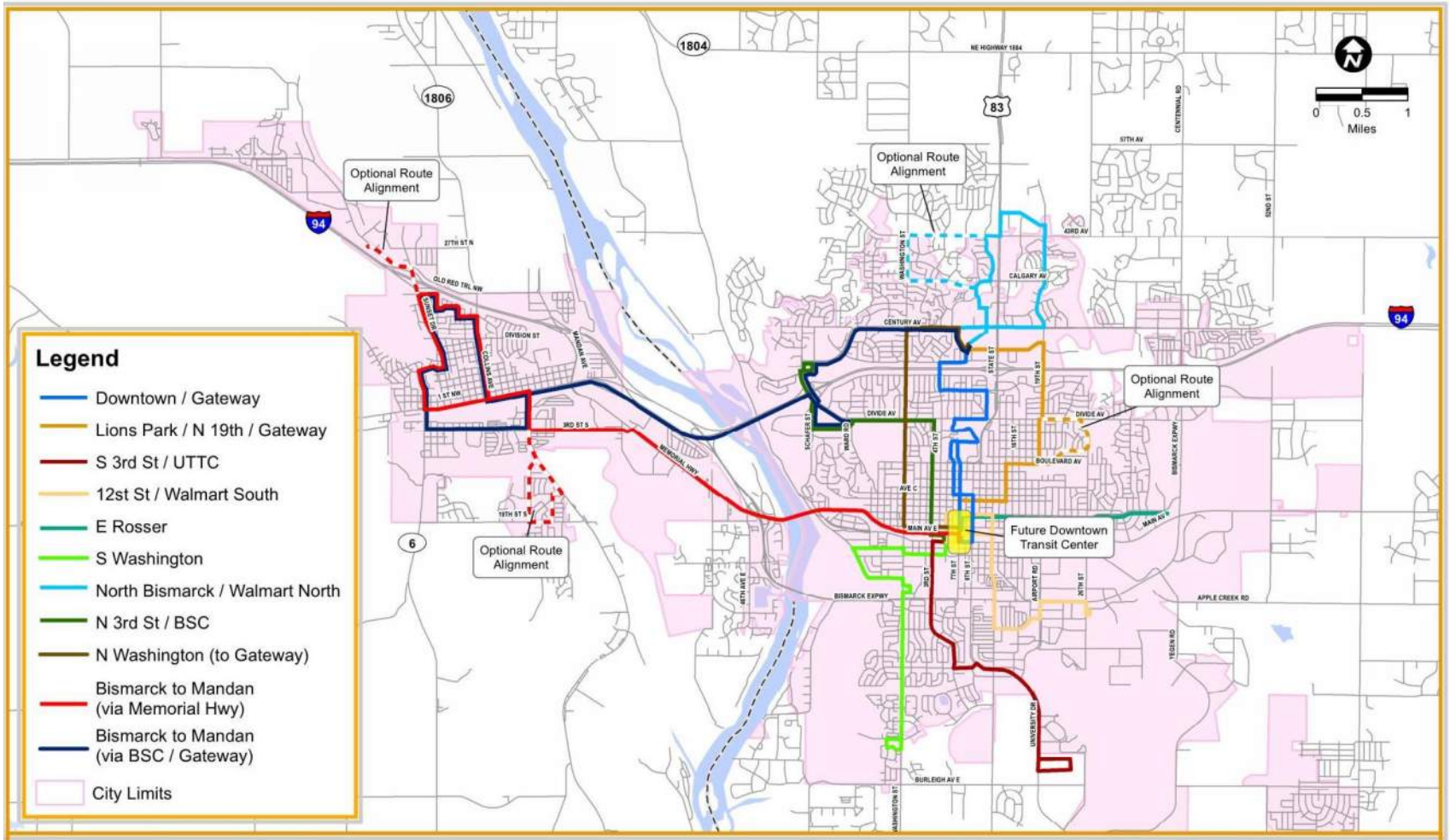
Current Capital Area Transit Bus Routes

Figure: 1
Date: Aug 2014

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Mobility 2017 Transit Recommendations

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Source: Mobility 2017.

Recommended Capital Area Transit Bus Routes

Figure: 2

Date: Aug 2014

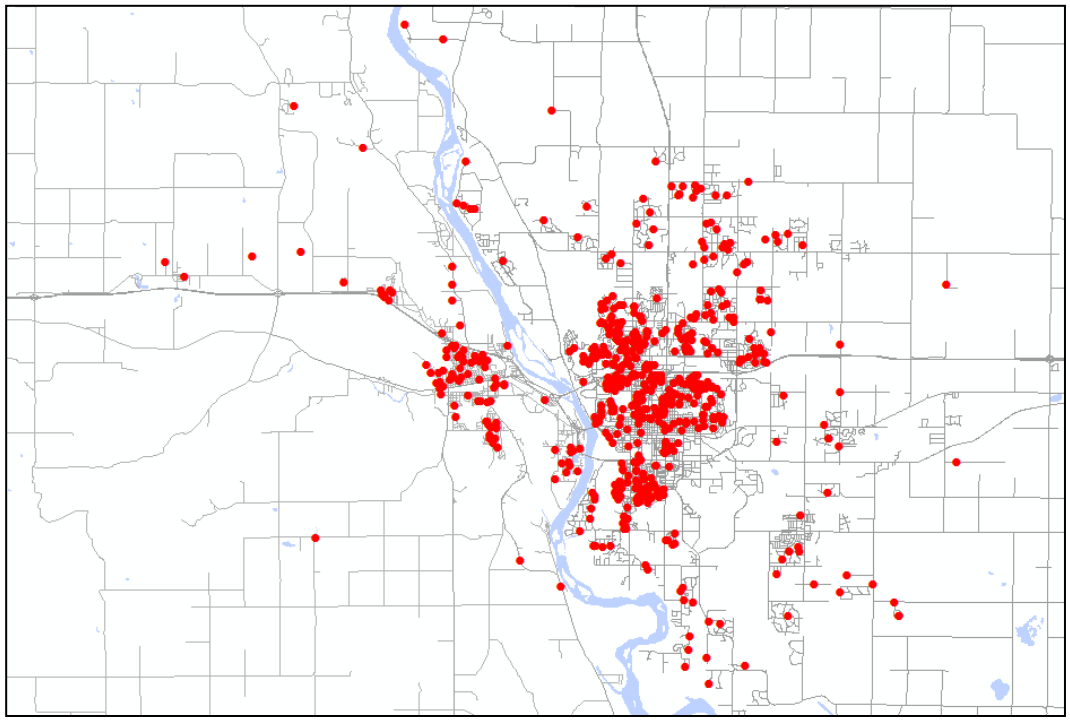
2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

COMMUNITY TRANSPORTATION SURVEY OVERVIEW

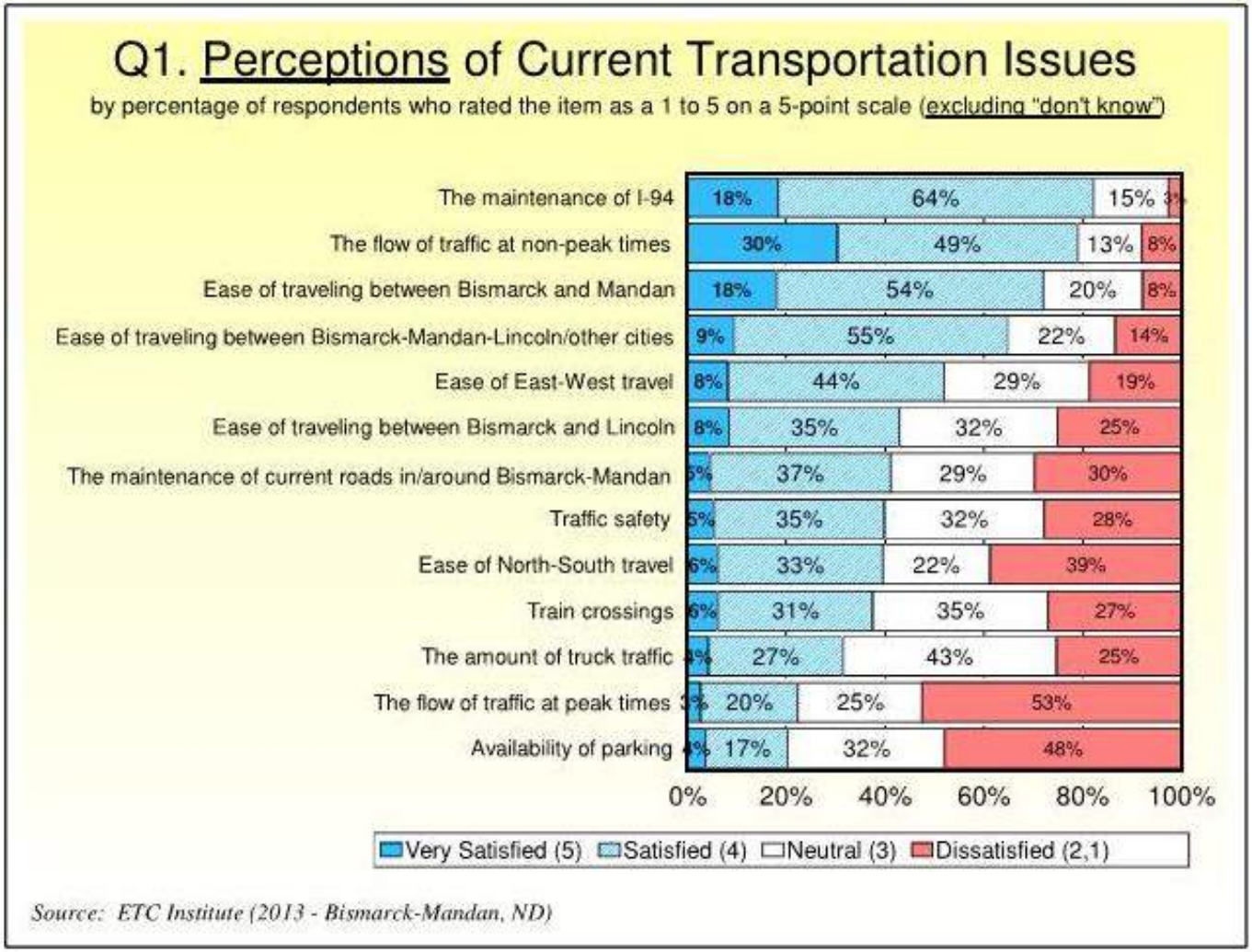
Community Survey Results

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

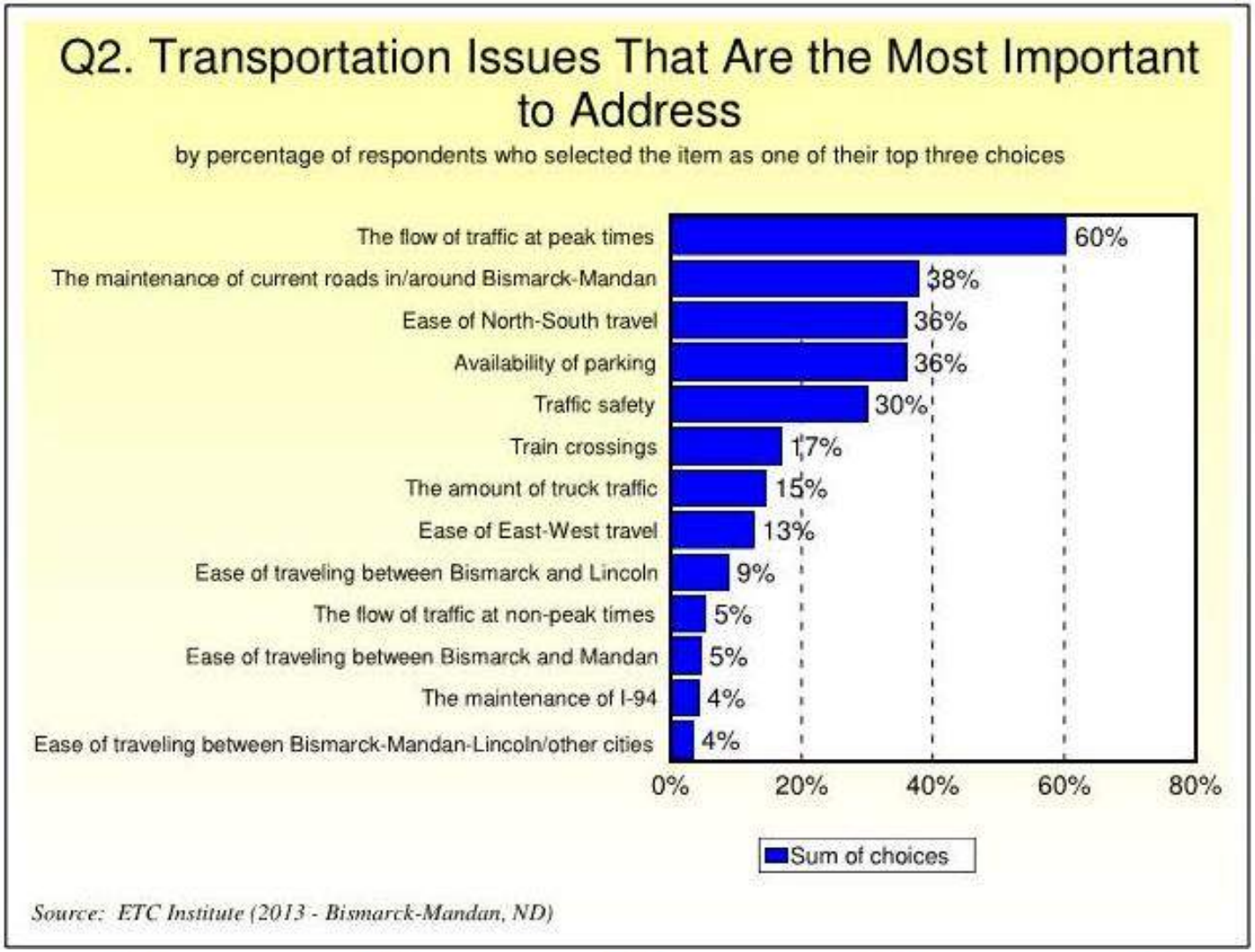
- Survey of 636 Households in MPO Area
- Community Attitudes of Transportation System
- 10 Minute Survey



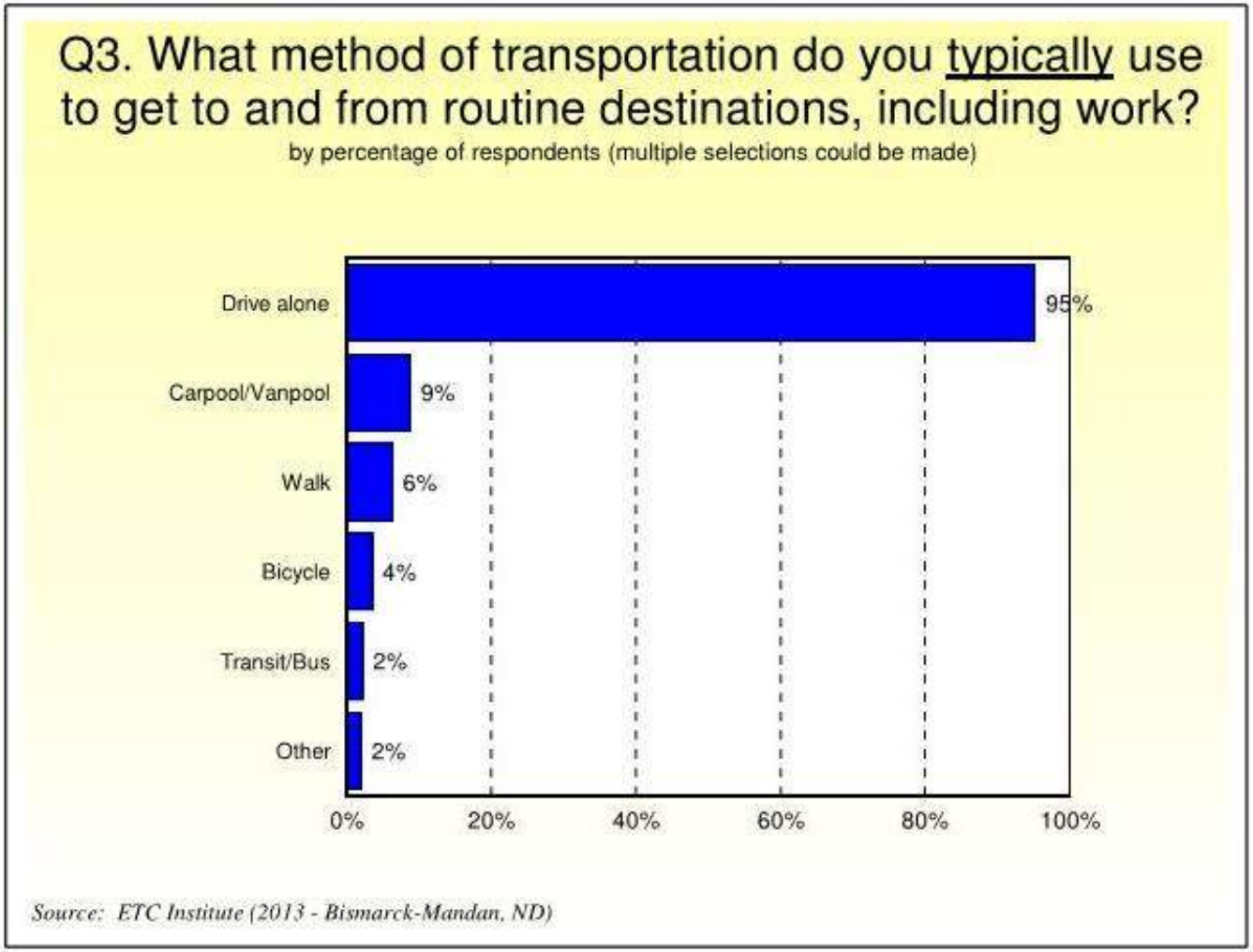
Current Satisfaction by Issue



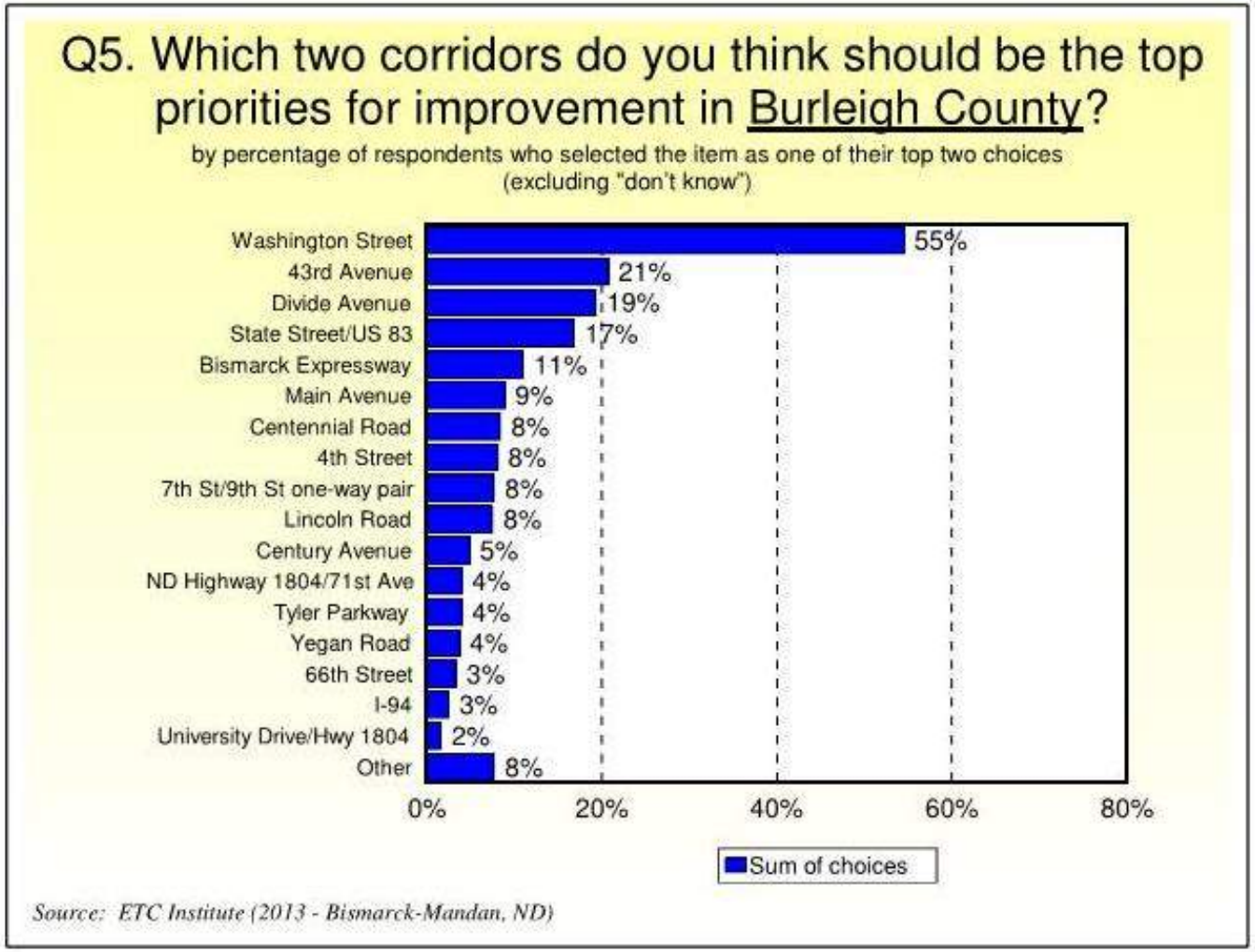
Importance by Issue



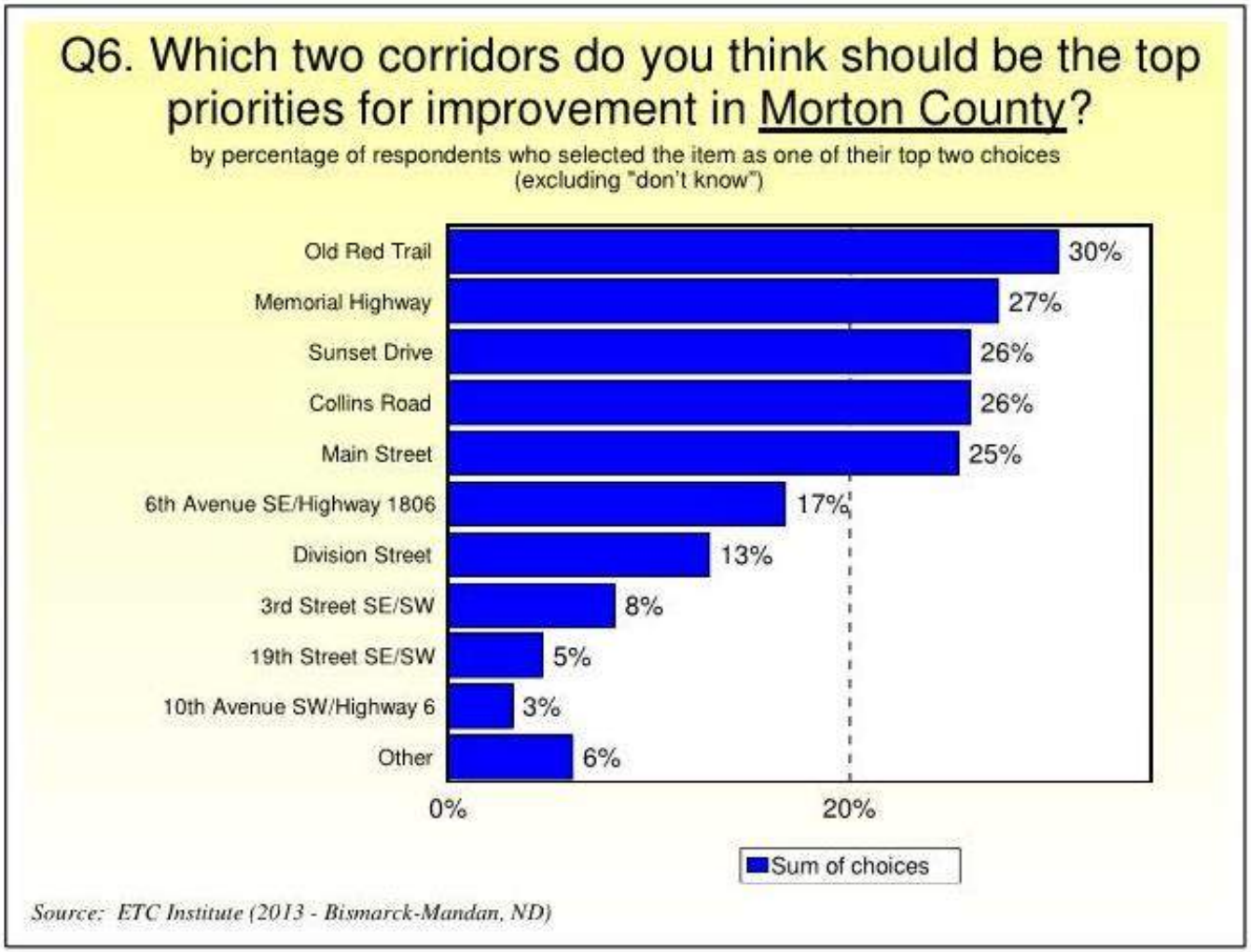
Commute Mode



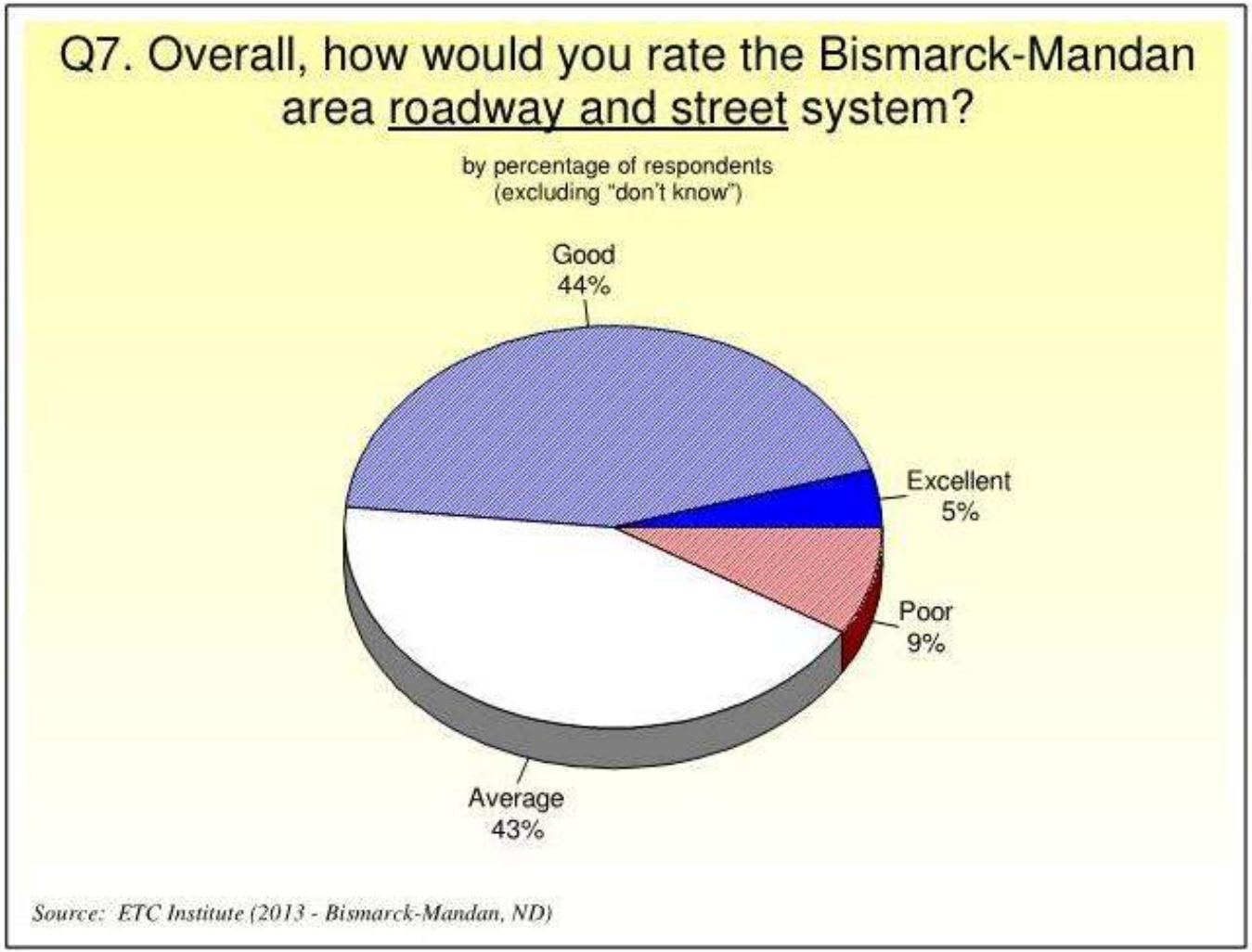
Burleigh County Priority Corridors



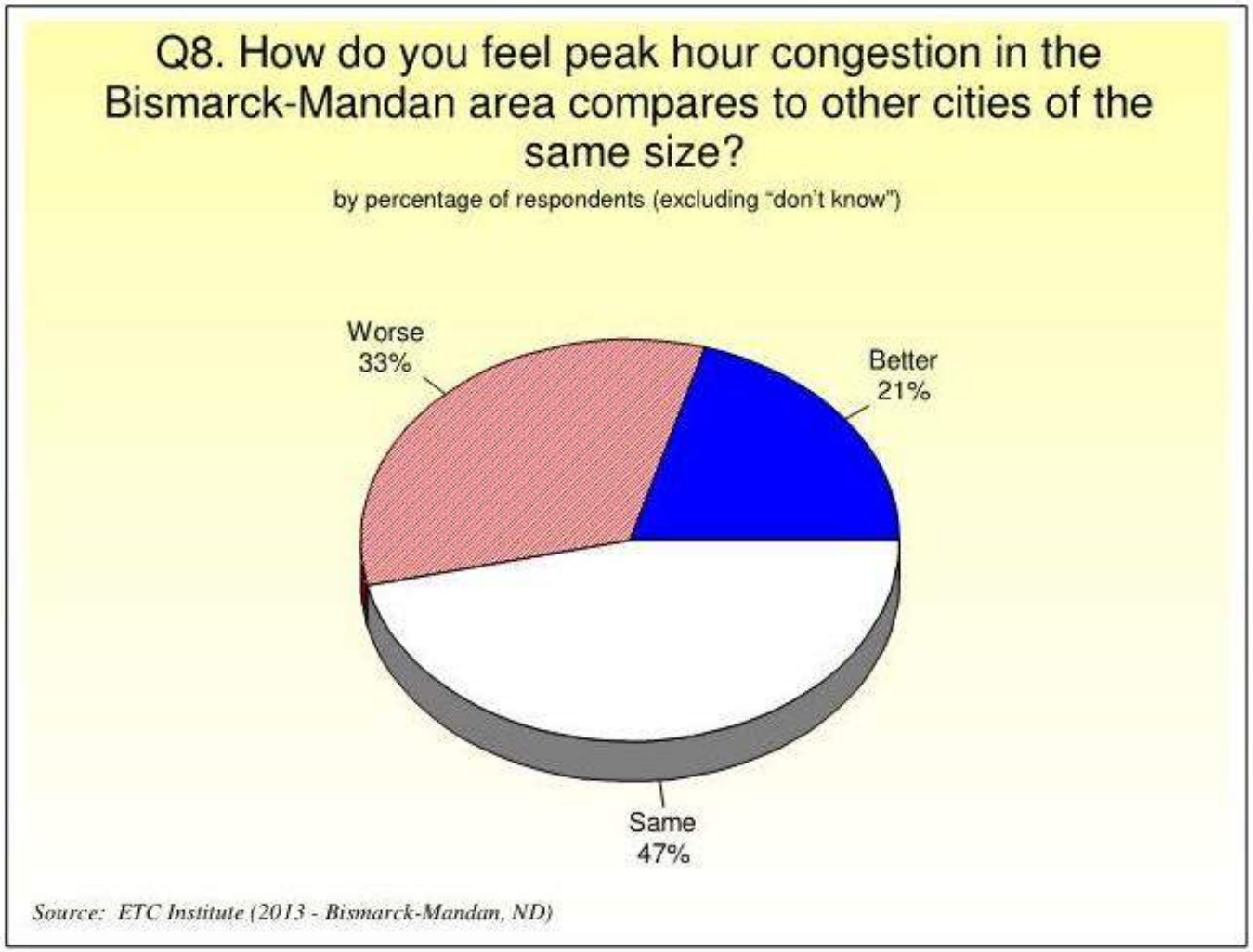
Morton County Priority Corridors



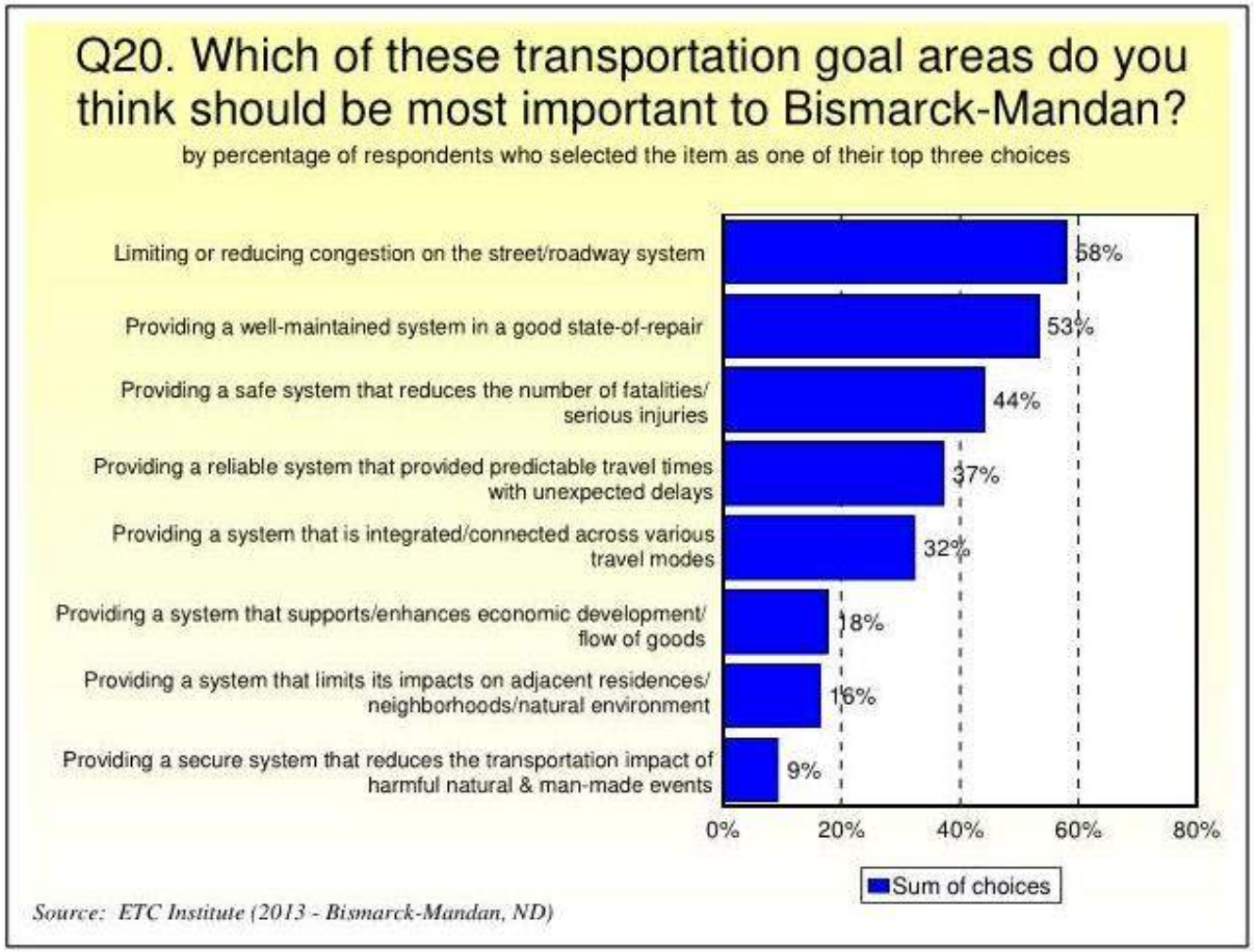
Overall Street System Satisfaction



Congestion Here vs. Elsewhere



Top Transportation Goals



COMMUNITY TRANSPORTATION GOALS

Transportation Goals

- Safe and Secure Transportation System
- Maintain the System in a State-of-Good-Repair
- Improve Mobility / Connections
- Effectively Move Goods and Enhance the Local Economy
- Coordinate with the Natural and Built Environment
- Enhance Alternatives to Autos
- Identify Transportation-Supportive Funding and Policy Opportunities

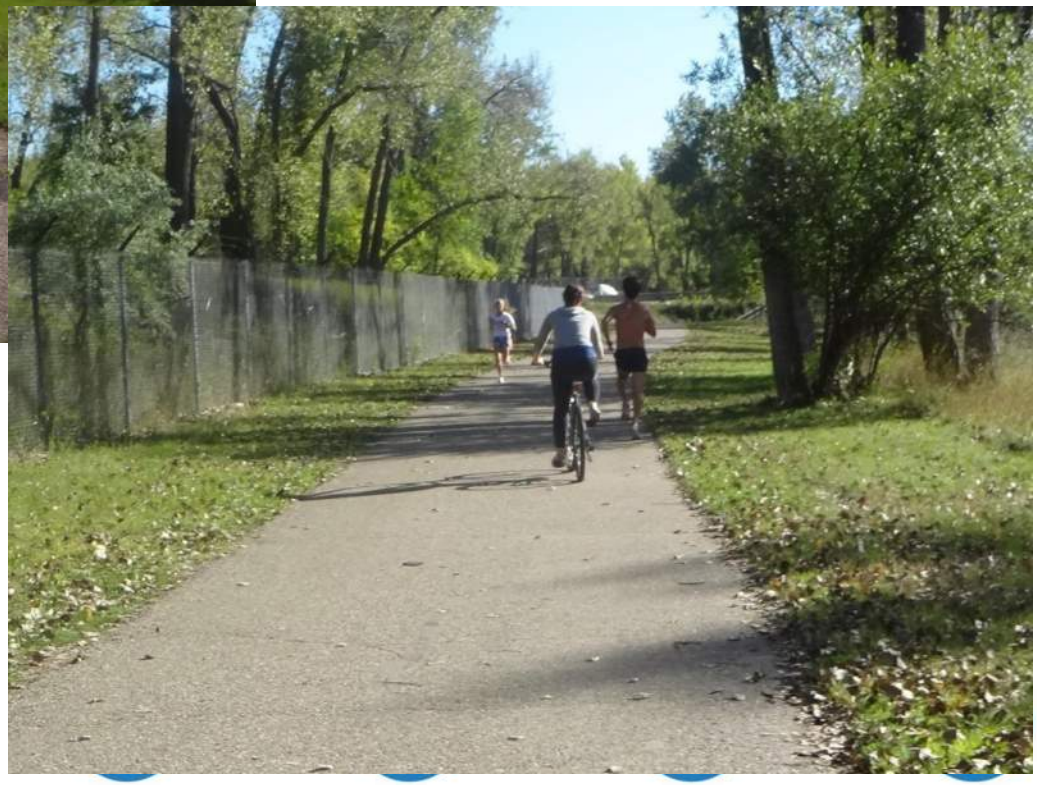
ALTERNATIVES OVERVIEW

What are "Alternatives"?

- A Range of Potential Options or Solutions that Address an Issue
- They are Not Necessarily All:
  - A good fit with the community vision/performance measures
  - Financially feasible
  - Ultimately part of the final LRTP project list

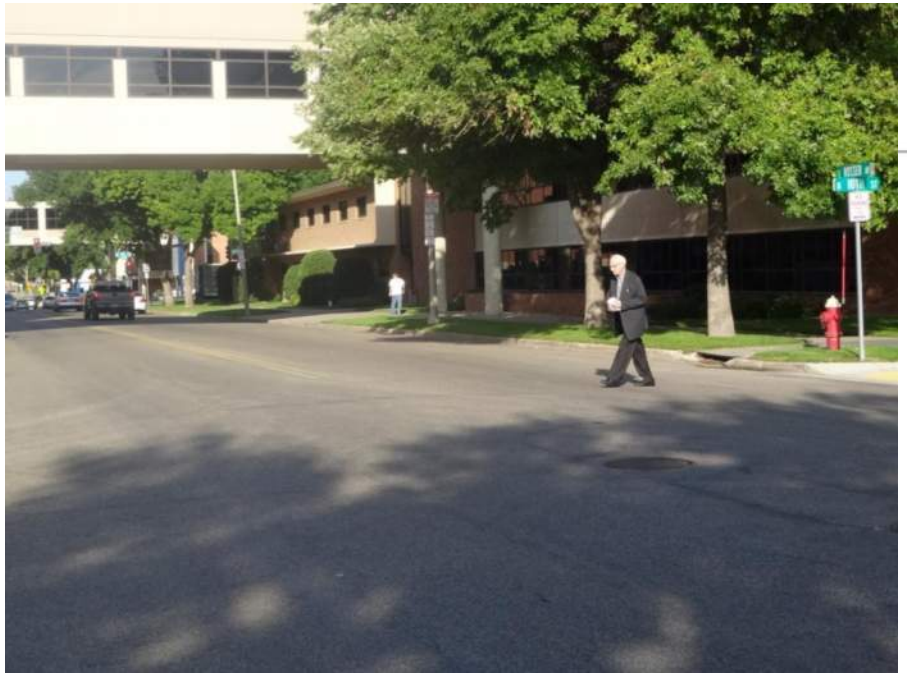
BIKE AND PEDESTRIAN ALTERNATIVES OVERVIEW

Trail Examples



Sidewalks

N 2ND ST
NO PARKING
Petals and Mor
Fresh Flowers F
All Occasions
Plants - Gifts

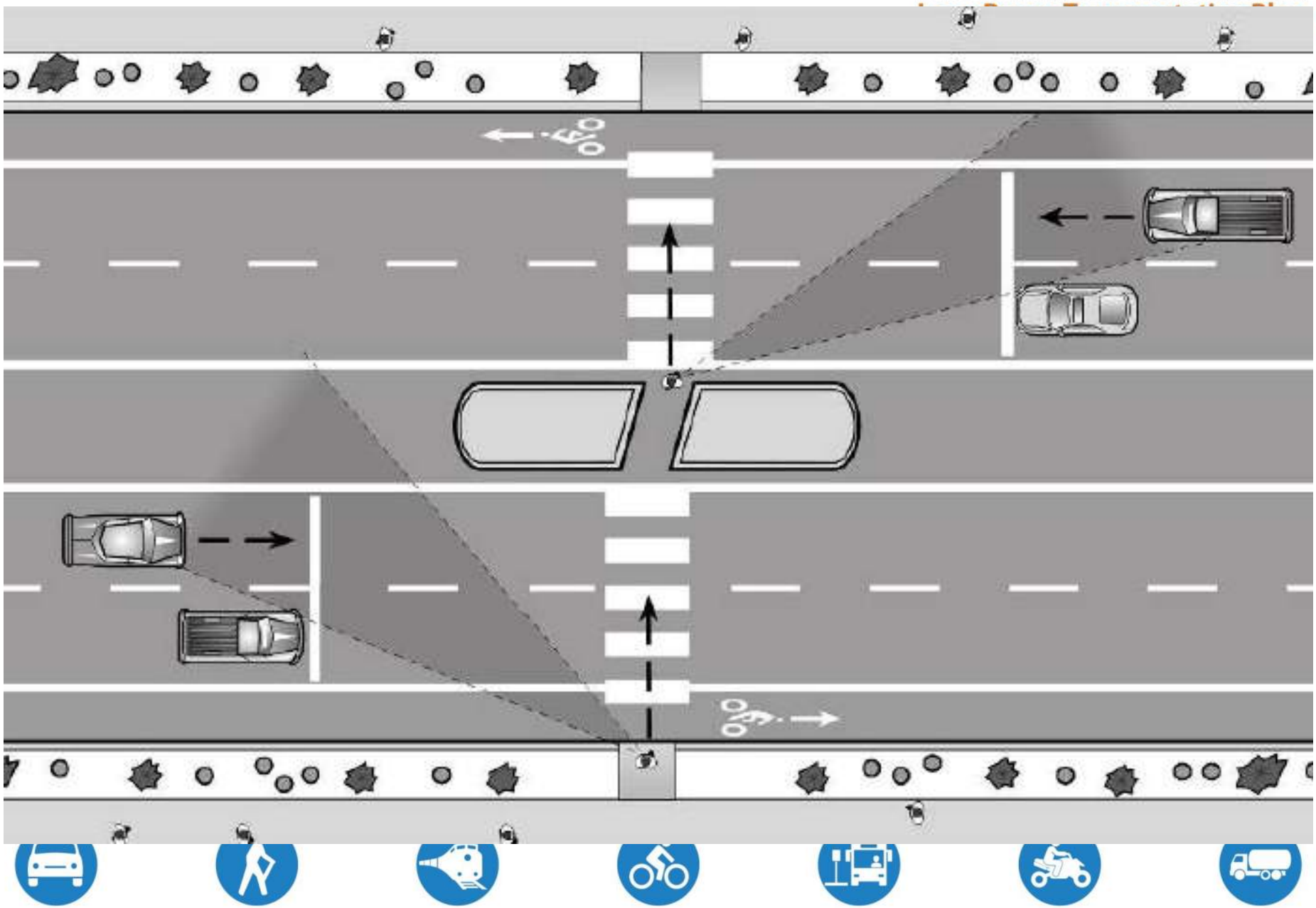


SPEED LIMIT
35

Curb extensions

High-visibility crosswalks

Pedestrian crossing island

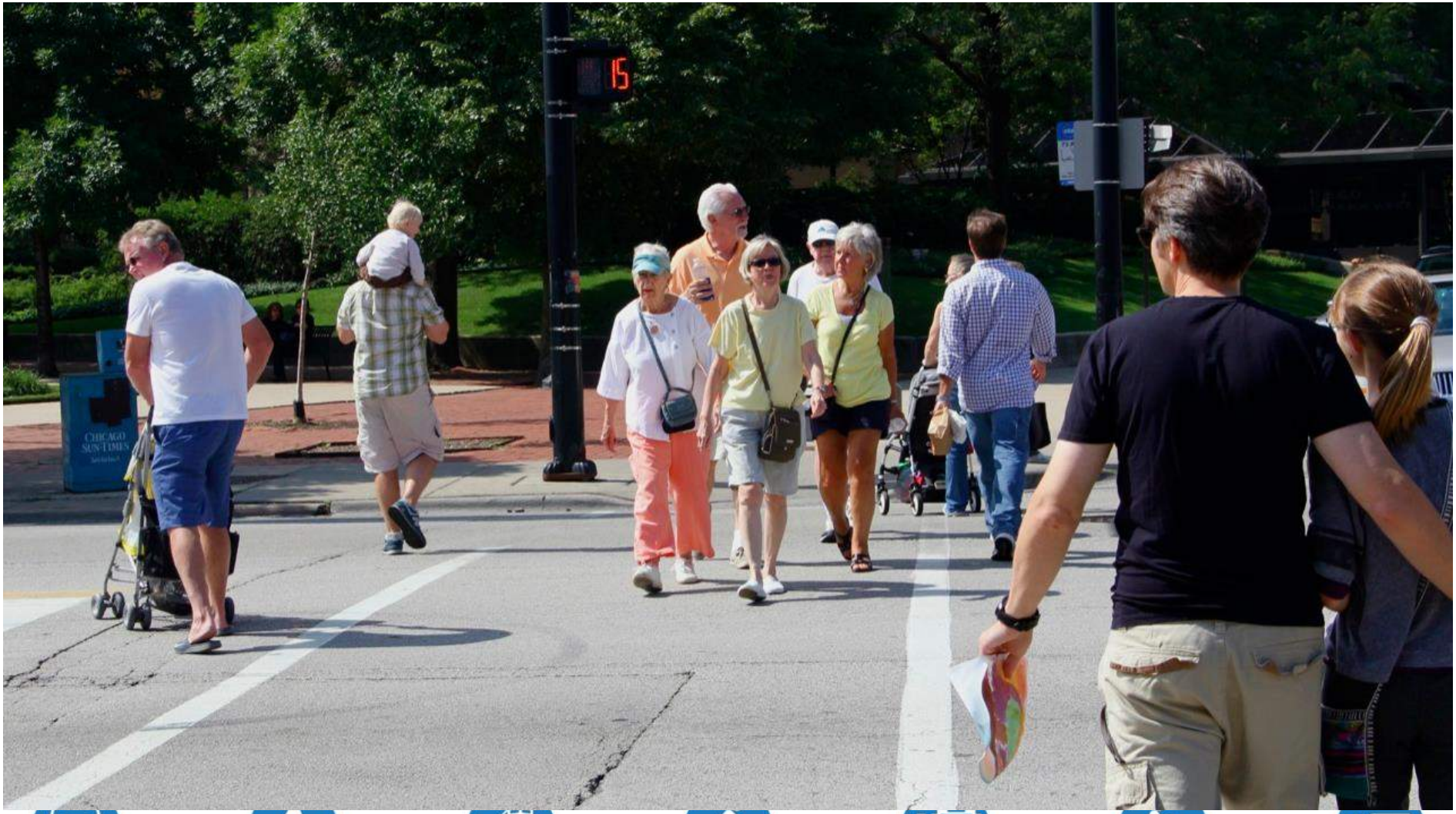


Leading Pedestrian Interval

Leading Pedestrian Interval

Leading Pedestrian Interval

Countdown timers



Speed table

Pedestrian Hybrid Beacon (HAWK)

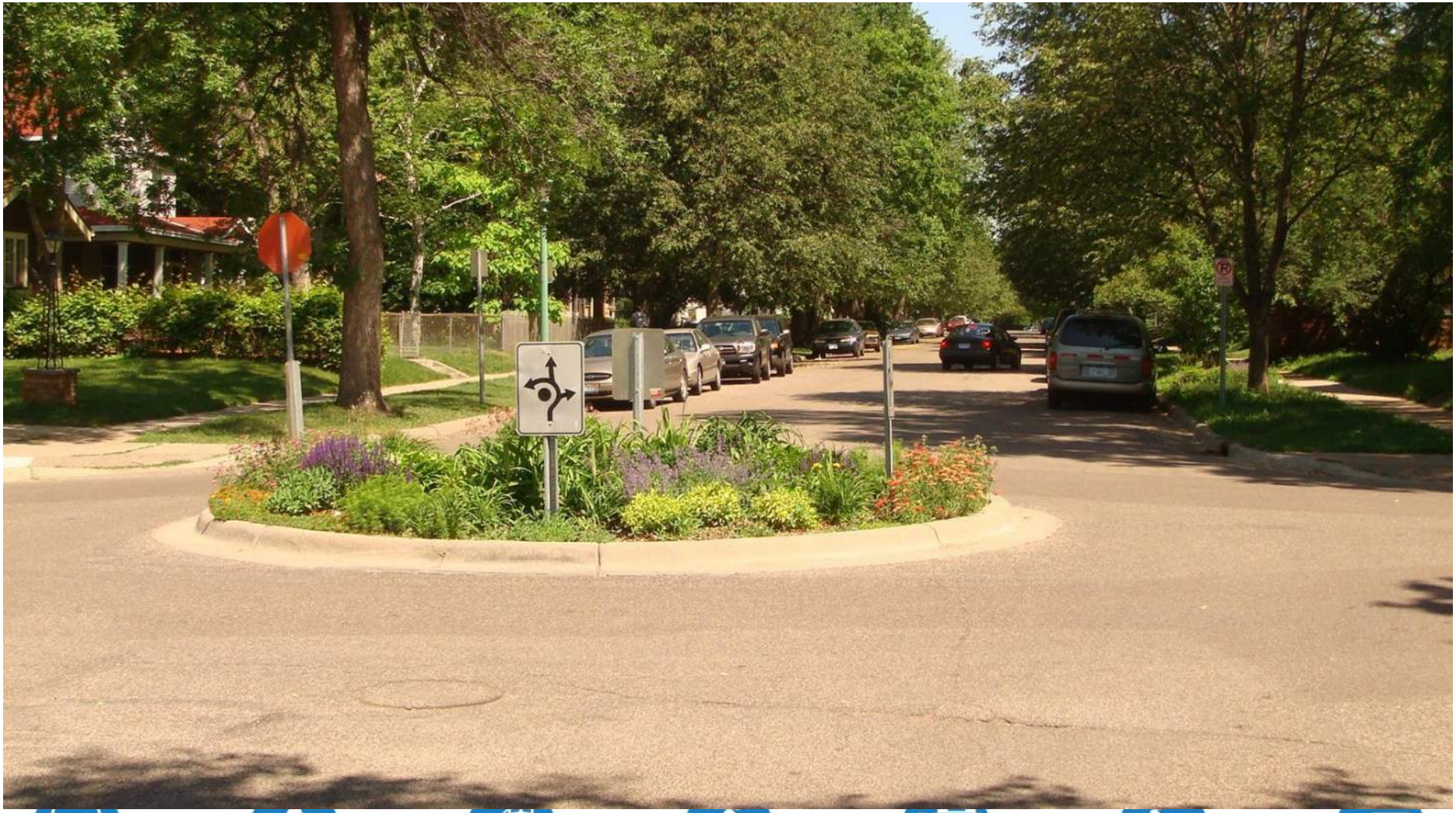
CROSSWALK
STOP
ON RED
CROSSWALK

Rectangular Rapid Flashing Beacon (RRFB)

What is a Neighborhood Slow Street?

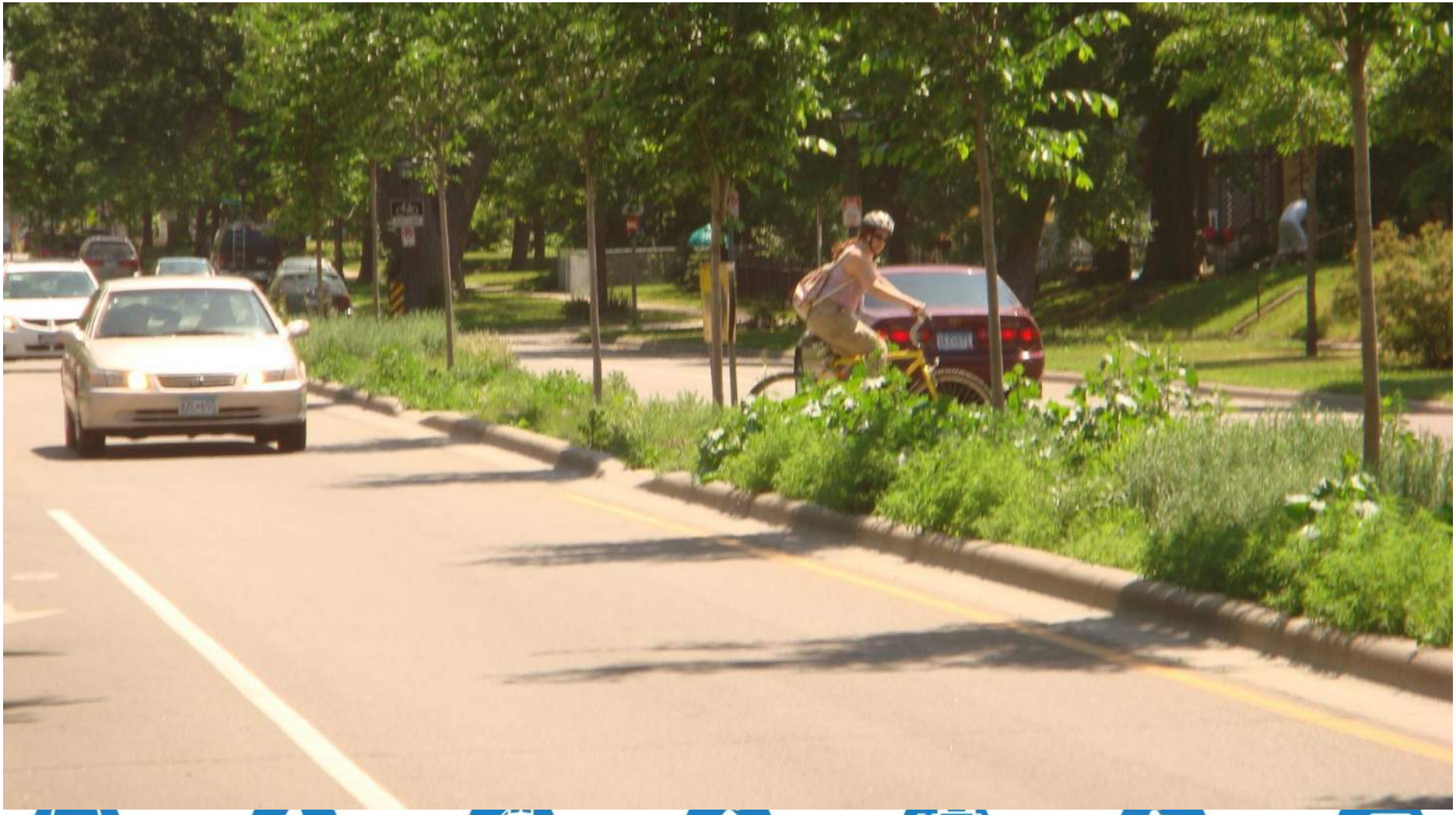
- A neighborhood residential street modified to:
  - Calm automobile traffic
  - Discourage cut-through traffic
  - Make walking and bicycling a more inviting choice
- Also known as "Neighborhood Greenway" or "Bike Boulevard"

What elements do they include?



What elements do they include?

What elements do they include?



FAIRVIEW
sam
sam

FAIRVIEW
sam

PRIOR
STOP
4-WAY

PRIOR

Cedar Av
REDDY RENTS

DO NOT
ENTER
EXCEPT BIKES
DO NOT
ENTER
S 11th Av

BLVD

Bicycle lanes

NO
PARKING
BIKE LANE

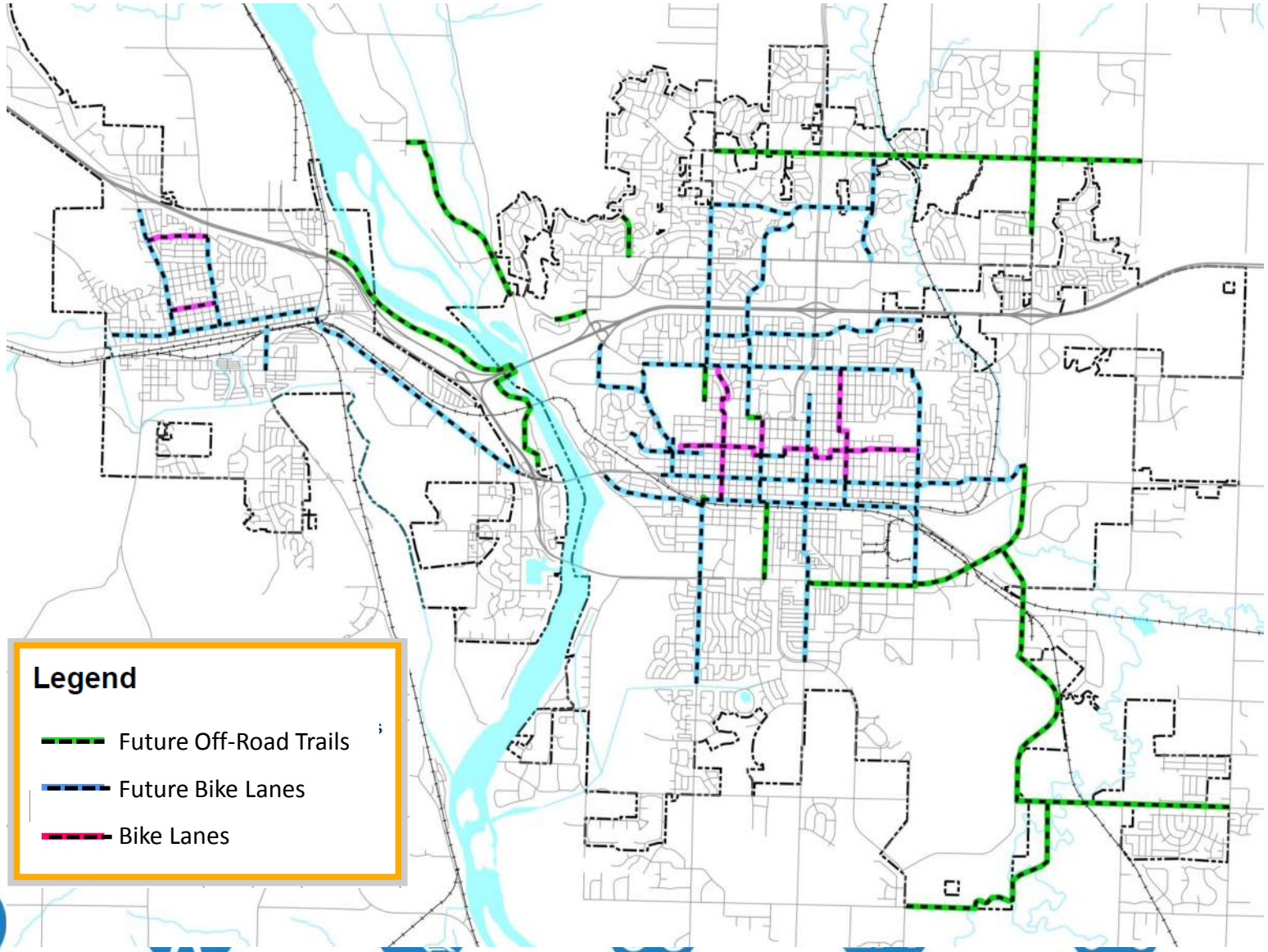
N 19TH ST

LANE
STAR FOODS

FEEL GOOD.
HONDA

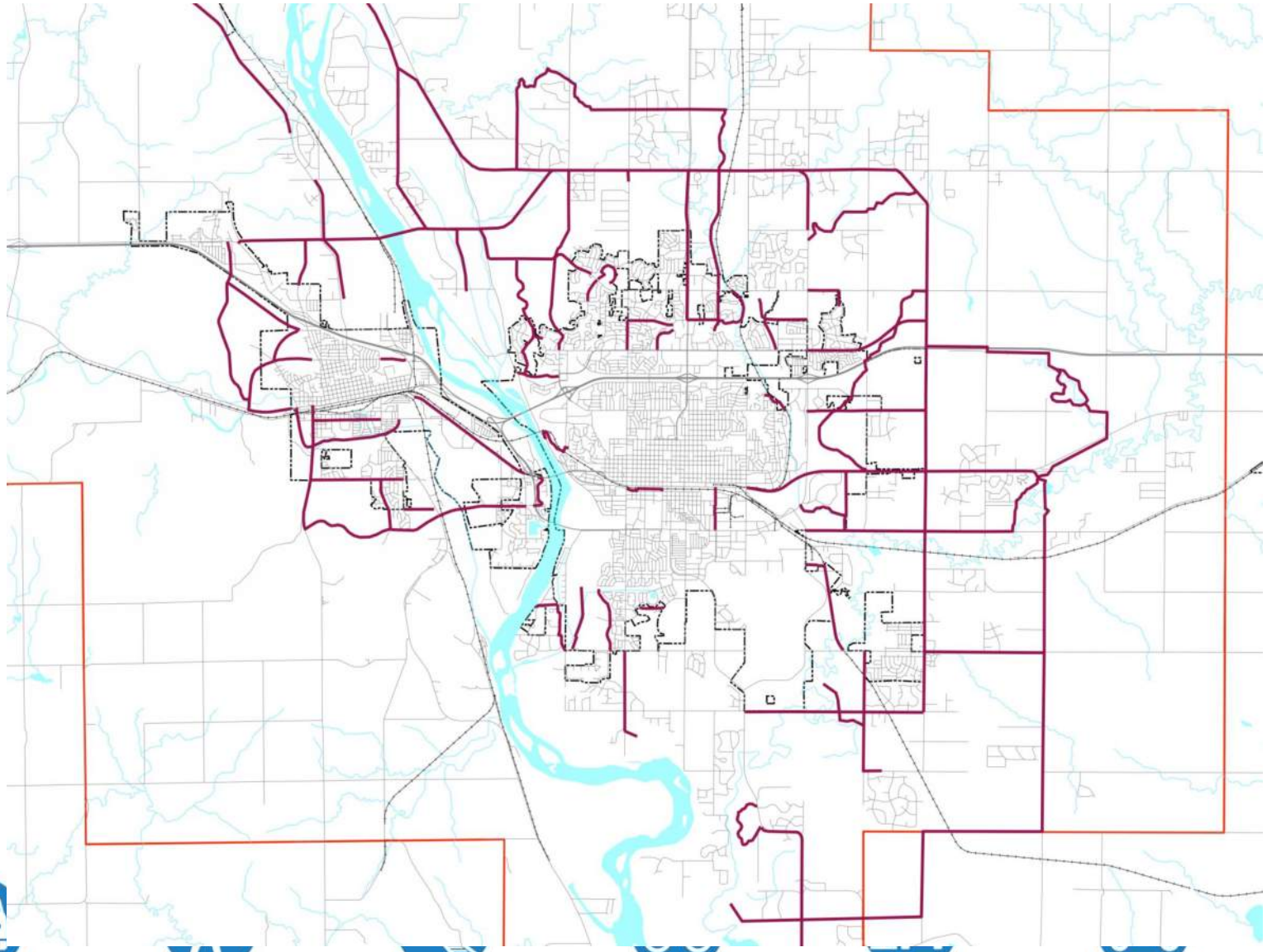
Bike and Pedestrian Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

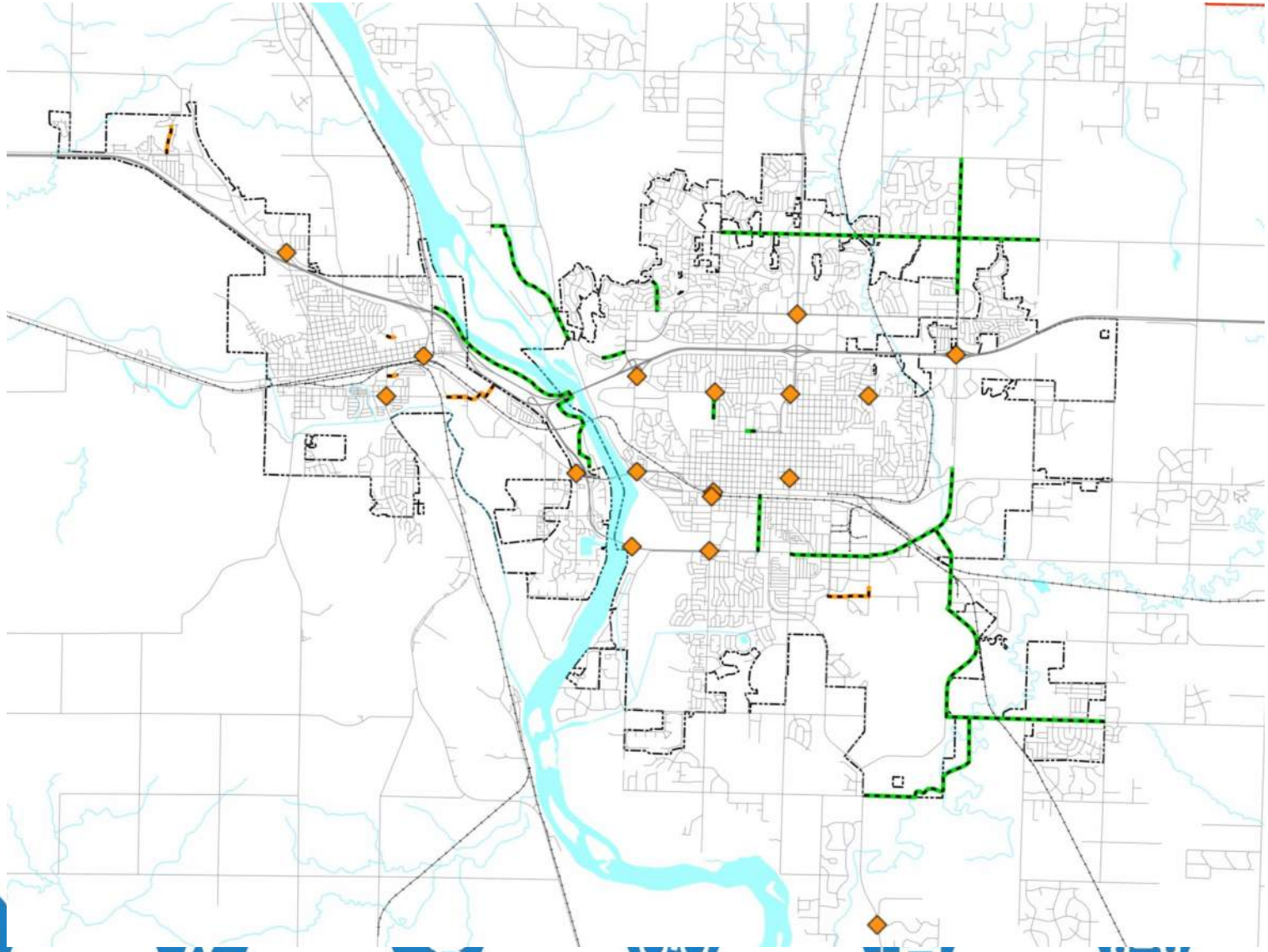


Draft Circumferential Trail Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Pedestrian System Altenatives

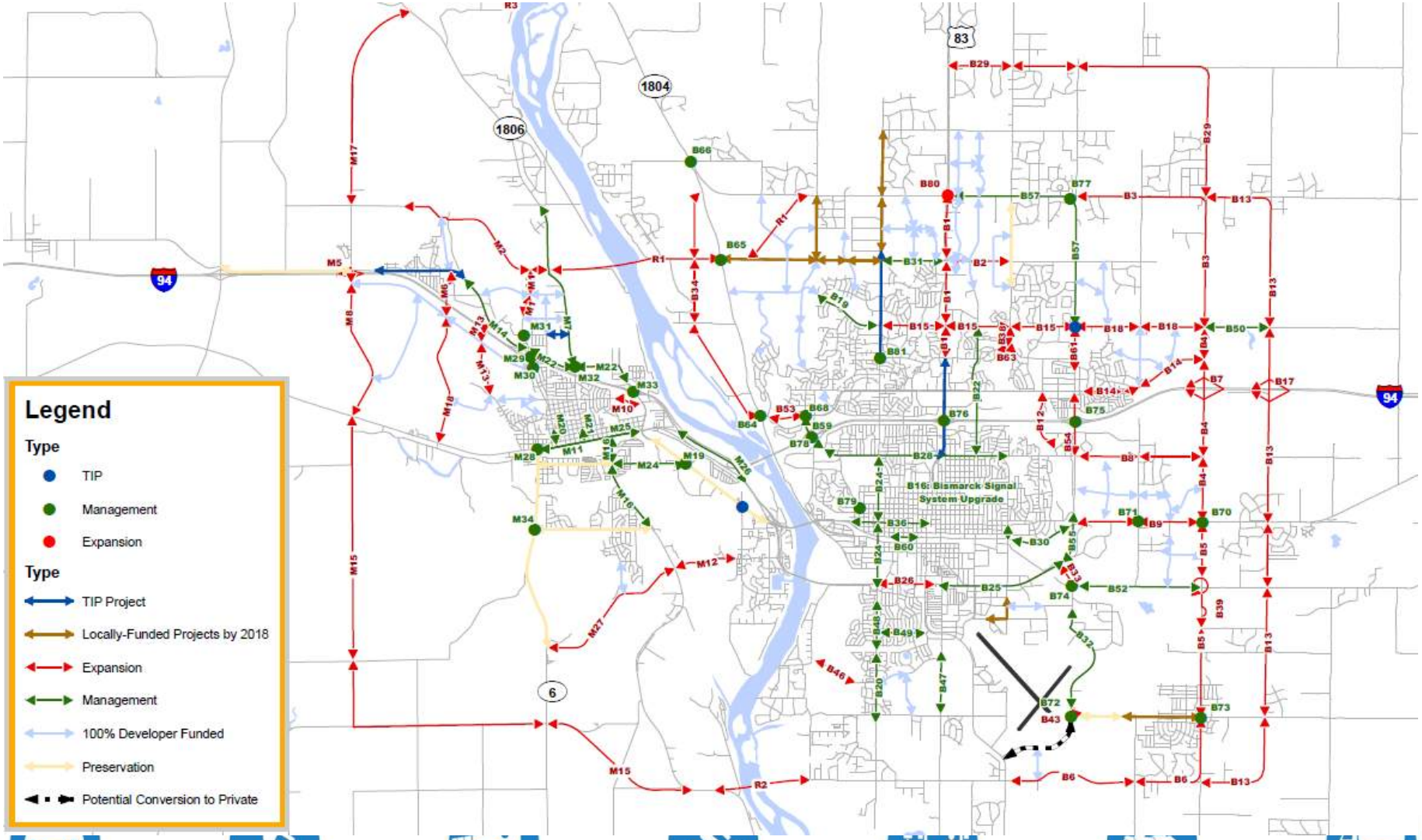


Roadway Alternatives by Area

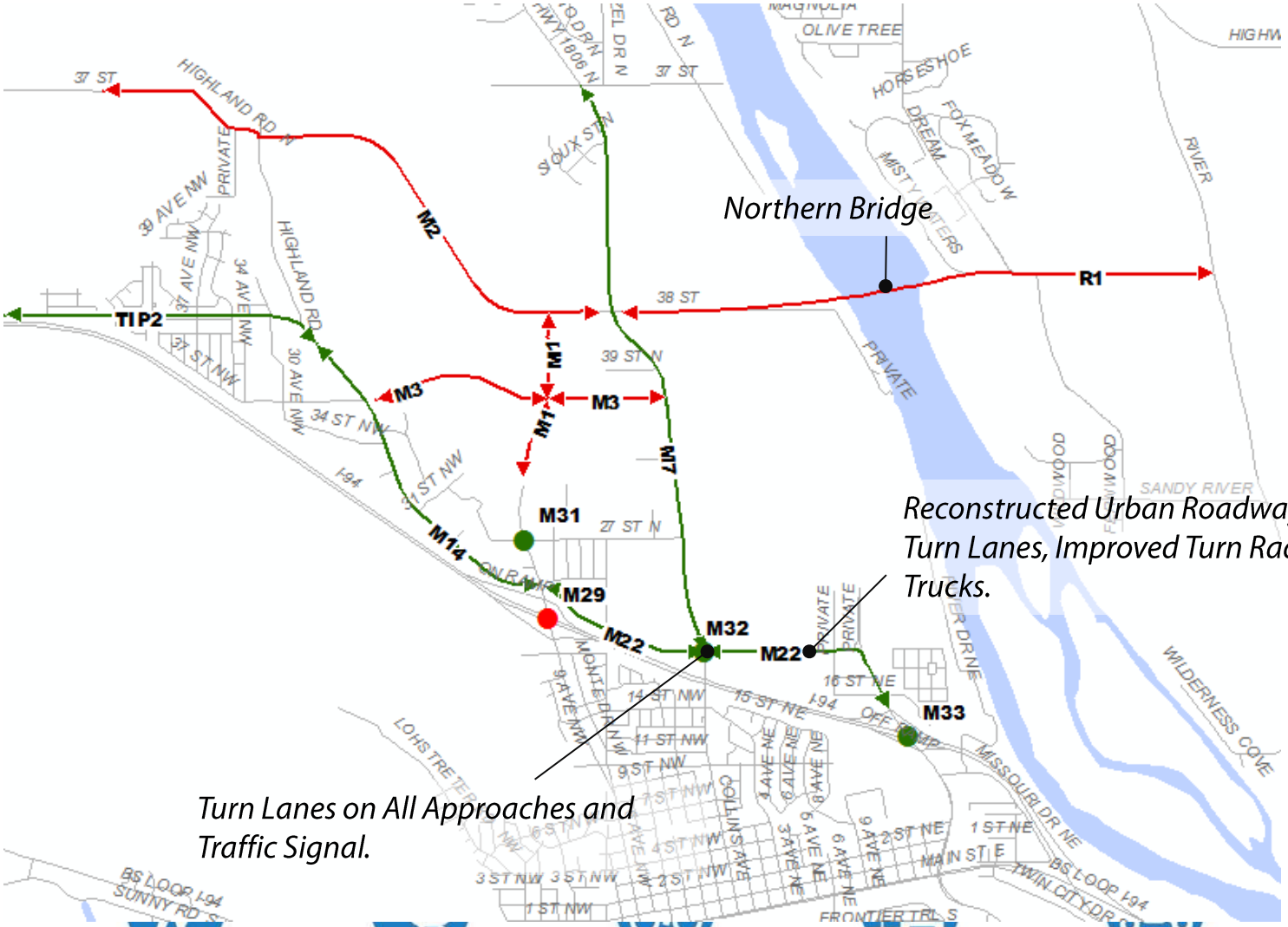
ROADWAY ALTERNATIVES OVERVIEW

Roadway Alternatives

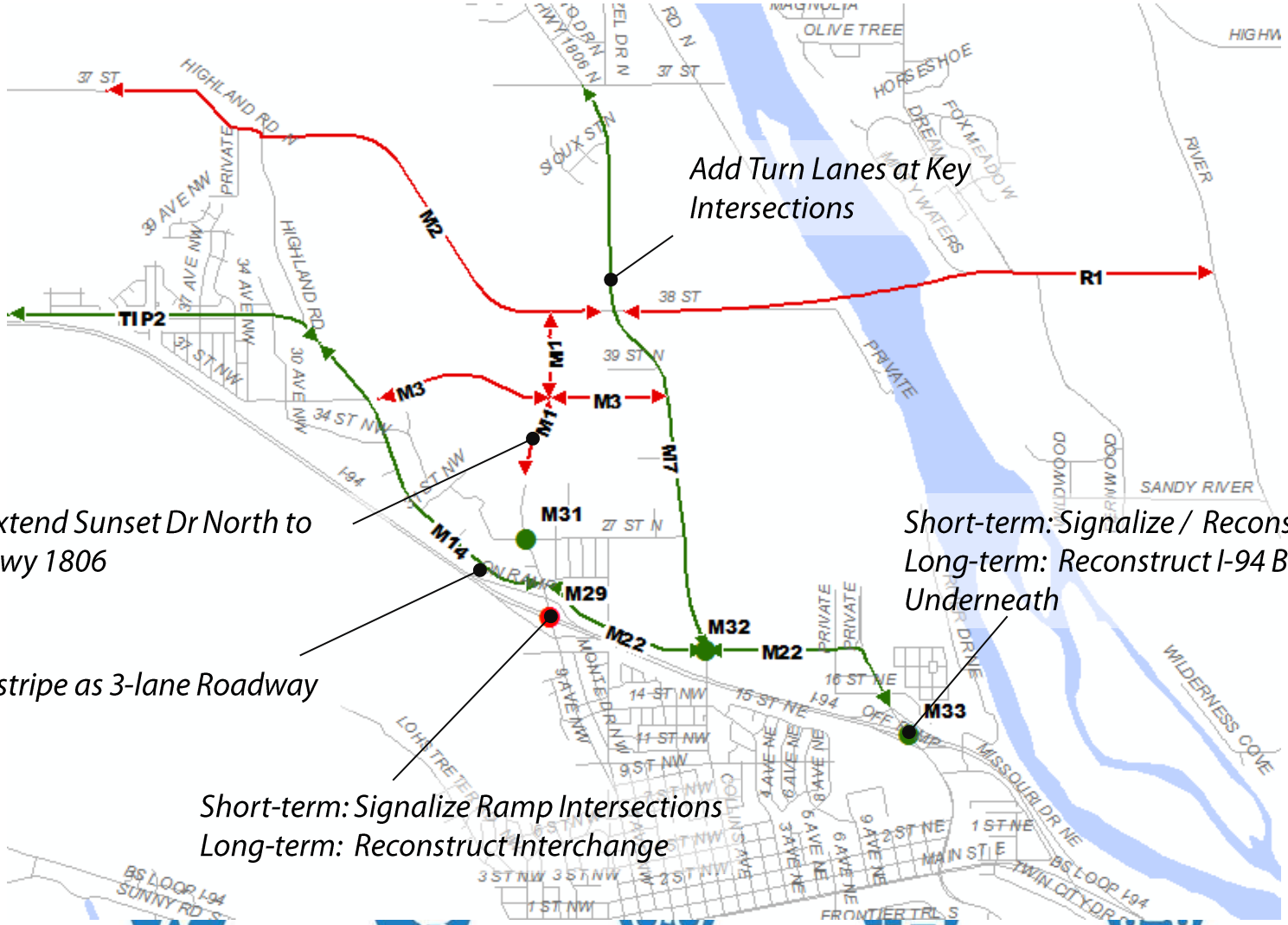
2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



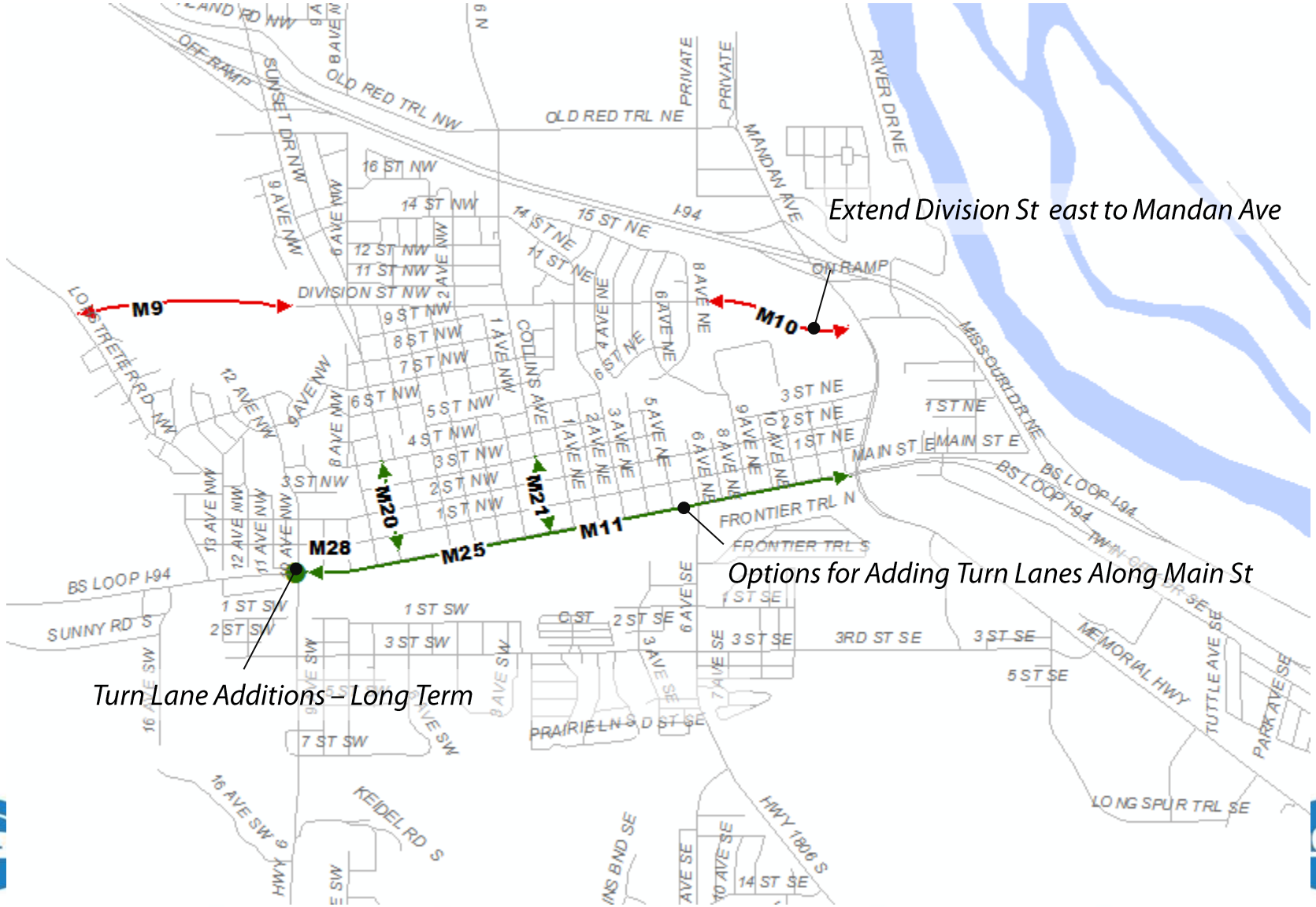
North Mandan Alternatives



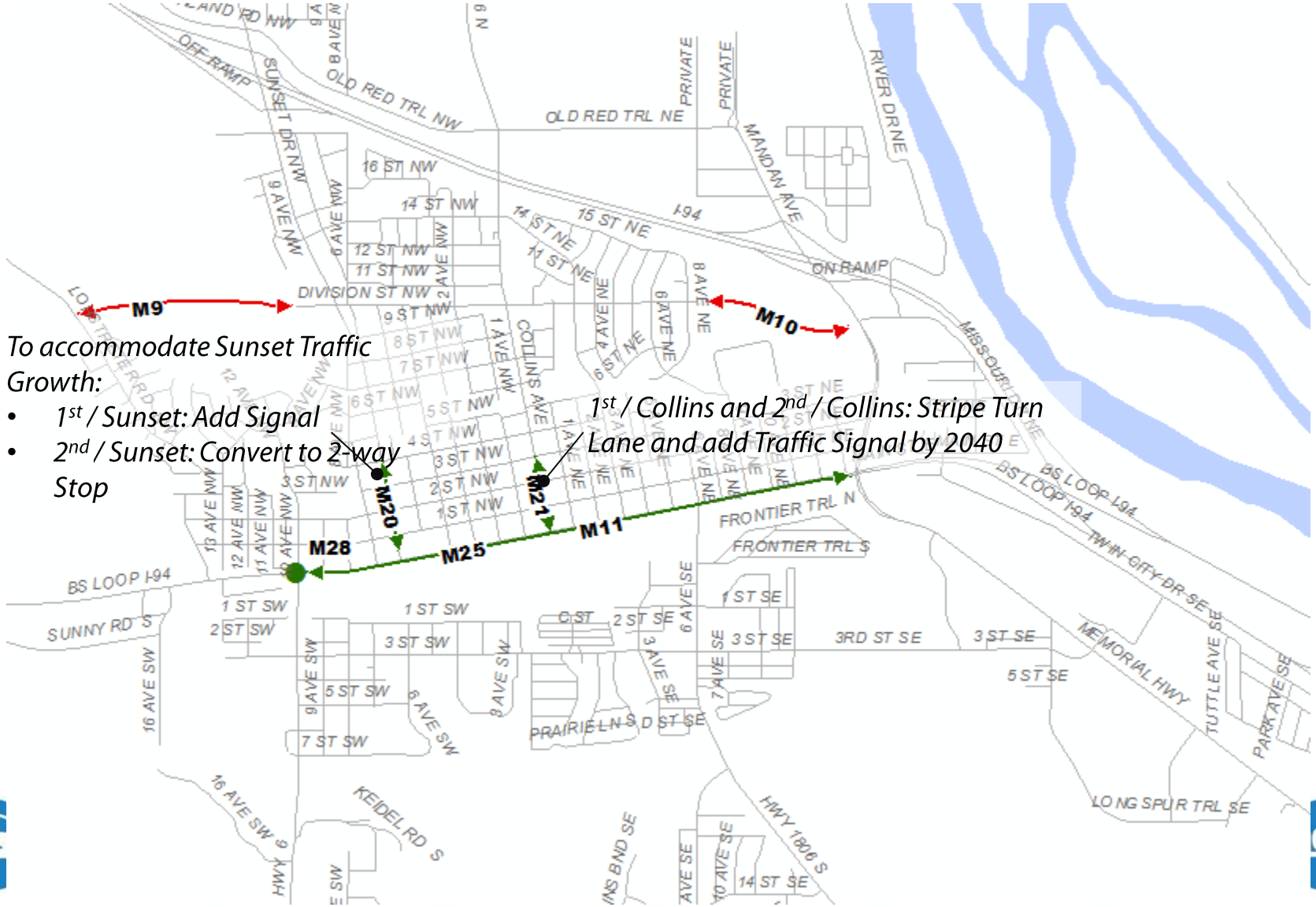
North Mandan Alternatives



Central Mandan Alternatives



Central Mandan Alternatives

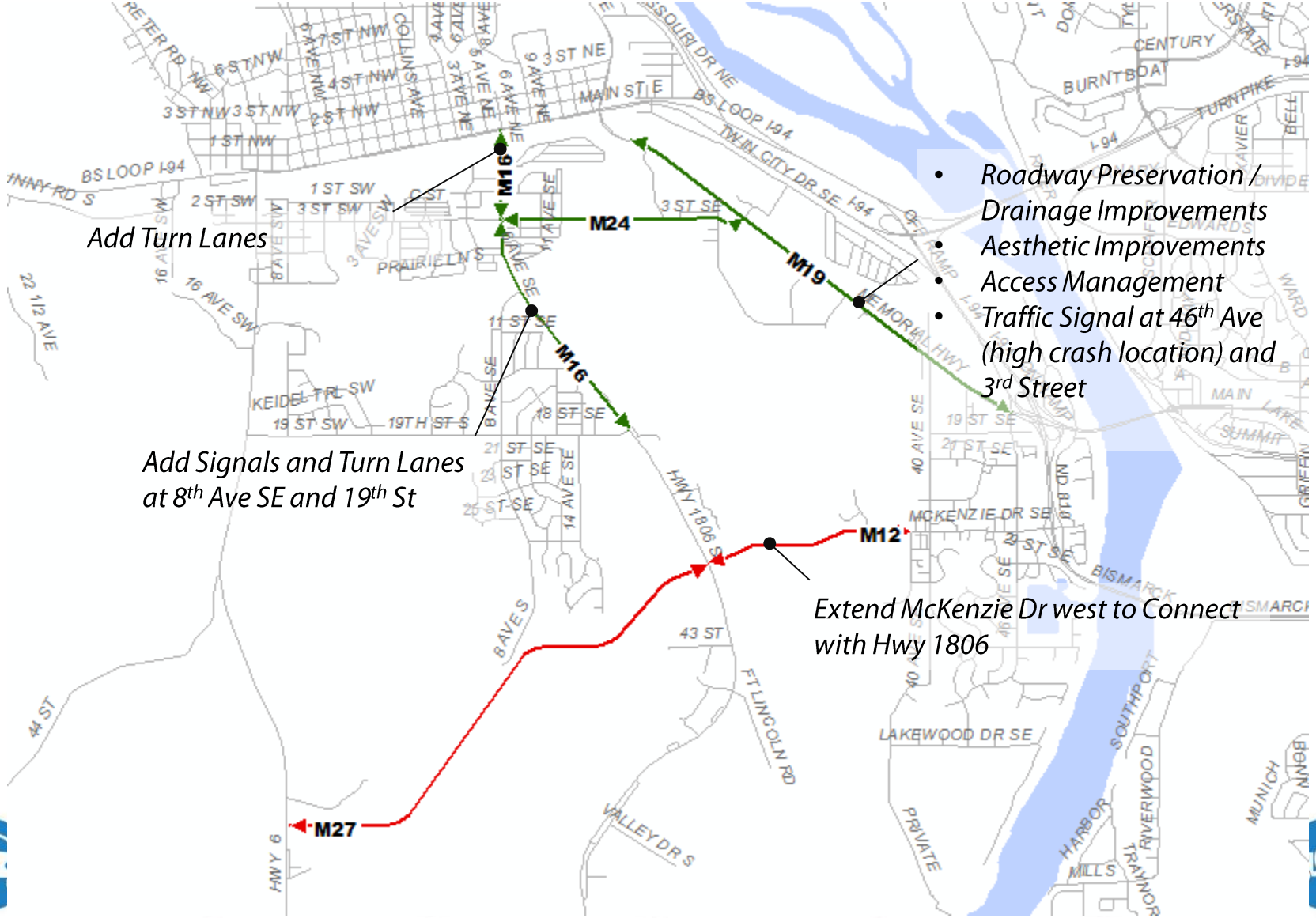


To accommodate Sunset Traffic Growth:

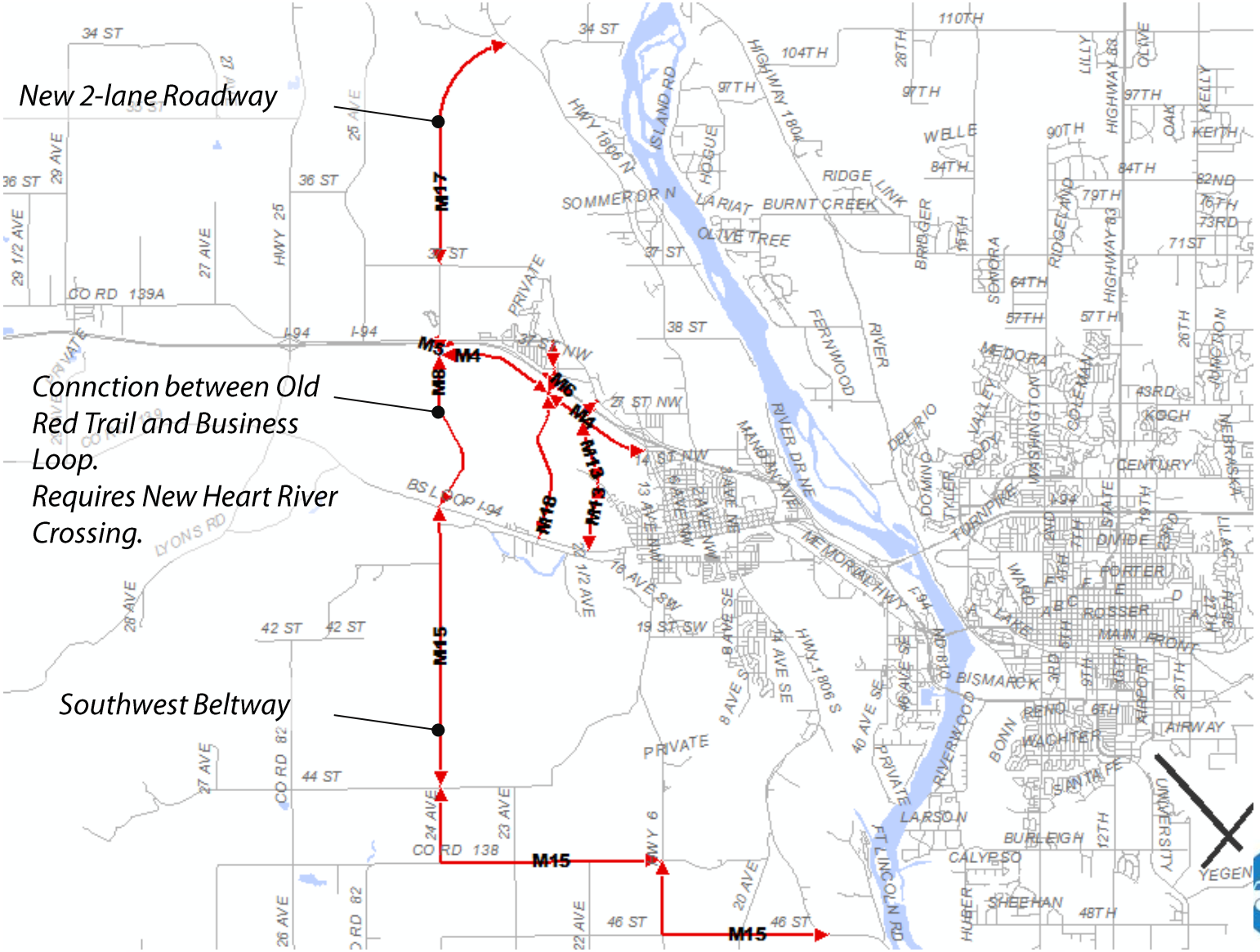
- *1st / Sunset: Add Signal*
- *2nd / Sunset: Convert to 2-way Stop*

1st / Collins and 2nd / Collins: Stripe Turn Lane and add Traffic Signal by 2040

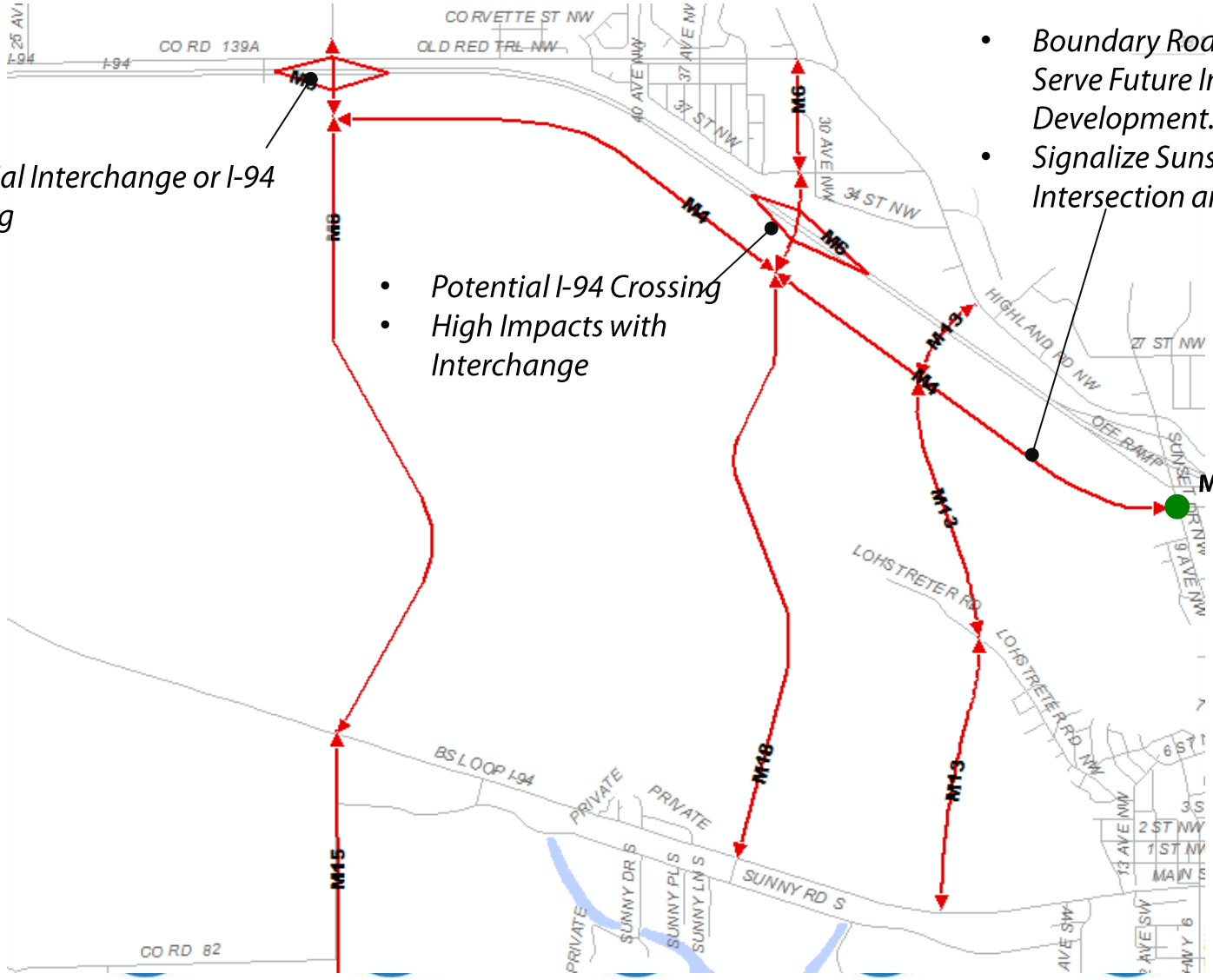
South Mandan Alternatives



West Mandan Alternatives



West Mandan Alternatives Detail



Potential Interchange or I-94 crossing

- *Potential I-94 Crossing*
- *High Impacts with Interchange*

- *Boundary Road Extension to Serve Future Industrial Development.*
- *Signalize Sunset / Boundary Intersection and Add Turn Lanes*

Other Regional Program Alternatives

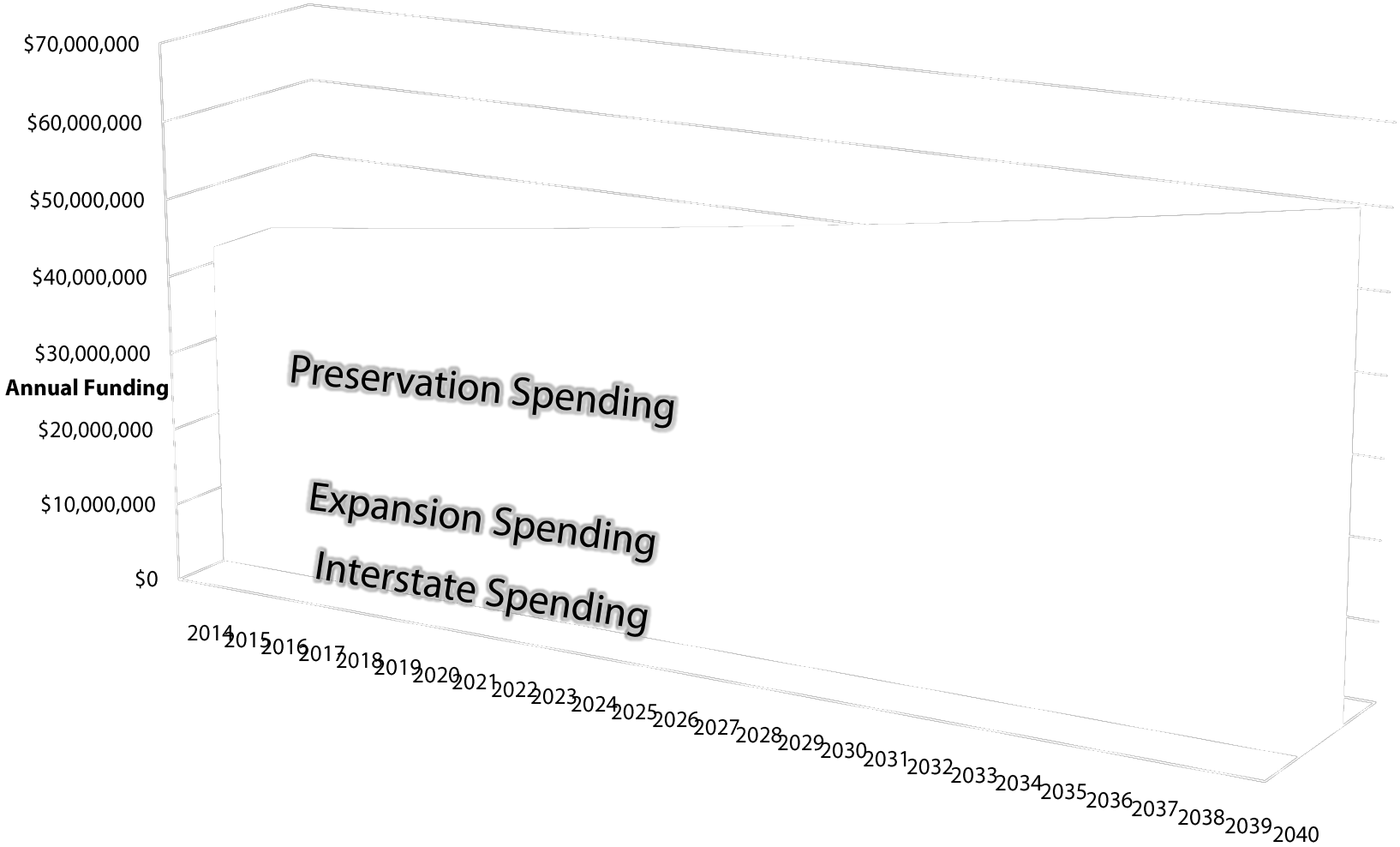
- Regional Travel Demand Management Program
- Complete Streets
- Establish Trail Dedication Policies for New Developments
- Transit and Bike / Ped Promotion Programs
- Land Use Policies to Support Infill / Mixed Use Development

Roadway Funding

FUNDING PROJECTION OVERVIEW

2014-2040 Funding Trend

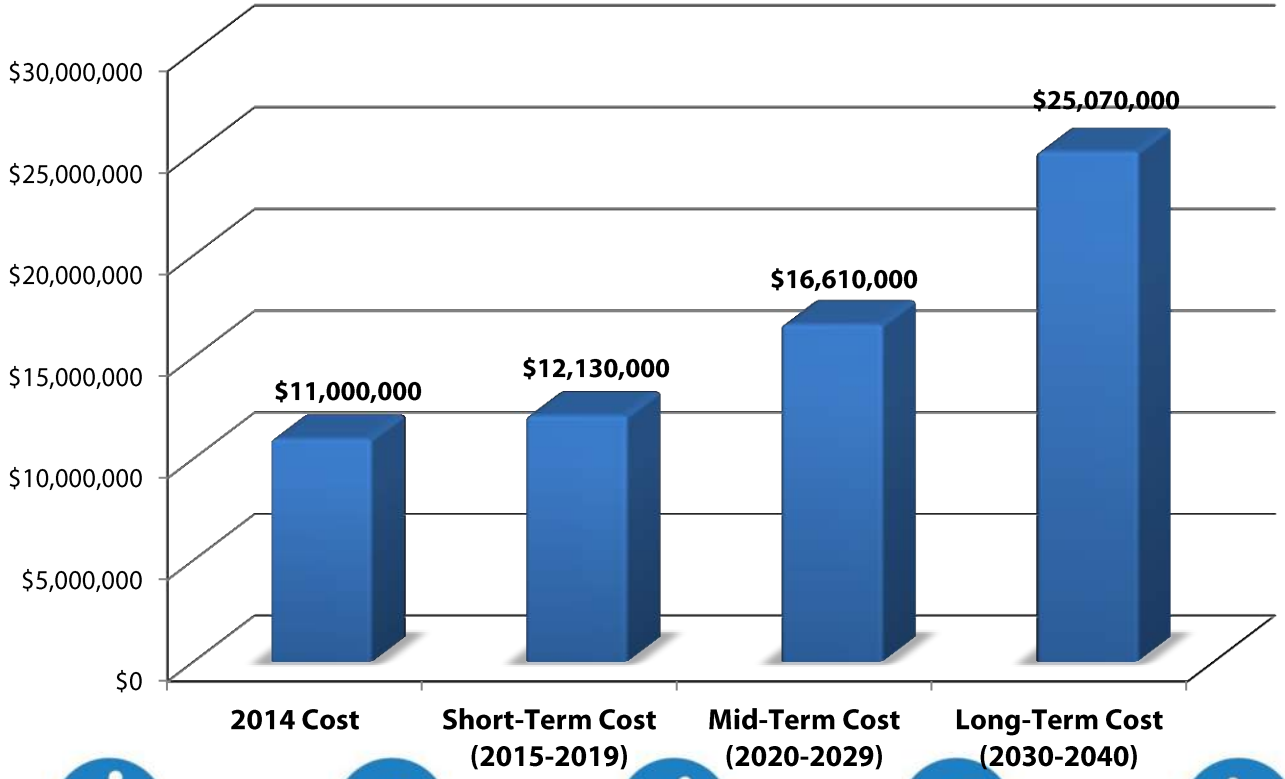
2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Projecting Future Costs

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

- + 4% each year
- 1 Mile of New Urban 4-Lane Cost Illustration

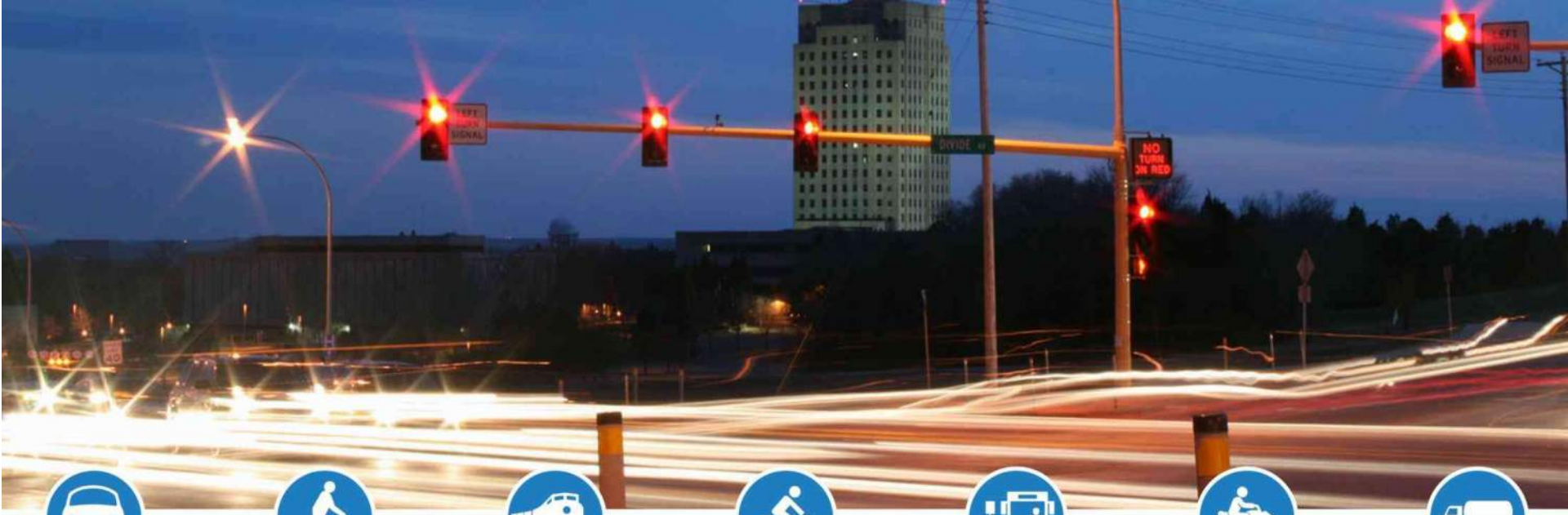


Next Steps

- Review the Feedback Received
- Finalize Modal Project Lists
- Finalize Draft LRTP Document

Questions?

- Thank you



2015-2040 Bismarck –Mandan Long Range Transportation Plan

Public Open House

September 18, 2014

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Agenda

- Plan Overview
- System Performance
- Range of Alternatives
- Answer Your Questions
- Get Your Feedback

Plan Overview

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Plan Kick-Off (Sept 2013)

- Focus Group / Steering Committee Meetings
- Initiate Public Engagement
- Initiate Technical Analyses
- Community Survey

First Public Meetings (Jan 2014)

- Present Existing Conditions
- Collect Issues / Opportunities / Vision
- Focus Group Meetings

Summarize Transportation Issues (March 2014)

- Mobility, Safety, Connectivity, Freight Issues
- Establish Performance Measures

Alternatives Development Workshops (April 2014)

- Focus Group Workshop
- Project Management Team Workshop

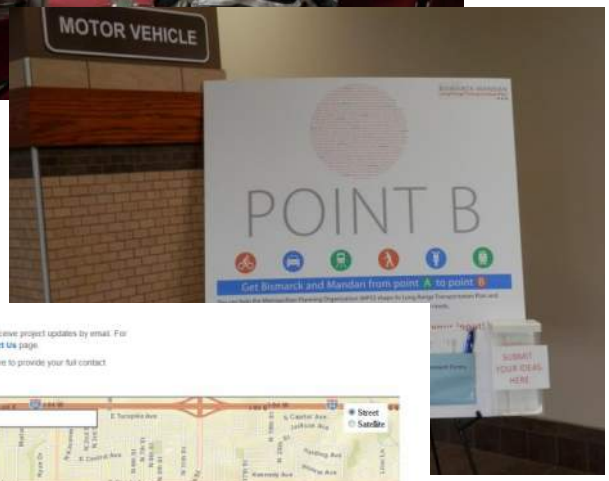
Alternatives Analysis (May-September 2014)

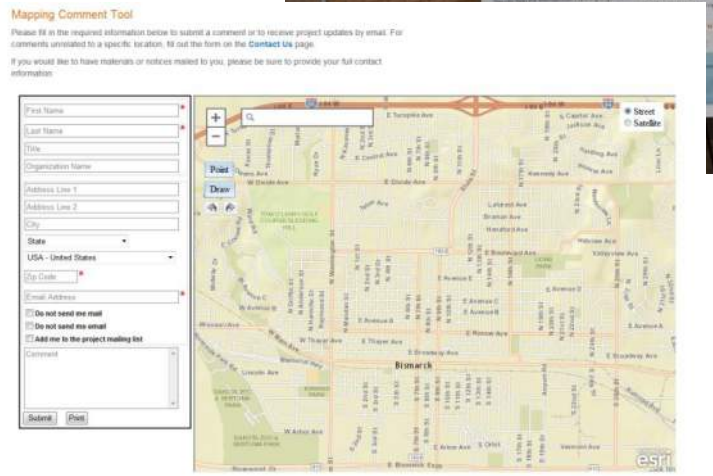
- Technical Analysis
- Performance Assessments
- Public Engagement Effort
- Public Meetings (Sept 17-18)

Draft Plan (Soon)

Public Involvement

- Multifaceted Approach
  - Focus Group Meetings
  - Public Meetings
  - Website Input
  - Information Kiosks
  - Random Household Survey
  - Social Media
- Focus Areas:
  - Community Vision
  - Issues / Problem Areas
  - Alternatives Feedback





What We Heard From Stakeholders…

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Transportation System Themes

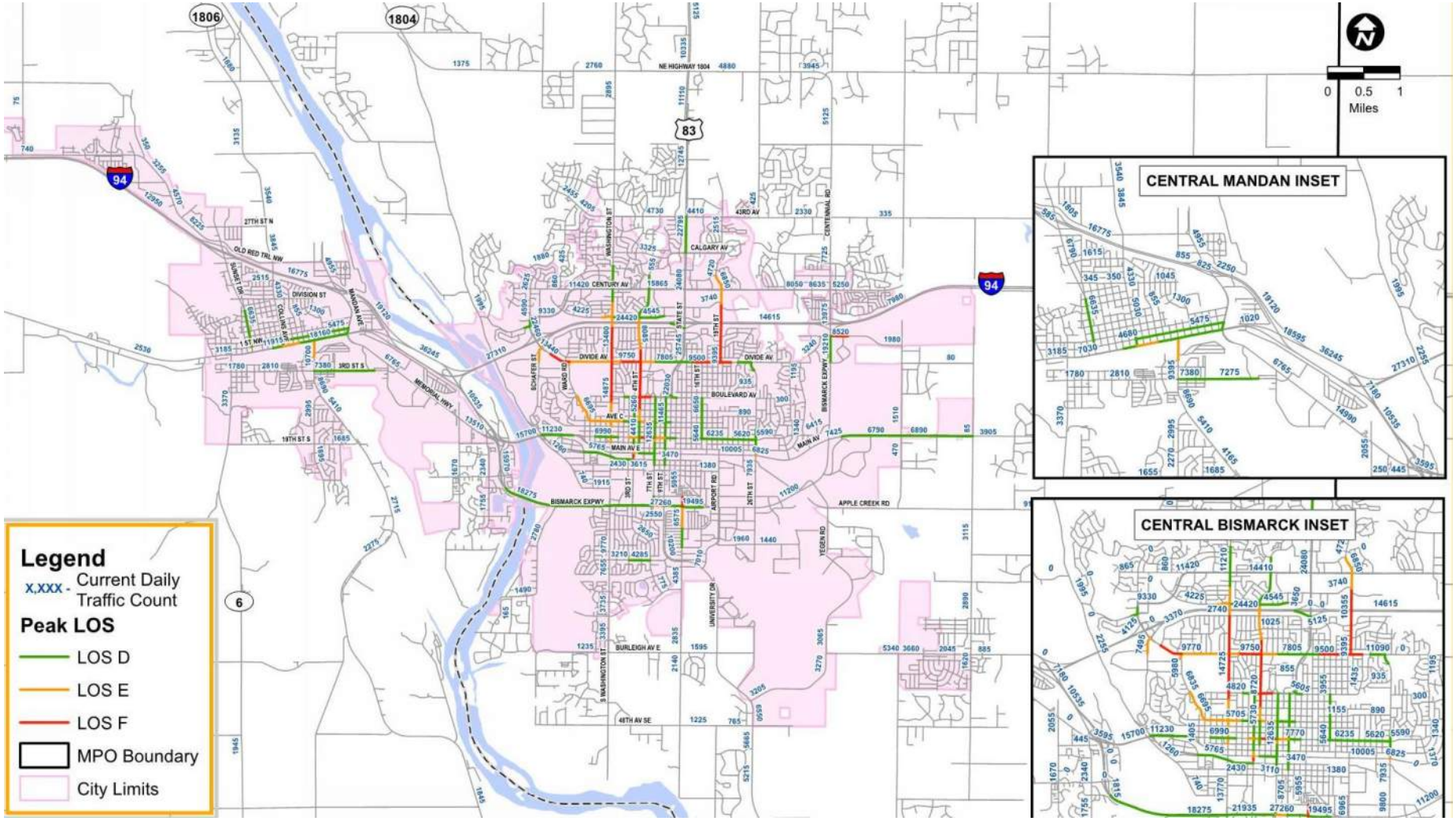
- Maintain Vehicular Mobility
- Safety Concerns
- Transportation Funding Uncertainty
- Enhance Bicycle – Pedestrian System
- Maintain State-of-Good Repair
- Expand Transit Access
- Consider New Land Development Options

The information gathered from the public will be used to help identify top community goals, needs, and priorities for the future of the Bismarck-Mandan transportation system.

EXISTING / FUTURE CONDITIONS OVERVIEW

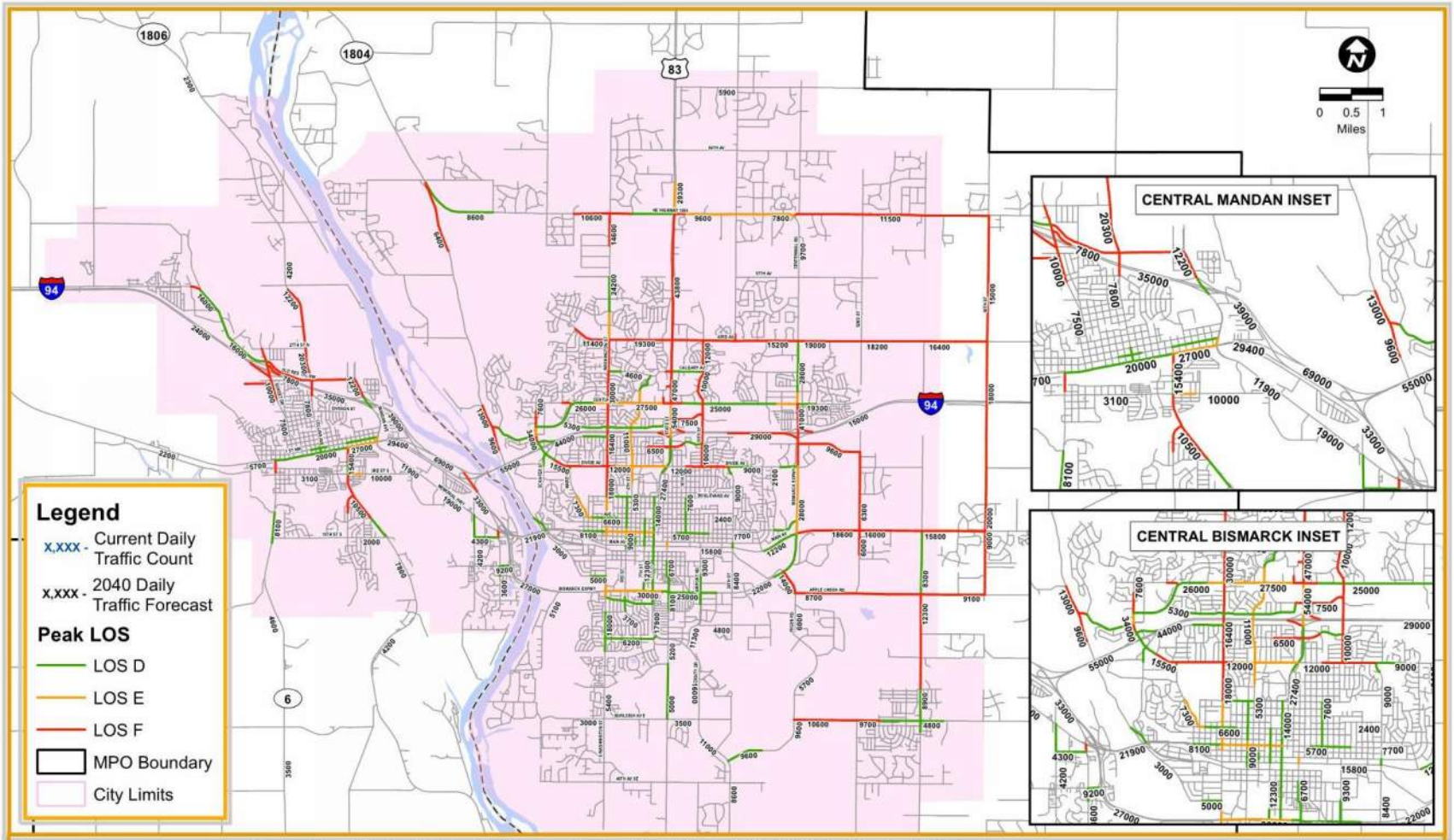
Analysis – Current Traffic Operations

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Analysis – Future Traffic Operations

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Sources: Bismarck-Mandan MPO Travel Model, NDDOT Counts, HCM ARTPLAN, HDR, I-94 Corridor Study, State Street Safety Study

Future Conditions (2040) Daily Traffic, Existing-Plus-Committed Network, and Draft Estimated Peak Hour Level of Service

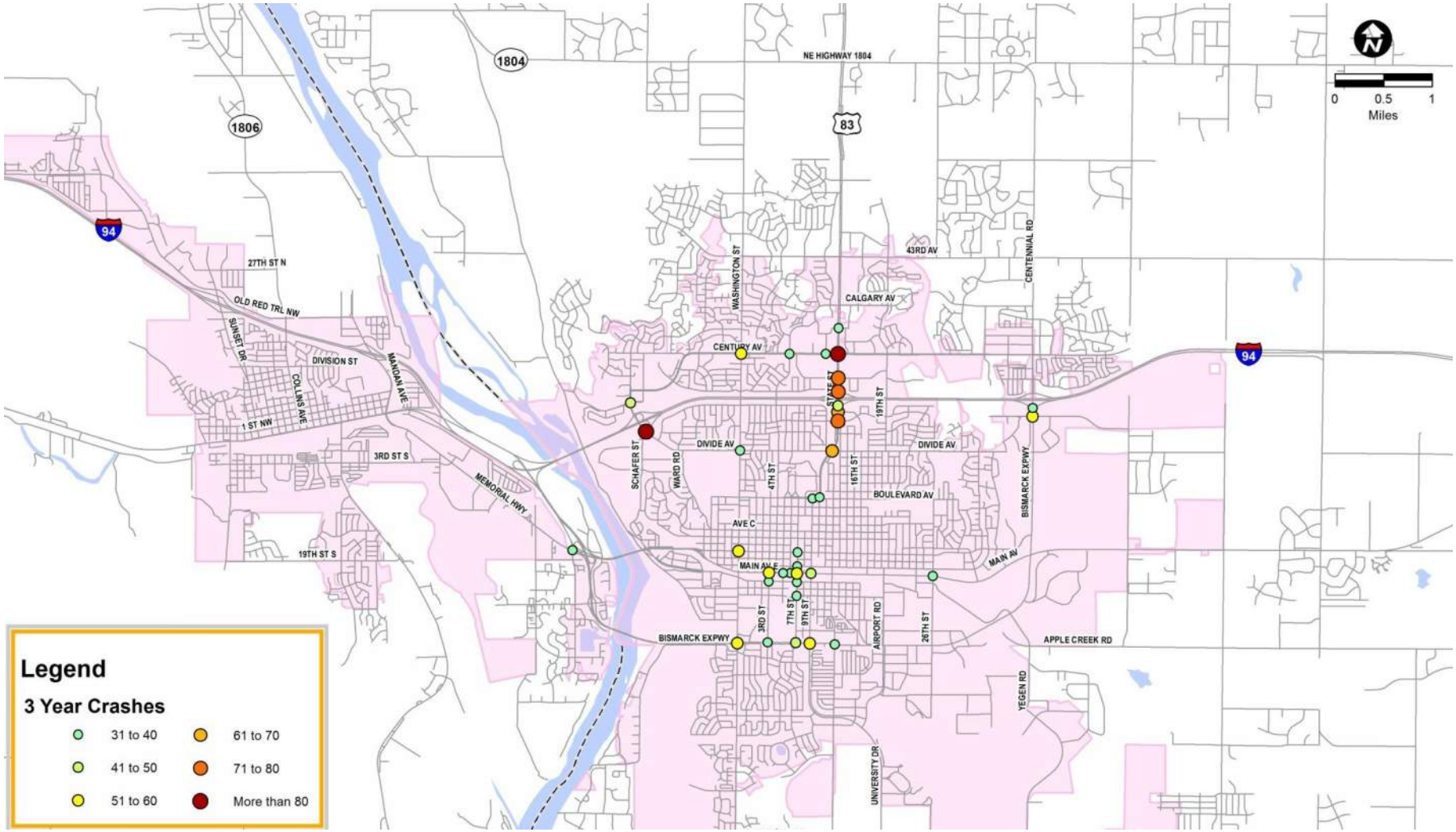
Figure: 1

Date: Apr 2014

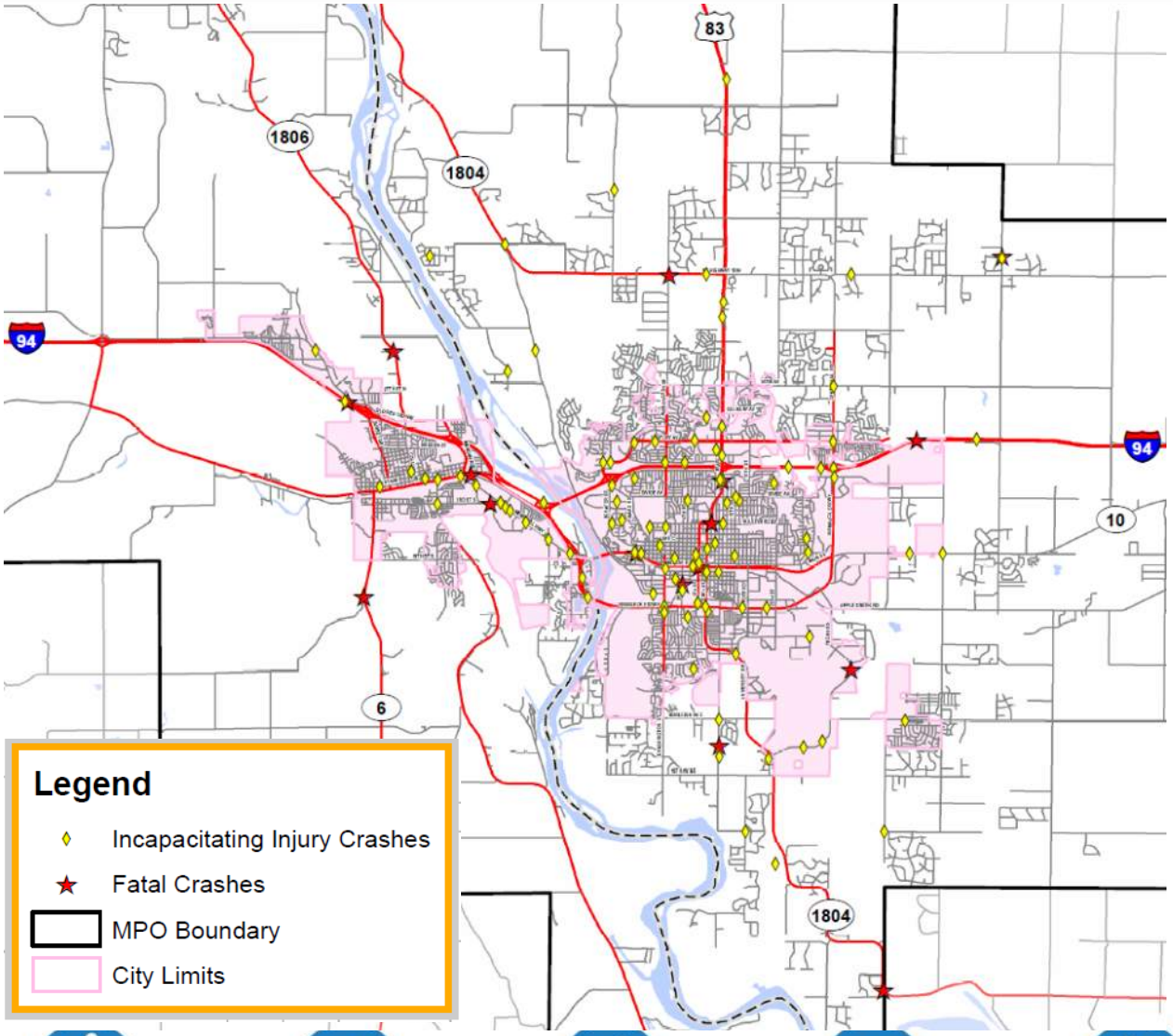
2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Analysis – Most Frequent Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

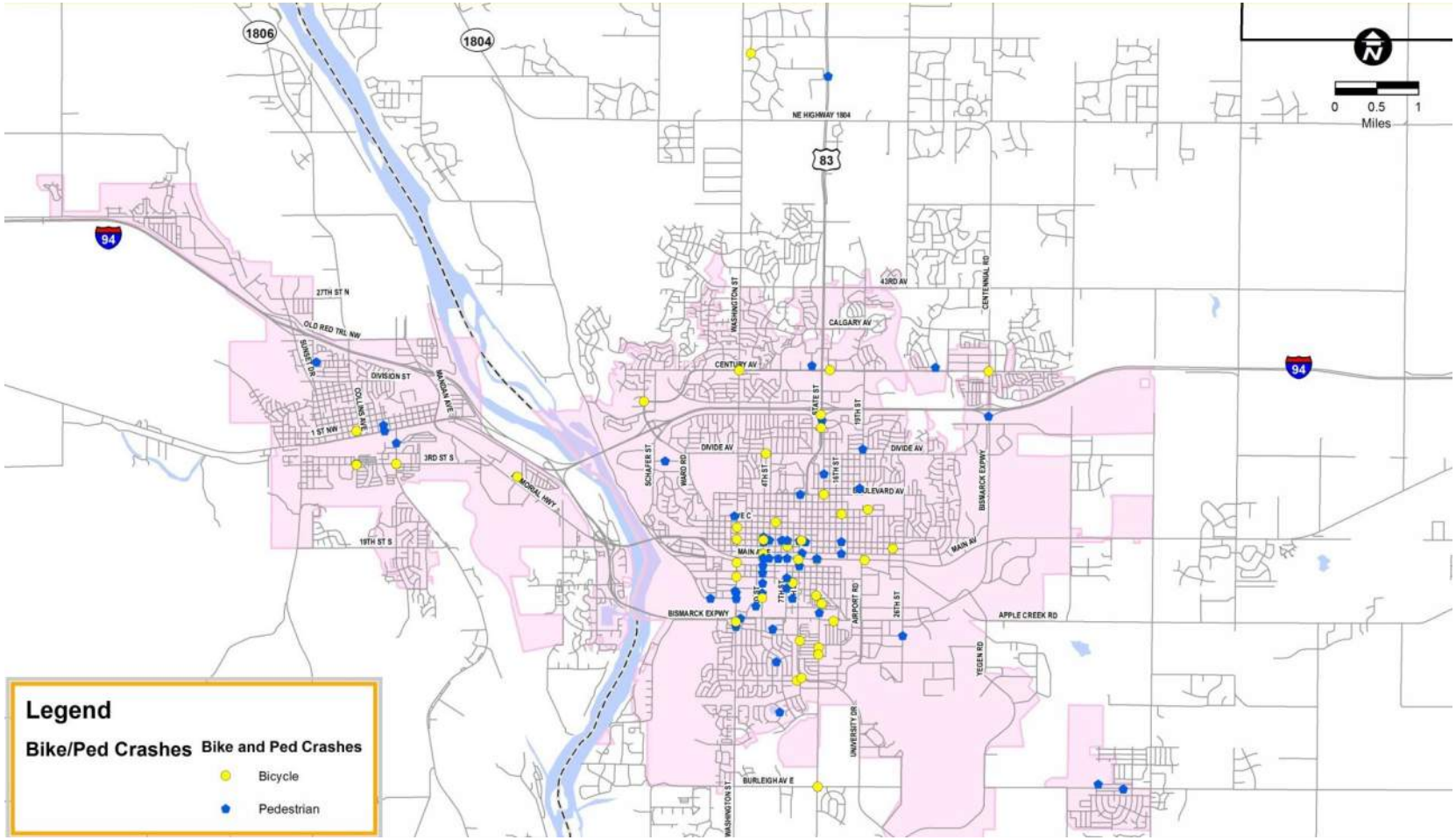


Analysis – Injury and Fatal Crashes

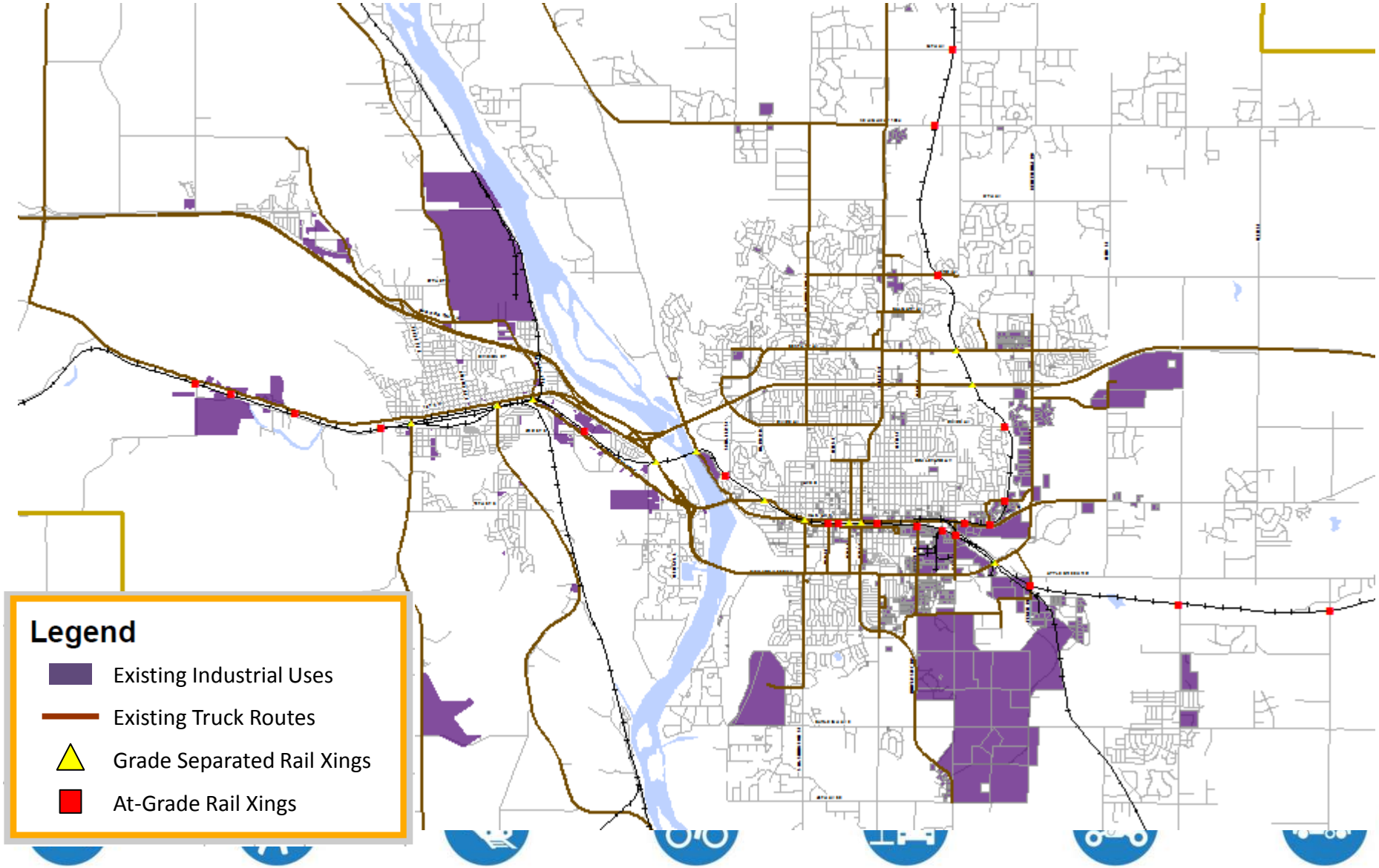


Analysis – Bike / Pedestrian Crashes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

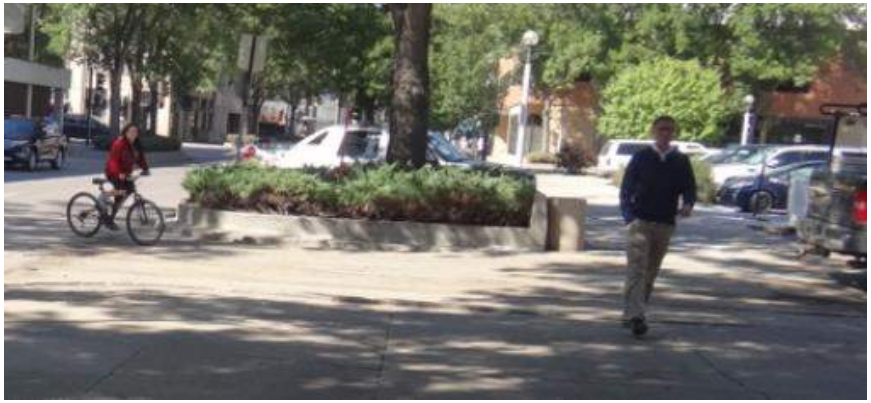


Freight Evaluation

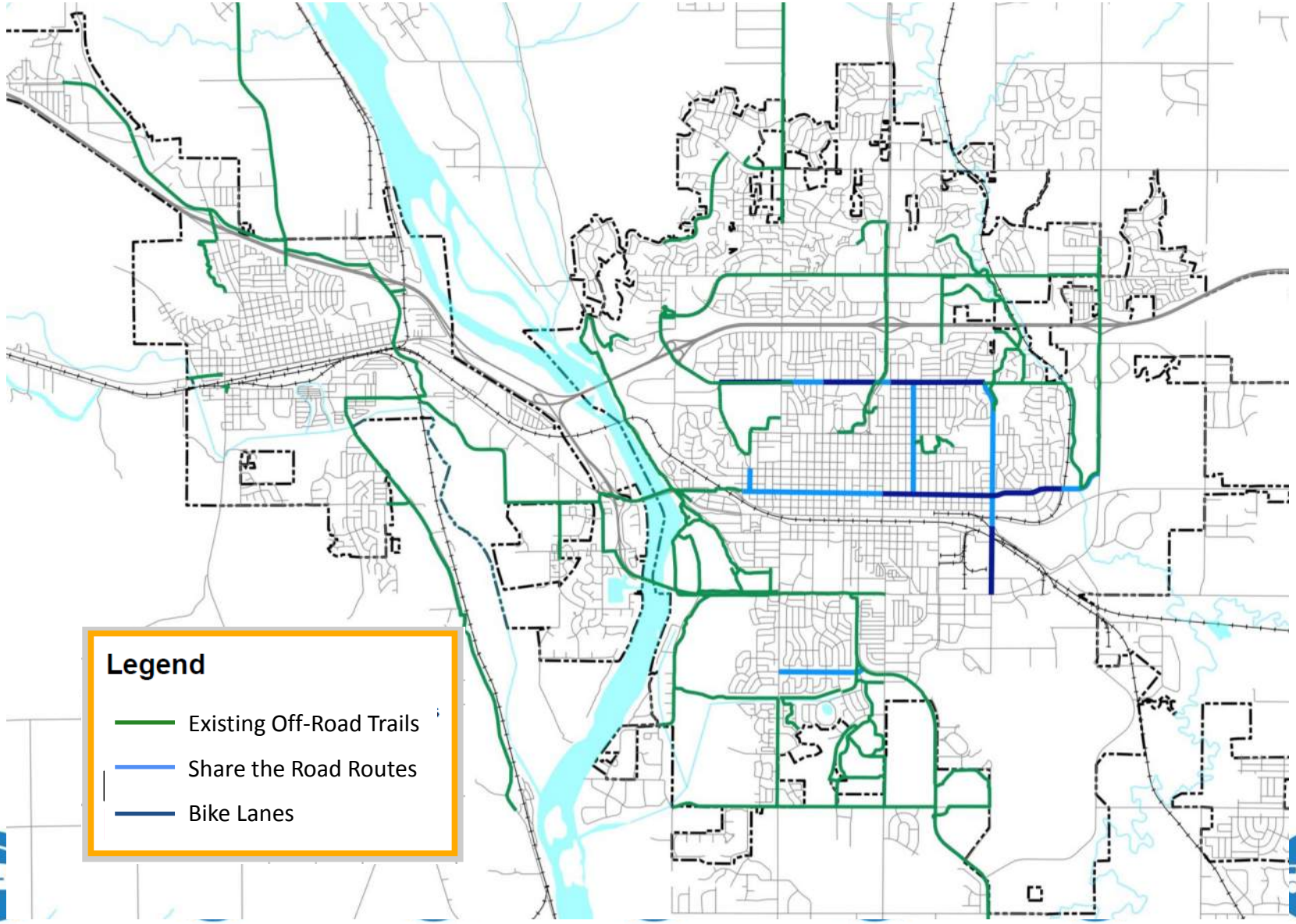


Analysis – Bike / Pedestrian Issues

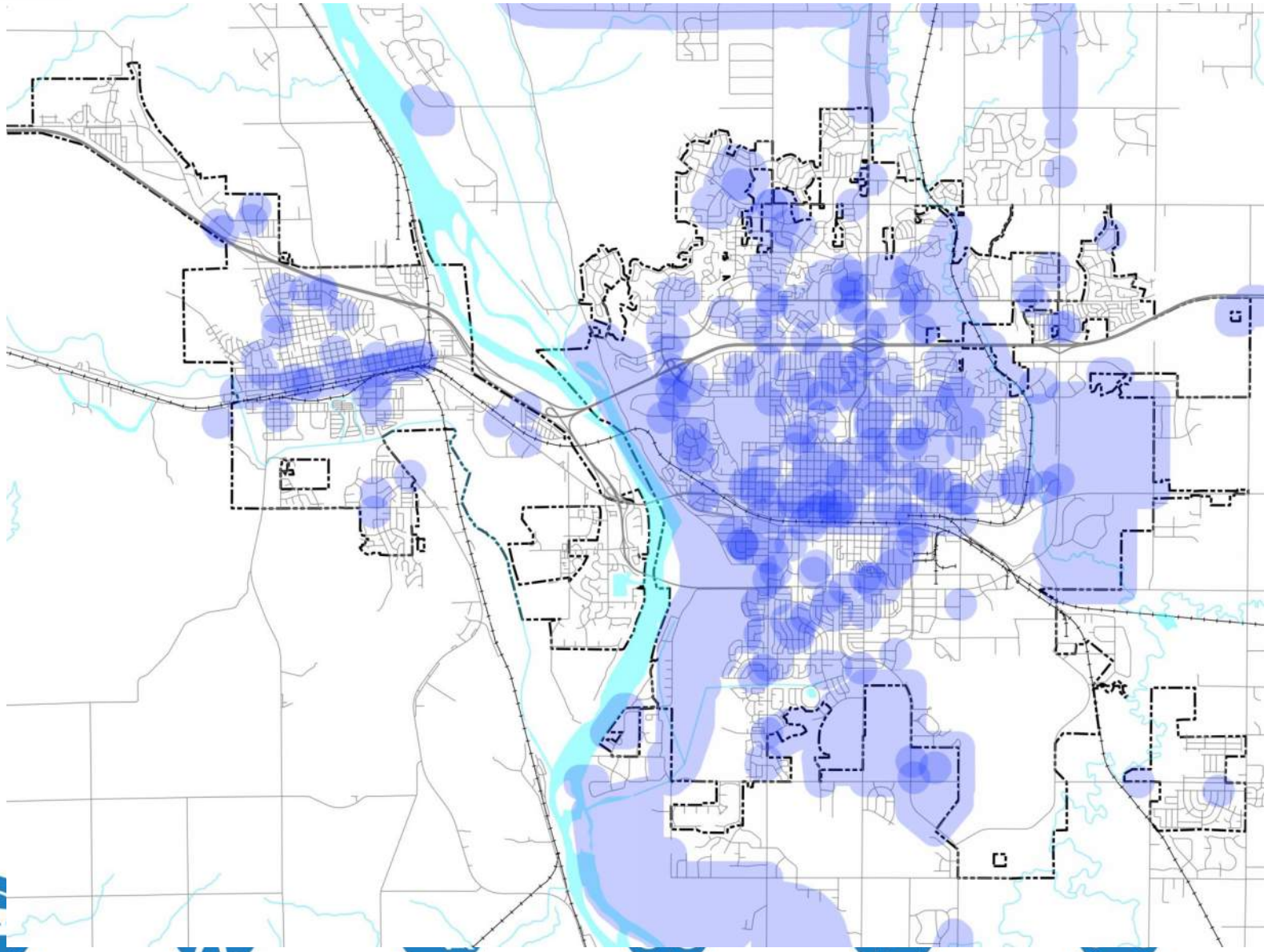
- Identified issues:
  - Gaps in pedestrian network
  - Treatment of pedestrian facilities
  - Gaps in bicycle network
  - Insufficient bicycle parking



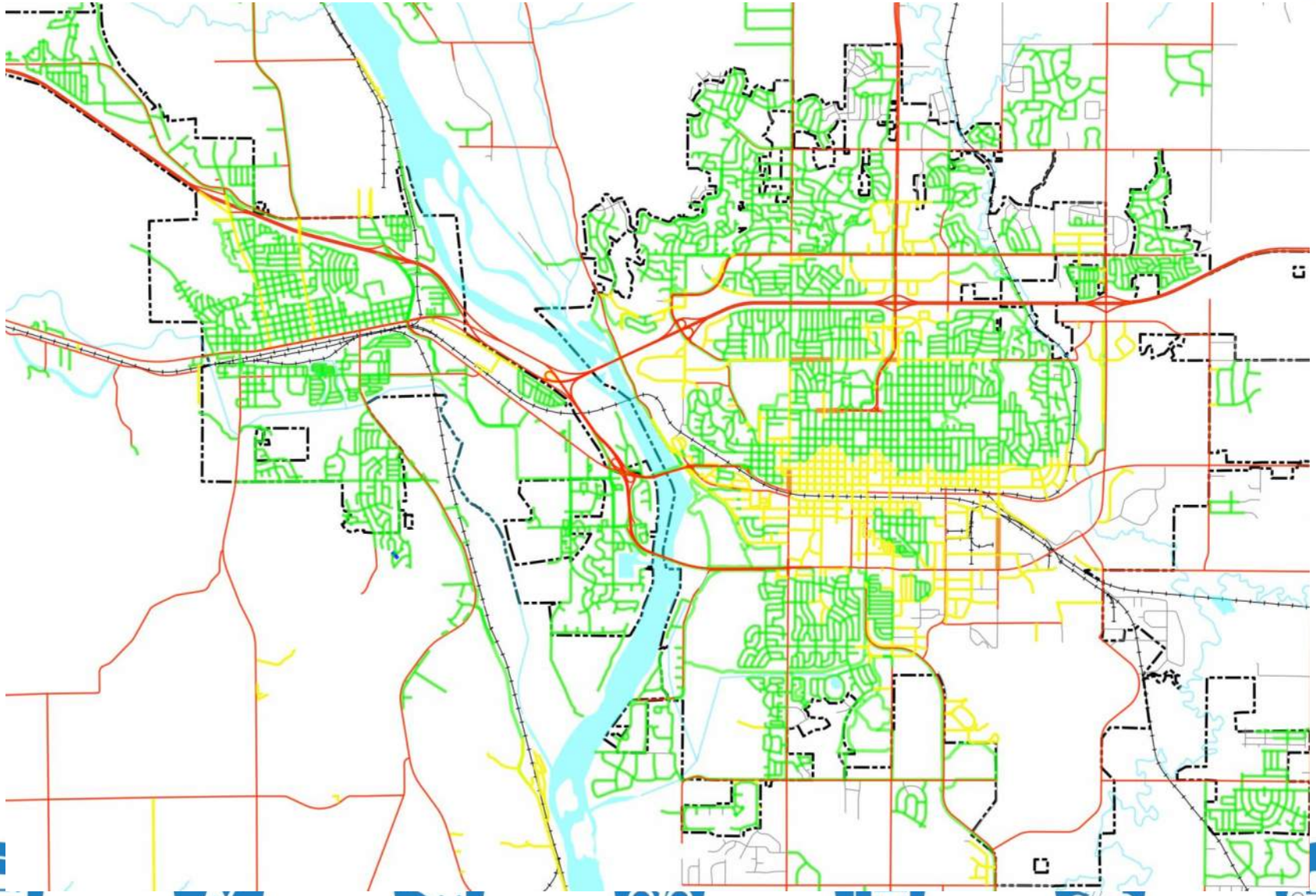
Existing Bicycle System



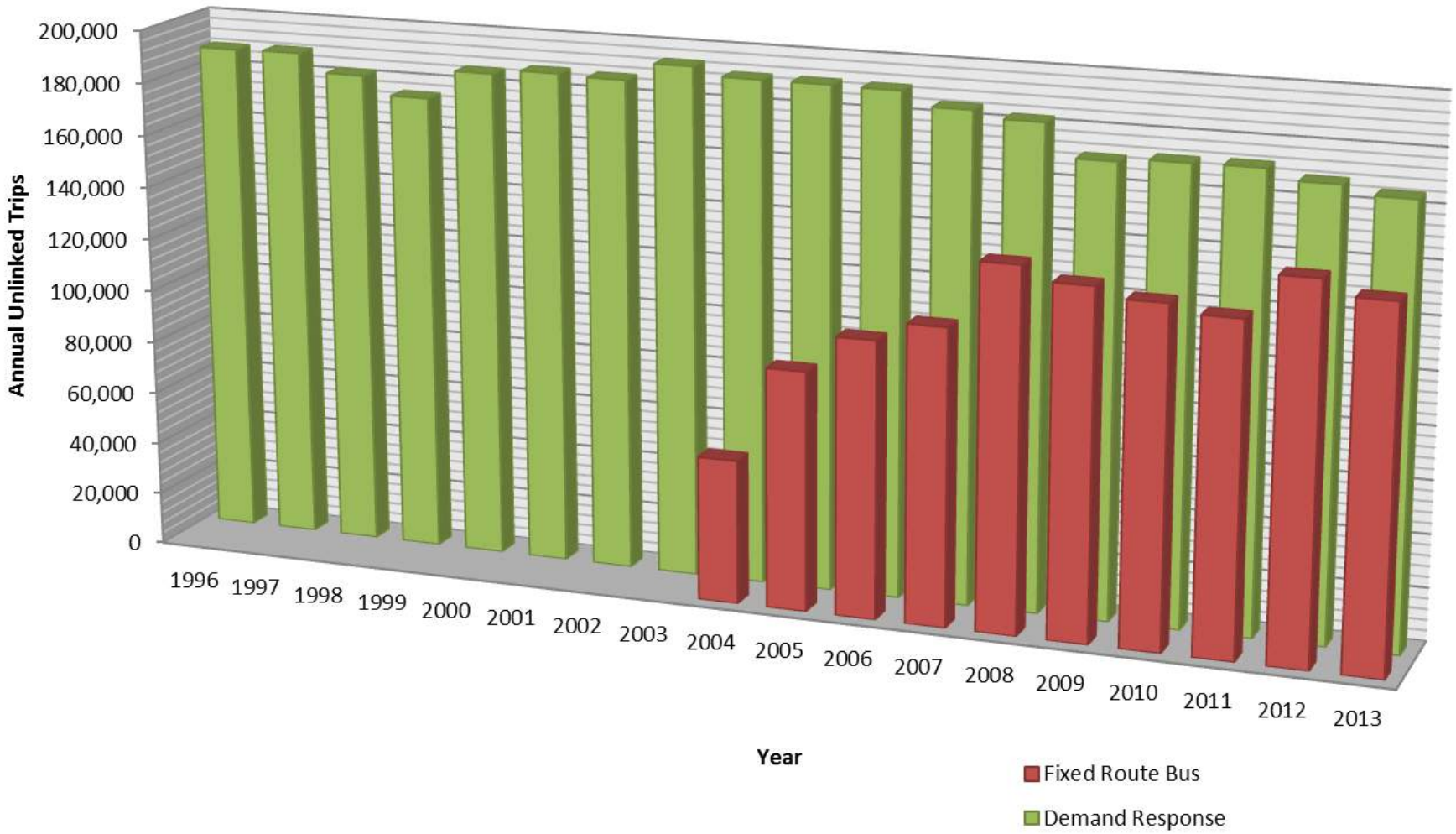
Bicycle / Pedestrian Demand



Bicycle Level of Stress

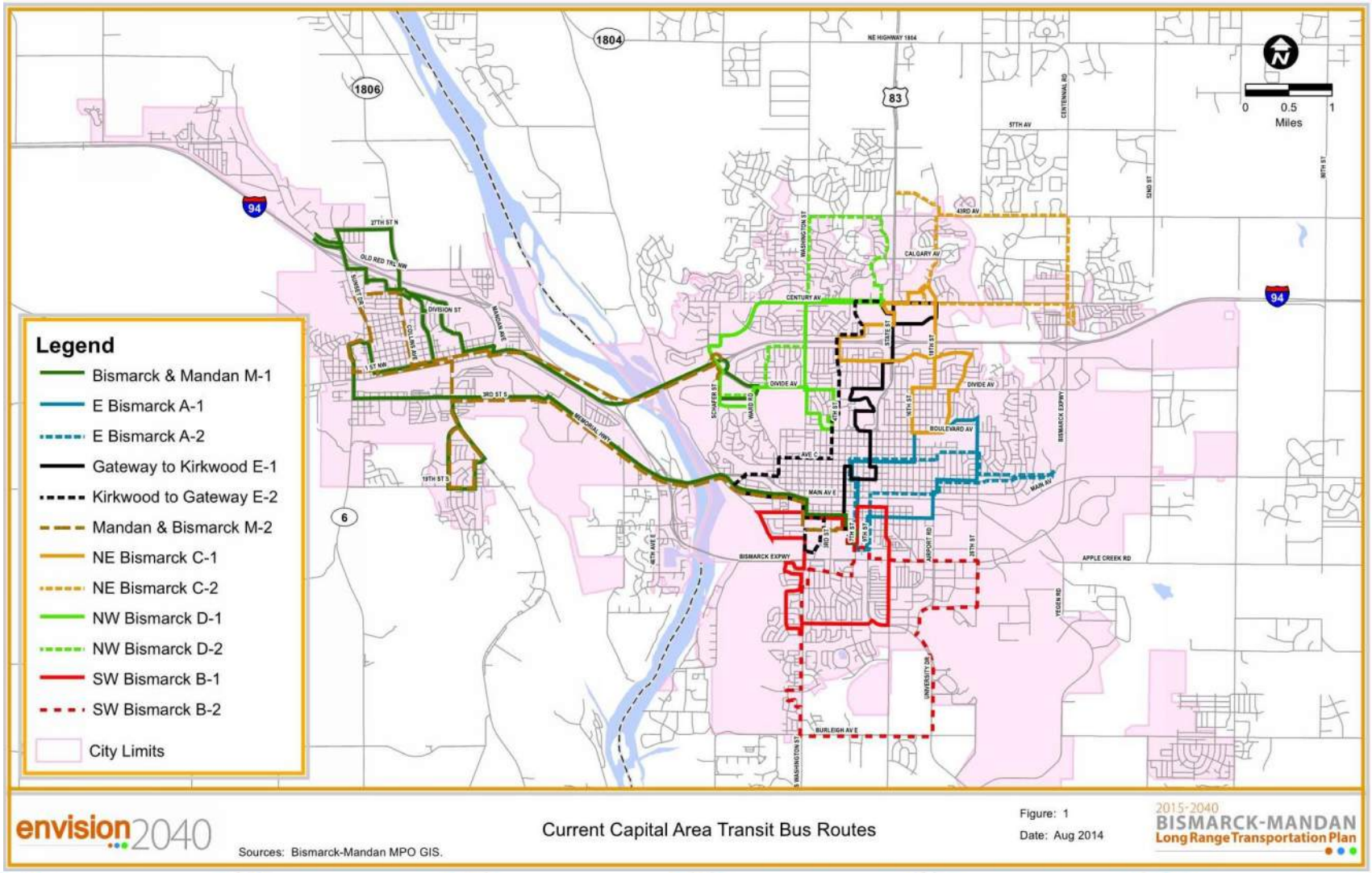


Analysis – Transit System



Existing Transit Routes

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



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Sources: Bismarck-Mandan MPO GIS.

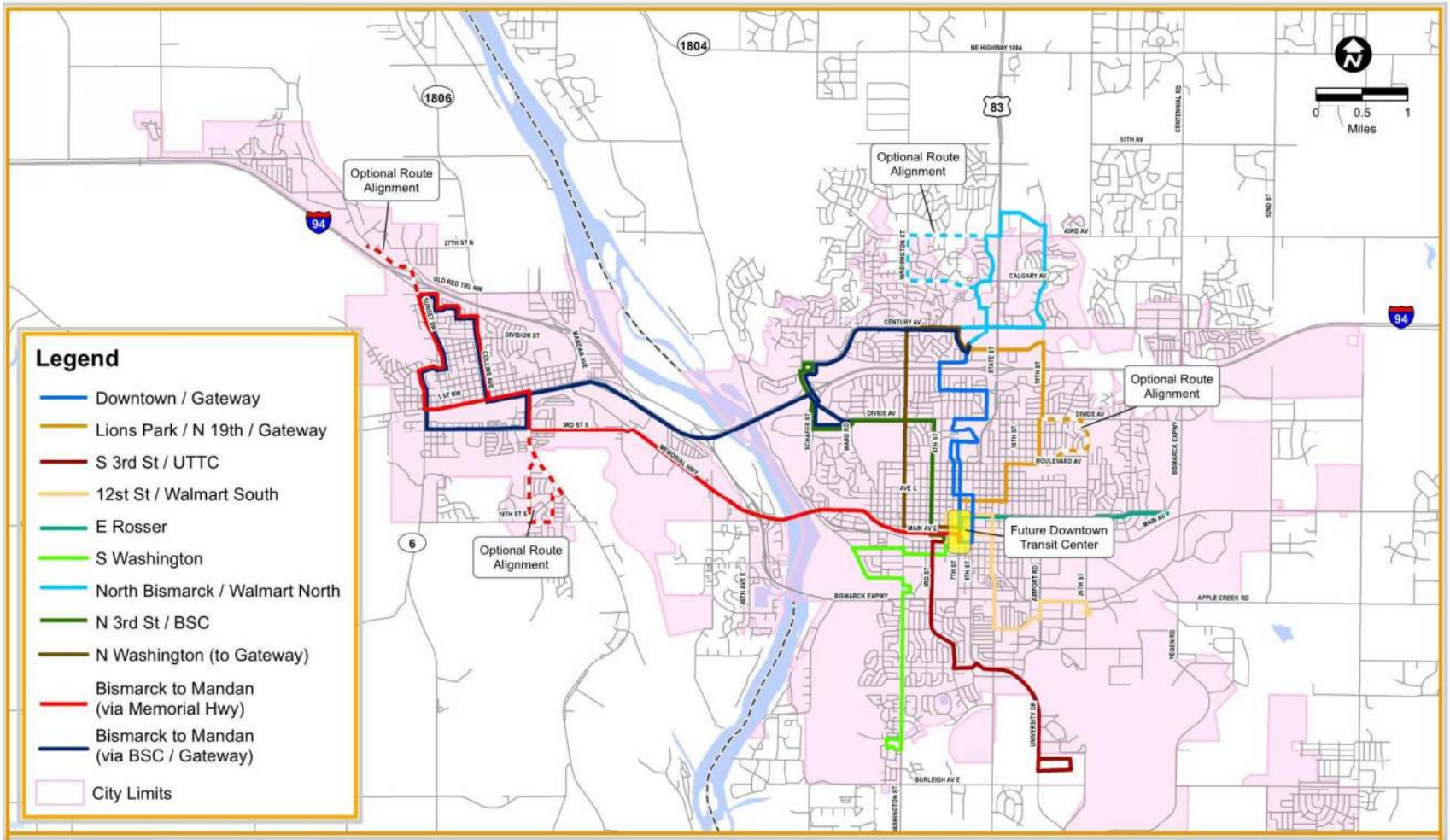
Current Capital Area Transit Bus Routes

Figure: 1
Date: Aug 2014

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

Mobility 2017 Transit Recommendations

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Source: Mobility 2017.

Recommended Capital Area Transit Bus Routes

Figure: 2

Date: Aug 2014

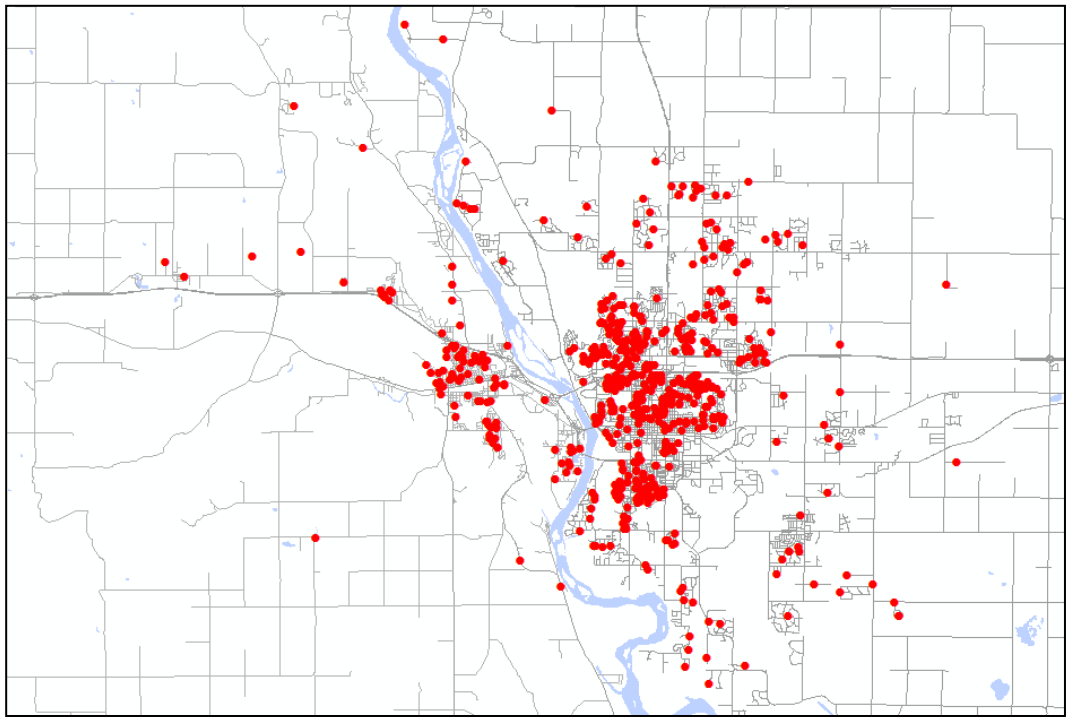
2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

COMMUNITY TRANSPORTATION SURVEY OVERVIEW

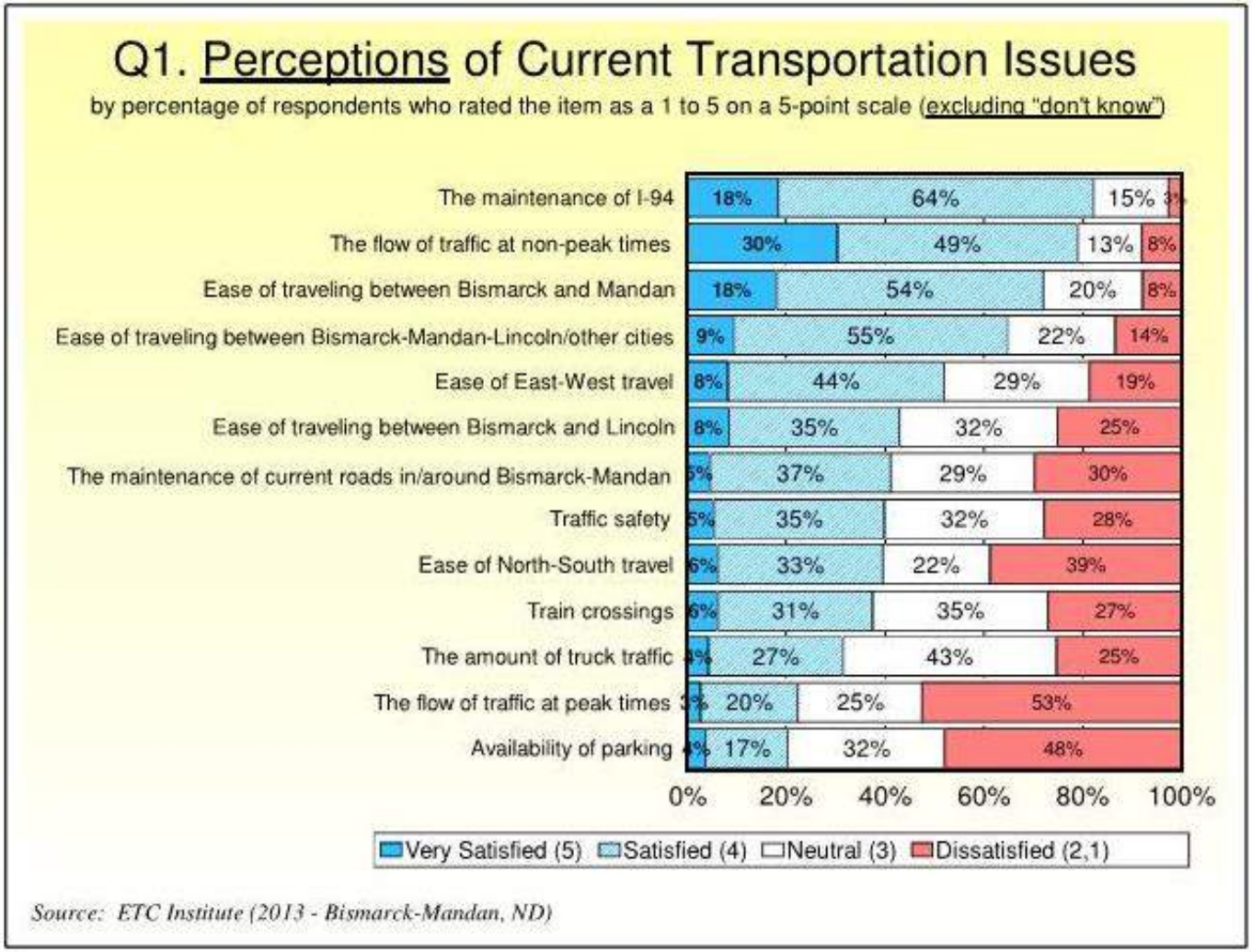
Community Survey Results

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

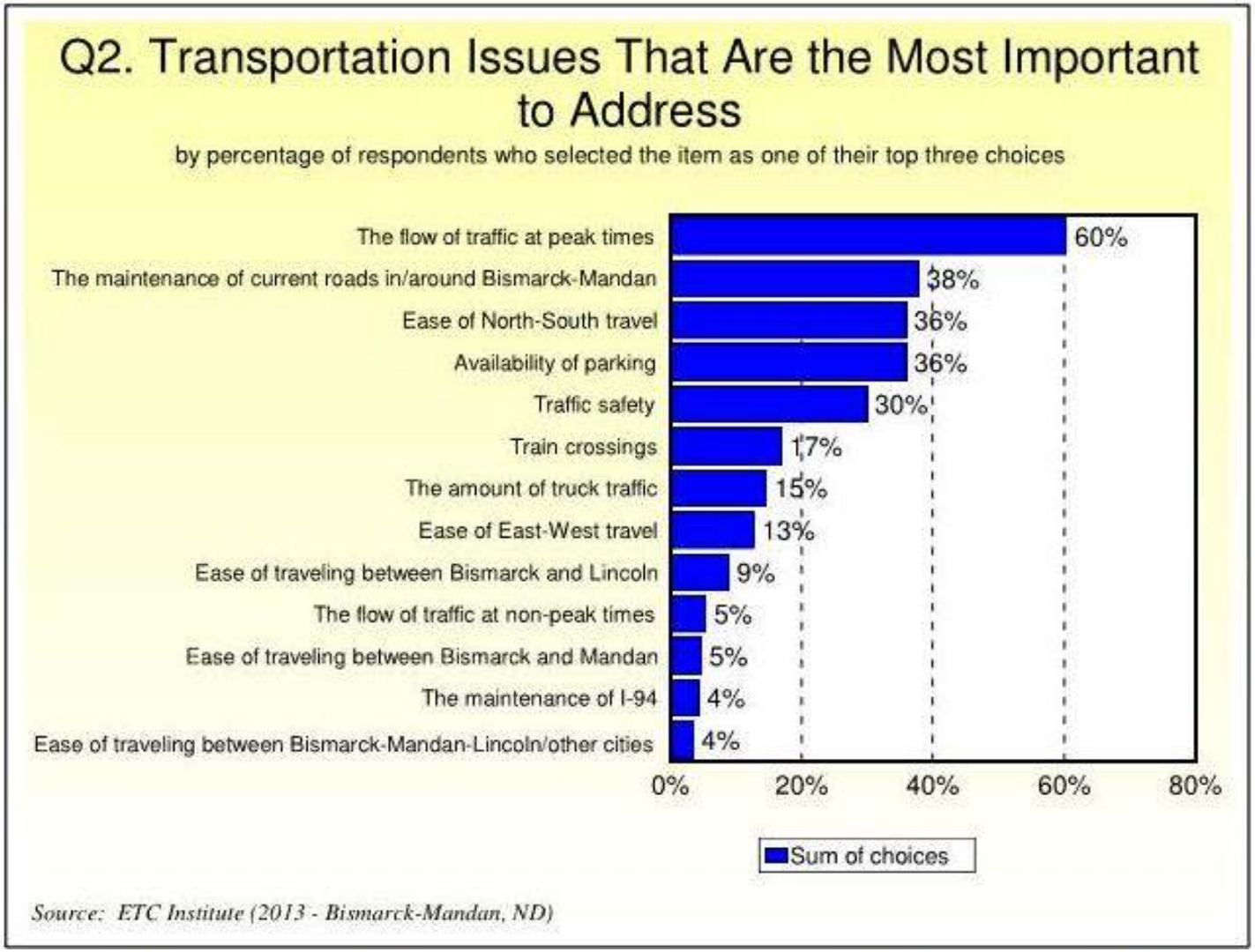
- Survey of 636 Households in MPO Area
- Community Attitudes of Transportation System
- 10 Minute Survey



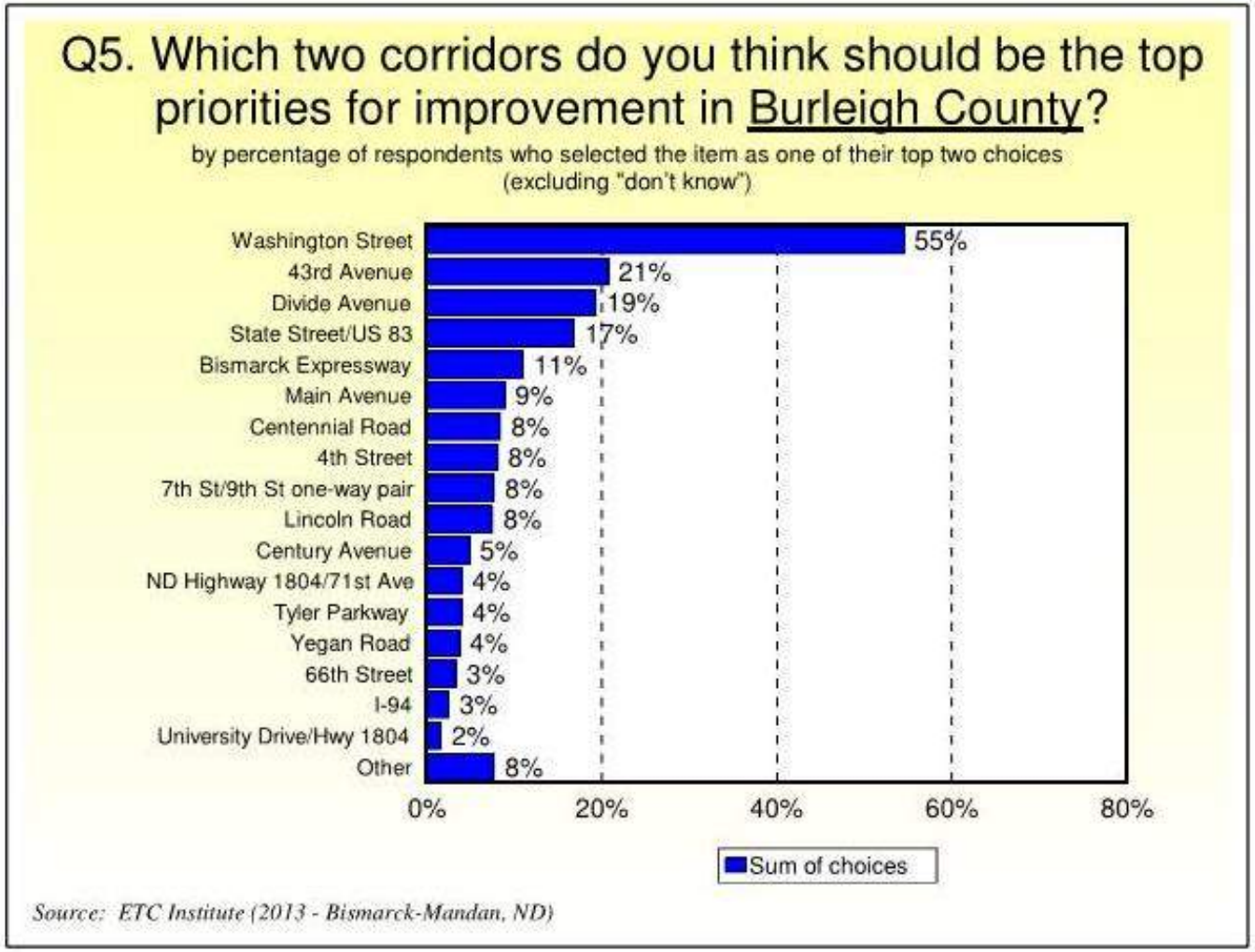
Current Satisfaction by Issue



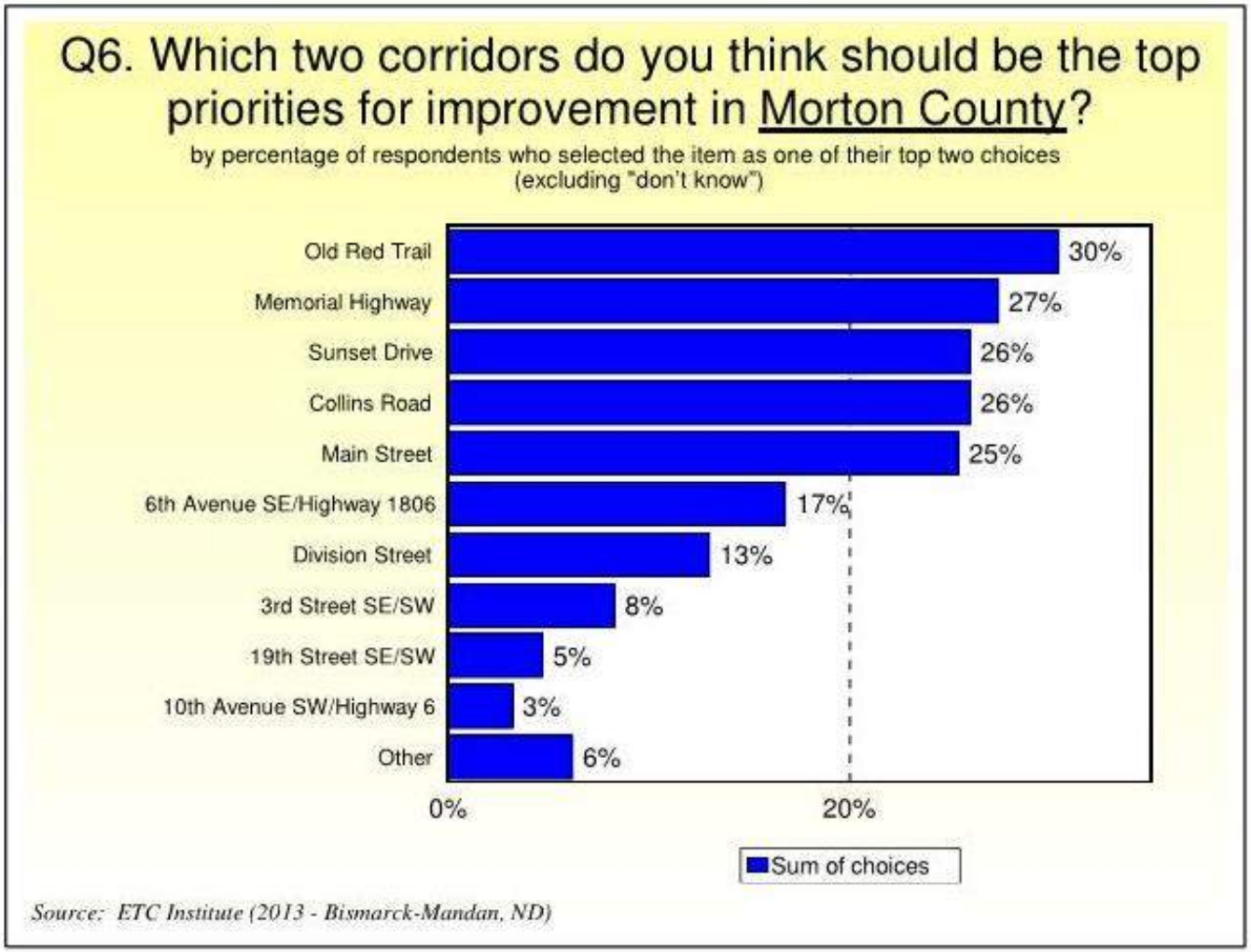
Importance by Issue



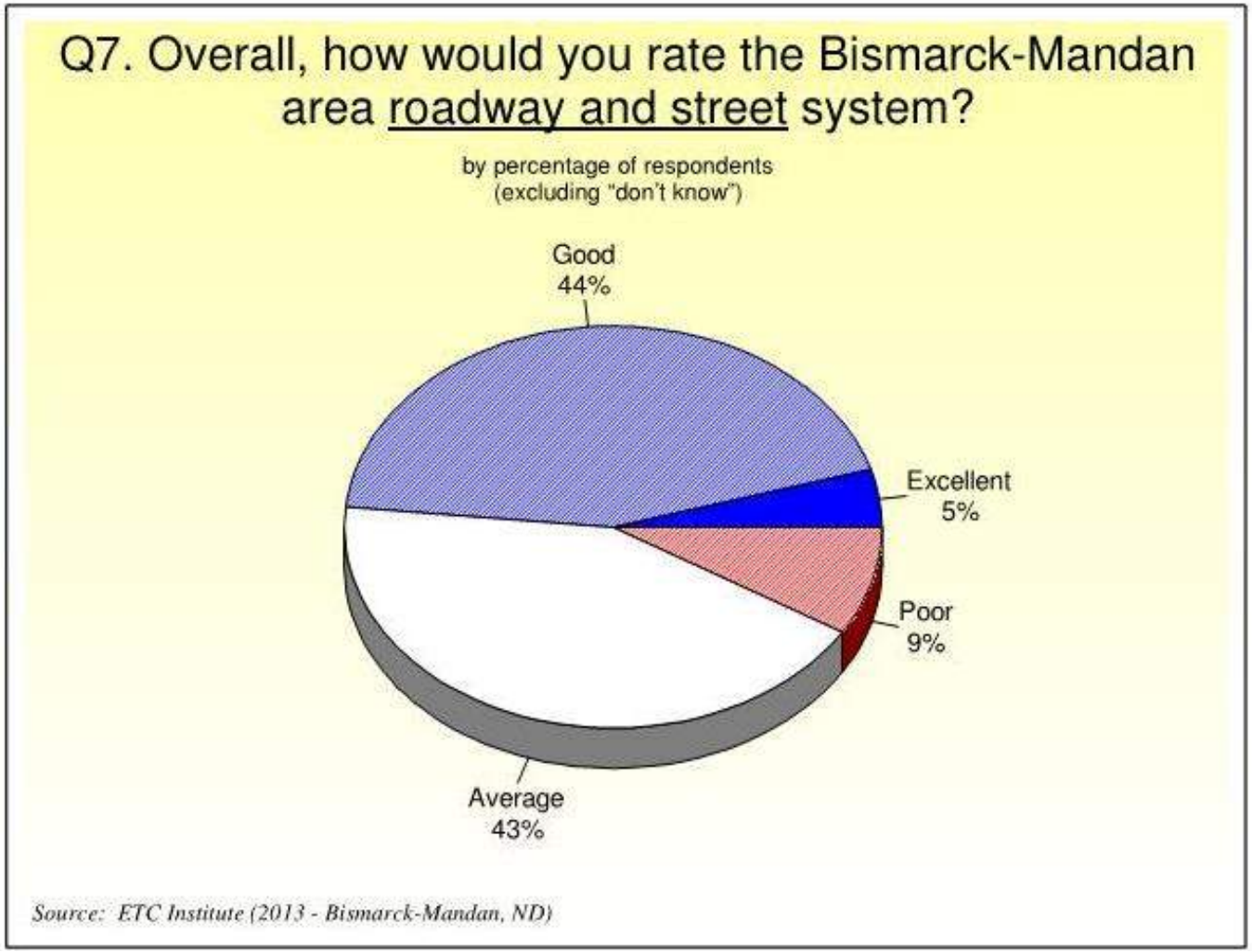
Burleigh County Priority Corridors



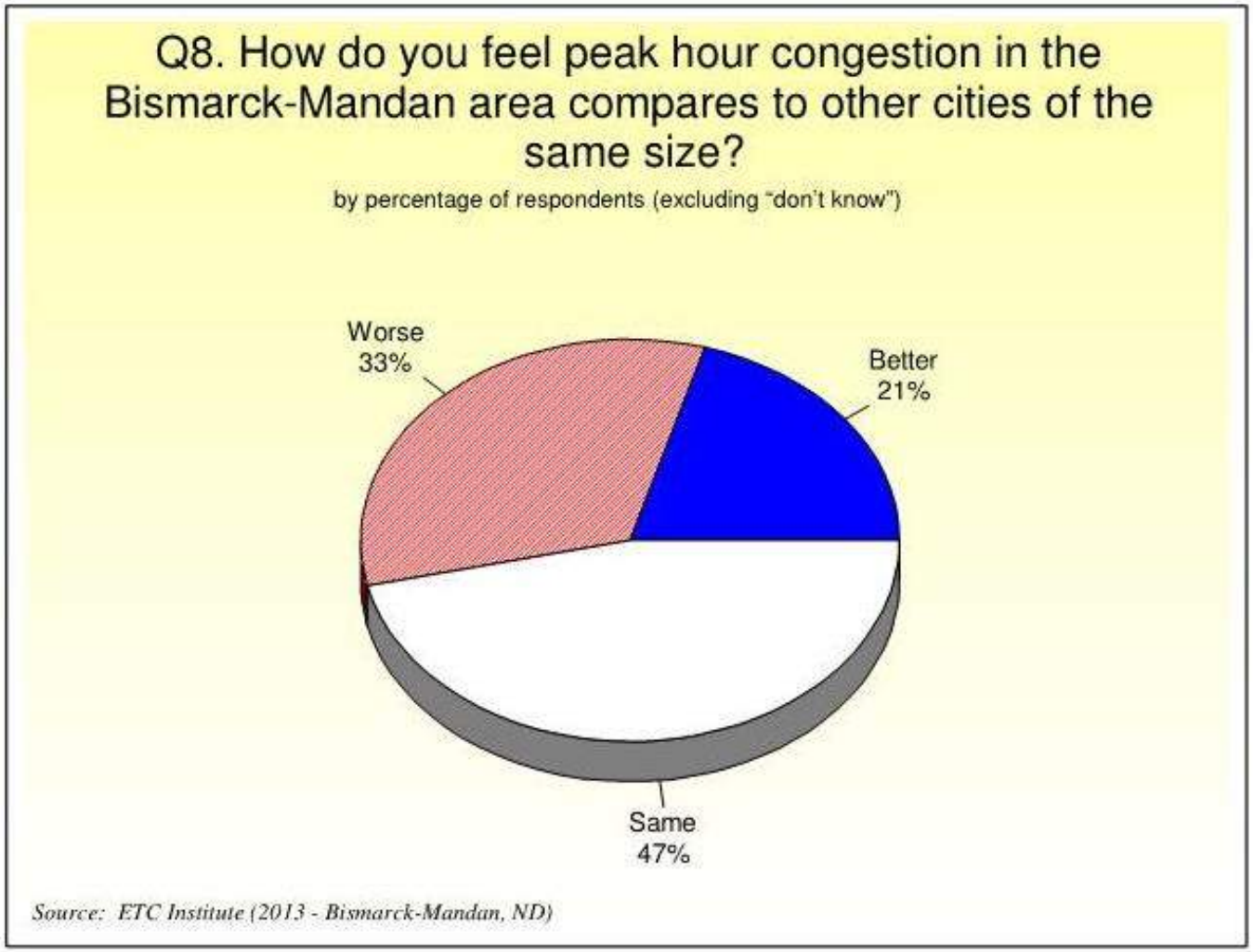
Morton County Priority Corridors



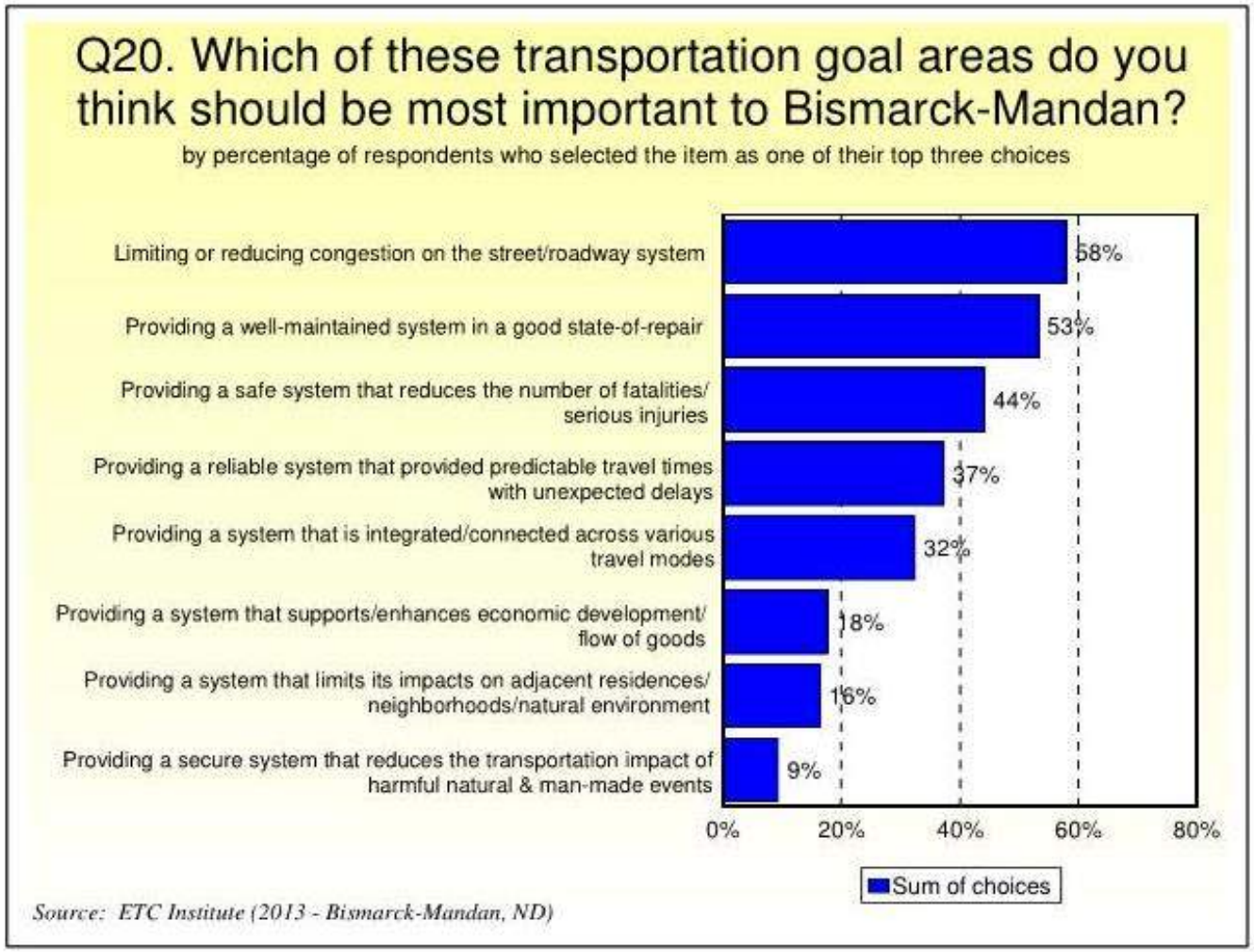
Overall Street System Satisfaction



Congestion Here vs. Elsewhere



Top Transportation Goals



COMMUNITY TRANSPORTATION GOALS

Transportation Goals

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

- Safe and Secure Transportation System
- Maintain the System in a State-of-Good-Repair
- Improve Mobility / Connections
- Effectively Move Goods and Enhance the Local Economy
- Coordinate with the Natural and Built Environment
- Enhance Alternatives to Autos
- Identify Transportation-Supportive Funding and Policy Opportunities

ALTERNATIVES OVERVIEW

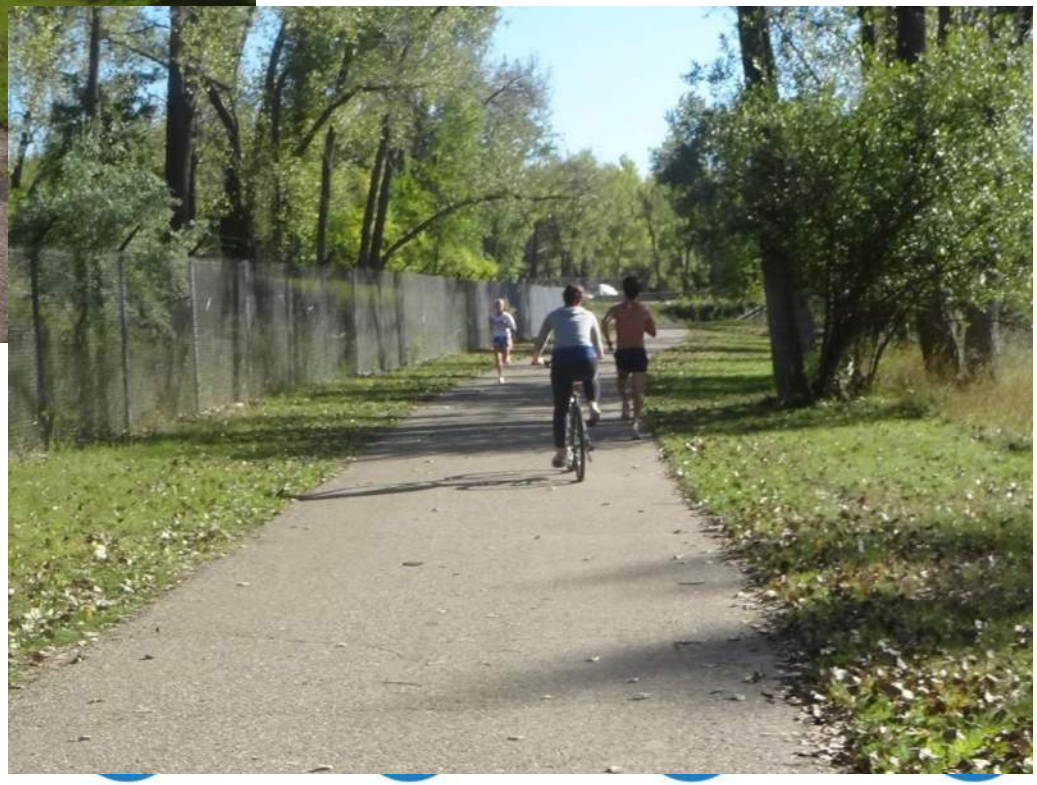
What are "Alternatives"?

- A Range of Potential Options or Solutions that Address an Issue
- They are Not Necessarily All:
  - A good fit with the community vision / performance measures
  - Financially feasible
  - Ultimately part of the final LRTP project list

Elements

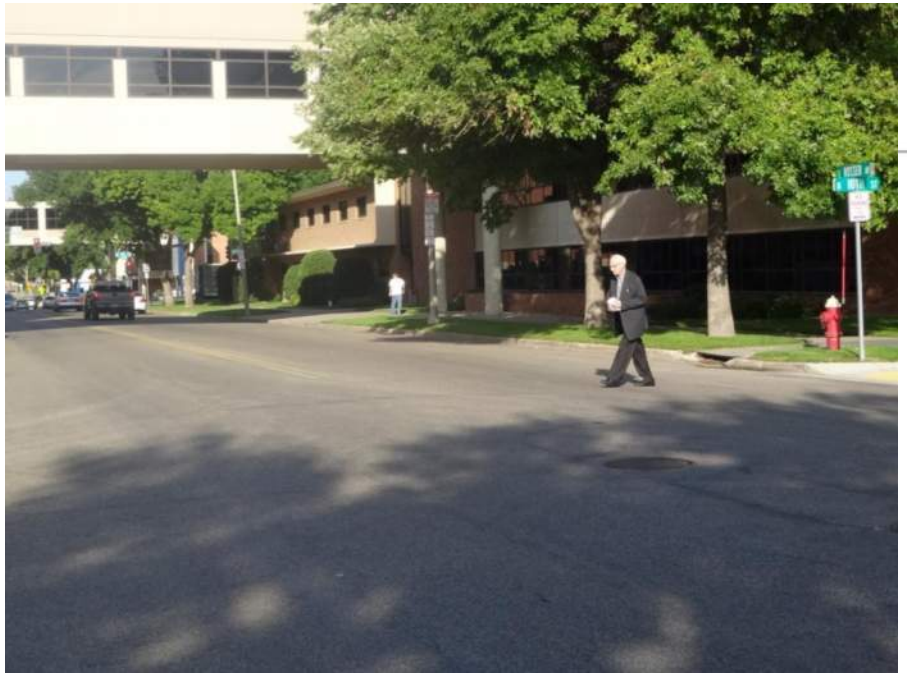
BIKE AND PEDESTRIAN ALTERNATIVES OVERVIEW

Trails



Sidewalks

N 2ND ST
NO PARKING
Petals and Mor
Fresh Flowers F
All Occasions
Plants - Gifts

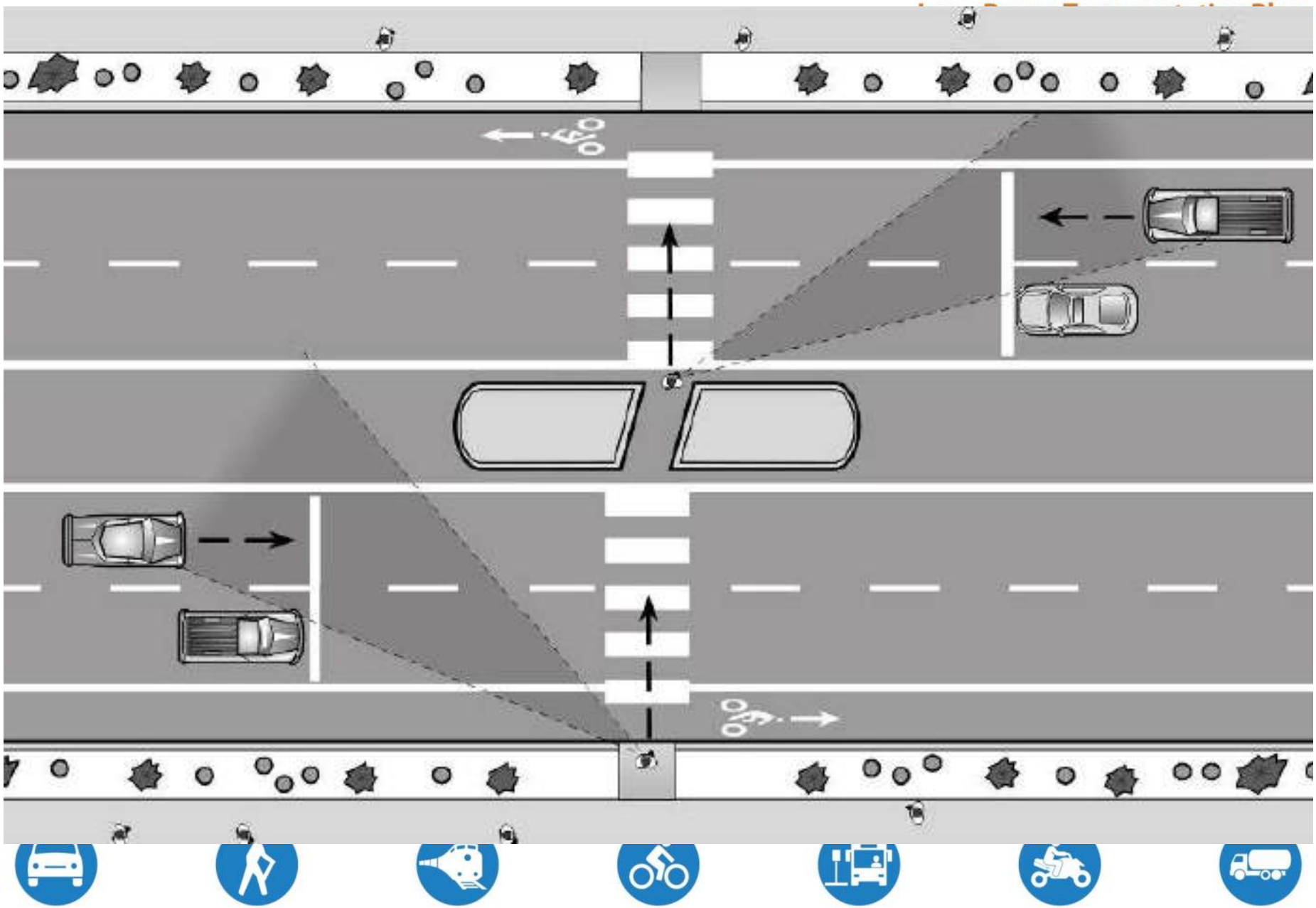


SPEED LIMIT
35

Curb extensions

High-visibility crosswalks

Pedestrian crossing island

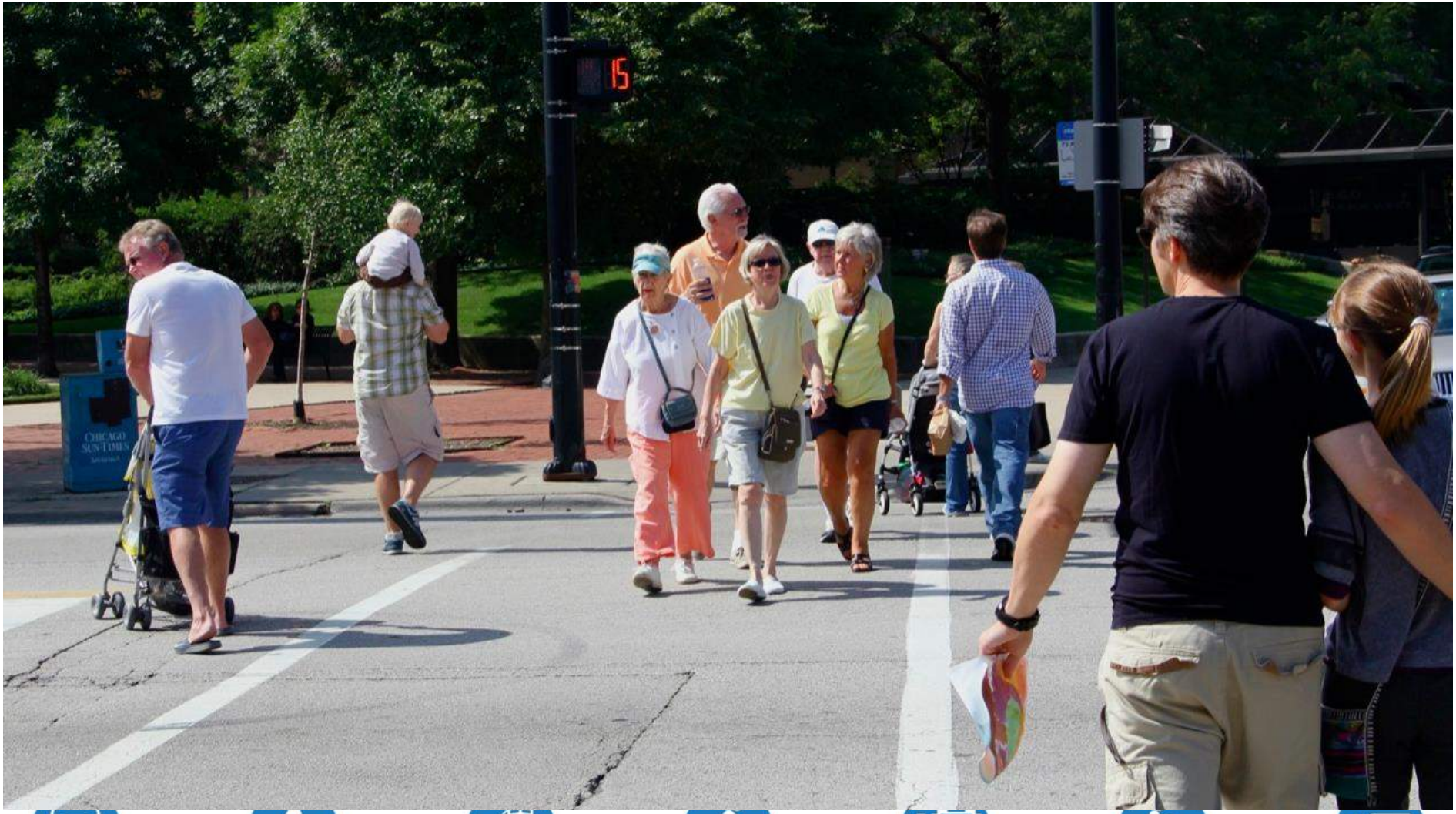


Leading Pedestrian Interval

Leading Pedestrian Interval

Leading Pedestrian Interval

Countdown timers



Speed Table

Pedestrian Hybrid Beacon (HAWK)

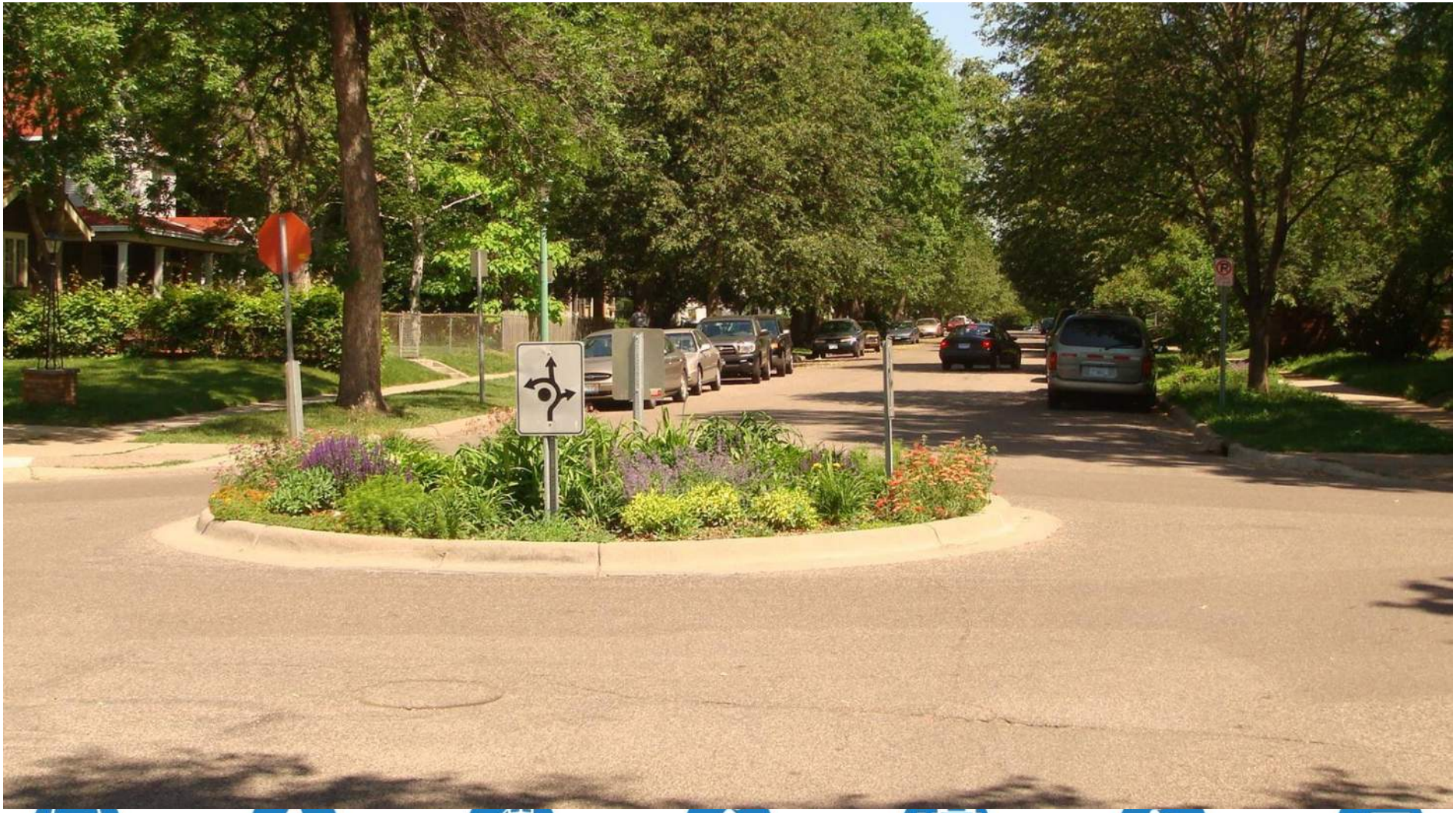
CROSSWALK
STOP
ON RED
CROSSWALK

Rectangular Rapid Flashing Beacon (RRFB)

What is a Neighborhood Slow Street?

- A neighborhood residential street modified to:
  - Calm automobile traffic
  - Discourage cut-through traffic
  - Make walking and bicycling a more inviting choice
- Also known as "Neighborhood Greenway" or "Bike Boulevard"

What elements do they include?



What elements do they include?

What elements do they include?

FAIRVIEW
sam
sam

FAIRVIEW
sam

PRIOR
STOP
4-WAY

PRIOR

Cedar Av
REDDY RENTS

DO NOT
ENTER
EXCEPT BIKES
DO NOT
ENTER
S 11th Av

BLVD

Bicycle lanes

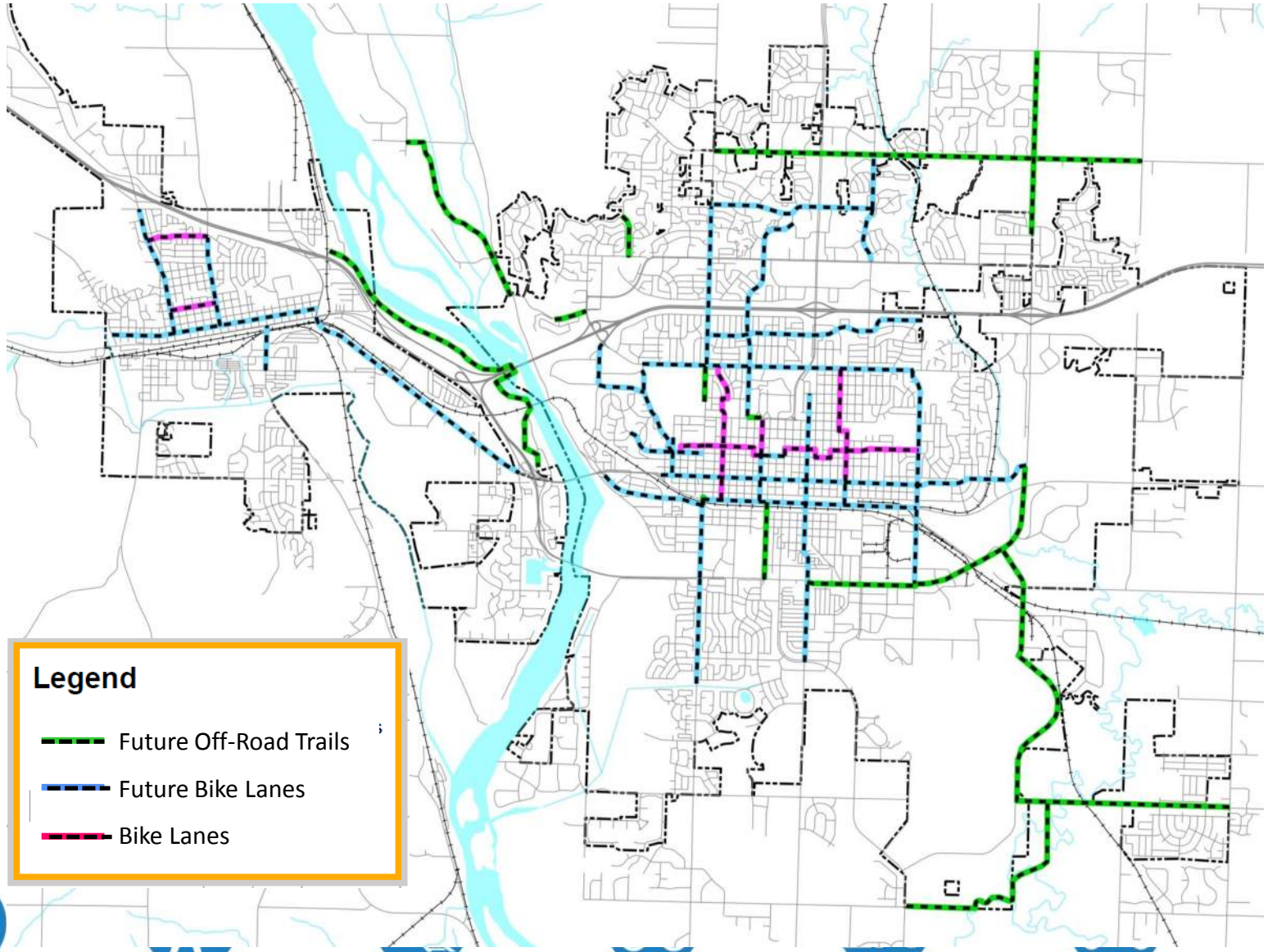
N 19TH ST

LANE
STAR FOODS

FEEL GOOD.
HONDA

Bike and Pedestrian Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Draft Circumferential Trail Alternatives

2015-2040
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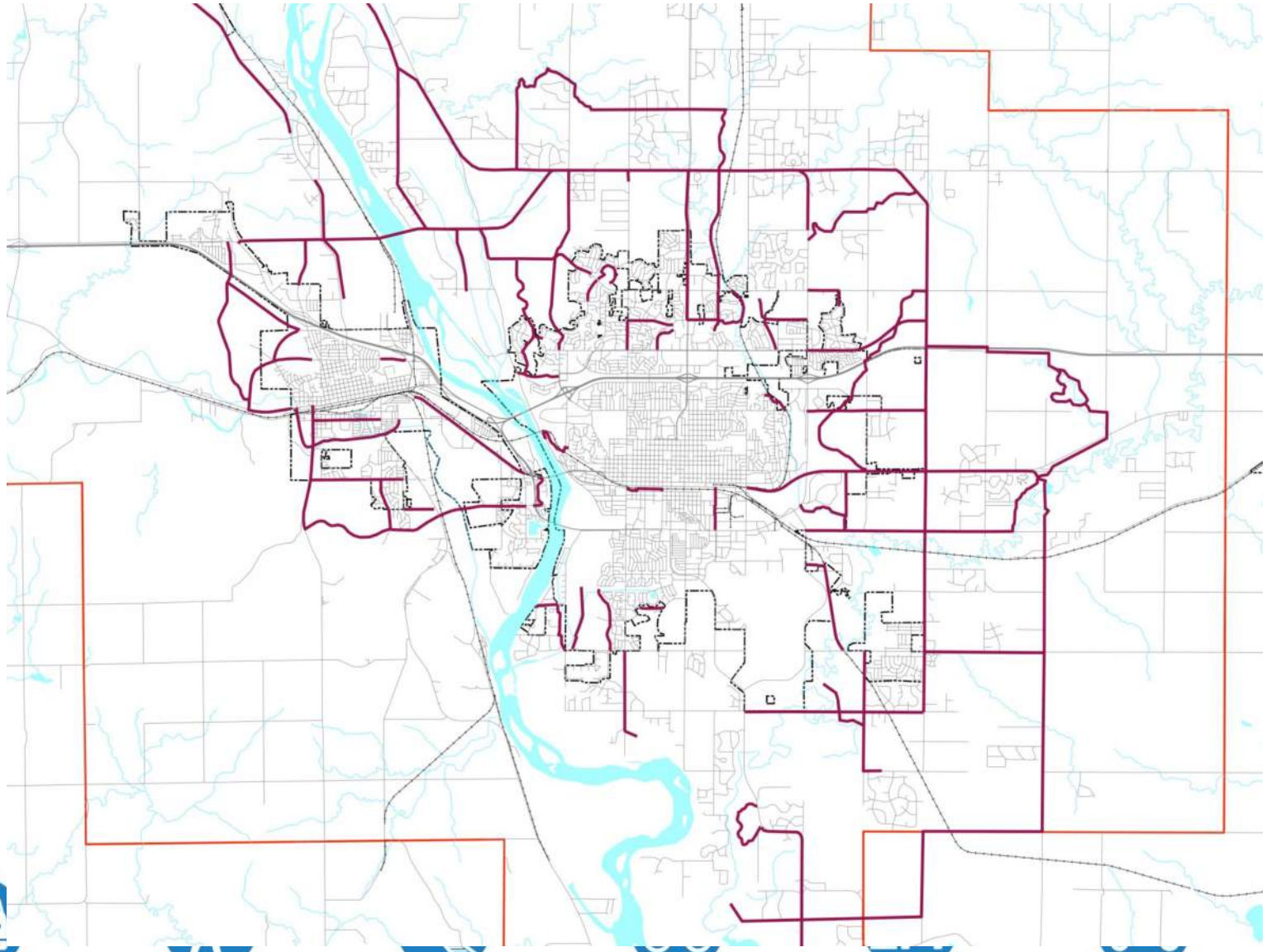
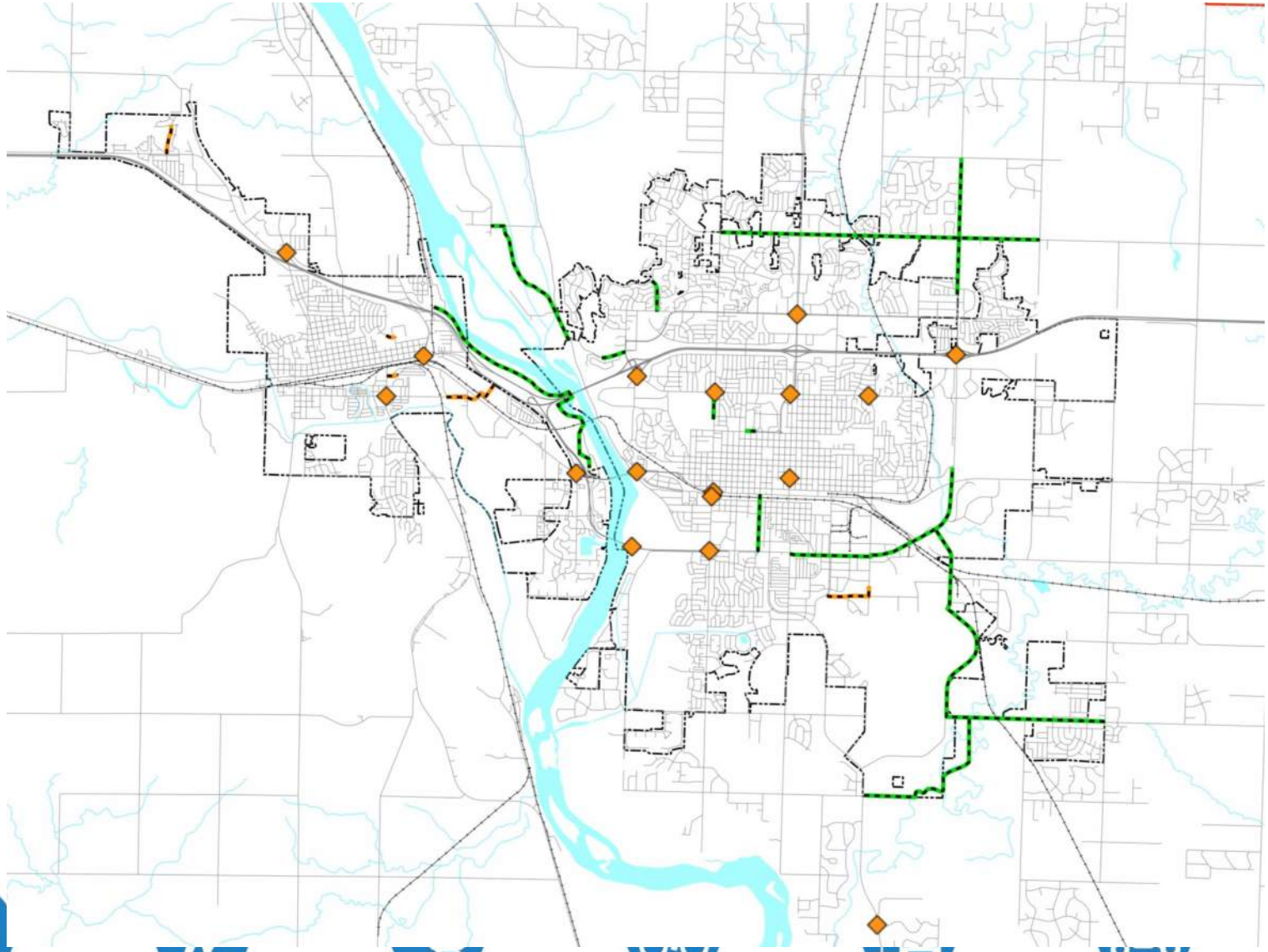
Long Range Transportation Plan



Pedestrian System Altenatives

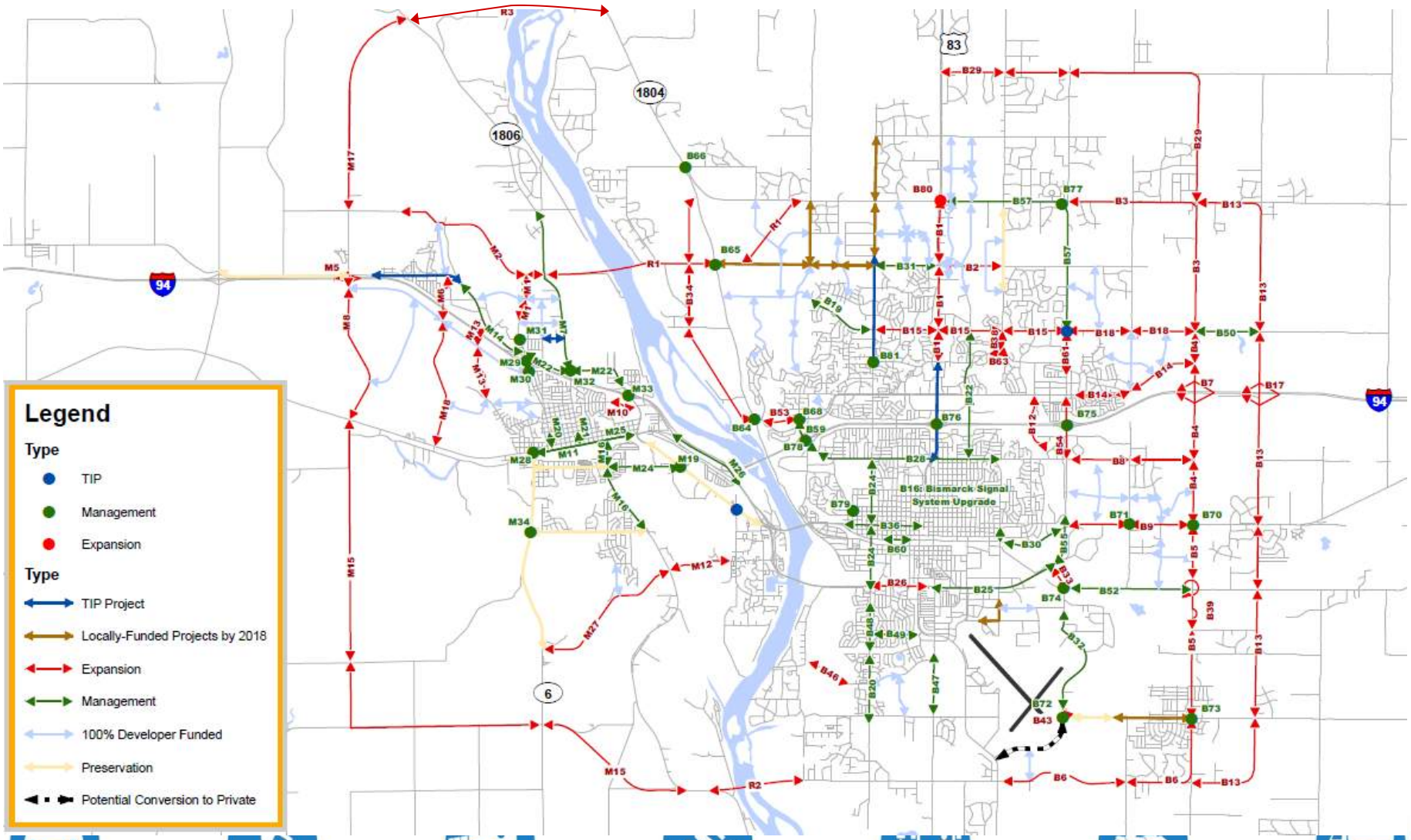


Roadway Alternatives by Area

ROADWAY ALTERNATIVES OVERVIEW

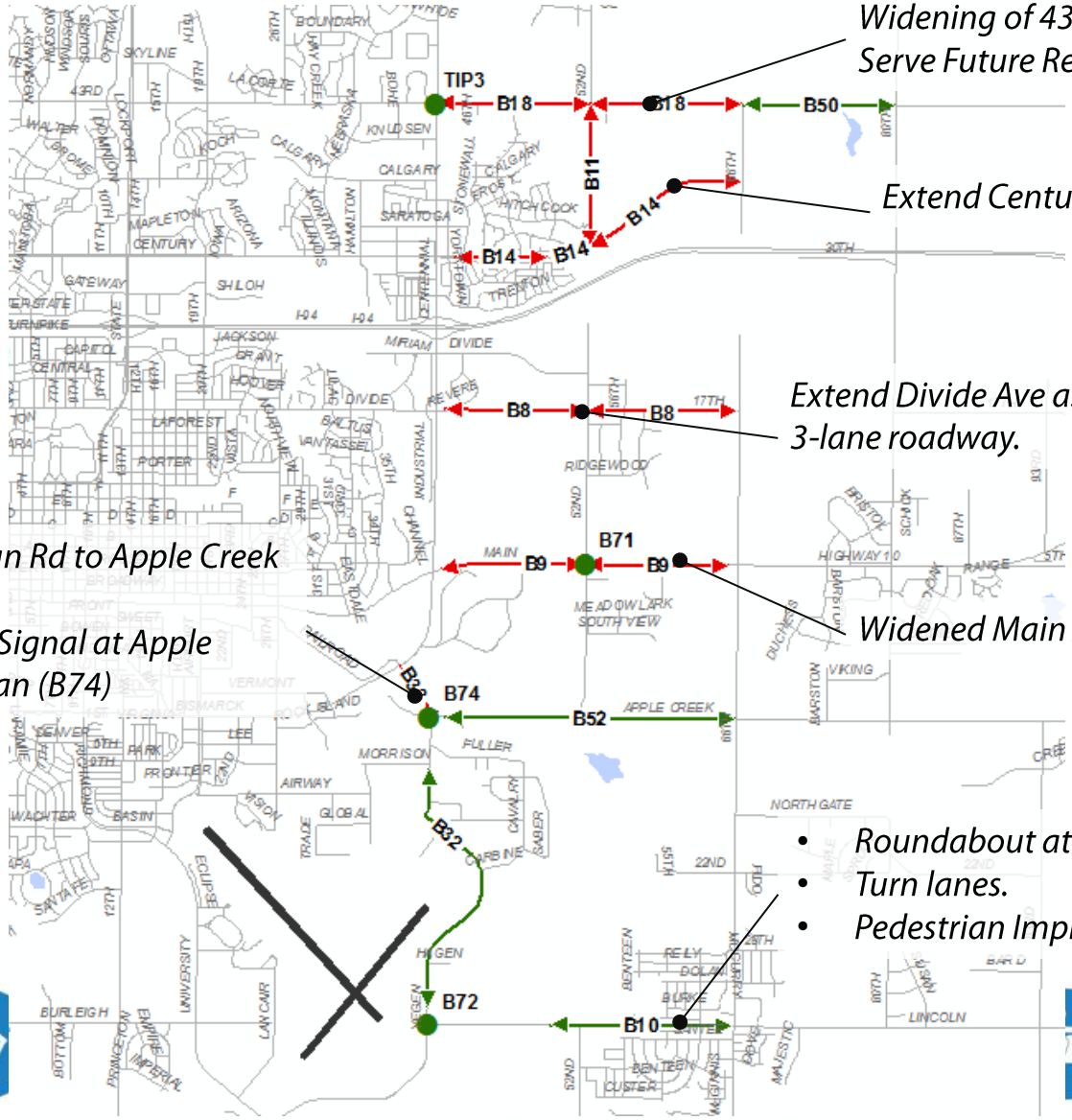
Roadway Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



East Bismarck Arterial Improvements

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



Widening of 43rd St west of 66th St to Serve Future Retail Area.

Extend Century as 3-lane roadway.

Extend Divide Ave as 3-lane roadway.

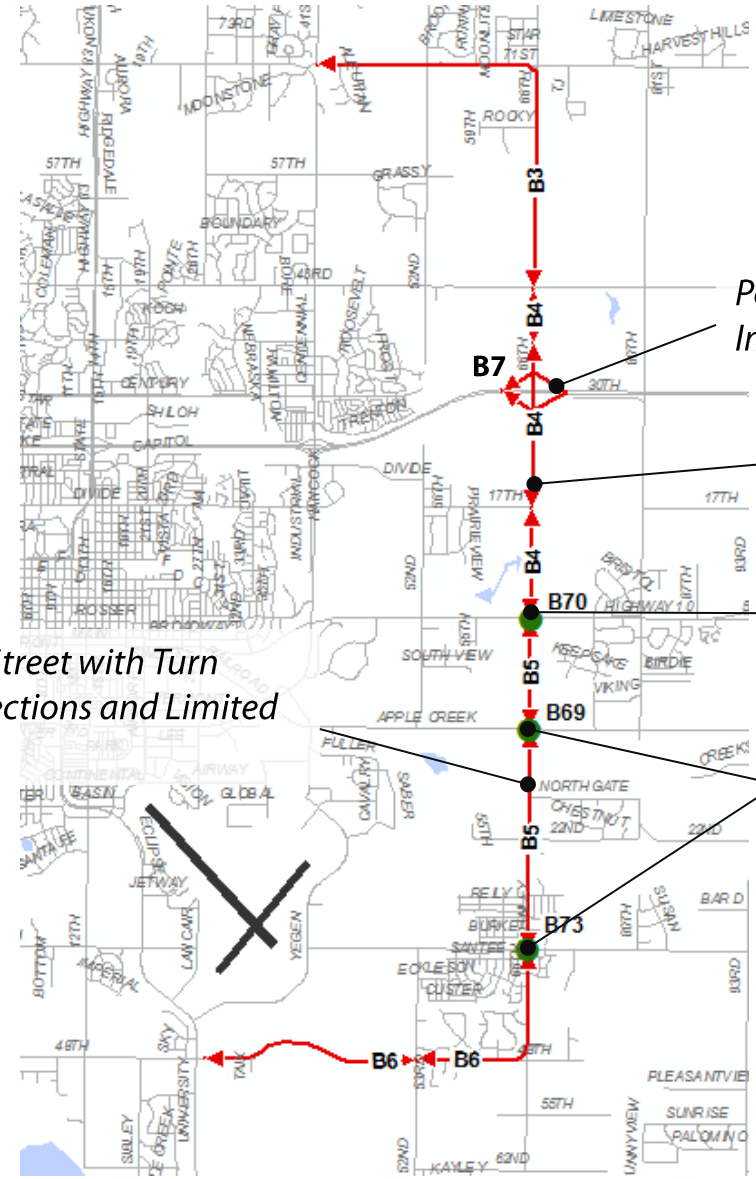
Widened Main Ave / Hwy 10

- *4-lane Yegan Rd to Apple Creek (B33)*
- *Add Traffic Signal at Apple Creek / Yegan (B74)*

- *Roundabout at 52nd / Lincoln Rd.*
- *Turn lanes.*
- *Pedestrian Improvements.*

Bismarck / Lincoln Beltway (66th Street)

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



Potential Interchange at 66th St / I94. Improve Local Arterial System First.

Extend 66th St with New Overpass of I-94

Roundabout or Signal with Turn Lanes at Highway 10 / Main St

Improved 66th Street with Turn Lanes at Intersections and Limited Access

Roundabouts or Signals at Lincoln Road and Apple Creek

North Central Bismarck Alternatives

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

6-lane roadway widening

Widen to 3-lane Roadway with Trail and Access Management.

County is currently Widening to 3-lanes.

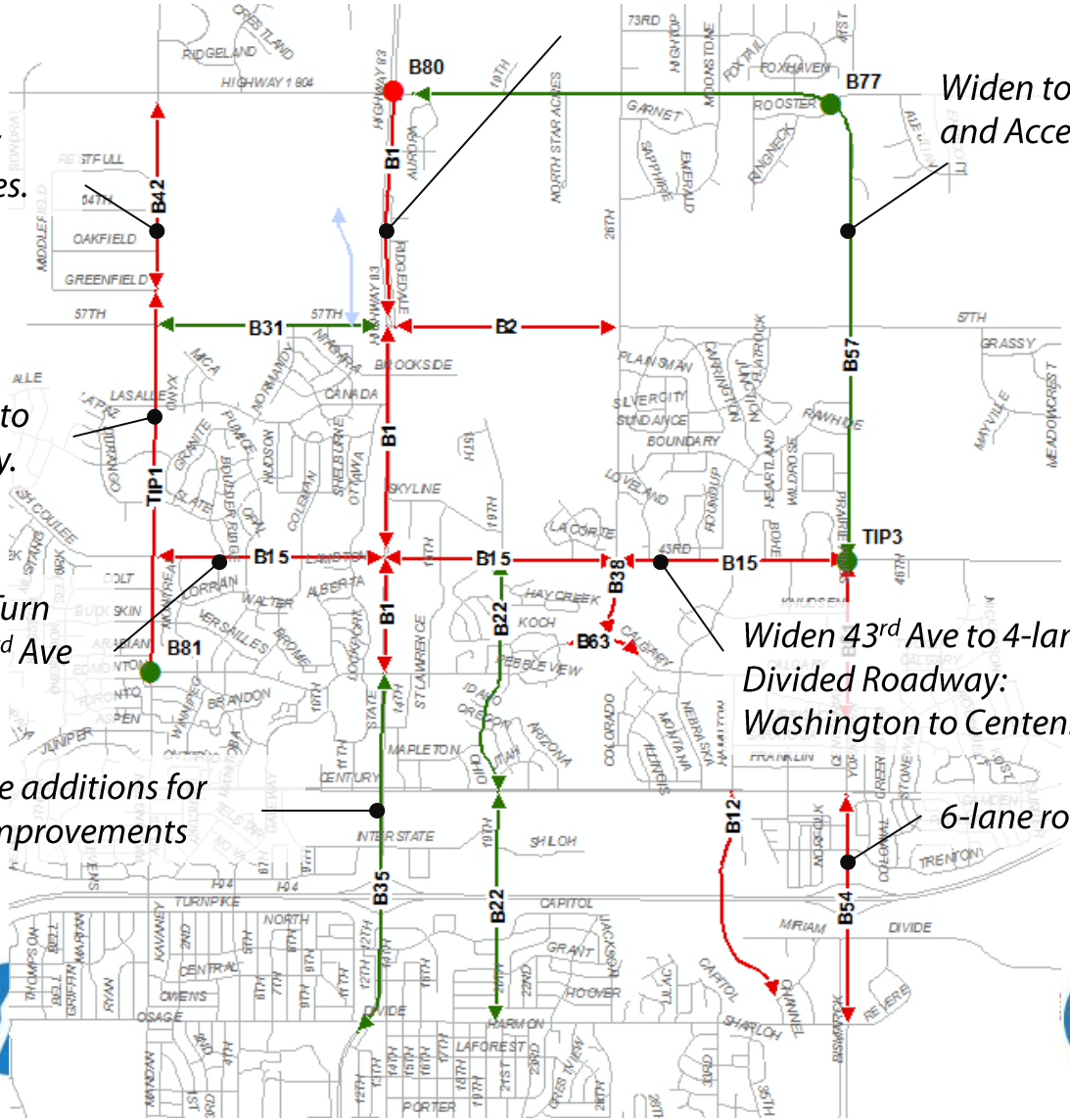
2015 Project will Widen to 4-lane Divided Roadway.

Potential Near-Term Turn Lane Additions on 43rd Ave east of State St..

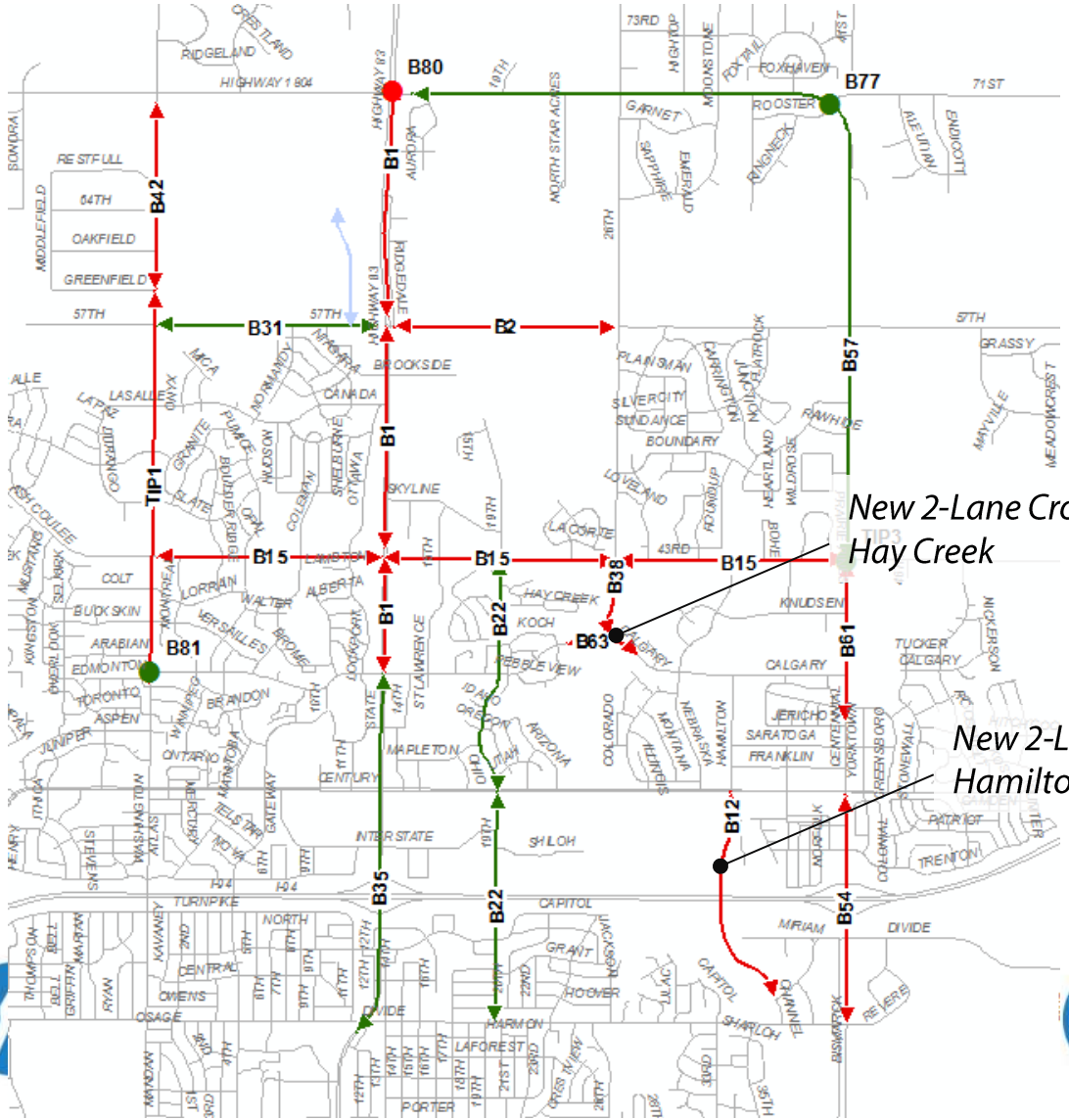
Widen 43rd Ave to 4-lane Divided Roadway: Washington to Centennial.

Turn lane additions for Safety improvements

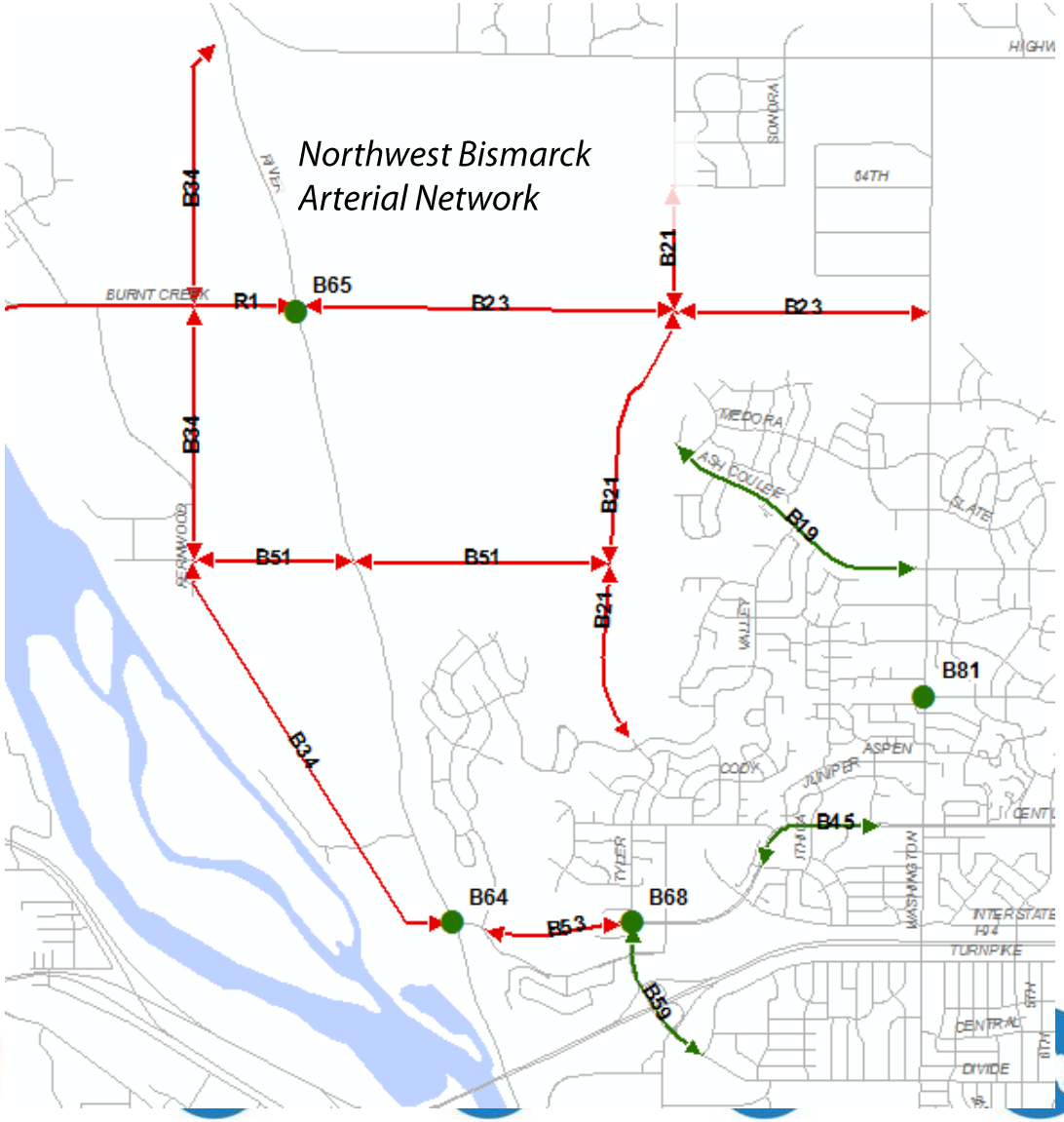
6-lane roadway widening



North Central Bismarck Alternatives

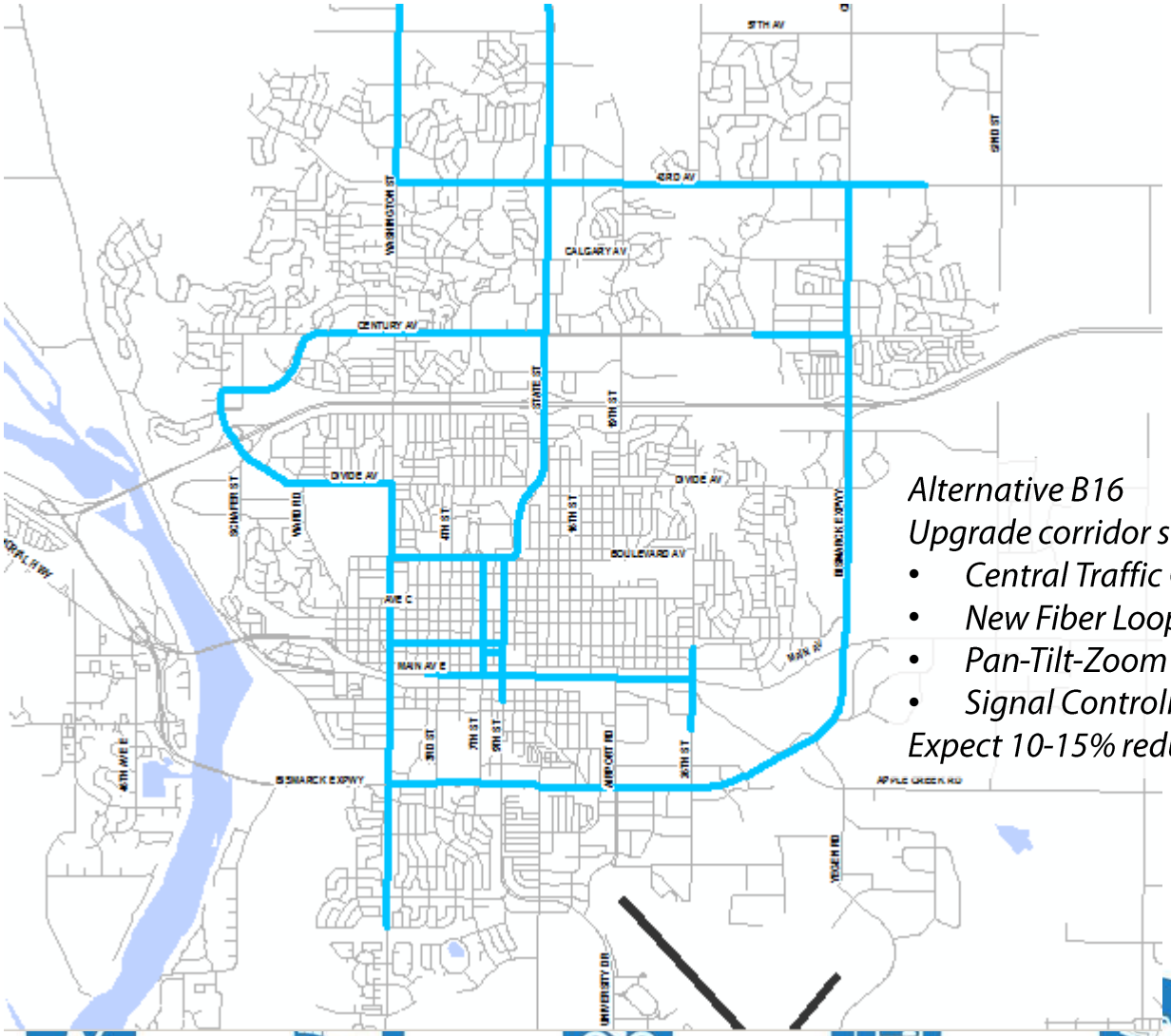


Northwest Bismarck Alternatives



Bismarck Signal System Upgrade

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Alternative B16

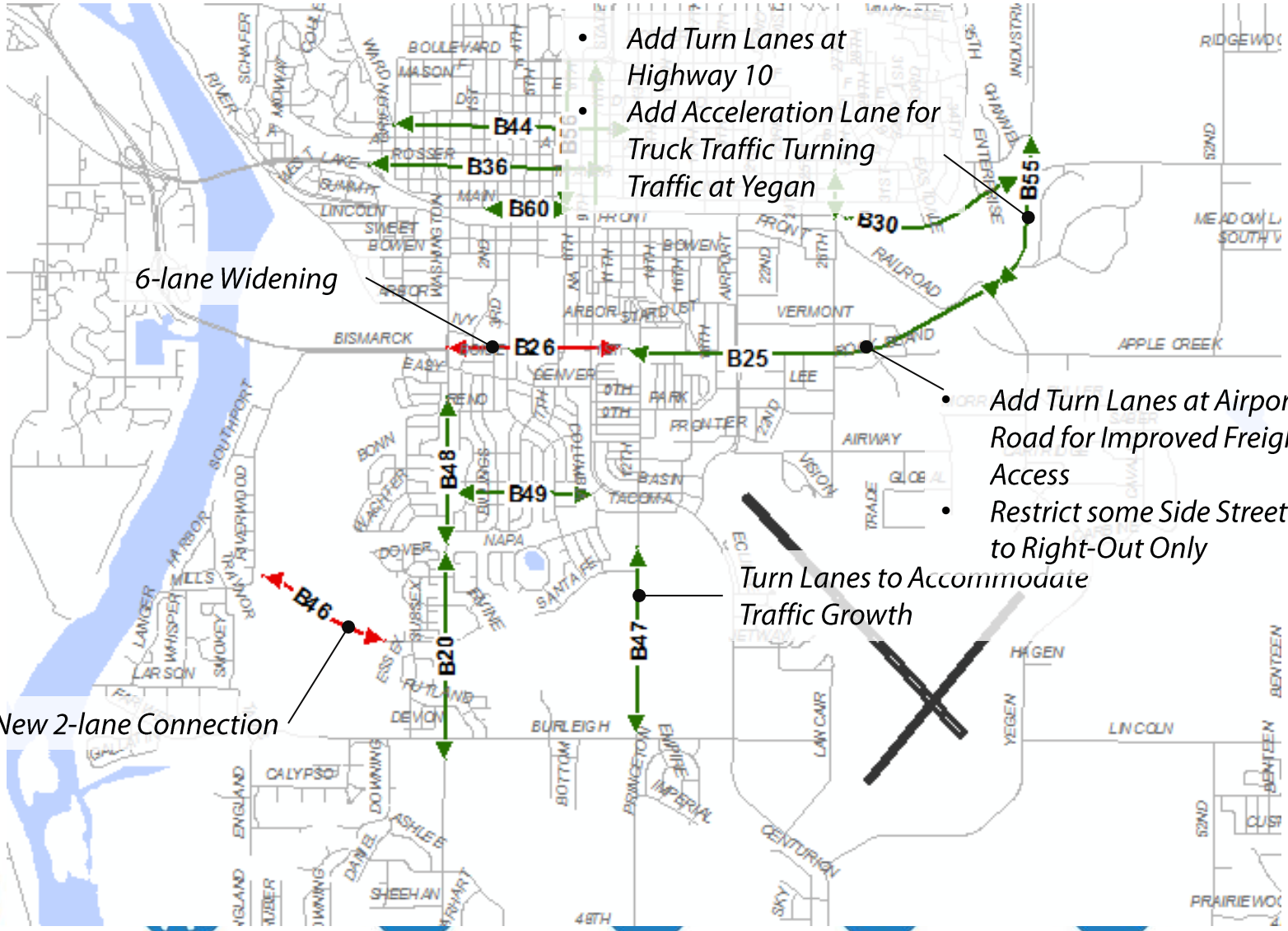
Upgrade corridor signal systems

- *Central Traffic Operations Center*
- *New Fiber Loop*
- *Pan-Tilt-Zoom Cameras*
- *Signal Controller / Software Upgrades*

Expect 10-15% reduced delays

South / Central Bismarck Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

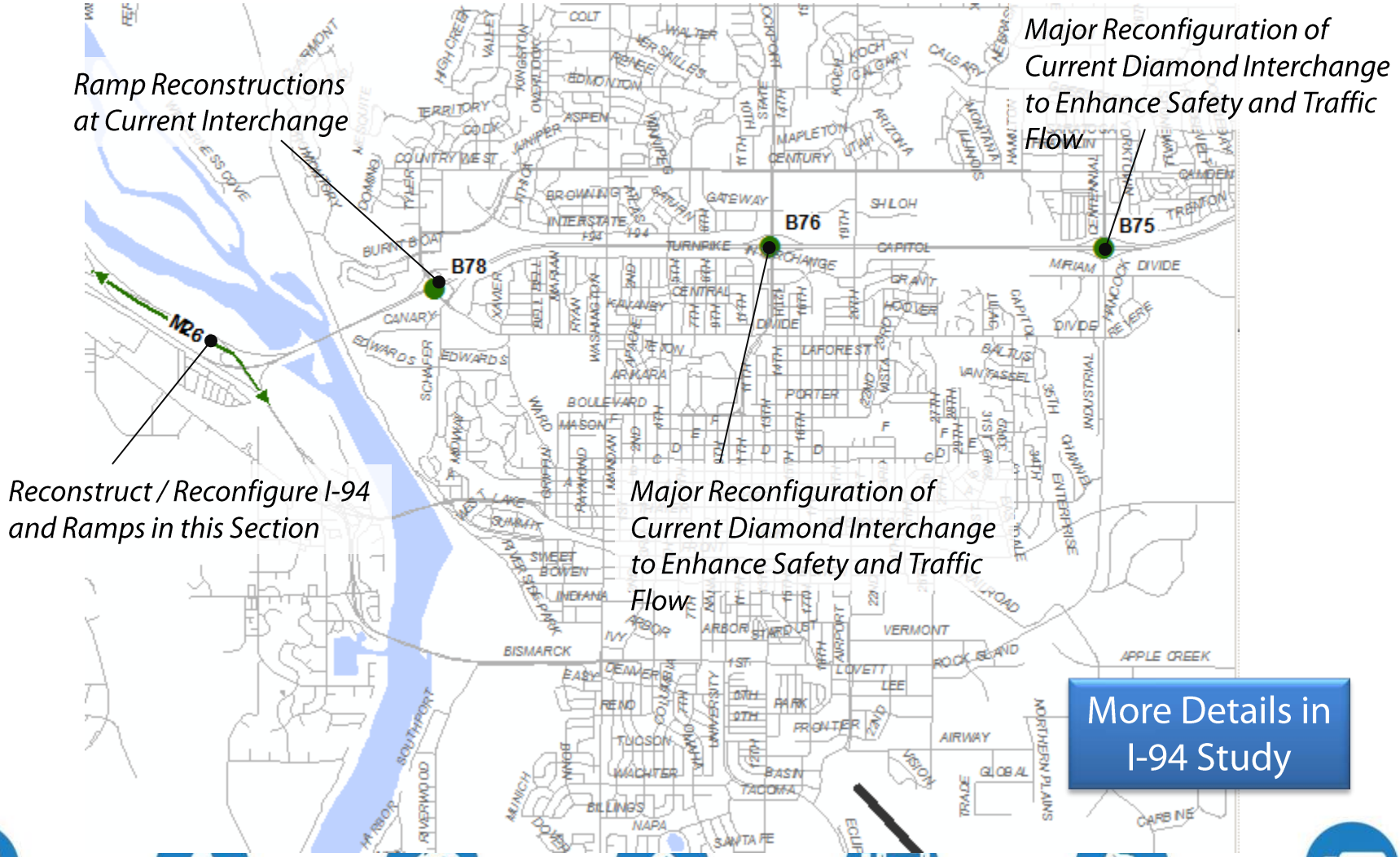


- *Add Turn Lanes at Highway 10*
- *Add Acceleration Lane for Truck Traffic Turning Traffic at Yegan*
- *Add Turn Lanes at Airport Road for Improved Freight Access*
- *Restrict some Side Streets to Right-Out Only*

Turn Lanes to Accommodate Traffic Growth

Interstate Alternatives

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Other Regional Program Alternatives

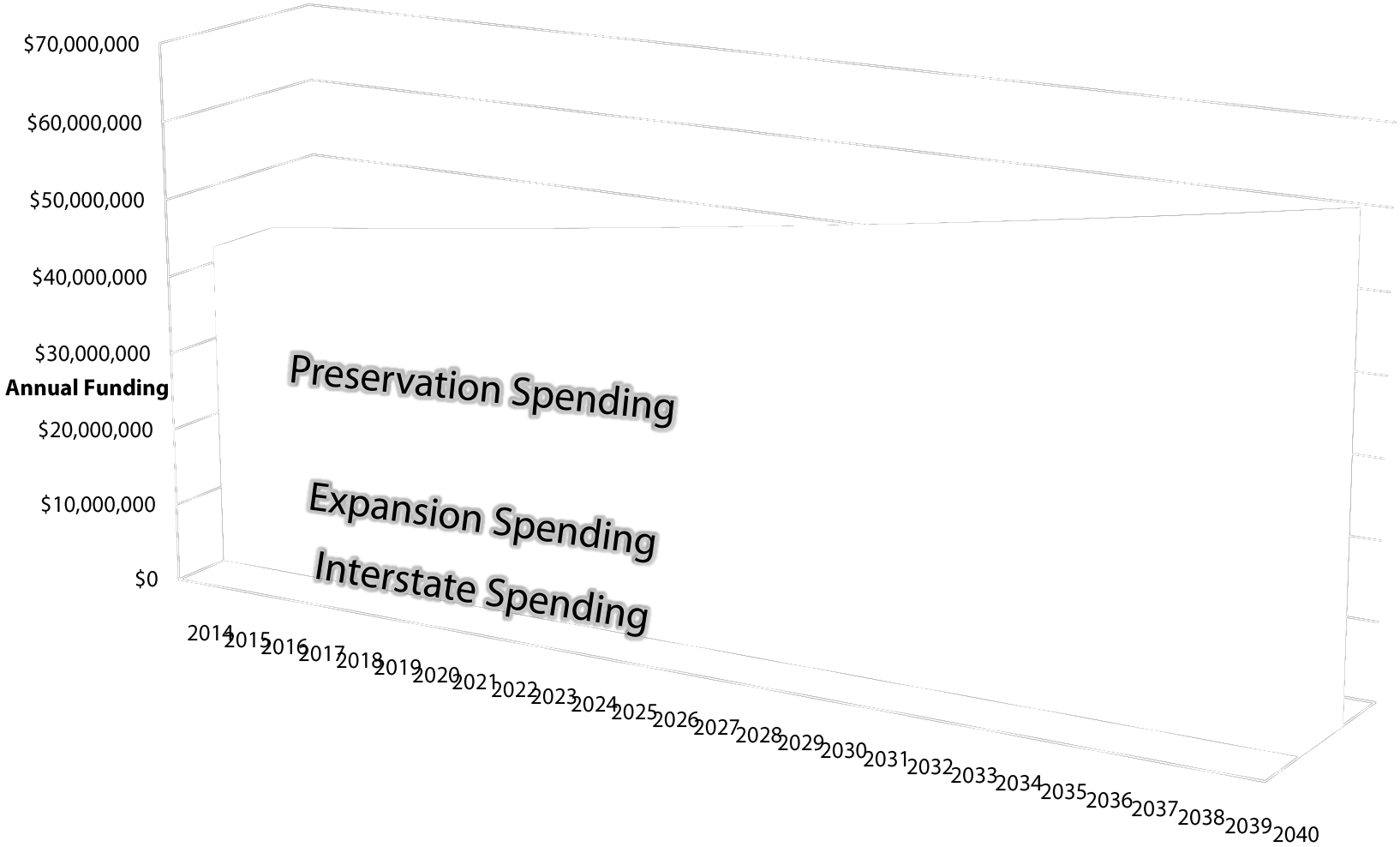
- Regional Travel Demand Management Program
- Complete Streets
- Establish Trail Dedication Policies for New Developments
- Transit and Bike / Ped Promotion Programs
- Land Use Policies to Support Infill / Mixed Use Development

Roadway Funding

FUNDING PROJECTION OVERVIEW

2014-2040 Funding Trend

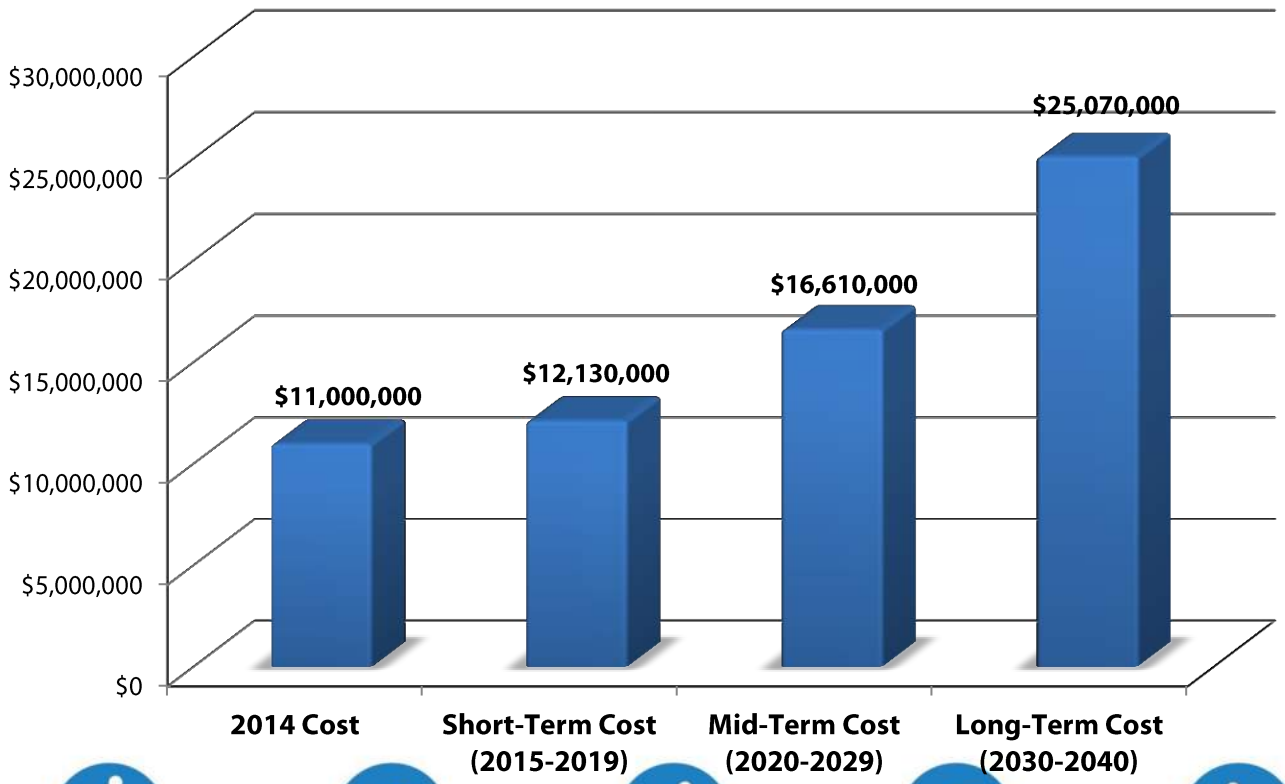
2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan



Projecting Future Costs

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

- + 4% each year
- 1 Mile of New Urban 4-Lane Cost Illustration



Next Steps

- Review the Feedback Received
- Finalize Modal Project Lists
- Finalize Draft LRTP Document

Questions?

- Thank you

SIGN-IN SHEET
North Dakota Department of Transportation, Civil Rights Division
SFN 59531 (Rev. 03-2012)

Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Mandan City Hall	Public Meeting/Open House	1/22/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

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Name (Please print)	Title/Representing		
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SIGN-IN SHEET
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Local Government/Bismarck/HDR Engineering

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Mandan City Hall	Public Meeting/Open House	1/22/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
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Local Government/Bismarck/HDR Engineering

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Mandan City Hall	Public Meeting/Open House	1/22/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
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Local Government/Bismarck/HDR Engineering

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Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

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Name (Please print)	Title/Representing		
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Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Mandan City Hall	Public Meeting/Open House	1/22/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
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Arlyn Van Beek	City of Mandan Mayor		
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City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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North Dakota Department of Transportation, Civil Rights Division

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Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Bismarck Municipal Library	Public Meeting/Open House	1/21/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
Stephanie Burts			
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Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Bismarck Municipal Library	Public Meeting/Open House	1/21/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
James Warne			
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North Dakota Department of Transportation, Civil Rights Division
SFN 59531 (Rev. 03-2012)

Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Bismarck Municipal Library	Public Meeting/Open House	1/21/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
PAUL BENNING	NDDOT - LOC GOV		
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North Dakota Department of Transportation, Civil Rights Division
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Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Bismarck Municipal Library	Public Meeting/Open House	1/21/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
Jackie Andahl			
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SIGN-IN SHEET

North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Division/District/Consultant
Local Government/Bismarck/HDR Engineering

Meeting Location	Meeting Type	Meeting Date
Bismarck Municipal Library	Public Meeting/Open House	1/21/2014
Project Number: N/A		PCN: N/A
Project Description: Bismarck-Mandan Long-Range Transportation Plan		

Name (Please print)	Title/Representing		
DAVID T PEARCE			
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Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

SIGN-IN SHEET

North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Page _____ of _____

	Division/District/Consultant	
Meeting Location: Mandan City Hall	Meeting Type: LRTP Public Mtg	Meeting Date: 9/17/2014
Project Number		PCN
Project Description		

Name (Please print)	Title/Representing		
Jeff Wright	Public Works, City of Mandan		
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JUSTIN FRASETH	PLANNING & ENGRG, CITY OF MANDAN		
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Name (Please print)	Title/Representing

GN-IN SHEET

rth Dakota Department of Transportation, Civil Rights Division

N 59531 (Rev. 03-2012)

Page _____ of _____

	Division/District/Consultant	
eting Location	Meeting Type	Meeting Date
ect Number		PCN
ect Description		

e (Please print)	Title/Representing		
MICHAEL JOHNSON	NDDOT - LG		
ess			
	State	Zip code	Email
(Please print)			

SIGN-IN SHEET
North Dakota Department of Transportation, Civil Rights Division
SFN 59531 (Rev. 03-2012)

Division/District/Consultant: BISMARCK MANDAN MPO

Meeting Location	Meeting Type	Meeting Date
BISMARCK PUBLIC LIBRARY		9-18-14
Project Number		PCN

Project Description: BISMARCK MANDAN LRTP

ADA Accessible - Yes.

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Pat Weinberg			
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City	State	Zip code	Email

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Name (Please print)	Title/Representing		
Will Hutchings	MPO		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Sean M Johnson	Self		
Address: 6405 Preston Loop			
City: Bismarck	State: ND	Zip code: 58504	Email: smj58501@yahoo.com

Name (Please print)	Title/Representing		
Ross Degenstein	Wikipedia and retired		
Address: 201 1st Ave NW Apt 108			
City: Mandan	State: ND	Zip code: 58554	Email: rossdegenstein@hotmail.com

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North Dakota Department of Transportation, Civil Rights Division
SFN 59531 (Rev. 03-2012)

Division/District/Consultant: BISMARCK MANDAN MPO

Meeting Location	Meeting Type	Meeting Date

Project Number	PCN

Project Description:

Name (Please print)	Title/Representing		
Lana Hanson			
Address: 1762 Pinto Pl			
City: Bis	State: ND	Zip code: 58503	Email: lhanson@bis.midco.net

Name (Please print)	Title/Representing		
Randee Sailer			
Address: 333 W Interstate Ave Apt. 8			
City: Bismarck	State: ND	Zip code: 58503	Email: randeesailer@yahoo.com

Name (Please print)	Title/Representing		
Dena Lenhardt			
Address: 411 Augsburg Ave.			
City: Bismarck	State: N.D.	Zip code: 58504	Email: dena.lenhardt@gmail.com

Name (Please print)	Title/Representing		
MICHAEL JOHNSON	NDDOT-L6		
Address:			
City:	State:	Zip code:	Email:

Name (Please print)	Title/Representing		
CRAIG SCHWEITZER	PINTO PLACE RESIDENT		
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Name (Please print)	Title/Representing		
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Address: P.O. BOX 5503			
City: BISMARCK	State: ND	Zip code: 58506-5503	Email: mbullinger.bismarcknd.gov

Name (Please print)	Title/Representing		
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North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Page _____ of _____

Division/District/Consultant

Meeting Location	Meeting Type	Meeting Date
BISMARCK PUBLIC LIBRARY	FOCUS GROUP	09.16.13
Project Number		PCN
Project Description: LRTP		

Name (Please print)	Title/Representing		
Chuck Peterson	Freight		
Address: 1200 Industrial Dr.			
City: Bismarck	State: ND	Zip code: 58501	Email: c.peterson@jobbers warehouse.com

Name (Please print)	Title/Representing		
Tim Seaworth	University of Mary		
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Name (Please print)	Title/Representing		
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Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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SFN 59531 (Rev. 03-2012)

Page _____ of _____

Division/District/Consultant

Meeting Location	Meeting Type	Meeting Date
BISMARCK PUBLIC LIBRARY	FOCUS GROUP	09.16.13
Project Number		PCN
Project Description: LONG RANGE TRANSPORTATION PLAN		

Name (Please print)	Title/Representing		
Dave Clark	Bismarck State College		
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City: Bismarck	State: ND	Zip code: 58504	Email: dave.clark@bismarckstate.edu

Name (Please print)	Title/Representing		
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City: Bismarck	State: ND	Zip code: 58503	Email: andrew.brown.ndsu@gmail.com

Name (Please print)	Title/Representing		
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Name (Please print)	Title/Representing		
Cheryl Hess	State Council on Developmental Disabilities		
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Name (Please print)	Title/Representing		
Molly Sullivan	Bis-Man Young Professionals Network		
Address: 702 N 7th St			
City: BISMARCK	State: ND	Zip code: 58501	Email: molly.j.sullivan@gmail.com

Name (Please print)	Title/Representing		
Alan Klein	Chief Bismarck Rural Fire Dept		
Address: 8124 Red Oak Dr			
City: Bismarck	State: ND	Zip code: 58501	Email: al.brfd@midconetwork.com

Name (Please print)	Title/Representing		
Bill Lardy	AARP		
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North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Page _____ of _____

Division/District/Consultant	
Meeting Location: BISMARCK PUBLIC LIBRARY	Meeting Type: FOCUS GROUP
Meeting Date: 09.16.13	
Project Number	PCN
Project Description: LRTP	

Name (Please print)	Title/Representing		
Mark Liebig	Central Dakota Cyclists		
Address: 3238 Impala Lane			
City: Bismarck,	State: ND	Zip code: 58503	Email: liebigs@bis.midco.net

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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SFN 59531 (Rev. 03-2012)

Division/District/Consultant: FOR THE BISMARCK-MANDAN MPO

Meeting Location	Meeting Type	Meeting Date
BISMARCK-PUBLIC LIBRARY	FOCUS GROUP	4/21/2014

Project Number	PCN

Project Description: LONG RANGE TRANSPORTATION PLAN

Name (Please print)	Title/Representing		
Marge Ellefson	Bis-Man Transit		
Address: 2112 10th Ave SE			
City: Mandan	State: ND	Zip code: 58554	Email: marge@bis.midco.net

Name (Please print)	Title/Representing		
Tim Seaworth	VP for Student Development / University of Mary		
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Name (Please print)	Title/Representing		
Molly Sullivan	Bismarck-Mandan Young Professionals		
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Name (Please print)	Title/Representing		
Andrew Brown	Bismarck-Mandan YP		
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City: Bismarck	State: ND	Zip code: 58503	Email: andrew.brown.ndsu@gmail.com

Name (Please print)	Title/Representing		
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Name (Please print)	Title/Representing		
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Name (Please print)	Title/Representing		
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SFN 59531 (Rev. 03-2012)

Division/District/Consultant
ON BEHALF OF THE BISMARCK-MANDAN MPO

Meeting Location	Meeting Type	Meeting Date
BISMARCK PUBLIC LIBRARY	FOCUS GROUP	4/21/2014
Project Number		PCN

Project Description: LONG RANGE TRANSPORTATION PLAN

Name (Please print)	Title/Representing		
Randy Bina	Executive Director, Bis. Parks & Recreation		
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Name (Please print)	Title/Representing		
Brian Ritter	President/CEO, BMDA		
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Name (Please print)	Title/Representing		
Mark Liebig	Central Dakota Cyclists		
Address: 3238 Impala Lane			
City: Bismarck	State: ND	Zip code: 58503	Email: liebigs@bis.midco.net

Name (Please print)	Title/Representing		
Bill Lardy	AARP - Volunteer		
Address: 450 E Calgary Ave			
City: Bismarck	State: ND	Zip code: 58503	Email: Kiwi@bis.midco.net

Name (Please print)	Title/Representing		
Darin Scherr	Director of Facilities & TRANSPORTATION		
Address: 705 South 9th St.	Bismarck Public Schools		
City: Bismarck	State: ND	Zip code: 58504	Email: darin_scherr@bismarckschools.org

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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SFN 59531 (Rev. 03-2012)

Division/District/Consultant
HDR - Bismarck - Mandan LRTP

Meeting Location	Meeting Type	Meeting Date
Bismarck Public Library	Focus Group	July 23, 2014
Project Number		PCN
Project Description		

Name (Please print)	Title/Representing		
Jeff Beauchamp	St Alexius		
Address: 1959 Houston Dr			
City: Bismarck	State: ND	Zip code: 58504	Email: jbeauchamp@primecare.org

Name (Please print)	Title/Representing		
Nathan Schneider	Bismarck-Mandan Dev Assoc		
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City: Bismarck	State: ND	Zip code: 58502	Email: nschneider@bmda.org

Name (Please print)	Title/Representing		
Jeff Solemsaas	Lt - Bismarck Police		
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City: Bismarck	State: ND	Zip code: 58504	Email: jsolemsa@nd.gov

Name (Please print)	Title/Representing		
Darin M. Scherr	Bismarck Public Schools		
Address: 806 N Washington St.			
City: Bismarck	State: ND	Zip code: 58504	Email: darin_scherr@bismarckschools.org

Name (Please print)	Title/Representing		
Marge Ellefson	Bis Man CAT Transit		
Address: 2112 10th Ave SE			
City: Mandan	State: ND	Zip code: 58554	Email: marge@bis.midco.net

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Page _____ of _____

Division/District/Consultant	09.16.13

Meeting Location	Meeting Type	Meeting Date
BISMARCK-PARKER LIBRARY	BELE/PED	
Project Number		PCN
Project Description LRTP		

Name (Please print)	Title/Representing		
Mark Liebig	CDC		
Address 3238 Impala Lane			
City Bismarck	State ND	Zip code 58503	Email liebigs@bis.midco.net

Name (Please print)	Title/Representing		
Bob Scarlett			
Address 3670 W. PRINCETON			
City BISMARCK	State ND	Zip code 58504	Email bobkat@btinet.net

Name (Please print)	Title/Representing		
Allen Thompson	LAB League Lobbying Institution CDC		
Address 309 5th Ave NW			
City Mandan	State ND	Zip code 58554	Email athomp@bis.midco.net

Name (Please print)	Title/Representing		
Jim Kambeitz			
Address 1002 N. 5th St.			
City Bismarck	State ND	Zip code 58501	Email Kambeitz@hotmail.com

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

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North Dakota Department of Transportation, Civil Rights Division

SFN 59531 (Rev. 03-2012)

Division/District/Consultant	09.16.13

Meeting Location	Meeting Type	Meeting Date
BISMARCK PARK LIBRARY	BIKE/PED	
Project Number		**PCN**
Project Description LRTP		

Name (Please print)	Title/Representing		
Bob Shannon	Self		
Address 5964 Lariat Loop			
City Bismarck	**State** ND	**Zip code** 58503	**Email** bob.shannon@kljeng.com

Name (Please print)	Title/Representing		
Carol Aron	SOM		
Address 1206 N. Mandan St			
City Bismarck	**State** ND	**Zip code** 58501	**Email** carolwaron@yahoo.com

Name (Please print)	Title/Representing		
Address			
City	**State**	**Zip code**	**Email**

Name (Please print)	Title/Representing		
Address			
City	**State**	**Zip code**	**Email**

Name (Please print)	Title/Representing		
Address			
City	**State**	**Zip code**	**Email**

Name (Please print)	Title/Representing		
Address			
City	**State**	**Zip code**	**Email**

Name (Please print)	Title/Representing		
Address			
City	**State**	**Zip code**	**Email**

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North Dakota Department of Transportation, Civil Rights Division
SFN 59531 (Rev. 03-2012)

Page _____ of _____

Division/District/Consultant
HDR - Bismarck-Mandan LRTP

Meeting Location	Meeting Type	Meeting Date
Bismarck Public Library	Bicycle - Pedestrian	July 23, 2014
Project Number		PCN
Project Description		

Name (Please print)	Title/Representing		
BEN EKRETH	RESIDENT		
Address: 1311 NORTH 18TH ST.			
City: BISMARCK	State: ND	Zip code: 58501	Email: ben-ekreth@[redacted] [illegible]

Name (Please print)	Title/Representing		
Bob Shannon	KLJ		
Address			
City: Bismarck	State: ND	Zip code	Email

Name (Please print)	Title/Representing		
Bob Scarlett			
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City: BISMARCK	State: ND	Zip code: 58504	Email: boblat@btinet.net

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Name (Please print)	Title/Representing		
Address			
City	State	Zip code	Email

Comments Received During Public Draft Comment Period

November-December 2014

Event ID: 16197

Event Title	Web Comment from [redacted]	**Summary**
Phase	Draft LRTP	I generally like the plan except for the B3 reference on pages 102 and 106. Considering the amount of residential traffic already on 71st avenue, I think the truck bypass on 66th avenue should continue north another 2 miles to provide a true bypass for the truckers. It won't be long before additional stoplights will be needed along 71st which will be a problem for the big trucks.
Admin Record	Unclassified	
Is Agency	False	
Event Date	11/20/2014	
Passed QC	False	**Note**
Is Closed	False	
Create Date	11/20/2014	
Created By	WebComment	

Event Topics

Traffic Congestion

Trucks and Freight

Event Participants

Is Org	Participant	Email	Address1	Address2	City	State	Zip
False	[redacted]						
			[redacted]			ND	58503
			[redacted]		58503	ND	58503

Event ID: 16116

Event Title	Web Comment from [redacted]	**Summary**
Phase	Draft LRTP	Centennial/ I-94 interchange has to be a priority it is a absolute cluster all day long!!, and Centenial to Hwy 83 spent all summer grading and new surface and turning lanes, why not make it a 4 lane right away?
Admin Record	No	
Is Agency	False	
Event Date	11/14/2014	
Passed QC	False	**Note**
Is Closed	False	
Create Date	11/14/2014	
Created By	WebComment	

Event Topics

Road Improvements

Traffic Congestion

Event Participants

Is Org	Participant	Email	Address1	Address2	City	State	Zip
False	[redacted]	[redacted]	[redacted]			ND	58503

Appendix C: MPO Performance Monitoring Report

Items Included:

- *2012 Bismarck-Mandan MPO Monitoring Report* (January 2014)

2012
Monitoring Report

Bismarck-Mandan
METROPOLITAN PLANNING ORGANIZATION

January 2014

Table of Content

Executive Summary……...i

Chapter 1: Introduction…….1
The Bismarck-Mandan MPO 1

Chapter 2: People……3
Existing Characteristics 3
Recent Trends 11
Projections 12

Chapter 3: Housing……14
Existing Conditions 14
Recent Trends 15
Area Housing Projections 16
Recent Trends Compared to Area Projections 17

Chapter 4: Employment……24
Existing Conditions and Projected Employment Characteristics 24

Chapter 5: Travel……37
Existing Conditions and Recent Trends 37
Means of Transportation 37
Travel Time to Work 38
Time Leaving to Go to Work 39
Vehicles Available by Household 39
County to County Commuting Patterns 40
Motorized Travel 42
Freight 49
Functional Classification of Roadways 54
Pavement Management 56
Bridge Structures 59
Safety 61
Public Transportation 65
Bicycle and Pedestrian Transportation 68

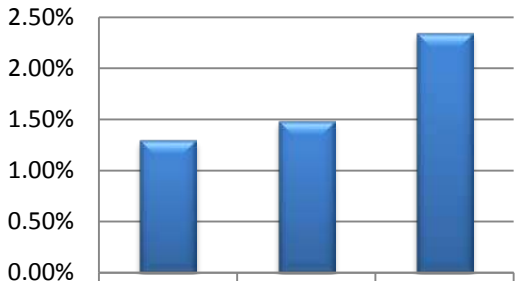
Executive Summary

The Bismarck-Mandan MPO collects a variety of data, on an annual basis, within the region for transportation planning purposes. The Bismarck-Mandan MPO area has experienced significant growth over the past few years. It is believed that this growth is attributed, in large part, to energy development in western North Dakota. The following information provides a brief summary of select trends in the Bismarck-Mandan MPO area. A more detailed description of trends related to people, housing, employment, and travel can be found in the following respective chapters of this document.

Population

Historically the Bismarck-Mandan area has seen annual growth rates between 1% to 1.5%. Recent US Census Bureau population estimates for Burleigh and Morton County indicate a significantly heightened level of growth compared to previous decades. The latest available US Census Bureau estimates as of July 1, 2012 indicate a population of 113,875 individuals in Burleigh and Morton County. Figure 1ES indicates the simple annual rate of change by time period for Burleigh and Morton County. The simple annual rate of change was significantly heightened between 2010 to 2012 compared to the previous decades. This estimate may also be conservative as some of the data the US Census Bureau utilizes for establishing population estimates on an annual basis may be as much as two years old.

Figure 1ES: Simple Annual Rate of Population Change in Burleigh and Morton County, 1990-2012



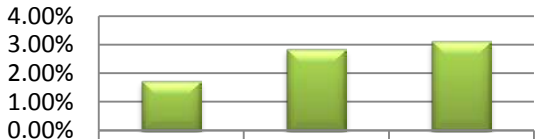
	(1990-2000)	(2000-2010)	(2010-2012)
Simple Annual Rate of Change	1.30%	1.48%	2.34%

Based on population estimates from the US Census Bureau (1990, 2000, 2010, and 2012)

School Enrollment

Annually the Bismarck-Mandan MPO collects school enrollment information from all public schools in the Bismarck-Mandan MPO area. The following Figure 2ES identifies the annual rate of change, in student enrollment, for all public schools in the Bismarck-Mandan MPO area combined from 2010-2013. The simple annual rate of change from 2010-2013 is 2.65% which is relatively consistent with the population and housing unit rates of growth in the Bismarck-Mandan MPO area.

Figure 2ES: Annual Rate of Change for All Public Schools Combined in the Bismarck-Mandan MPO Area 2010-2013



	2010-2011	2011-2012	2012-2013
Total Annual School Enrollment	1.75%	2.87%	3.15%

Based on school enrollment data obtained from the Bismarck and Mandan School Districts (2010, 2011, 2012, and 2013)

Executive Summary

Housing

Annually the Bismarck-Mandan MPO collects building permit data from the entities responsible for building permitting within the region. In general Burleigh and Morton County have experienced a heightened level of growth in residential dwelling unit permits since 2010. Figure 3ES identifies a simple annual growth rate of 3.11% for the past two years. This is significantly higher than historic population growth patterns of approximately 1% to 1.5% annual growth.

Figure 3ES: *Bismarck, ND Metropolitan Statistical Area 2011 and 2012 New Dwelling Unit Permits

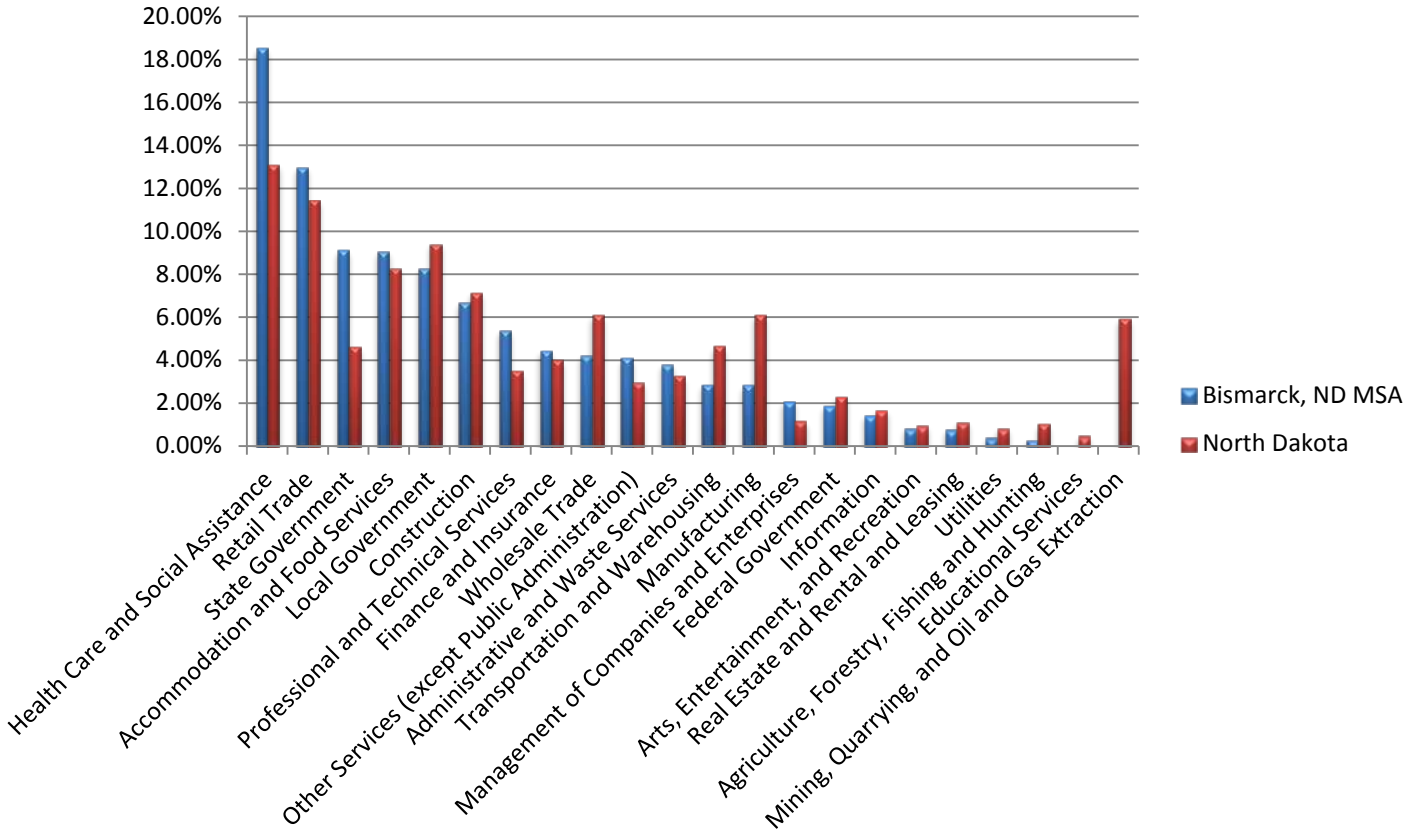
Total Dwelling Units 2010	New Dwelling Units 2011	Total Dwelling Units 2011	2010-2011 % Change	New Dwelling Units 2012	Total Dwelling Units 2012	2011-2012 % Change	2010-2012 Simple Annual Rate of Change
47,833	893	48,726	1.87%	2,079	50,805	4.27%	3.11%

Total dwelling units 2010 based on the 2010 US Census Bureau data. New dwelling unit data obtained from the Cites of Bismarck and Mandan, and Morton County Building Inspections Divisions
**The Bismarck, ND MSA (2010) is comprised of all of Burleigh and Morton Counties.*

Employment

The following Figure 4ES compares the annual average percent of employees by the North American Industrial Classification System (NAICS) category for the Bismarck-Mandan MSA to the State of North

Figure 4ES: Percent Employment by Industry for the Bismarck, ND MSA in Comparison to North Dakota, 2012 Annual Average



Labor Market Information Center, Job Service North Dakota

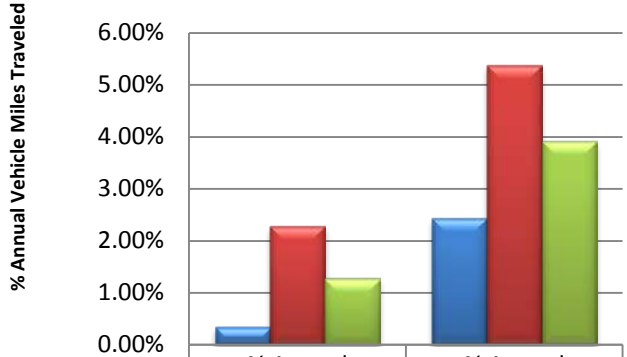
Executive Summary

Dakota for 2012. The five leading industries in the Bismarck, ND MSA include Health Care and Social Assistance, Retail Trade, State Government, Accommodation and Food Services, and Local Government. Compared to North Dakota, the Bismarck, ND MSA has a significantly higher percentage of individuals in the Health Care and State Government industries. North Dakota has a noticeably higher percentage of individuals involved in the Wholesale Trade, Transportation and Warehousing, and Manufacturing industries. It should be noted that employment information related to the Educational Services and Mining, Quarrying, and Oil and Gas Extraction industries was considered "Confidential" for the Bismarck, ND MSA.

Vehicle Miles Traveled

Vehicle miles traveled (VMT) are a measure of the total vehicle miles traveled within a given geographic location. They can be used to depict motorized vehicular travel trends within an area. Annually the North Dakota Department of Transportation (NDDOT) collects vehicle miles traveled information for reporting purposes to the national Highway Performance Monitoring System (HPMS). The North Dakota Department of Transportation utilizes Average Daily Traffic (ADT) counts, which they collect on a periodic basis throughout the State, as a factor in daily and annual vehicle miles traveled. In the Burleigh and Morton County area, recent ADT counts were taken in 2006, 2009, and most recently in 2012. Based on annual vehicle miles traveled in Burleigh and Morton County (reported by the NDDOT) the simple annual rate of VMT change has increased significantly in recent history. In Burleigh and Morton County the period of 2006 to 2009 showed an increase of 1.29% compared to a significant increase of 3.91% from 2009 to 2012 represented in Figure 5ES. In both Burleigh and Morton County rural VMT grew faster than VMT in the urbanized areas of Bismarck and Mandan. This could be due to an increase in housing units locating outside of the urbanized areas of Bismarck or Mandan or an increase in the amount of travel passing through Burleigh and Morton County or both.

Figure 5ES: Burleigh and Morton County Urban and Rural Comparison of % Vehicle Miles Traveled Change, 2006-2012



	% Annual Simple Change 2006-2009	% Annual Simple Change 2009-2012
Burleigh and Morton Urban	0.34%	2.44%
Burleigh and Morton Rural	2.29%	5.39%
Burleigh and Morton Total	1.29%	3.91%

Based on North Dakota Traffic Reports 2006, 2009, and 2012

Executive Summary

Vehicle Crashes

The 2012 North Dakota Crash Summary (developed by the NDDOT) indicates that Burleigh County has the highest crash rate of all counties in the State with 4.11 crashes per million vehicle miles traveled compared to a State crash rate of 1.82 crashes per million vehicle miles traveled.

Annually the NDDOT determines "High Crash" locations for urbanized areas across the state considering the past three years of crash data. In looking at the "3 Year High Crash Locations" for urbanized areas across the state 14 of the top 20 locations occurred in Bismarck from 2009 to 2011. The top three "3 Year High Crash Locations" for urbanized areas statewide are located in Bismarck. Following are the locations and their associated statewide rank:

Figure 6ES: Ranking of 3 Year High Crash Locations in Bismarck, ND 2009-2011

City	Location	Statewide Rank
Bismarck	Divide Ave & Schafer St. South Ramps	1
Bismarck	State St. & Century Ave	2
Bismarck	State St. & Interstate Ave	3
Bismarck	Main Ave & 7th St	7
Bismarck	State Street & Capitol Ave	8
Bismarck	Bismarck Expressway & Divide Ave	10
Bismarck	State St. & Divide Ave	11
Bismarck	Washington St. & Rosser Ave	13
Bismarck	State St & I-94 North Ramp	14
Bismarck	State St & Interchange Ave Area	15
Bismarck	Bismarck Expressway & 9th St./University Dr	16
Bismarck	Main Ave & 3rd St	18
Bismarck	Century Ave & Washington St	19
Bismarck	State St. & I-94 South Ramp	20

Based on the NDDOT identified Urban 3-year High Crash Locations 2009-2011

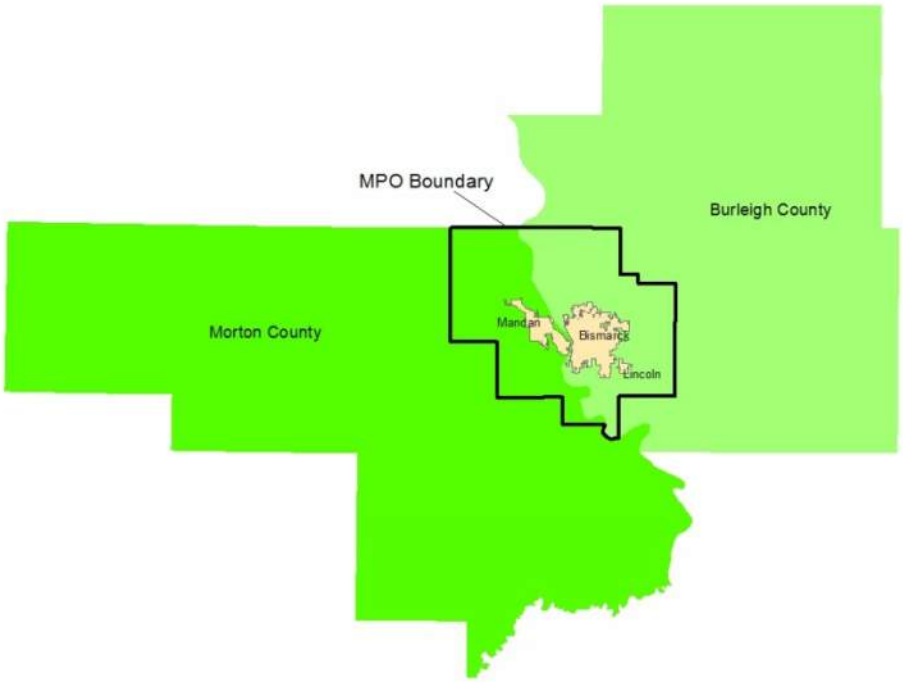
It should be noted that a variety of projects have either recently been completed or are programed to be completed in the near future that address some of the locations identified.

1: Introduction

The purpose of this document is to provide a comprehensive understanding of existing conditions and recent trends influencing transportation within the region. The geographic scope of this document generally includes the five member jurisdictions of the Bismarck-Mandan Metropolitan Planning Organization (MPO), including Bismarck, Lincoln, Mandan, and Burleigh and Morton Counties. The intent is that this document will be updated on an annual basis so changes in various trends impacting the transportation system can be monitored on a regular basis. The document currently considers four primary topic areas including: people; housing; employment; and travel. It is envisioned that staff from the Bismarck-Mandan MPO, staff and policy makers from local member jurisdictions, state and federal agencies, and the general public may utilize this document, in understanding issues facing the region, to make more informed decisions which enhance the region's transportation system.

THE BISMARCK-MANDAN MPO

The Bismarck-Mandan MPO is responsible for the transportation planning and programming of projects, utilizing federal transportation funds, within the region. The Bismarck-Mandan MPO is approximately 394 square miles with the geographic coverage including the Cities of Bismarck, Lincoln, Mandan, and portions of Burleigh and Morton Counties as indicated in the following map.



In the 1970's the US Congress required the formation of MPO's for urbanized areas in the United States in order to receive federal transportation funds. The intent of MPOs are to provide a continuing, comprehensive, and cooperative planning process. As transportation needs extend beyond jurisdictional boundaries and captivate interest from multiple levels of government (local, state, and federal) MPOs serve an important role in conducting and facilitating transportation planning and programming within an

urbanized area. The Bismarck-Mandan MPO is one of three MPO's in the state of North Dakota. In addition to other planning efforts the Bismarck-Mandan MPO is involved with it must also develop and regularly update the following for the Bismarck-Mandan MPO area:

- A Long Range Transportation Plan (LRTP);
- A Transportation Improvement Program (TIP); and
- A Unified Planning Work Program (UPWP)

The Bismarck-Mandan MPO receives direction from the Technical Advisory Committee (TAC) and the Policy Board. The TAC is comprised primarily of planning and engineering staff members from the MPO's member jurisdictions, as well as, the public transportation provider, North Dakota Department of Transportation, Federal Highway Administration, and an individual representing freight interests. The TAC provides recommendations based on professional judgment for the MPO's Policy Board. The Policy Board is a five member board comprised of the Mayors of Bismarck, Lincoln, and Mandan, as well as, a commissioner from Burleigh and Morton Counties. The Policy Board is the decision making body of the Bismarck-Mandan MPO.

<u>Current Policy Board Members:</u>
Bismarck – Mayor John Warford
Lincoln – Mayor Bob Johnston
Mandan – Mayor Arlyn Van Beek
Burleigh County – Commissioner Doug Schonert
Morton County – Commissioner Andy Zachmeier

<u>Current Technical Advisory Committee Members:</u>
North Dakota Department of Transportation (NDDOT) – Michael Johnson
City of Bismarck Engineering Department – Mel Bullinger
City of Bismarck Planning Department – Carl Hokenstad
City of Lincoln – Melanie Kitzan
City of Mandan Planning/Engineering Department – Justin Froseth
Burleigh County Engineering Department – Marcus Hall
Morton County Engineering Department – Mike Aubol
Morton County Planning Department – Daniel Nairn
Freight Interest – Chuck Peterson
Public Transportation Provider – Robin Werre
Bismarck-Mandan MPO – Steve Saunders

<u>Current Staff:</u>
Director – Carl Hokenstad
Transportation Planner – Steve Saunders
Transportation Planner – Ben Ehreth
Transportation Planner – Rachel Drewlow
Office Assistant – Kim Riepl

2: People

The amount, concentration, and character of population have an influence on travel behavior. This chapter examines a variety of existing characteristics, recent trends and population projections.

EXISTING CHARACTERISTICS

The US Census Bureau conducts an official count of the population once every 10 years throughout the United States. The last official US Census count was conducted in 2010. Annually, however the US Census Bureau produces estimates of population throughout the United States, although these are based on a sample of the population and not 100% count efforts.

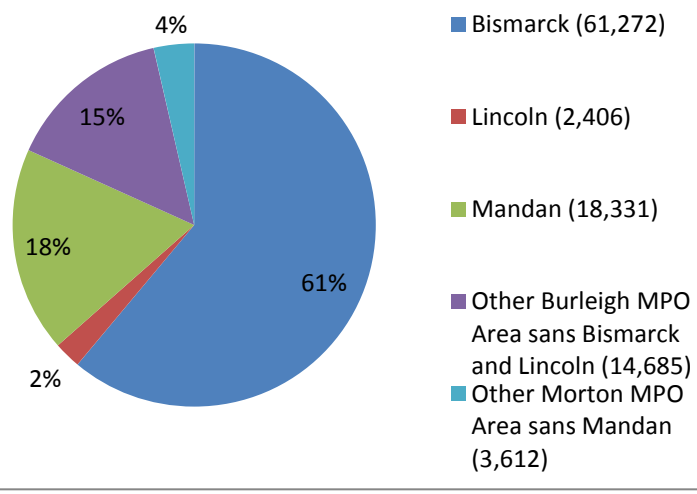
Figure 2.1: Bismarck-Mandan MPO and Bismarck, ND MSA Population

Jurisdiction	2010 Population	% of Bismarck, ND MSA Population
Bismarck	61,272	56.33%
Lincoln	2,406	2.21%
Mandan	18,331	16.85%
Bismarck-Mandan MPO	100,306	92.21%
Burleigh Total	81,308	74.75%
Morton Total	27,471	25.25%
Bismarck, ND MSA Total	108,779	100.00%

Based on the 2010 US Census Bureau Decennial Census

As previously indicated the Bismarck-Mandan MPO is comprised of the jurisdictions of Bismarck, Lincoln, Mandan, and portions of Burleigh and Morton Counties. The Bismarck-Mandan MPO is located within the Bismarck, ND Metropolitan Statistical Area (MSA), which as of 2010 included all of Burleigh and Morton Counties. **Figure 2.1** represents the 2010 population by jurisdiction within the region. Population within the Bismarck-Mandan MPO acounted for approximately 92% of the total population in Burleigh and Morton County, in 2010.

Figure 2.2: Bismarck-Mandan MPO Population by Jurisdiction, 2010

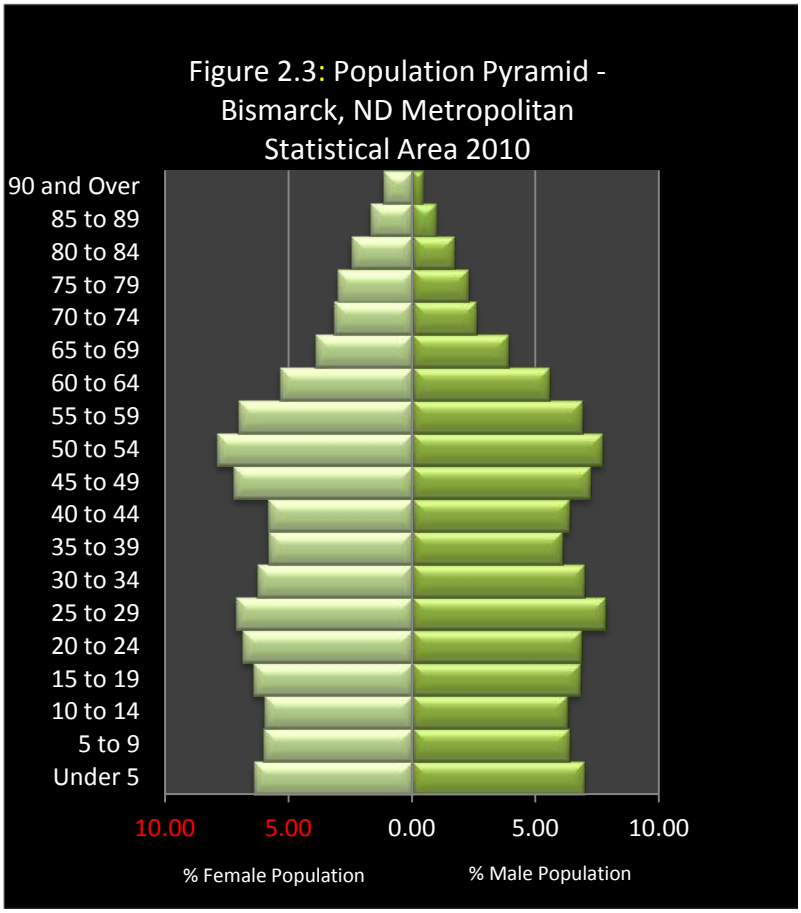


Based on the 2010 US Census Bureau Decennial Census

Figure 2.2 provides a more detailed percentage breakdown of the juridictional populations which make up the Bismarck-Mandan MPO. Bismarck comprises the largest percentage of popoulation at approximately 61%.

2: People

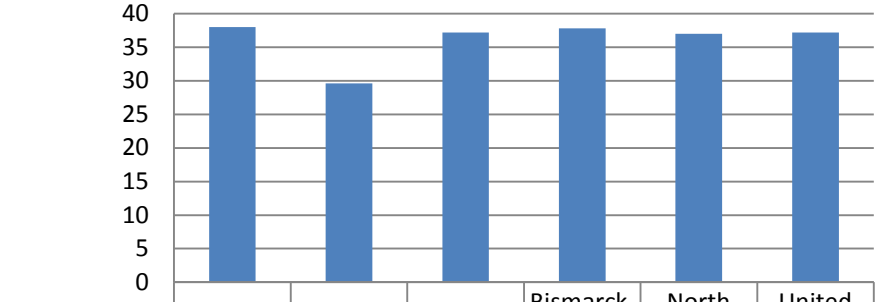
The following **Figure 2.3** represents the age structure in 2010 for the Bismarck, ND MSA through a "population pyramid". The Bismarck, ND MSA population pyramid is representative of an area with low infant mortality, slow natural population increase (only considering births and deaths), and long life expectancies. This age structure would be consistent with that of the United States as a whole.



Based on the 2010 US Census Bureau Decennial Census

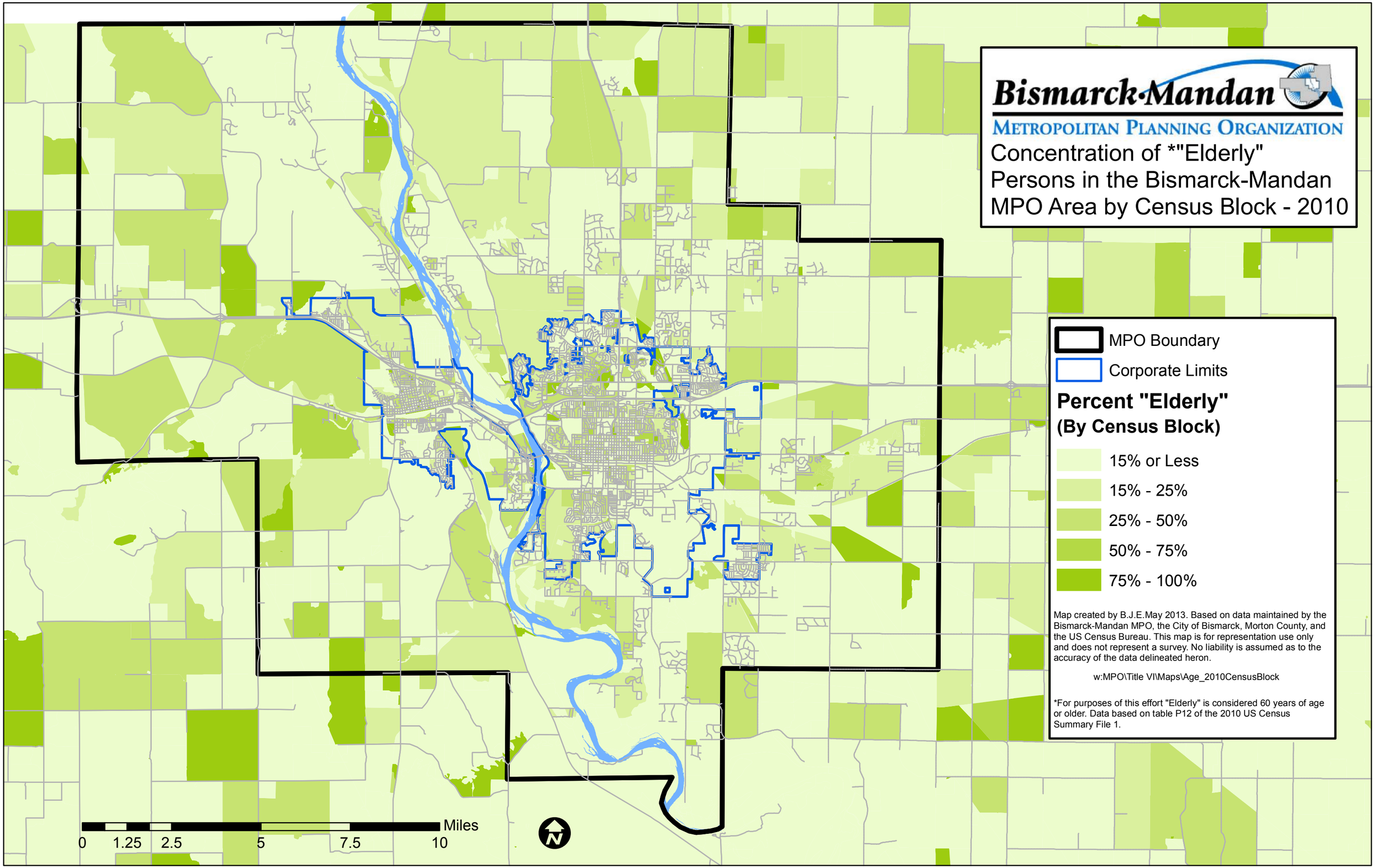
The median age of the Bismarck, ND MSA and various jurisdictions in comparison to North Dakota and the United States is represented in **Figure 2.4**. The median age of the Bismarck, ND MSA is slightly higher than the median ages of North Dakota and the United States as a whole. The jurisdiction with the youngest median age in the Bismarck, ND MSA was Lincoln at 29.6 and the oldest in Bismarck at 38. The following Map depicts concentrations of "Elderly" persons in the Bismarck-Mandan MPO area.

Figure 2.4: Median Age of Bismarck-Mandan MPO Jurisdictions in Comparison to North Dakota and the United States, 2010



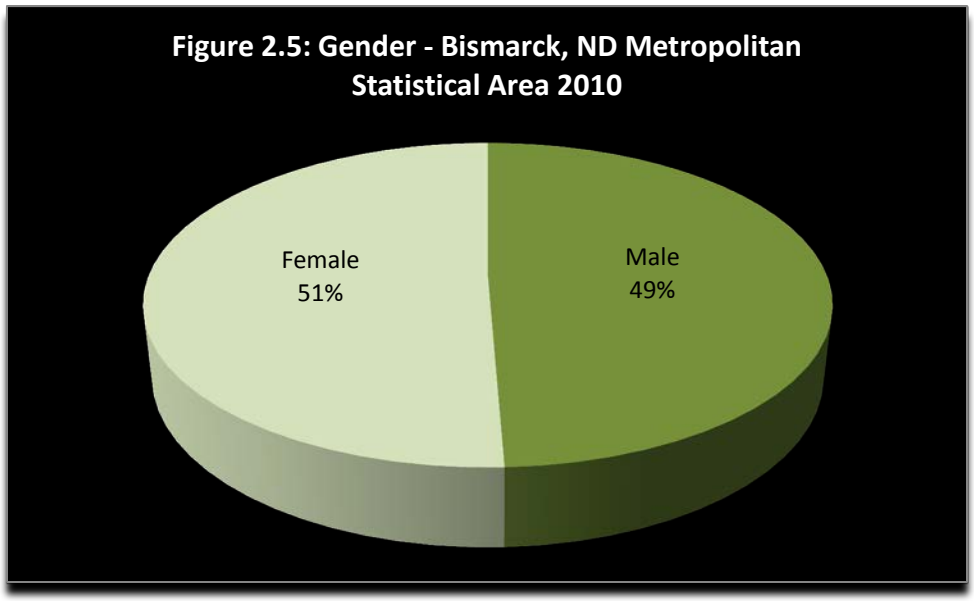
	Bismarck	Lincoln	Mandan	Bismarck, ND MSA	North Dakota	United States
Median Age	38	29.6	37.2	37.8	37	37.2

Based on the 2010 US Census Bureau Decennial Census Table PCT4


Bismarck-Mandan
Metropolitan Planning Organization
Concentration of *"Elderly" Persons in the Bismarck-Mandan MPO Area by Census Block - 2010
MPO Boundary
Corporate Limits
Percent "Elderly"
(By Census Block)
15% or Less
15% - 25%
25% - 50%
50% - 75%
75% - 100%
Map created by B.J.E.May 2013. Based on data maintained by the Bismarck-Mandan MPO, the City of Bismarck, Morton County, and the US Census Bureau. This map is for representation use only and does not represent a survey. No liability is assumed as to the accuracy of the data delineated heron.
w:MPO\Title VI\Maps\Age_2010CensusBlock
*For purposes of this effort "Elderly" is considered 60 years of age or older. Data based on table P12 of the 2010 US Census Summary File 1.
Miles
0
1.25
2.5
5
7.5
10
N

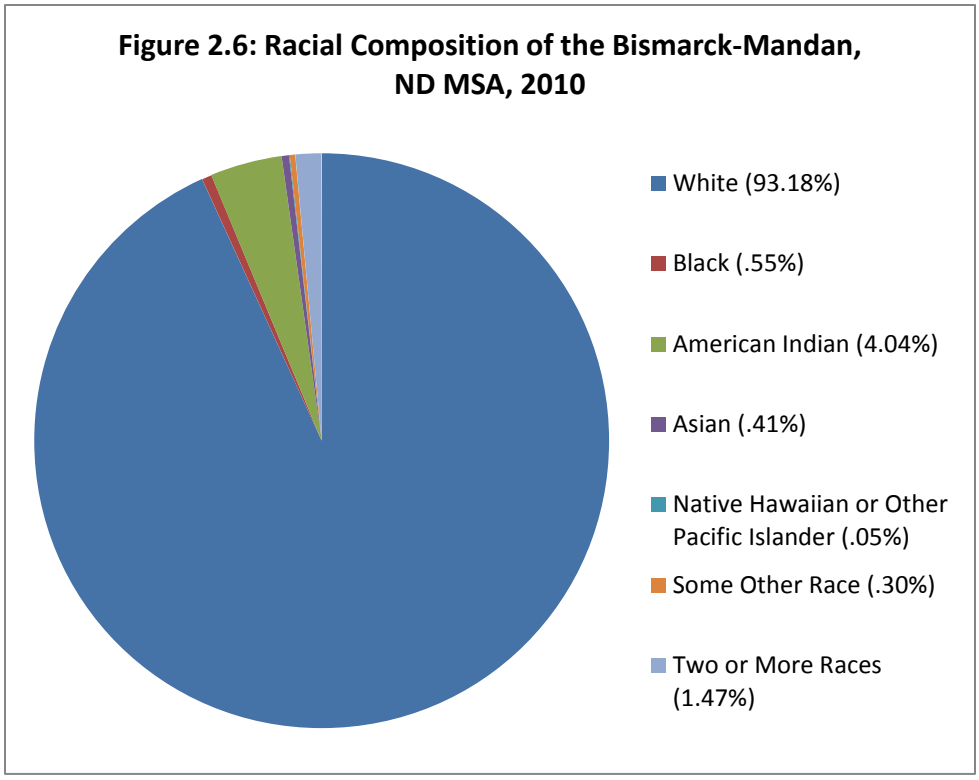
2: People

In 2010, the Bismarck, ND MSA was comprised of a slightly higher percentage of females compared to males, as represented in **Figure 2.5**.

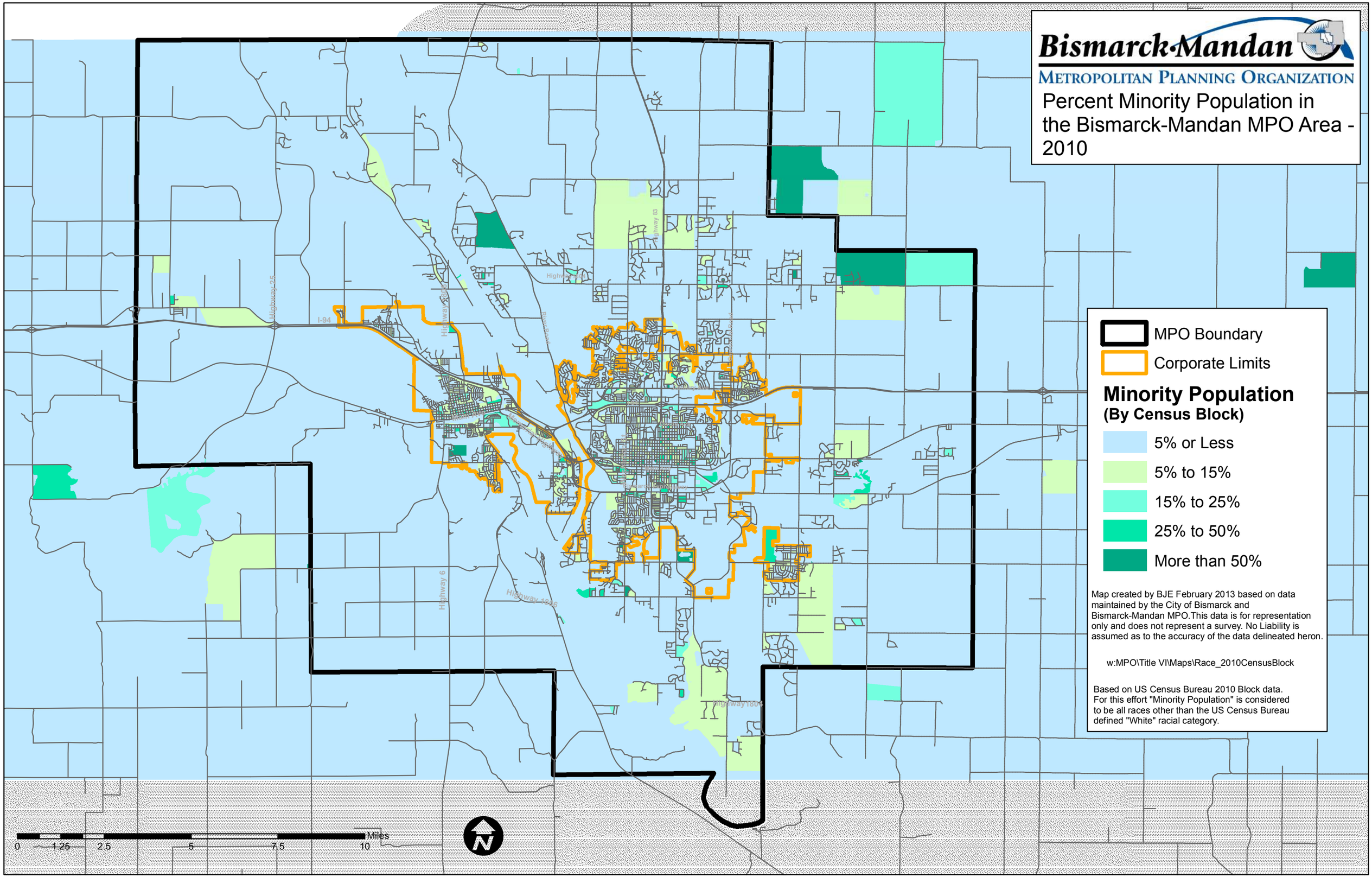


Based on the 2010 US Census Bureau Decennial Census

The following **Figure 2.6** represents the racial composition of the Bismarck, ND MSA. In 2010, approximately 93% of the Bismarck, ND MSA population was comprised of White individuals. The largest minority racial category was American Indian at 4.04%. The following map depicts concentrations of minority populations within the Bismarck-Mandan MPO area.



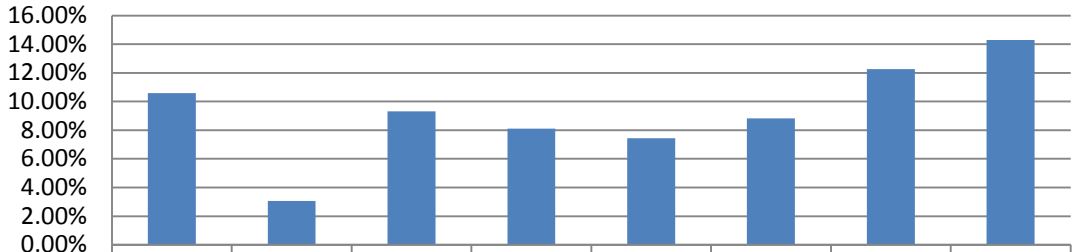
Based on the 2010 US Census Bureau Decennial Census


Bismarck-Mandan
Metropolitan Planning Organization
Percent Minority Population in the Bismarck-Mandan MPO Area - 2010
MPO Boundary
Corporate Limits
Minority Population
(By Census Block)
5% or Less
5% to 15%
15% to 25%
25% to 50%
More than 50%
Map created by BJE February 2013 based on data maintained by the City of Bismarck and Bismarck-Mandan MPO.This data is for representation only and does not represent a survey. No Liability is assumed as to the accuracy of the data delineated heron.
w:MPO\Title VI\Maps\Race_2010CensusBlock
Based on US Census Bureau 2010 Block data. For this effort "Minority Population" is considered to be all races other than the US Census Bureau defined "White" racial category.
Highway 83
Highway 6
Highway 1806
I-94
0
1.25
2.5
5
7.5
10
Miles

2: People

Figure 2.7 represents percent of population in poverty (as defined by the US Census Bureau) of various Bismarck, ND MSA jurisdictions in comparison to North Dakota and the United States, based on the 2007-2011 US Census Bureau American Community Survey. In general the jurisdictions within the Bismarck, ND MSA had lower rates of poverty in comparison to North Dakota and the United States however this data may not be representative of current trends. This data is based on a sample of the population between 2007 and 2011. The following map on page 9 depicts concentrations of households in poverty in the Bismarck-Mandan MPO area.

Figure 2.7: Percent of Population Below the Poverty Level Comparing Bismarck-Mandan MPO Jurisdictions to North Dakota and the United States, 2011



	Bismarck	Lincoln	Burleigh	Mandan	Morton	Burleigh and Morton	North Dakota	United States
Percent Population in Poverty	10.58%	3.07%	9.31%	8.10%	7.44%	8.84%	12.26%	14.30%

Based on the 2007-2011 US Census Bureau Decennial Census American Community Survey Tables B17001 and S1701

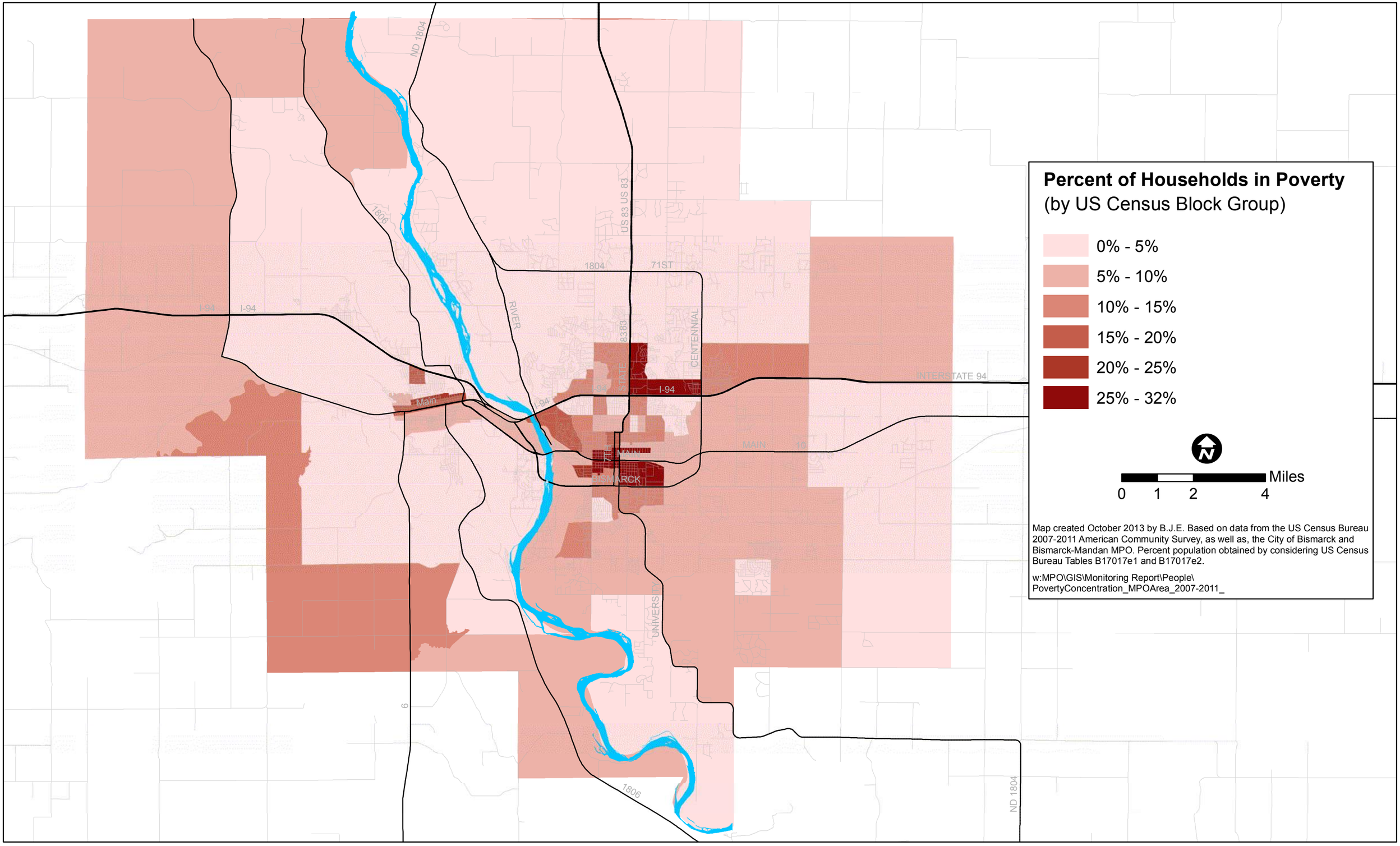
The following **Figure 2.8** represents population densities of various Bismarck-Mandan MPO jurisdictions in relation to North Dakota and the United States. The following map on page 10 represents population density within the Bismarck-Mandan MPO area.

Figure 2.8: Population Density of Bismarck-Mandan MPO Jurisdictions, North Dakota and the United States, 2010

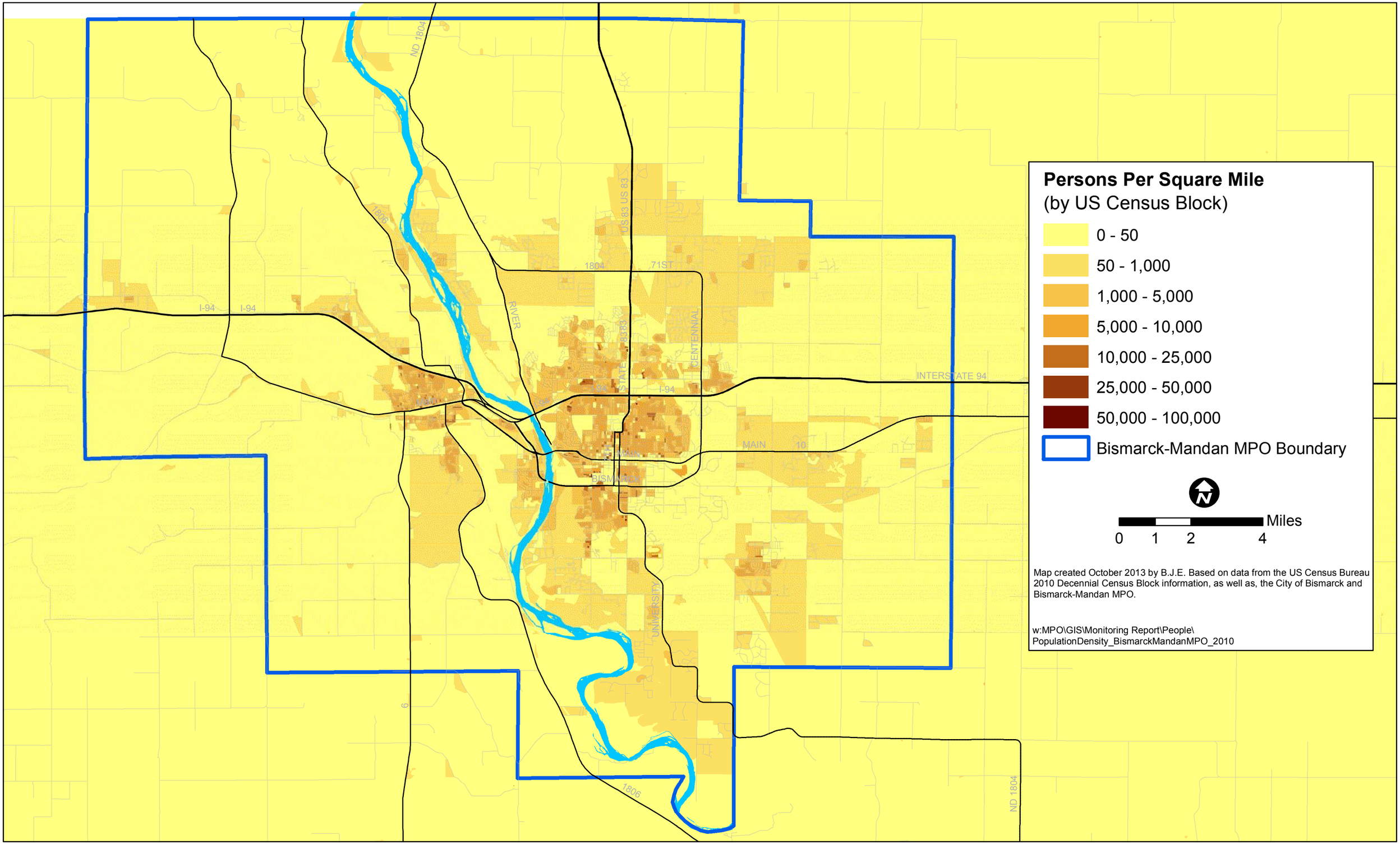
	Population	Land Area (Square Miles)	Population Density by Land Area (persons/square mile)
Bismarck	61,272	30.84	1,986.77
Lincoln	2,406	1.12	2,148.21
Burleigh County	81,308	1,632.65	49.80
Mandan	18,366	11.03	1,665.10
Morton County	27,471	1,926.27	14.26
Bismarck, ND MSA	108,779	3,559	30.57
North Dakota	672,591	69,000.80	9.75
United States	308,745,712	3,531,905.43	87.42

Based on US Census 2010 Tables GCT-PH1

Concentration of Households in Poverty in the Bismarck-Mandan MPO Area, 2007-2011



Population Density of the Bismarck-Mandan MPO Area, 2010

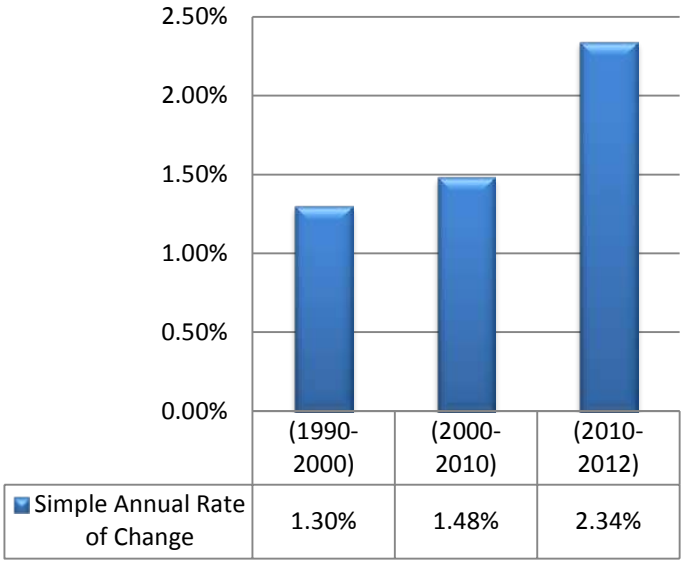


2: People

RECENT TRENDS

Historically the Bismarck-Mandan area has seen annual growth rates between 1% to 1.5%. Recent US Census Bureau population estimates for Burleigh and Morton County indicate a significantly heightened level of growth compared to previous decades. The latest available US Census Bureau estimates as of July 1, 2012 indicate a population of 113,875 individuals in Burleigh and Morton County. **Figure 2.9** indicates the simple annual rate of change by time period for Burleigh and Morton County. The simple annual rate of change was significantly heightened between 2010 to 2012 compared to the previous decades. This estimate may also be conservative as some of the data the US Census Bureau utilizes for establishing population estimates on an annual basis may be as much as two years old.

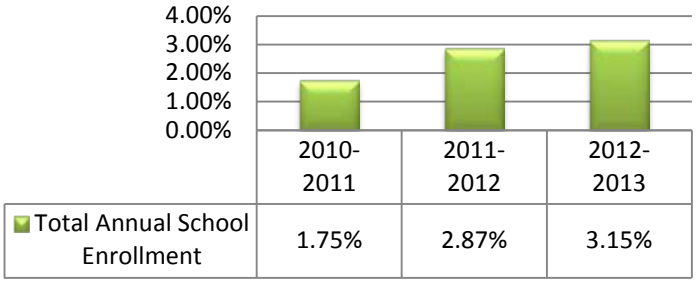
Figure 2.9: Simple Annual Rate of Population Change in Burleigh and Morton County, 1990-2012



Based on population estimates from the US Census Bureau (1990, 2000, 2010, and 2012)

Annually the Bismarck-Mandan MPO collects school enrollment information from all public schools in the Bismarck-Mandan MPO area. The following **Figure 2.10** identifies the annual rate of change, in student enrollment, for all public schools in the Bismarck-Mandan MPO area combined from 2010-2013. The simple annual rate of change from 2010-2013 is 2.65%.

Figure 2.10: Annual Rate of Change for All Public Schools Combined in the Bismarck-Mandan MPO Area 2010-2013



Based on school enrollment data obtained from the Bismarck and Mandan School Districts (2010, 2011, 2012, and 2013)

2: People

PROJECTIONS

In the development of household and employment projections for the Bismarck-Mandan MPO, Woods & Poole Economics data was acquired in 2012. This information provided population and employment projections to the year 2040. The following **Figure 2.11** represents the US Census Bureau 2010 population, as well as, Woods & Poole population projections for 2025 and 2040 for Burleigh and Morton Counties.

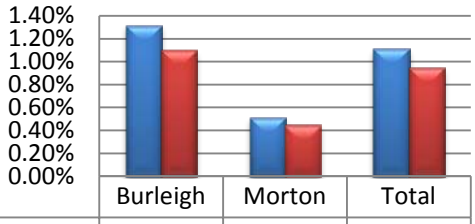
Figure 2.11: Woods & Poole Population Projections for Burleigh and Morton Counties, 2025 and 2040

	2010	2025	2040
Burleigh	81,308	97,410	113,500
Morton	27,471	29,597	31,633
Total	108,779	127,007	145,133

Based on 2010 US Census Bureau and the Woods & Poole 2012 Data Pamphlet and associated Excel Spreadsheets "BUECO.xlsx" and "MOECO.xlsx"

Figure 2.12 identifies the simple annual rate of change for Burleigh and Morton Counties from 2010-2040.

Figure 2.12: Woods & Poole - Bismarck, ND Metropolitan Statistical Area Population Projections, 2025 and 2040



	Burleigh	Morton	Total
Simple Annual Rate of Change 2010-2025	1.32%	0.52%	1.12%
Simple Annual Rate of Change 2025-2040	1.10%	0.46%	0.95%

Based on 2010 US Census Bureau and the Woods & Poole 2012 Data Pamphlet and associated Excel Spreadsheets "BUECO.xlsx" and "MOECO.xlsx"

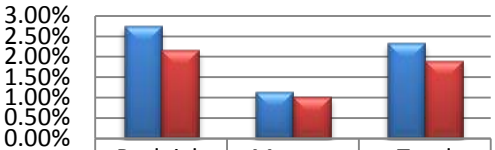
Annually, the City of Bismarck develops population projections for the region to the year 2040, based on annual US Census Bureau population estimates. **Figure 2.13** and **2.14** identifies the projected population and simple annual rate of increase, for Burleigh and Morton Counties, in 2020 and 2040.

Figure 2.13: City of Bismarck Population Projections for Burleigh and Morton Counties, 2020 and 2040

	2010	2020	2040
Burleigh	81,308	103,638	148,298
Morton	27,471	30,621	36,921
Total	108,779	134,259	185,219

Based on 2010 US Census Bureau and the City of Bismarck August 2013, "2010-2040 Metropolitan Population Projections"

Figure 2.14: City of Bismarck - Bismarck, ND Metropolitan Statistical Area Population Projections, 2020 and 2040



	Burleigh	Morton	Total
Simple Annual Rate of Change 2010-2020	2.75%	1.15%	2.34%
Simple Annual Rate of Change 2020-2040	2.15%	1.03%	1.90%

Based on 2010 US Census Bureau and the City of Bismarck August 2013, "2010-2040 Metropolitan Population Projections"

2: People

As the preceding information indicates there are significant differences between the Woods and Poole population projections compared to the City of Bismarck population projections. A variety of factors may be contributing to the differences. The Woods and Poole projections, used in this report, were developed in 2012 compared to the City of Bismarck projections which were developed in 2013. Since the growth trends have increased significantly the past few years it is possible the recent surge in population may not have been fully accounted for in the Woods and Poole projections as they were a year older than the City of Bismarck projections used. Additionally, projection methodologies are likely different between the two sets of population projections referenced. It is undetermined what variables are used in the Woods and Poole projections, however, the City of Bismarck typically uses a linear regression projection methodology considering the last few years of available US Census Bureau population estimates.

The Bismarck-Mandan MPO did not specifically project population, however future households and jobs were projected and discussed in the following chapters of this document. Recent trends and annual population projections will continue to be monitored for consistency with Bismarck-Mandan MPO socio-economic projections.

3: HOUSING

Housing characteristics are important considerations in transportation planning as they can provide valuable information regarding transportation and trending data within the region. Characteristics, such as, type of housing and number of persons per household, for instance, can be a determinate in trip generation rates. This chapter identifies a variety of housing information including existing conditions, recent trends, and future projections.

EXISTING CONDITIONS

The following **Figure 3.1** identifies a variety of existing housing conditions in the

Figure 3.1: Existing Housing Conditions for the Bismarck-Mandan MPO Area, North Dakota, and the United States – 2011

	Bismarck	Lincoln	Mandan	*Bismarck-Mandan MSA (2010)	North Dakota	United States
Vacancy Rate	5.01%	0.00%	7.83%	6.02%	11.68%	12.42%
Owner Occupied	65.46%	98.70%	73.25%	72.69%	66.54%	66.13%
Renter Occupied	34.54%	1.30%	26.75%	27.31%	33.46%	33.87%
Units in Structure						
1 Detached	46.94%	96.61%	59.24%	58.06%	61.35%	61.68%
1 Attached	7.28%	2.09%	4.47%	5.65%	5.22%	5.77%
2	5.26%	0.00%	4.95%	4.13%	2.38%	3.83%
3 or 4	4.08%	0.00%	5.46%	3.43%	3.68%	4.45%
5 to 9	6.43%	0.00%	6.19%	5.16%	4.23%	4.80%
10 to 19	7.25%	0.00%	3.84%	5.15%	5.54%	4.50%
20 to 49	9.82%	0.00%	1.66%	6.22%	7.21%	3.50%
50 or more	3.89%	0.00%	0.91%	2.50%	2.75%	4.79%
Mobile Home	9.03%	1.30%	13.29%	9.70%	7.62%	6.59%
Boat, RV, Van, etc.	0.00%	0.00%	0.00%	0.00%	0.02%	0.08%
Median Value	$151,400	$133,600	$120,500	$151,700	$118,200	$186,200
Persons/Household						
1 Person	33.51%	13.43%	29.88%	28.86%	31.56%	27.30%
2 Person	37.50%	26.34%	34.22%	37.54%	36.63%	33.49%
3 Person	14.36%	20.08%	16.77%	15.08%	13.82%	15.90%
4 Person	9.65%	22.03%	12.37%	12.04%	10.89%	13.46%
5 Person	3.87%	11.21%	4.49%	4.80%	4.85%	6.14%
6 Person	0.80%	5.74%	2.13%	1.20%	1.56%	2.28%
7 Person	0.31%	1.17%	0.13%	0.48%	0.69%	1.43%
Average Household Size	2.19	3.16	2.35	2.35	2.30	2.60
Owner Occupied	2.40	3.16	2.60	2.54	2.49	2.68
Renter Occupied	1.80	2.90	1.68	1.82	1.93	2.45

Based on Tables B11016, B25002, B25003, B25010, B25024, and B25077 of the 2007-2011 US Census Bureau American Community Survey
**The Bismarck, ND MSA (2010) is comprised of all of Burleigh and Morton Counties*

3: HOUSING

Bismarck-Mandan MPO area in comparison to State and national housing data. The information is based on 2007-2011 US Census Bureau American Community Survey data and may not be reflective of the most recent trends.

In comparison to State and national data, the Bismarck-Mandan Metropolitan Statistical Area (MSA) has a significantly lower vacancy rate. The median value of homes in the Bismarck-Mandan MSA is significantly higher than median housing values of North Dakota and significantly lower than median housing values of the United States. The average household size is slightly higher in the Bismarck-Mandan MSA when compared to the State and significantly lower when compared to the Nation. Other existing condition housing characteristics are relatively consistent between the Bismarck-Mandan MSA, the State, and Nation. A higher degree of variability can be noted among the various jurisdictions within the Bismarck-Mandan MSA.

RECENT TRENDS

The Bismarck-Mandan MPO area is broken down into smaller geographic units identified as Transportation Analysis Zones (TAZs). There are currently 364 TAZs which comprise the MPO area. These TAZs include housing and employment data used in the Bismarck-Mandan MPO transportation model to project future traffic conditions. The Bismarck-Mandan MPO collects building permit data (by TAZ) for all jurisdictions, throughout the MPO area. This data helps to identify growth patterns within the region and serves to provide population estimates between the US Census Bureau Decennial Census collection periods by TAZ. In general Burleigh and Morton County have experienced a heightened level of growth in residential dwelling unit permits since 2010. **Figure 3.2** identifies simple annual growth rate of 3.11% for the past two years. This is significantly higher than historic population growth patterns of approximately 1% to 1.5% annual growth.

Figure 3.2: *Bismarck, ND Metropolitan Statistical Area 2011 and 2012 New Dwelling Unit Permits

Total Dwelling Units 2010	New Dwelling Units 2011	Total Dwelling Units 2011	2010-2011 % Change	New Dwelling Units 2012	Total Dwelling Units 2012	2011-2012 % Change	2010-2012 Simple Annual Rate of Change
47,833	893	48,726	1.87%	2,079	50,805	4.27%	3.11%

Total dwelling units 2010 based on the 2010 US Census Bureau data. New dwelling units data obtained from the Cites of Bismarck and Mandan, and Morton County Building Inspections Divisions
**The Bismarck, ND MSA (2010) is comprised of all of Burleigh and Morton Counties.*

3: HOUSING

The following Maps 1-5 (on pages 18-22) labeled *Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) – Percent Increase and Total Dwelling Unit Increase: 2010-2012* identify growth of residential dwelling units within the MPO area since 2010 by TAZ. Generally the most significant recent dwelling unit growth has been experienced in the following areas: northwest Bismarck (TAZs 45, 46, 322, 47, 348, 347, and 52); northeast Bismarck (TAZs 343, 69, 344, and 361); south Bismarck (TAZ 162); Lincoln area (TAZs 177, 178, 190, and 194); southeast Mandan (TAZ 289); and southwest Mandan (TAZ 274).

AREA HOUSING PROJECTIONS

Recently both the Bismarck-Mandan MPO and the 2012 North Dakota Housing Needs Assessment have developed housing projections within the Bismarck-Mandan MPO area.

Bismarck-Mandan MPO Projections

The Bismarck-Mandan MPO projects dwelling units for the area to the years 2025 and 2040. The projected dwelling units are distributed throughout the region through a process of computer modeling and staff input from the Bismarck-Mandan MPO member jurisdictions. Population, housing, and employment projections were last developed in 2012 to the horizon years of 2025 and 2040 for the Bismarck-Mandan MPO area. Three scenarios were developed for future housing and employment needs within the Bismarck-Mandan MPO Area which included low growth, moderate growth, and high growth scenarios. The low growth scenario represented a historic growth rate of approximately 1.5 percent annual residential dwelling unit growth between 2010 and 2040. The moderate growth scenario represented a heightened level of growth between 2010 and 2025 of 2.5% annual residential dwelling unit growth then leveling off to approximately 1% growth between 2025 and 2040. The high growth scenario represented a significantly heightened level of growth between 2010 and 2025 of approximately 3.5% annual residential dwelling unit growth then leveling off to approximately 1% growth between 2025 and 2040. Both the moderate growth and high growth scenario were intended to represent varying degrees of influence the recent energy development in Western North Dakota would have on the Bismarck-Mandan MPO area. The Bismarck-Mandan MPO Policy Board opted to adopt the "High Growth" scenario. The following **Figure 3.3** represents the Bismarck-Mandan MPO area "High Growth" scenario. As previously noted these projections represent a simple annual rate of growth of 3.5% between 2010 and 2025 and approximately 1% between 2025 and 2040.

Figure 3.3: Projected Households for the Bismarck-Mandan MPO Area (High Growth Scenario)

2010	2025	2040
45,265	68,997	79,241

Information based on 2010 US Census Bureau and projections developed by the Bismarck-Mandan MPO in 2012.

The projected household change by TAZ can be viewed on the following map (on page 23) titled *Bismarck-Mandan MPO Household Change: 2010-2040.*

3: HOUSING

2012 North Dakota Statewide Housing Needs Assessment Projections

A North Dakota Statewide Housing Needs Assessment was conducted by the Center for Social Research at North Dakota State University, for the North Dakota Housing Finance Agency, to identify statewide housing needs throughout the State broken down by region. **Figure 4.4** represents housing projections developed by for the North Dakota State Housing Needs Assessment to the year 2025 for Burleigh and Morton Counties. The projections identified in **Figure 4.4** represent a simple annual rate of growth of 1.8% between 2010 and 2025. Projections beyond 2025 were not conducted as part of this study.

Figure 4.4: 2012 North Dakota Statewide Housing Needs Assessment Projections (Burleigh and Morton Counties)

2010	2025	2040
46,386	58,927	Not Conducted

Information based on "2012 North Dakota Statewide Housing Needs Assessment" (Table 3 page 86).

RECENT TRENDS COMPARED TO AREA PROJECTONS

Both the Bismarck-Mandan MPO projections and the *2012 North Dakota Statewide Housing Needs Assessment* projections depict a heightened level of growth from historic growth rates. Recent growth trends may be more consistent with the projections adopted by the Bismarck-Mandan MPO Policy Board. However, it is important to note that two years is not sufficient time to determine the accuracy of long term projections. In any given year a high degree of variability may occur. For instance the flooding events which occurred in the Bismarck-Mandan MPO area may have had some influence on residential building permits issued in 2011 and 2012. Building permit activity will continue to be monitored in comparison to area projections.

In general the distribution of projected housing units by the Bismarck-Mandan MPO has been consistent with recent building permit activity. However, the following TAZs have experienced significantly more residential growth, on an annual basis, between 2011 and 2012 then was originally projected between 2010 and 2040: 45; 52; 177; 194; 274; 289; 322; 343 and 344. At this time the differences identified between actual and projected growth patterns are not drastic enough to warrant modifications to the socio-economic data associated with the Bismarck-Mandan MPO transportation model. However, the projected distribution of households in the Bismarck-Mandan MPO area will continue to be monitored in comparison to residential building permit activity.

Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) - Percent Increase and Total Dwelling Unit Increase: 2010-2012

(Based on residential building permits issued 2011-2012)

Map 1

- 0% - 5%
- 5% - 25%
- 25% - 50%
- 50% - 100%
- 100% or Greater

1 = Transportation Analysis Zone Number

1 = Number of New Dwelling Units in 2011 and 2012

N

0 0.5 1 2 3 Miles

Map created by B.J.E . August 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County.
w:MPO\GIS\Monitoring Report\Socio-Economic\Building Permits\
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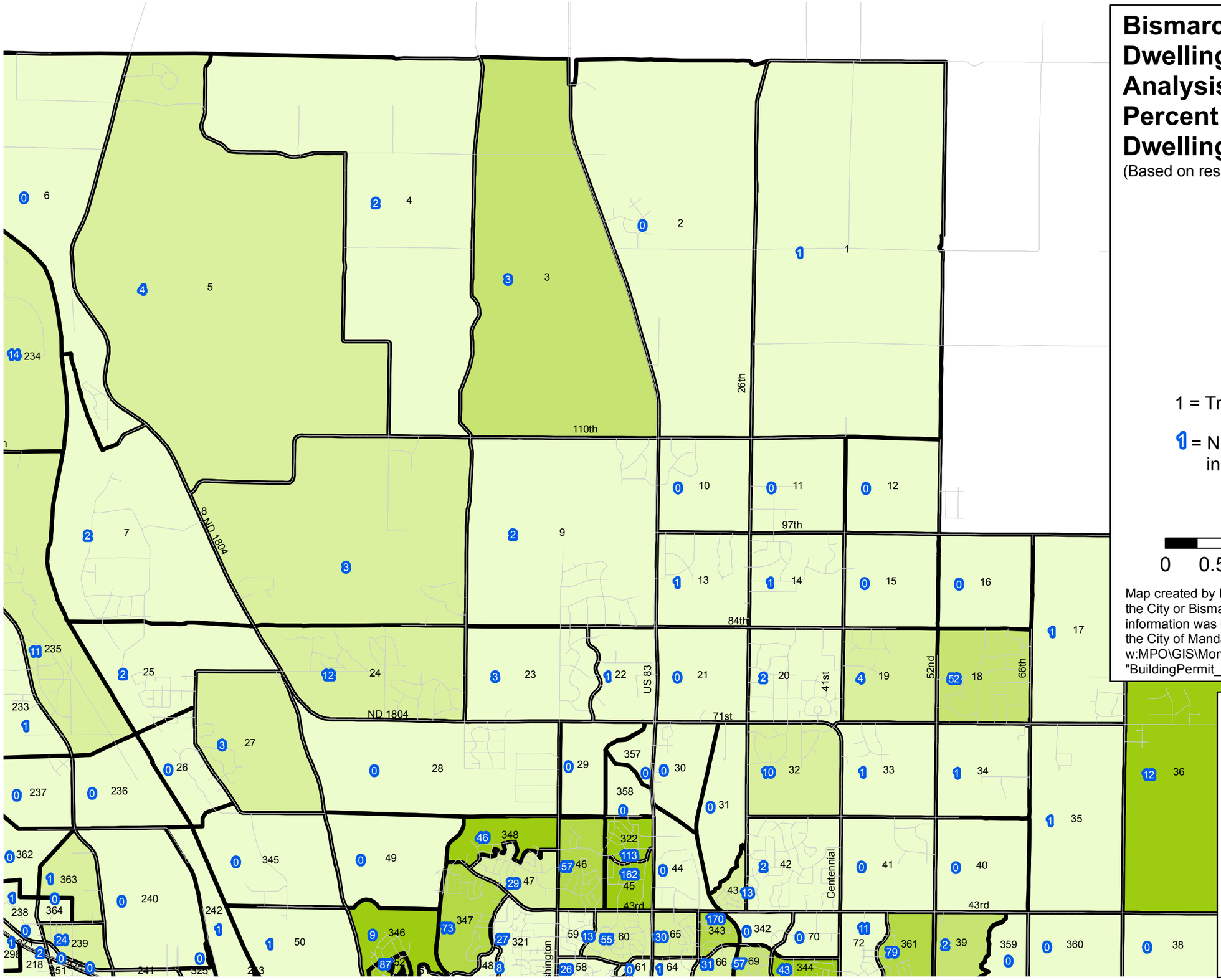

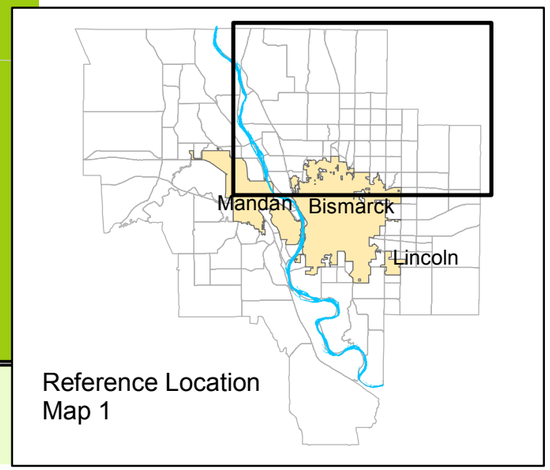

Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) - Percent Increase and Total Dwelling Unit Increase: 2010-2012

(Based on residential building permits issued 2011-2012)

Map 2

- 0% - 5%
- 5% - 25%
- 25% - 50%
- 50% - 100%
- 100% or Greater

1 = Transportation Analysis Zone Number

1 = Number of New Dwelling Units in 2011 and 2012

0 0.5 1 2 3 Miles

Map created by B.J.E . August 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County.
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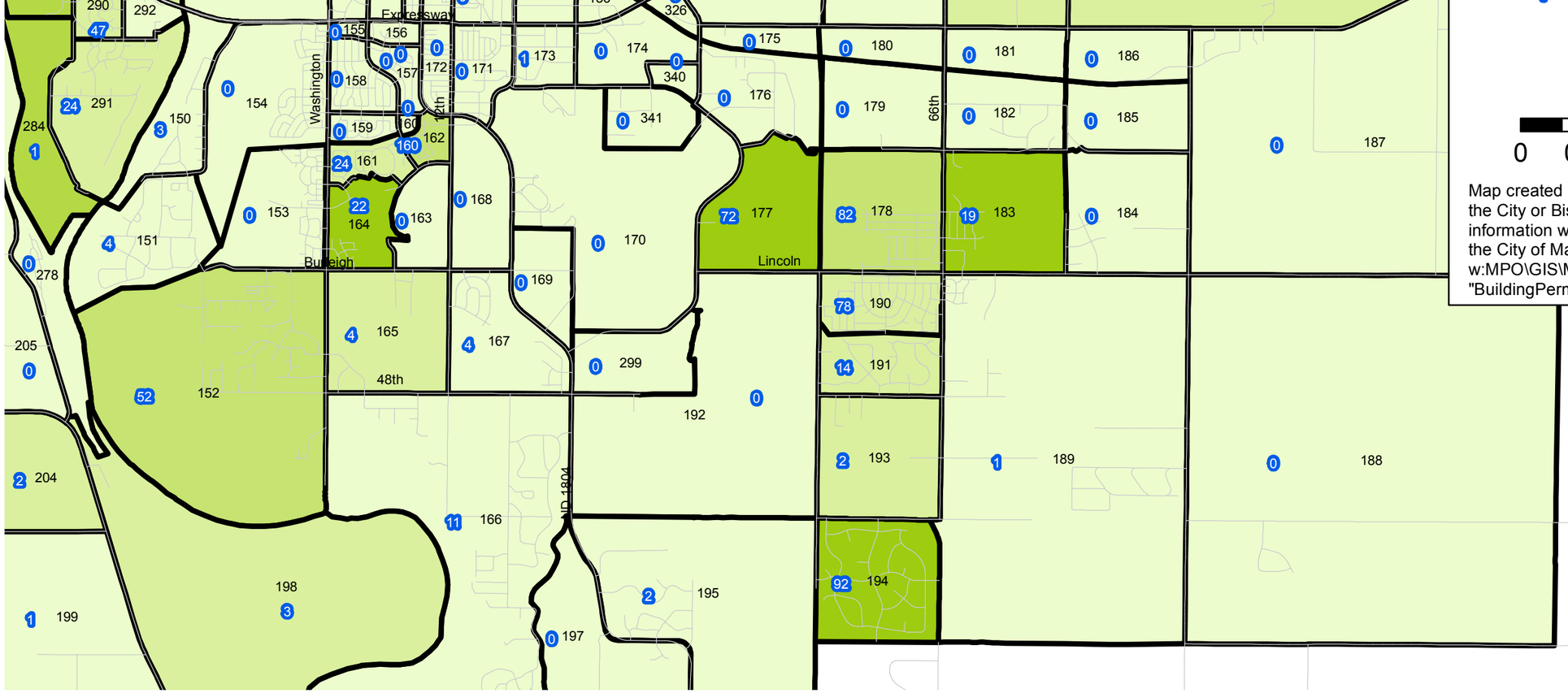

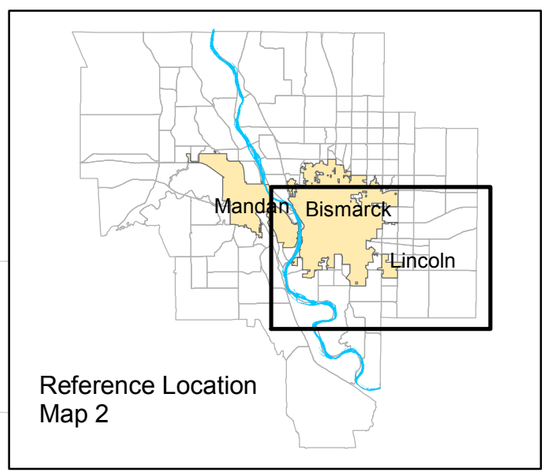

Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) - Percent Increase and Total Dwelling Unit Increase: 2010-2012

(Based on residential building permits issued 2011-2012)

Map 3

- 0% - 5%
- 5% - 25%
- 25% - 50%
- 50% - 100%
- 100% or Greater

1 = Transportation Analysis Zone Number

1 = Number of New Dwelling Units in 2011 and 2012

0 0.5 1 2 3 Miles

Map created by B.J.E . August 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County.
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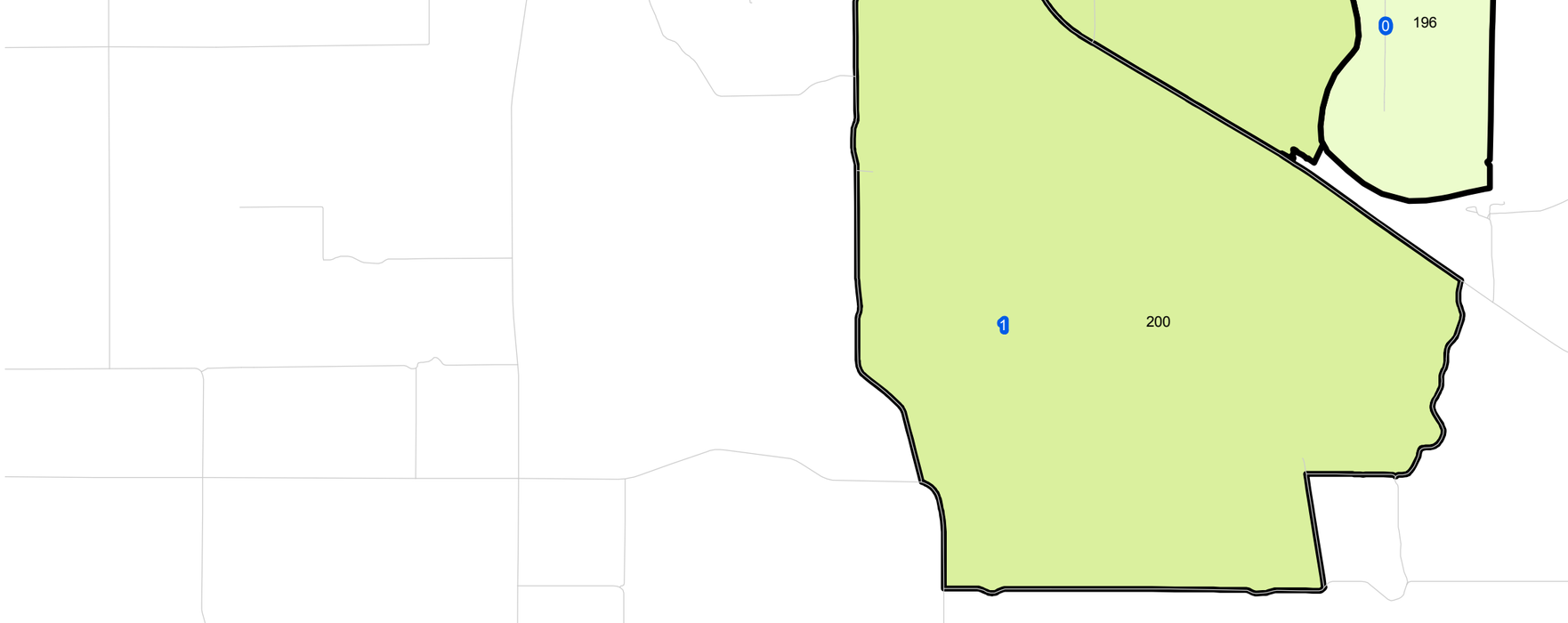

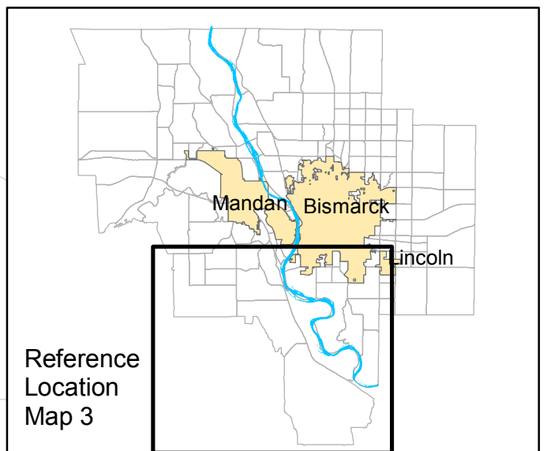

Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) - Percent Increase and Total Dwelling Unit Increase: 2010-2012

(Based on residential building permits issued 2011-2012)

Map 4

- 0% - 5%
- 5% - 25%
- 25% - 50%
- 50% - 100%
- 100% or Greater

1 = Transportation Analysis Zone Number

1 = Number of New Dwelling Units in 2011 and 2012

0 0.5 1 2 Miles

Map created by B.J.E . August 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County.
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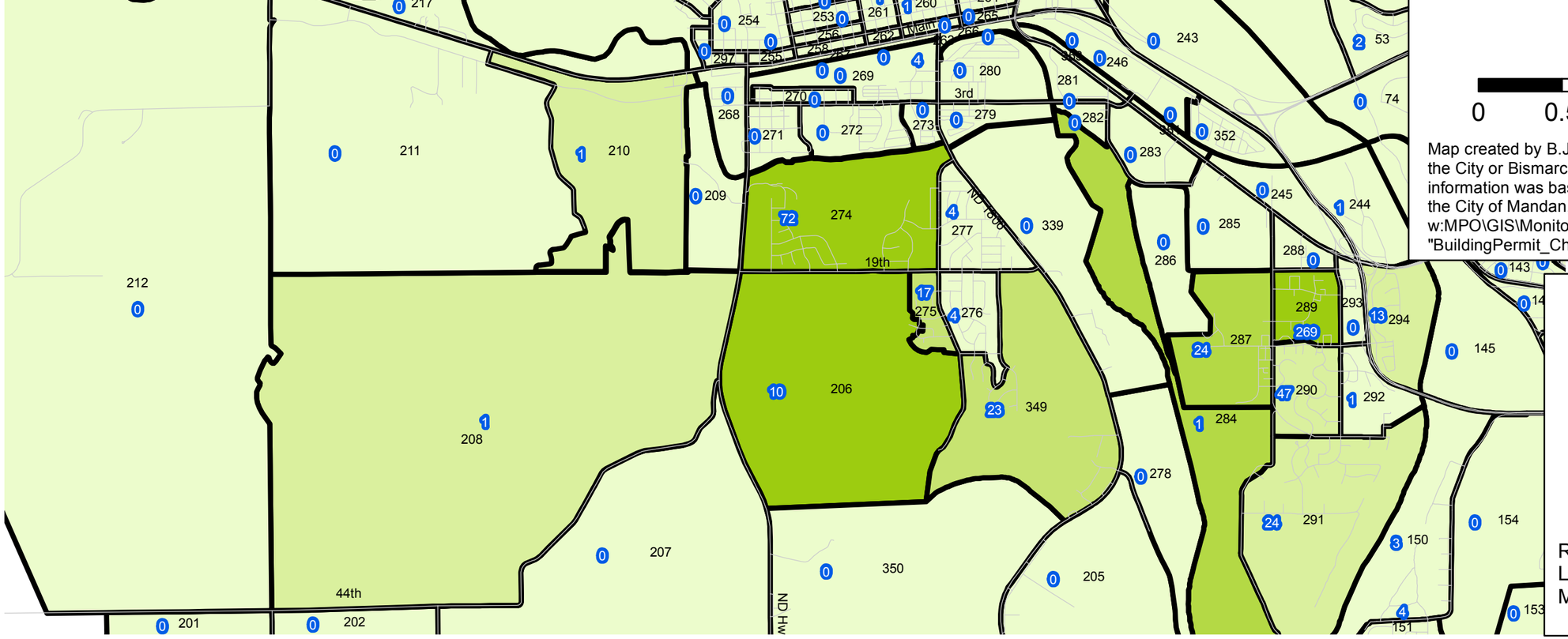

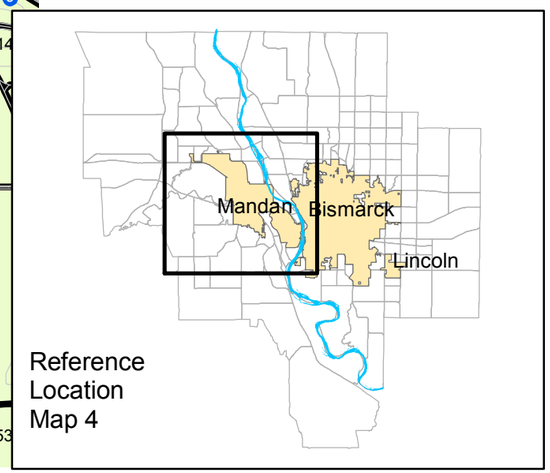

Bismarck-Mandan MPO Area Dwelling Units by Transportation Analysis Zone (TAZ) - Percent Increase and Total Dwelling Unit Increase: 2010-2012

(Based on residential building permits issued 2011-2012)

Map 5

- 0% - 5%
- 5% - 25%
- 25% - 50%
- 50% - 100%
- 100% or Greater

1 = Transportation Analysis Zone Number

1 = Number of New Dwelling Units in 2011 and 2012

N

0 0.75 1.5 3 Miles

Map created by B.J.E . August 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County.
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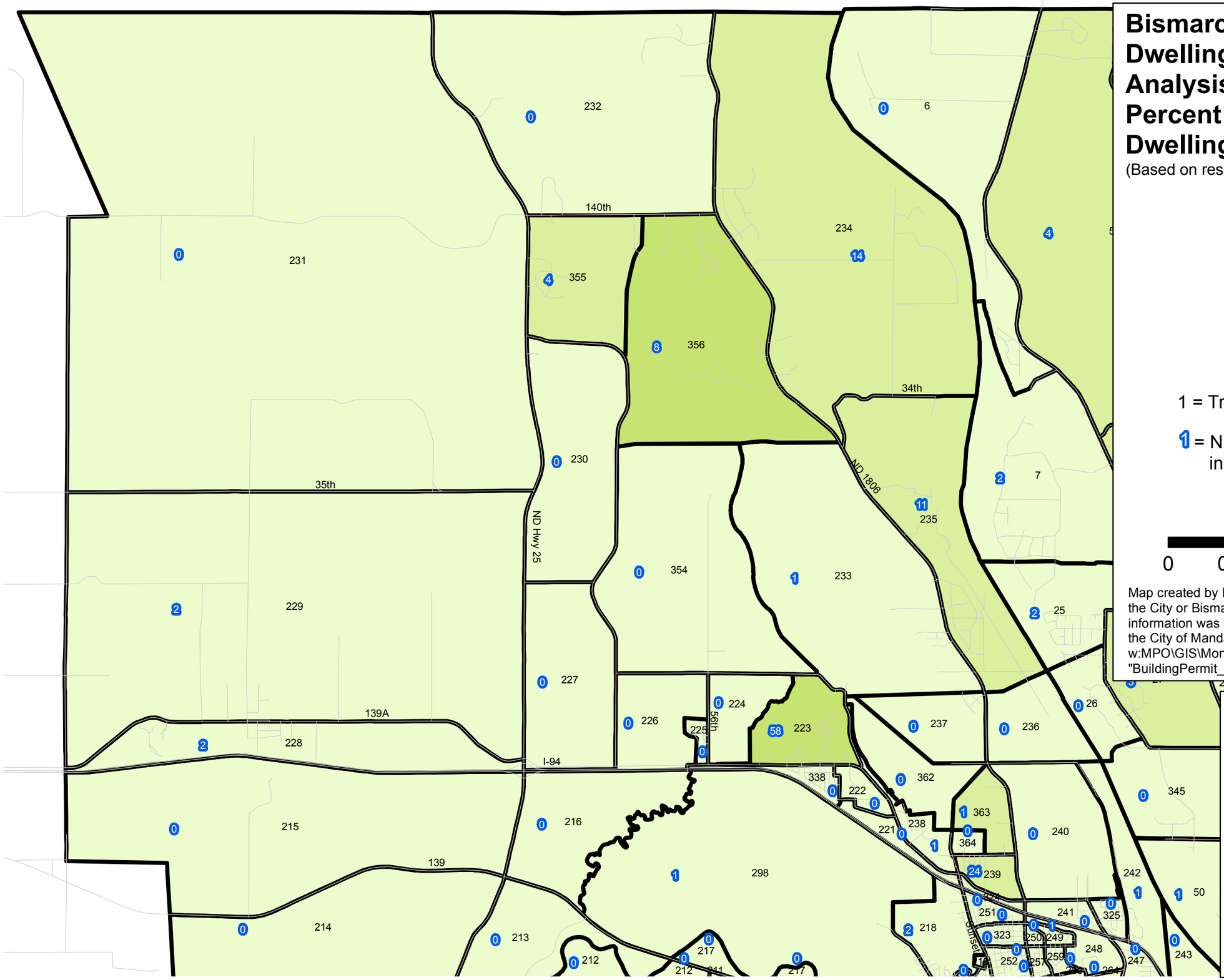
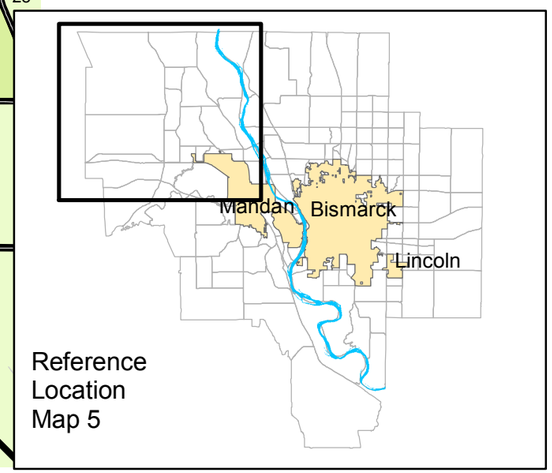




Bismarck-Mandan MPO
Household Change: 2010-2040

(High Growth Assumption)

- 0 - 50
- 51 - 250
- 251 - 500
- 501 - 750
- 751 - 1,000
- 1,001 - 1,250
- 1,250 - 1,544

N

0 1 2 4 6 8 Miles

Map created by B.J.E . May 2013. Map based on data maintained by the City of Bismarck and the Bismarck-Mandan MPO. The change in households between 2010-2040 was based on the "High Growth" scenario developed by the Bismarck-Mandan MPO.

w:MPO\GIS\Monitoring Report\Socio-Economic\TAZ 2012\"HH_Change_by_TAZ_2040_11x17"

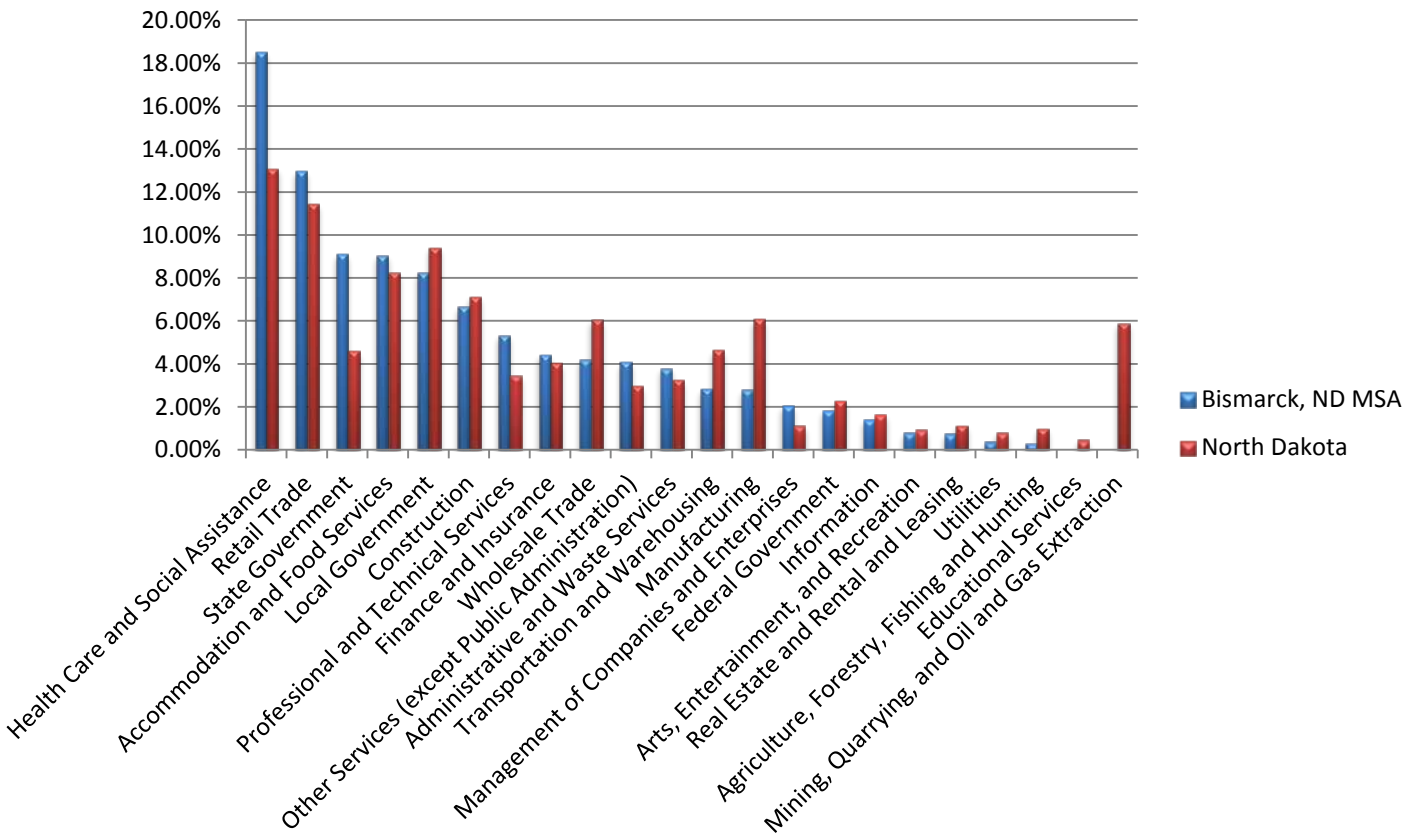
4: Employment

The location and characteristics of employment influences travel patterns within a region. Employment sites, for instance, are destinations which attract trips not only from employees working at the site but from customers or visitors to the employment site. The type of employment may also influence the number of trips, for example, a retail or service oriented business may attract a greater number of trips per employee when compared to an industrial oriented business. This chapter examines some current characteristics and locations of employment within the region.

EXISTING AND PROJECTED EMPLOYMENT CHARACTERISTICS

Labor market information by the North American Industrial Classification System (NAICS) was collected from Job Service North Dakota for the Bismarck, ND MSA and North Dakota. The following **Figure 4.1** compares the percent of employees by the NAICS category for the Bismarck-Mandan MSA to the State of North Dakota. The five leading industries, by employment, in the Bismarck, ND MSA include Health Care and Social Assistance, Retail Trade, State Government, Accommodation and Food Services, and Local Government. Compared to North Dakota, the Bismarck, ND MSA has a significantly higher percentage of individuals employed in the Health Care and

Figure 4.1: Percent Employment by Industry for the Bismarck, ND MSA in Comparison to North Dakota, 2012 Annual Average



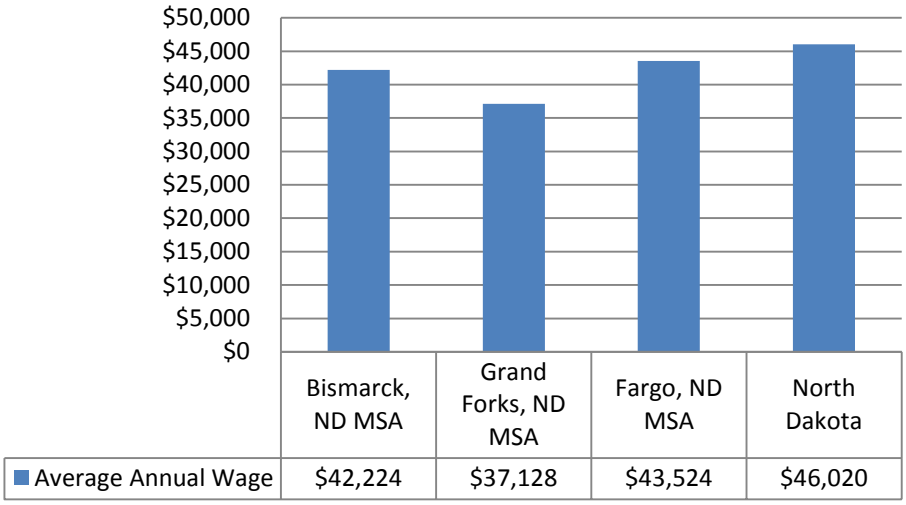
Labor Market Information Center, Job Service North Dakota

4: Employment

State Government industries. North Dakota has a noticeably higher percentage of individuals involved in the Wholesale Trade, Transportation and Warehousing, and Manufacturing industries. It should be noted that employment information related to the Educational Services and Mining, Quarrying, and Oil and Gas Extraction industries was considered "Confidential" for the Bismarck, ND MSA so it is unknown at this time how many individuals are employed in those sectors.

Figure 4.2 represents the average annual wage in the first quarter of 2013, for the Bismarck, ND MSA in comparison to other North Dakota MSAs and North Dakota.

Figure 4.2: Average Annual Wage for the Bismarck, ND MSA in Comparison to Other North Dakota MSAs and North Dakota, First Quarter 2013



Labor Market Information Center, Job Service North Dakota

The following **Figure 4.3** is a list of the top 10 employers in the Bismarck-Mandan MPO area by employee size:

Figure 4.3: Top 10 Employment Sites in Bismarck-Mandan Area, April 2013

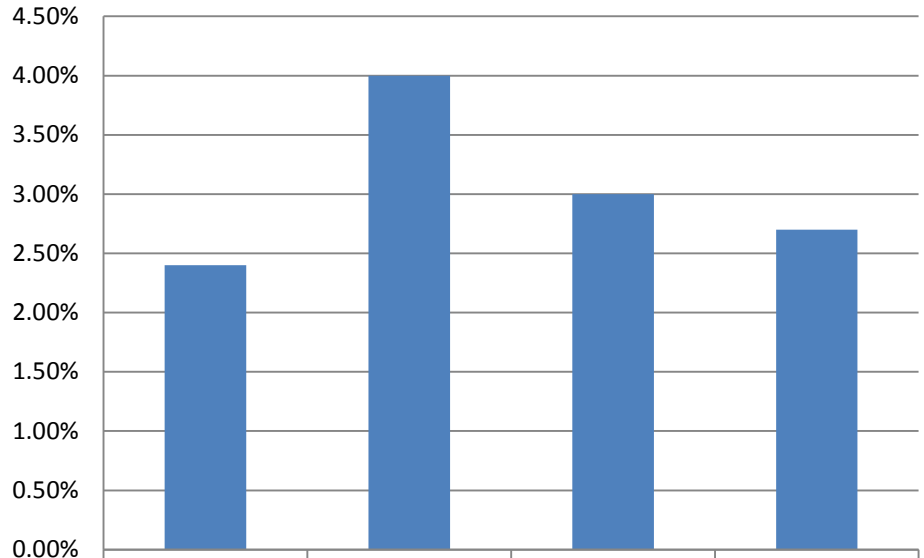
Employer	Number of Employees
State of North Dakota	4,400
Sanford Health	3,102
St. Alexius Medical Center	2,557
Bismarck Public Schools	1,901
City of Bismarck	850
MDU Resources Group	743
Mandan Public Schools	583
Aetna	573
Housing Industry Training (HIT)	554
Mid-Dakota Clinic	531

Based on data obtained from the Bismarck-Mandan Development Association web-site: www.bmda.org/workforce/employers.asp

4: Employment

Figure 4.4 identifies unemployment rates for the Bismarck-Mandan MPO area jurisdictions in comparison to other Metropolitan Statistical Areas, and the State of North Dakota. In general unemployment rates within the Bismarck-Mandan MPO area are lower compared to other North Dakota Metropolitan Statistical Areas and the State of North Dakota.

Figure 4.4: Unemployment Rate for Bismarck, ND MSA in Comparison to other North Dakota MSAs and North Dakota, First Quarter 2013

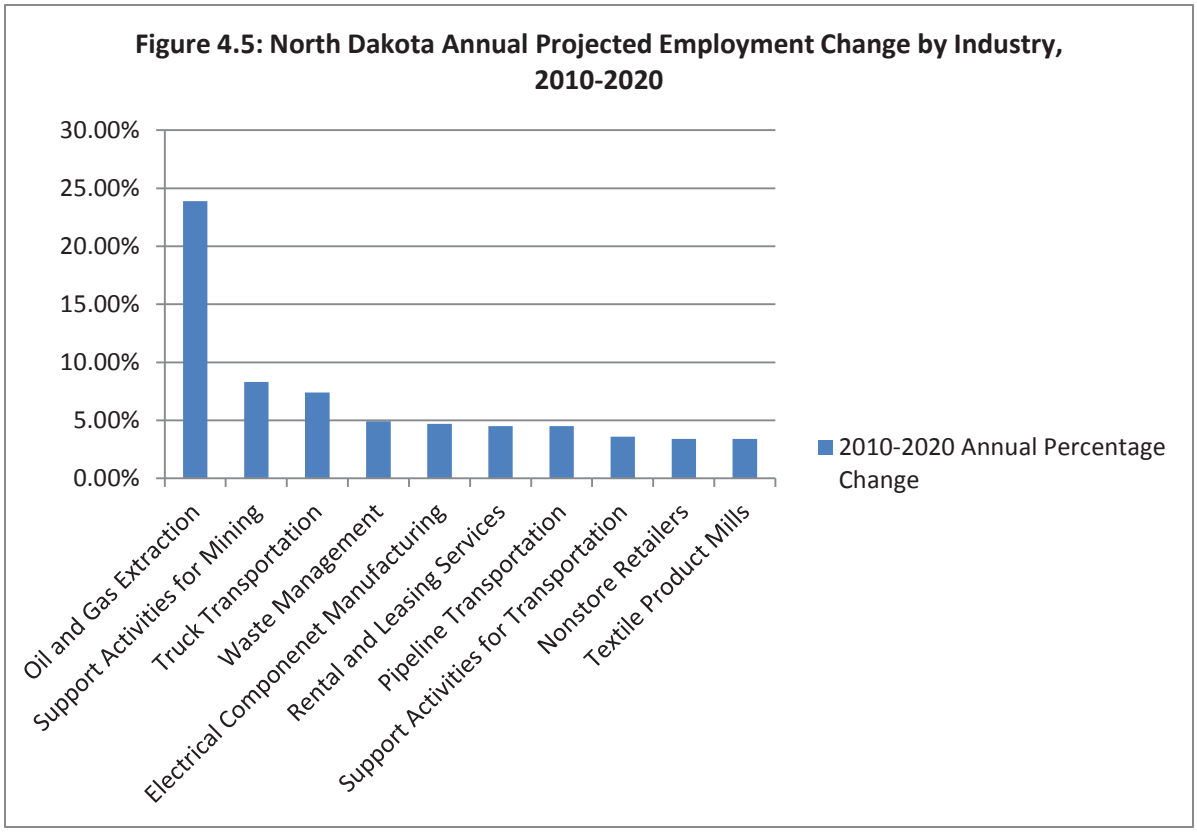


	Bismarck, ND MSA	Grand Forks, ND MSA	Fargo, ND, MSA	North Dakota
Unemployment Rate	2.40%	4.00%	3.00%	2.70%

Labor Market Information Center, Job Service North Dakota

4: Employment

Figure 4.5 represents the 10 highest projected growth industries statewide, from 2010 to 2020. As the figure indicates the Oil and Gas Extraction and associated industries are projected to grow significantly statewide from 2010 to 2020.



Labor Market Information Center, Job Service North Dakota

Locally, in 2012 the Bismarck-Mandan MPO updated the socio-economic projections for the areas transportation model. Housing and employment projections were established for the Bismarck-Mandan MPO area to the years 2025 and 2040. Generally, three different employment sectors were considered and include retail oriented jobs, service oriented jobs, and all other jobs. The following **Figure 4.6** represents the jobs projected for the Bismarck-Mandan MPO area. These projections indicate a simple annual rate of change of approximately 3.12% from 2010 to 2040.

Figure 4.6: Bismarck-Mandan MPO 2012 Employment Projections, 2025 and 2040

Employment Sector	2010	2025	2040
Retail	11,473	17,495	21,733
Service	26,730	46,607	60,415
Other	25,921	35,435	42,080
Total	64,124	99,537	124,228

Data based on projections developed for the Bismarck-Mandan MPO in 2012. Employment figures extracted from the Transportation Analysis Zone Structure within the Bismarck-Mandan MPO transportation model.

4: Employment

Additionally, Woods & Poole Economics is a firm which annually projects population and employment trends for regions throughout the United States. Woods & Poole data was acquired in 2012 in preparation for the development of Bismarck-Mandan MPO housing and employment projections. Woods & Poole population and employment projections were also established to the year 2040. It should be noted that the Woods & Poole projections consider the entire two-county area of Burleigh and Morton. The following **Figure 4.7** depicts total Woods & Poole employment estimates and projections for 2010, 2025, and 2040. The Woods and Poole employment projections from 2012 indicate a more conservative simple annual rate of change of approximately 1.89% compared to the Bismarck-Mandan MPO projections. Growth trends within the region will continue to be monitored to ensure the validity of the Bismarck-Mandan MPO housing and employment projections. The Bismarck-Mandan MPO, as well as, the Woods & Poole projections assume jobs will grow at a faster rate than population/households within the region.

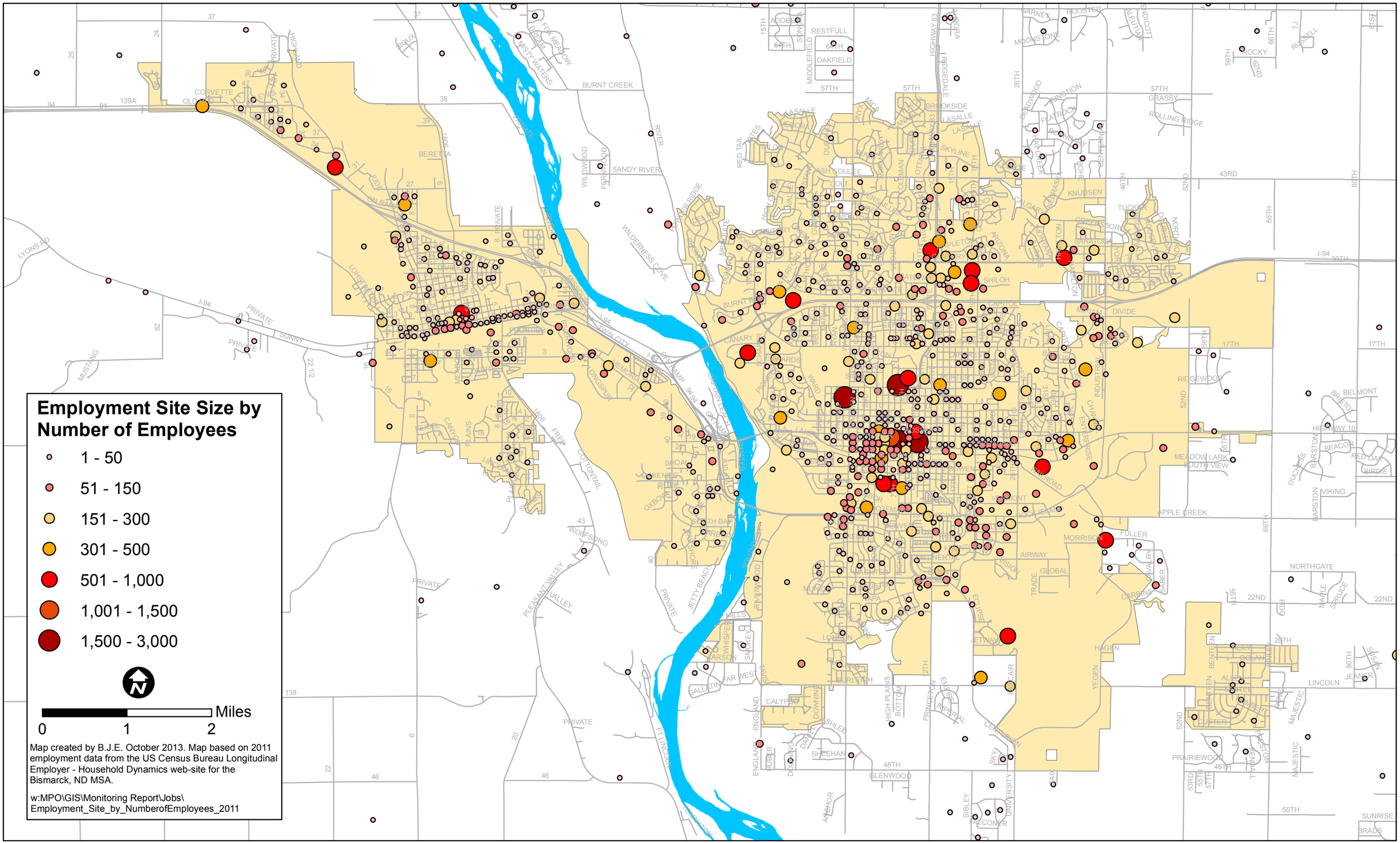
Figure 4.7: Woods & Poole Total Employment Estimates and Projections for Burleigh and Morton Counties, 2010, 2025, 2040

2010	2025	2040
79,414	99,279	124,388

Estimates and projections based on Woods & Poole Excel Spreadsheets associated with the Burleigh County and Morton County 2012 Data Pamphlet.

The following series of maps depict the location of existing and projected employment within the region. The first map identifies employment site locations by number of employees based on 2011 data. The next set of maps identifies recent building permit activity for Retail, Service, and (all) Other employment categories. The final series of maps in this chapter identify locations of projected employment between 2010 and 2040 by Transportation Analysis Zone (TAZ). Although the bulk of projected employment is identified on the perimeters of the communities of Bismarck, Lincoln, and Mandan building permits issued over the past two years indicate activity in both the mature parts of Bismarck and Mandan, as well as, the developing areas on the perimeters of the communities. The locations of building permits for businesses, within the region, will continue to be monitored to ensure consistency with projected employment locations.

Employment Sites by Size in the Bismarck-Mandan Area, 2011



Bismarck-Mandan MPO Area Building Permits Issued by Employment Type, 2010-2012 (Map 1)

(Based on building permits issued 2011-2012)

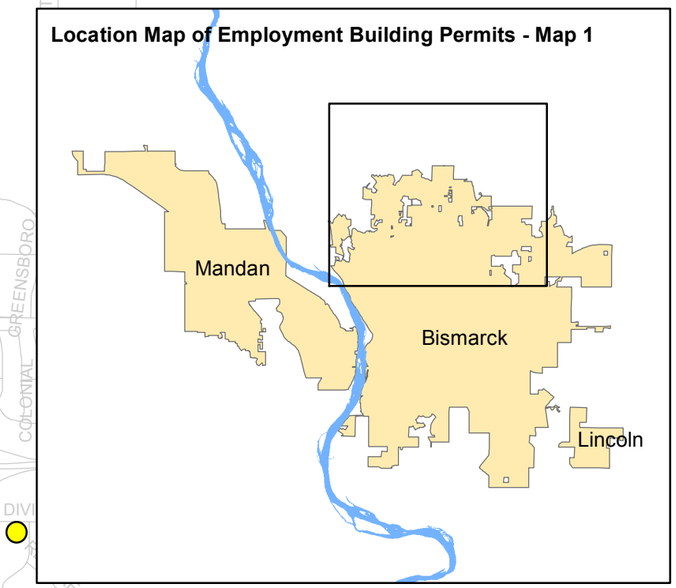
- Service Employment Building Permits
- Retail Employment Building Permits
- Other Employment Building Permits

Miles

0 0.275 0.55 1.1

Map created by B.J.E . October 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County. w:MPO\GIS\Monitoring Report\Socio-Economic\Building Permits\Employment\Employment_BuildingPermits_Map1

Location Map of Employment Building Permits - Map 1



Bismarck-Mandan MPO Area Building Permits Issued by Employment Type, 2010-2012 (Map 2)

(Based on building permits issued 2011-2012)

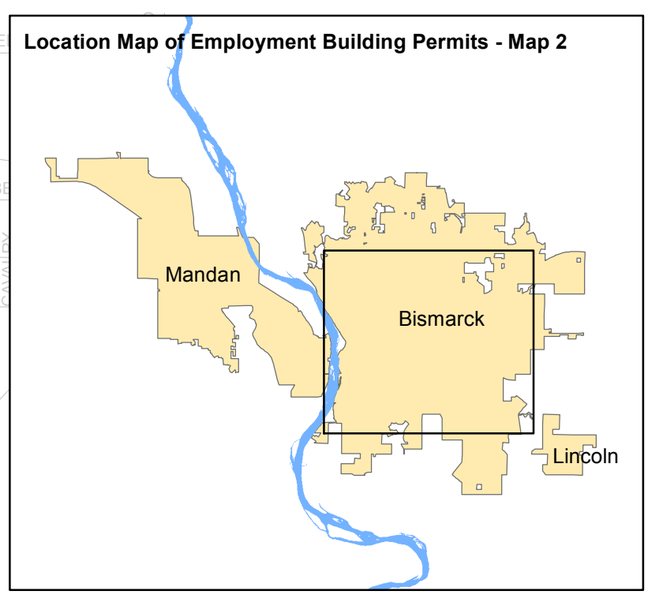
- Service Employment Building Permits
- Retail Employment Building Permits
- Other Employment Building Permits

Miles

0 0.25 0.5 1

Map created by B.J.E . October 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County. w:MPO\GIS\Monitoring Report\Socio-Economic\Building Permits\Employment\Employment_BuildingPermits_Map2

Location Map of Employment Building Permits - Map 2



Bismarck-Mandan MPO Area Building Permits Issued by Employment Type, 2010-2012 (Map 3)

(Based on building permits issued 2011-2012)

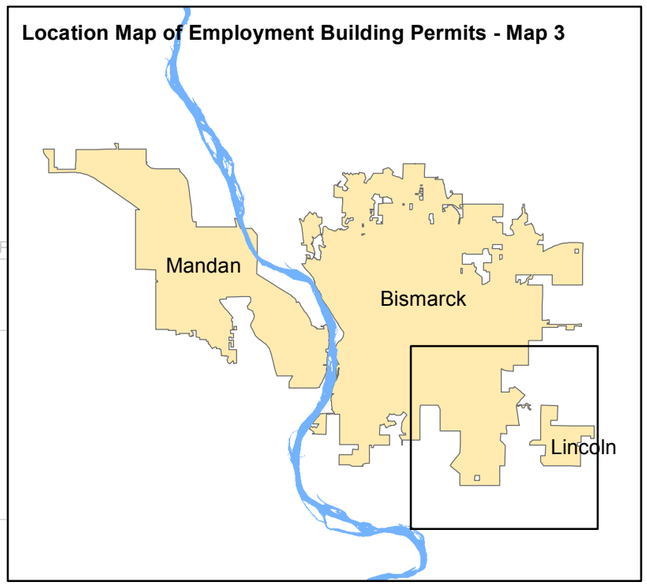
- Service Employment Building Permits
- Retail Employment Building Permits
- Other Employment Building Permits

Miles

0 0.25 0.5 1

Map created by B.J.E . October 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County. w:MPO\GIS\Monitoring Report\Socio-Economic\Building Permits\Employment\Employment_BuildingPermits_Map3

Location Map of Employment Building Permits - Map 3



Bismarck-Mandan MPO Area Building Permits Issued by Employment Type, 2010-2012 (Map 4)

(Based on building permits issued 2011-2012)

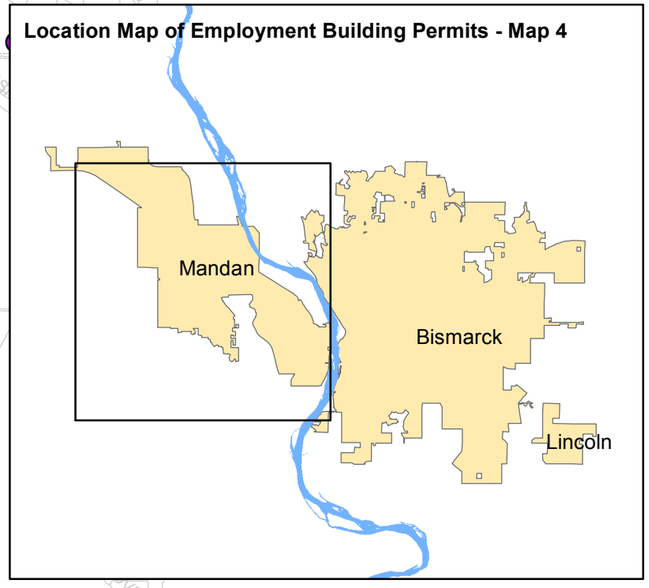
- Service Employment Building Permits
- Retail Employment Building Permits
- Other Employment Building Permits

Miles

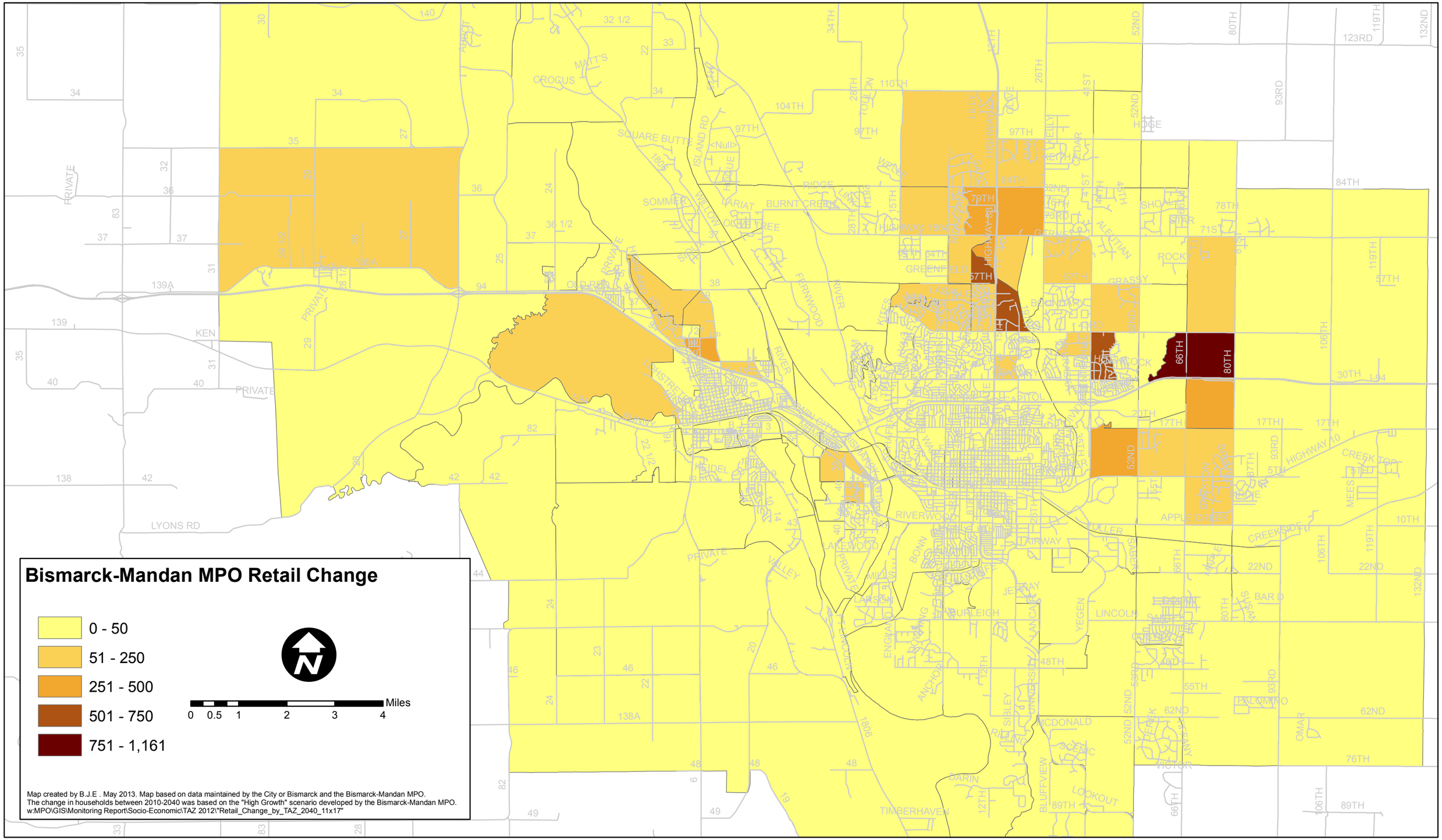
0 0.25 0.5 1

Map created by B.J.E . October 2013. Map based on data maintained by the City or Bismarck and the Bismarck-Mandan MPO. Building permit information was based on data maintained by the City of Bismarck, the City of Mandan, and Morton County. w:MPO\GIS\Monitoring Report\Socio-Economic\Building Permits\Employment\Employment_BuildingPermits_Map4

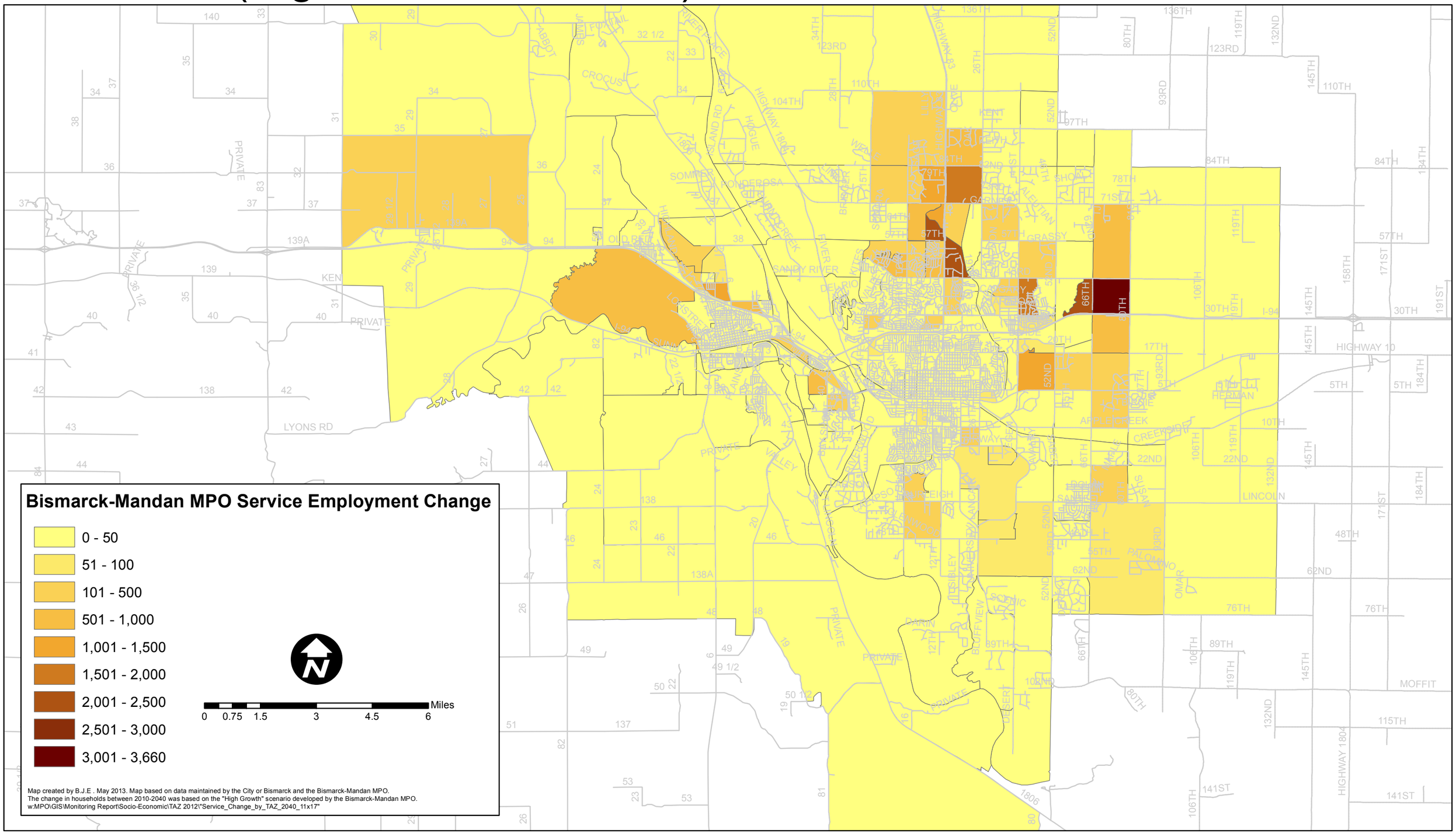
Location Map of Employment Building Permits - Map 4



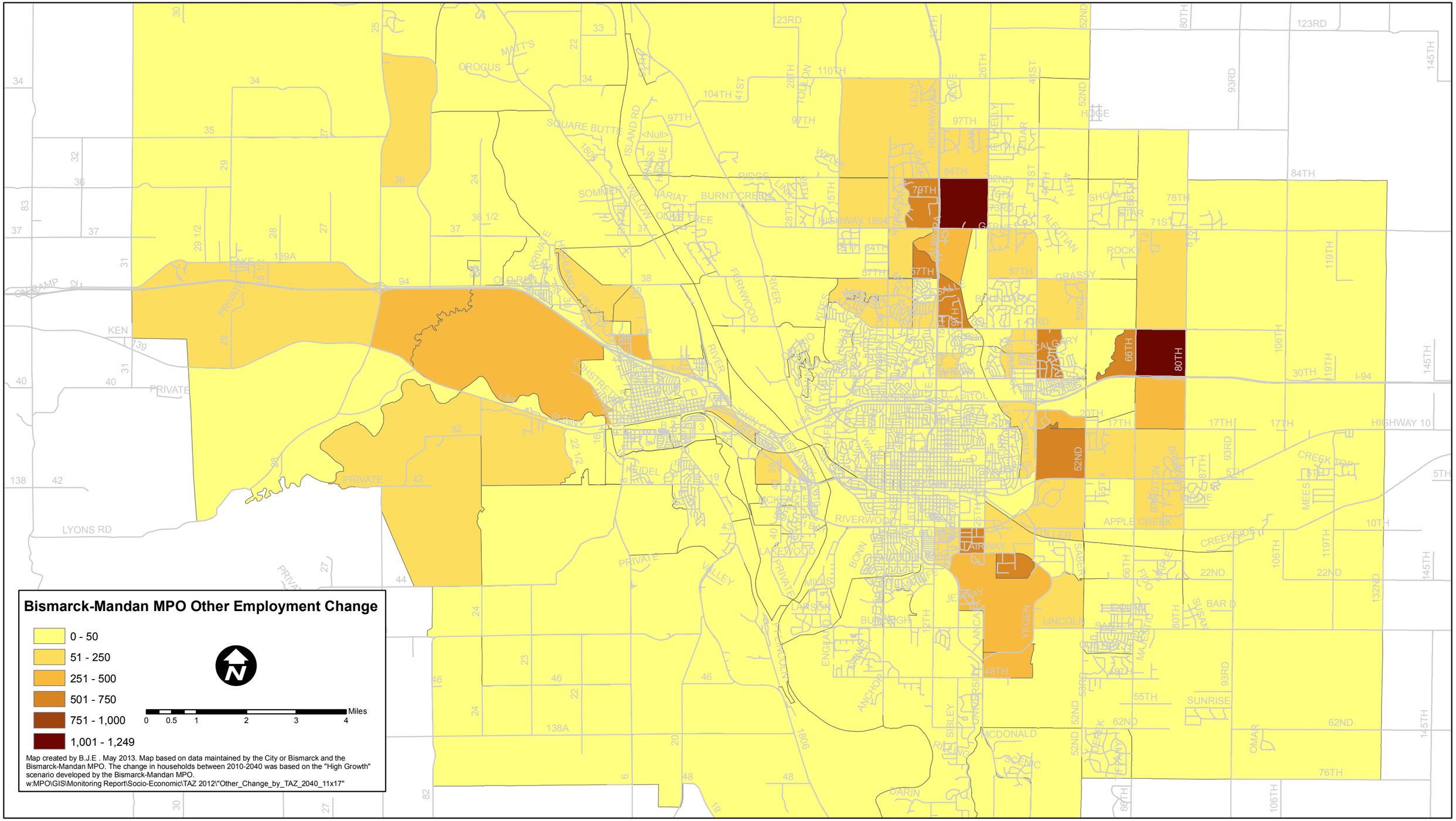
Bismarck-Mandan MPO Projected Retail Employment Change by TAZ, 2010-2040 (High Growth Scenario)



Bismarck-Mandan MPO Projected Service Employment Change by TAZ, 2010-2040 (High Growth Scenario)



Bismarck-Mandan MPO Projected Other Employment Change by TAZ, 2010-2040 (High Growth Scenario)



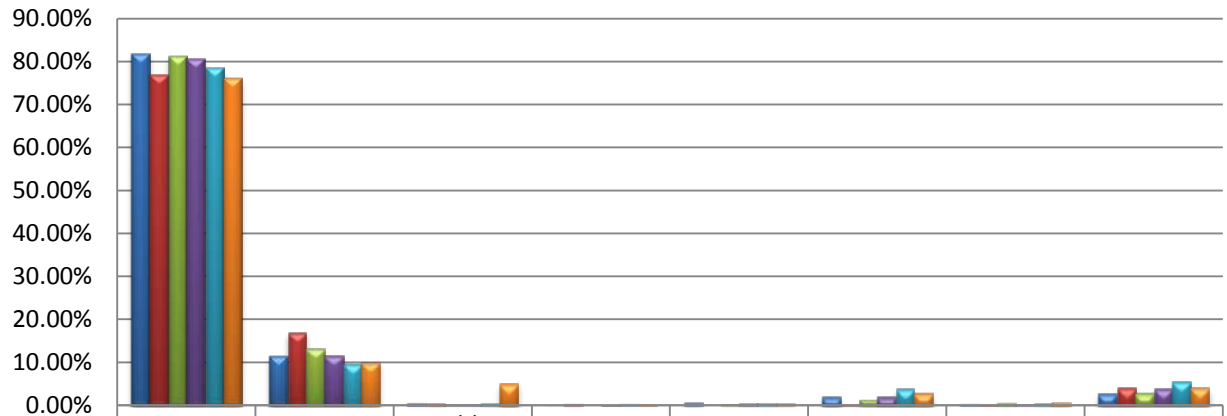
5: Travel

The Bismarck-Mandan Metropolitan Planning Organization is tasked with planning and programming of transportation within the region. Therefore an understanding of transportation conditions and trends is necessary to consider improvements to travel in the area.

EXISTING CONDITIONS AND RECENT TRENDS

Means of Transportation

Figure 5.1: Means of Transportation to Work for Various Jurisdictions, 2011



	Drove Alone	Carpooled	Public Transportation	Motorcycle	Bicycle	Walked	Other Means	Worked at Home
Bismarck	81.90%	11.46%	0.45%	0.05%	0.85%	2.10%	0.21%	2.97%
Lincoln	77.24%	16.92%	0.58%	0.44%	0.00%	0.36%	0.22%	4.23%
Mandan	81.25%	13.46%	0.28%	0.00%	0.41%	1.32%	0.49%	2.80%
Bismarck, ND MSA	80.78%	11.67%	0.33%	0.11%	0.58%	2.05%	0.34%	4.13%
North Dakota	78.73%	9.63%	0.63%	0.20%	0.59%	3.94%	0.63%	5.66%
US	76.09%	10.16%	5.07%	0.22%	0.53%	2.83%	0.86%	4.22%

Based on US Census Bureau American Community Survey 2007-2011 Means of Transportation to Work data

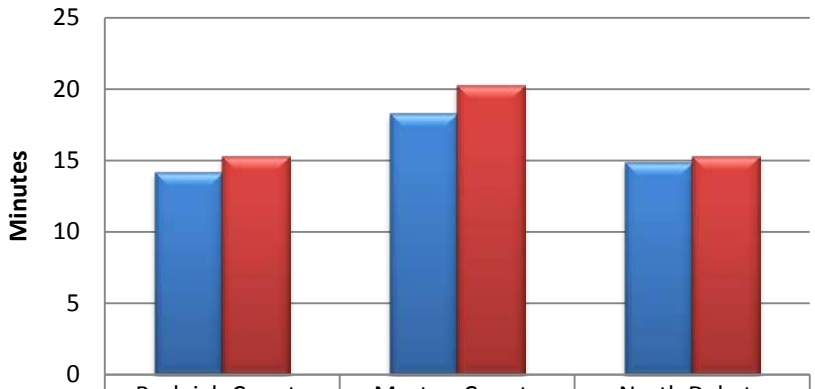
Figure 5.1 identifies the most commonly used modes of transportation used to get to work for various jurisdictions in the Bismarck-Mandan MPO area, in comparison to North Dakota and the United States. Generally, for all jurisdictions, individuals driving alone is the most common means of transportation to work. It appears that a slightly higher percentage of individuals drove alone in the Bismarck-Mandan MPO area compared to North Dakota and the United States. Considering the United States, a significantly higher percentage of individuals used public transportation in comparison to the Bismarck-Mandan MPO area and North Dakota.

5: Travel

Travel Time to Work

Figures 5.2 and **5.3** represent various characteristis of travel time in the Bismarck-Mandan MPO area compared to North Dakota and the United States. From 2000 to 2010 the mean travel time has increased by one minute in Burleigh County and in Morton County by two minutes.

Figure 5.2: Mean Travel Time to Work (in Mintues) for Various Jurisdcctions 2000-2010

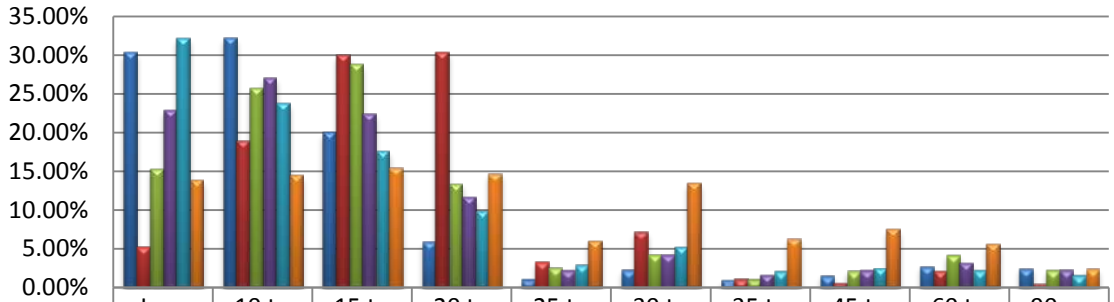


	Burleigh County	Morton County	North Dakota
2000	14.2	18.3	14.9
2010	15.3	20.3	15.3

Based on US Census Bureau American Community Survey 2007-2011 Travel Time to Work data

It generally takes the majority of individuals in the Bismarck-Mandan MPO area less than 20 minutes to travel to work. A greater percentage of individuals in Lincoln and Mandan travel more than 20 minutes to work when compared to Bismarck. As the highest concentration of employment in the region is locatd in Bismarck it is likely that workers living in Lincoln and Mandan are commuting to jobs in Bismarck leading to slightly longer commute times in the respective communities.

Figure 5.3: Travel Time to Work (in Minutes) for Various Jurisdictions, 2011



	Less than 10	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 44	45 to 59	60 to 89	90 or more
Bismarck	30.32%	32.27%	20.07%	6.00%	1.06%	2.32%	0.93%	1.66%	2.82%	2.54%
Lincoln	5.33%	19.04%	30.08%	30.39%	3.35%	7.31%	1.22%	0.61%	2.13%	0.53%
Mandan	15.33%	25.69%	28.83%	13.37%	2.66%	4.33%	1.09%	2.22%	4.23%	2.26%
Bismarck, ND MSA	22.91%	27.16%	22.48%	11.64%	2.22%	4.29%	1.61%	2.24%	3.10%	2.35%
North Dakota	32.18%	23.78%	17.63%	9.82%	2.99%	5.25%	2.09%	2.45%	2.23%	1.59%
US	13.85%	14.45%	15.53%	14.71%	6.05%	13.51%	6.34%	7.51%	5.57%	2.50%

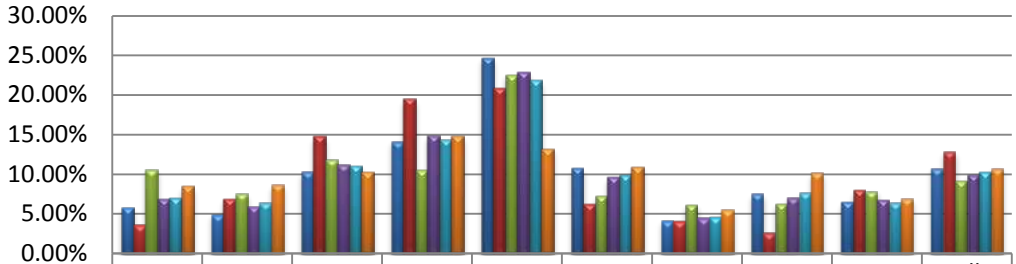
Based on US Census Bureau American Community Survey 2007-2011 Travel Time to Work data

5: Travel

Time Leaving to Go to Work

Figure 5.4 represents times individuals left their homes to travel to their place of employment in various Bismarck-Mandan MPO jurisdictions compared to the State of North Dakota and the United States. The highest concentration of times leaving to go to work in the Bismarck-Mandan MPO area and the State of North Dakota was between 7:30am-7:59am.

Figure 5.4: Time Leaving Home to Go to Work for Various Jurisdictions, 2011



	5:00-5:59am	6:00-6:29am	6:30-6:59am	7:00-7:29am	7:30-7:59am	8:00-8:29am	8:30-8:59am	9:00-11:59am	12:00-3:59am	All other times
Bismarck	5.81%	5.01%	10.40%	14.21%	24.70%	10.74%	4.24%	7.63%	6.44%	10.82%
Lincoln	3.73%	6.93%	14.78%	19.57%	20.94%	6.25%	4.11%	2.74%	8.00%	12.95%
Mandan	10.66%	7.62%	11.97%	10.47%	22.56%	7.24%	6.12%	6.28%	7.92%	9.16%
Bismarck, ND MSA	6.87%	6.04%	11.33%	14.91%	22.90%	9.60%	4.51%	7.16%	6.75%	9.93%
North Dakota	7.05%	6.48%	11.09%	14.42%	21.89%	9.95%	4.60%	7.74%	6.51%	10.28%
US	8.47%	8.75%	10.26%	14.80%	13.19%	10.97%	5.53%	10.24%	6.97%	10.82%

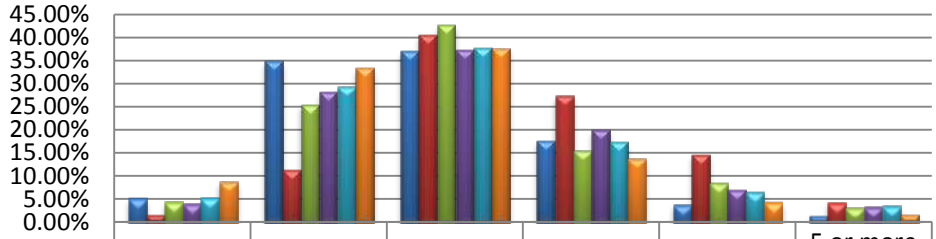
Based on US Census Bureau American Community Survey 2007-2011 Time Leaving Home to go to Work data

Vehicles Available by Household

Figure 5.5 represents the vehicles available by household for jurisdictions associated with the Bismarck-Mandan MPO compared to the State of North Dakota and the United States. For all locations identified, 2 vehicles available per household appears to represent the highest concentration of vehicles available. The United States, North Dakota, and the City of Bismarck have a higher concentration of 0 vehicle available by household compared to other jurisdictions associated with the Bismarck-Mandan MPO.

5: Travel

Figure 5.5: Vehicles Available by Household for Various Jurisdictions, 2011



	No vehicle available	1 vehicle available	2 vehicles available	3 vehicles available	4 vehicles available	5 or more vehicles available
Bismarck	5.10%	34.89%	37.06%	17.64%	3.98%	1.33%
Lincoln	1.56%	11.21%	40.68%	27.51%	14.60%	4.43%
Mandan	4.49%	25.47%	42.69%	15.57%	8.45%	3.33%
Bismarck, ND MSA	4.24%	28.20%	37.34%	19.92%	6.88%	3.42%
North Dakota	5.36%	29.45%	37.67%	17.33%	6.53%	3.67%
US	8.94%	33.43%	37.80%	13.92%	4.27%	1.63%

Based on US Census Bureau American Community Survey 2007-2011 Tenure by Vehicles Available data

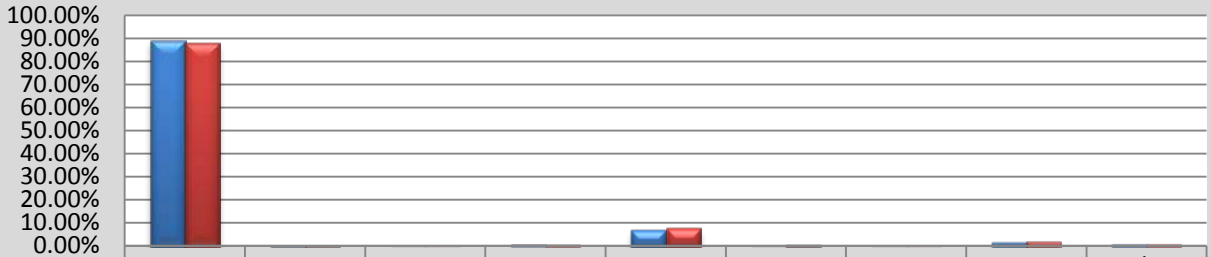
County to County Commuting Patterns

The following figures represent county to county commuting patterns for residents of Burleigh and Morton Counties from 2000-2010 in comparison to neighboring North Dakota counties, other North Dakota counties, neighboring states, and other states and countries. As the data indicates most Burleigh and Morton County residents are living and working within the two county area. A small percentage of Burleigh and Morton County Residents are commuting to all other North Dakota counties, other states, and other countries for work.

Figure 5.6 depicts the locations that Burleigh County residents are commuting to for work from 2000 to 2010. The majority of Burleigh County residents work within Burleigh County. The number of Burleigh County residents working within Burleigh County reduced slightly from 89.48% in 2000 to 87.90% in 2010 while the number of Burleigh County residents working in Morton County increased slightly from 7.041% in 2000 to 7.54% in 2010.

5: Travel

Figure 5.6: County to County Commuting Patterns of Burleigh County Residents, 2000-2010

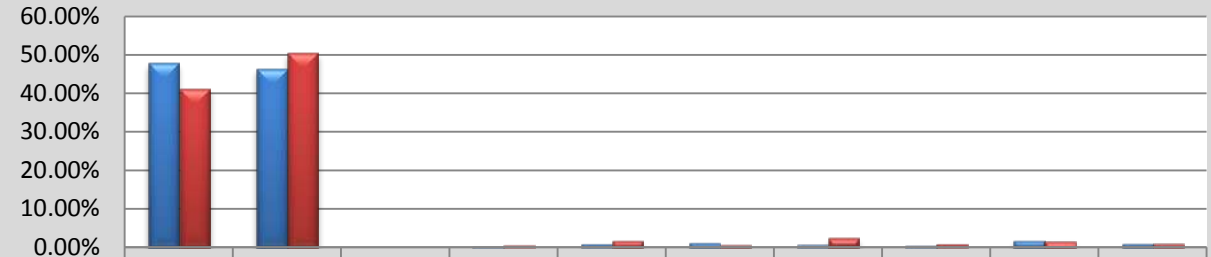


	Burleigh County	Emmons County	Kidder County	McLean County	Morton County	Oliver County	Sheridan County	Other ND Counties	Other State/ Country
2000	89.48%	0.20%	0.10%	0.77%	7.01%	0.13%	0.02%	1.46%	0.84%
2010	87.90%	0.23%	0.05%	0.64%	7.54%	0.56%	0.01%	2.23%	0.83%

Based on US Census Bureau 2000 and 2006-2010 American Community Survey Residence County to Workplace County Flows for North Dakota Sorted by Residence State and County for Burleigh and Morton Counties

Figure 5.7 depicts the locations that Morton County residents are commuting to for work from 2000 to 2010. The majority of Morton County residence commuted to Burleigh County for employment in 2010 which was an increase from 46.44% in 2000. The percentage of Morton county residents working within Morton County decreased from 47.73% in 2000 to 41.17% in 2010. The significant percentage of Morton County residents traveling to Burleigh County likely results in eastbound morning travel and evening westbound travel at the Missouri River crossings to be more predominate.

Figure 5.7: County to County Commuting Patterns of Morton County Residents, 2000-2010



	Morton County	Burleigh County	Emmons County	Grant County	Mercer County	Oliver County	Sioux County	Stark County	Other ND Counties	Other State/ Country
2000	47.73%	46.44%	0.00%	0.35%	0.79%	1.11%	0.72%	0.41%	1.58%	0.88%
2010	41.17%	50.45%	0.00%	0.50%	1.59%	0.59%	2.25%	0.80%	1.67%	0.97%

Based on US Census Bureau 2000 and 2006-2010 American Community Survey Residence County to Workplace County Flows for North Dakota Sorted by Residence State and County for Burleigh and Morton Counties

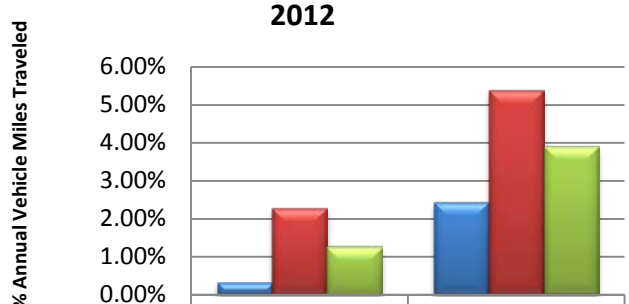
5: Travel

Motorized Travel

Vehicle miles traveled (VMT) are a measure of the total vehicle miles traveled within a given geographic location. They can be used to depict motorized vehicular travel trends within an area. Annually the North Dakota Department of Transportation (NDDOT) collects vehicle miles traveled information for reporting purposes to the national Highway Performance Monitoring System (HPMS). The North Dakota Department of Transportation utilizes Average Daily Traffic (ADT) counts, which they collect on a periodic basis throughout the State, as a factor in daily and annual vehicle miles traveled. In the Burleigh and Morton County area, recent ADT counts were taken in 2006, 2009, and most recently in 2012. Based on annual vehicle miles traveled in Burleigh and Morton County (reported by the NDDOT) the simple annual rate of VMT change has increased significantly in recent history. In Burleigh and Morton County the period of 2006 to 2009 showed an increase of 1.29% compared to a significant increase of 3.91% from 2009 to 2012 represented in **Figure 5.8**. In both Burleigh and Morton County rural VMT grew faster than VMT in the urbanized areas of Bismarck and Mandan. This could be due to an increase in housing units locating outside of the urbanized areas of Bismarck or Mandan or an increase in the amount of travel passing through Burleigh and Morton County or both.

Figure 5.9 identifies the percentage of urban and rural VMT in Burleigh and Morton County from 2006 to 2012. As the figure indicates in 2006 Urban VMT comprised a slightly larger percentage of the total VMT compared to 2012 where Rural VMT now comprises a slightly larger percentage of the total VMT.

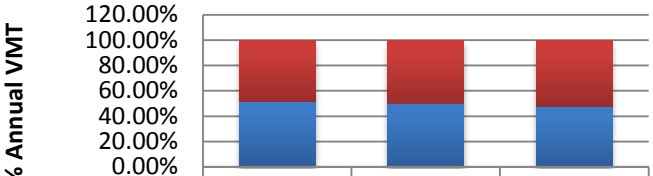
Figure 5.8: Burleigh and Morton County Urban and Rural Comparison of % Vehicle Miles Traveled Change, 2006-2012



	% Annual Simple Change 2006-2009	% Annual Simple Change 2009-2012
Burleigh and Morton Urban	0.34%	2.44%
Burleigh and Morton Rural	2.29%	5.39%
Burleigh and Morton Total	1.29%	3.91%

Based on North Dakota Traffic Reports 2006, 2009, and 2012

Figure 5.9: Burleigh and Morton County % Urban VMT Compared to Rural VMT, 2006-2012



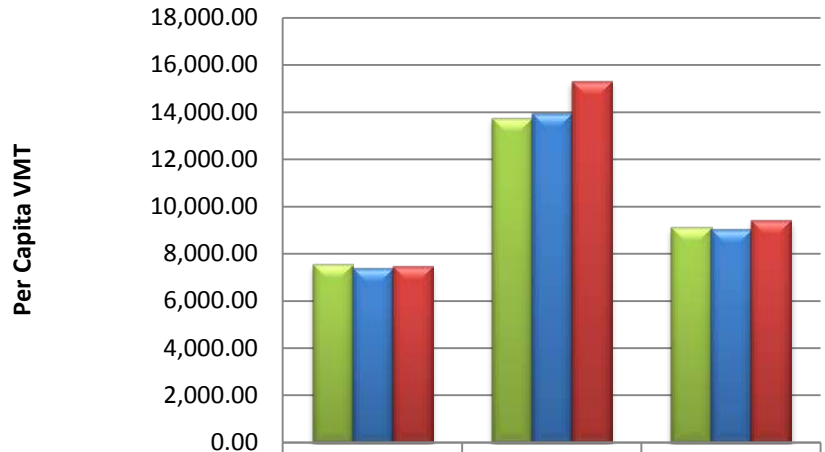
	2006 % VMT	2009 % VMT	2012 % VMT
Burleigh and Morton Rural	48.59%	50.00%	51.98%
Burleigh and Morton Urban	51.41%	50.00%	48.02%

Based on North Dakota Traffic Reports 2006, 2009, and 2012

5: Travel

Figure 5.10 represents Per Capita Annual VMT in Burleigh and Morton Counties which compares Annual VMT (calculated by the NDDOT) to annual population estimates (developed by the US Census Bureau) from 2006 to 2012. As identified in **Figure 5.10** per capita VMT has remained relatively stable in Burleigh County while it has increased significantly in Morton County between 2006 and 2012. Total per capita VMT in Burleigh and Morton County has increased slightly since 2006 which may indicate that motorists are traveling further from origin to destination within the region or vehicular traffic passing through the region has increased or both.

Figure 5.10: Burleigh and Morton County Per Capita Vehicle Miles Traveled, 2006-2012

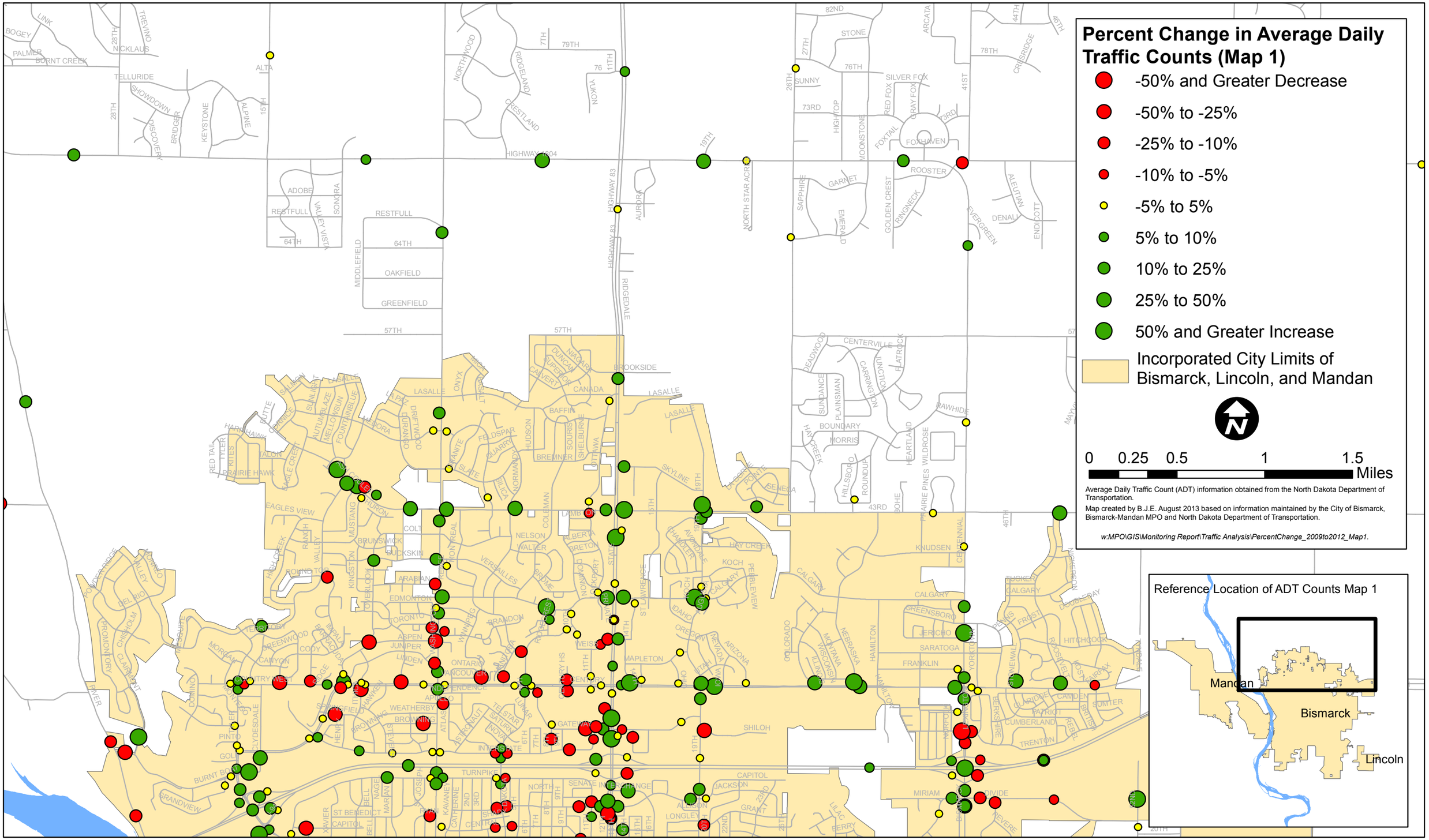


	Burleigh County	Morton County	Total
2006 Per Captia VMT	7,556.21	13,766.72	9,137.66
2009 Per Capita VMT	7,397.28	13,961.19	9,031.62
2012 Per Capita VMT	7,481.80	15,335.15	9,419.78

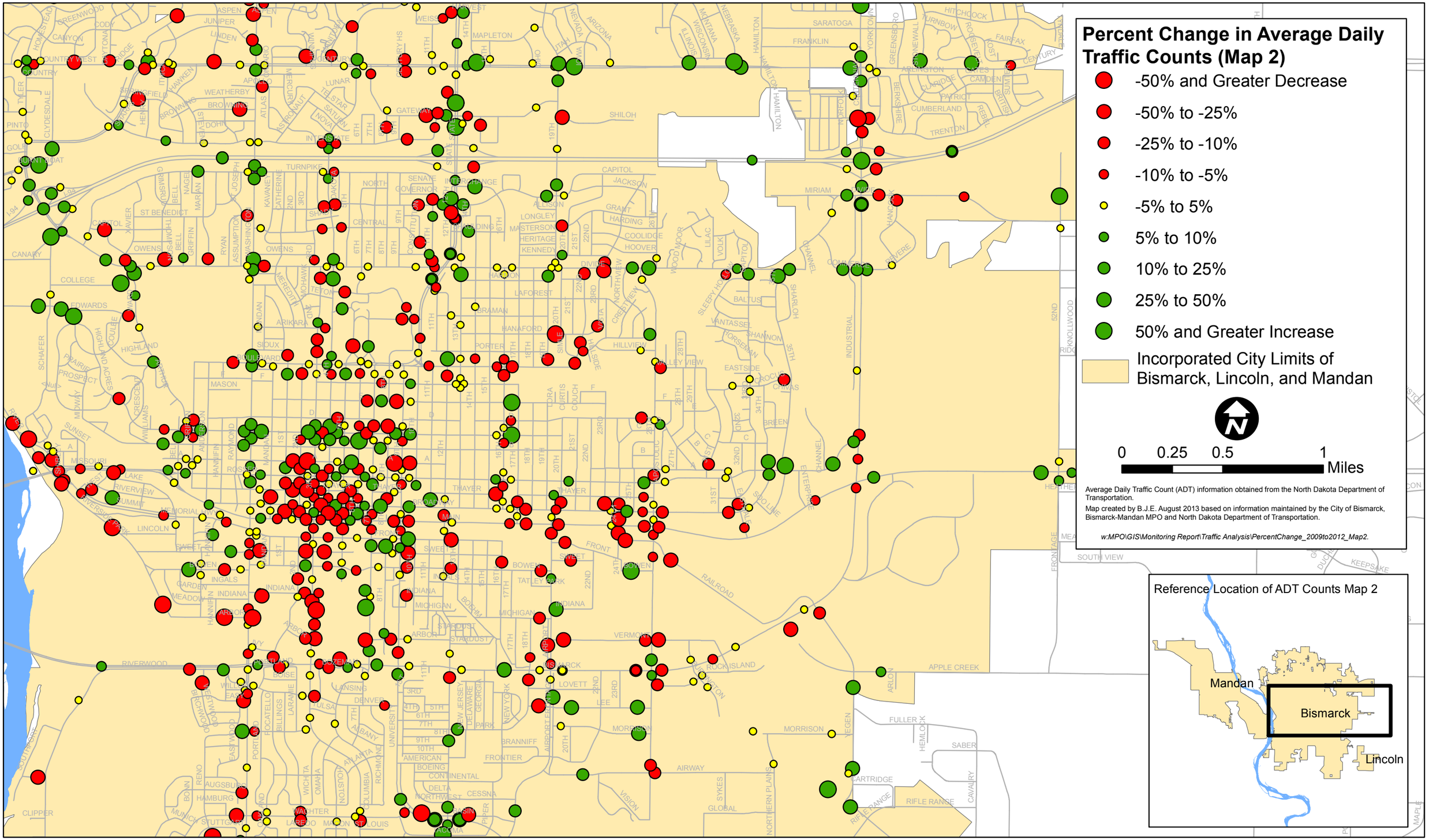
Based on US Census Bureau annual population estimates and the North Dakota Traffic Reports 2006, 2009, and 2012

Average Daily Traffic (ADT) counts are another tool used to measure traffic pattern change in a given area. The NDDOT collects ADT counts, typically, once every three years in a given location. Recent ADT counts were collected, in the Bismarck-Mandan area, in 2009 and again in 2012. The following maps depict ADT count locations and the percent change in growth from 2009 to 2012. The ADT count information indicates patterns of growth and decline within the area. Generally, the newly developing areas of the communities, such as the northern and southern portions of both Bismarck and Mandan have experienced significant growth in ADT, while the mature centralized locations of the communities have experienced a mixture of growth and decline.

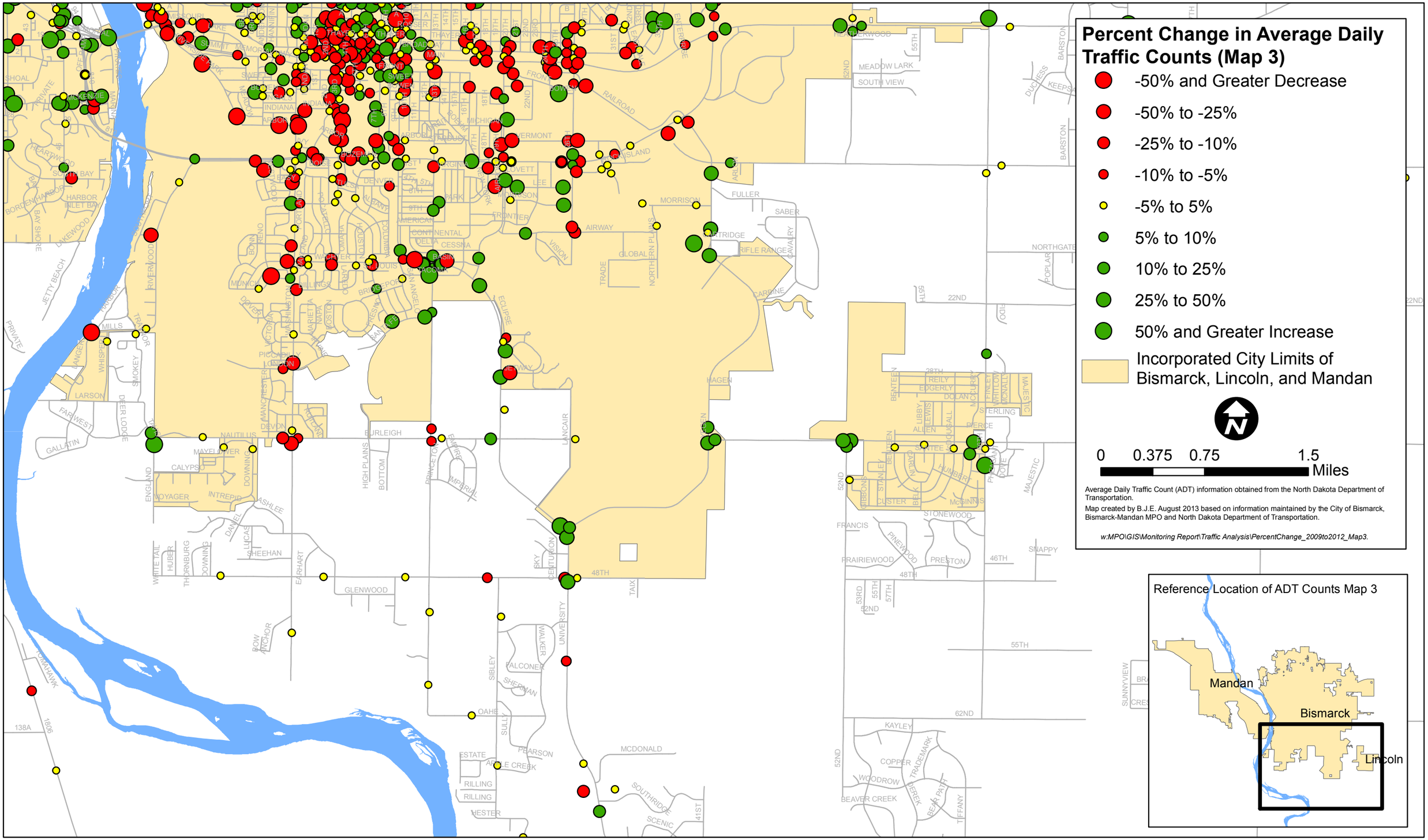
Percent Change of Average Daily Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



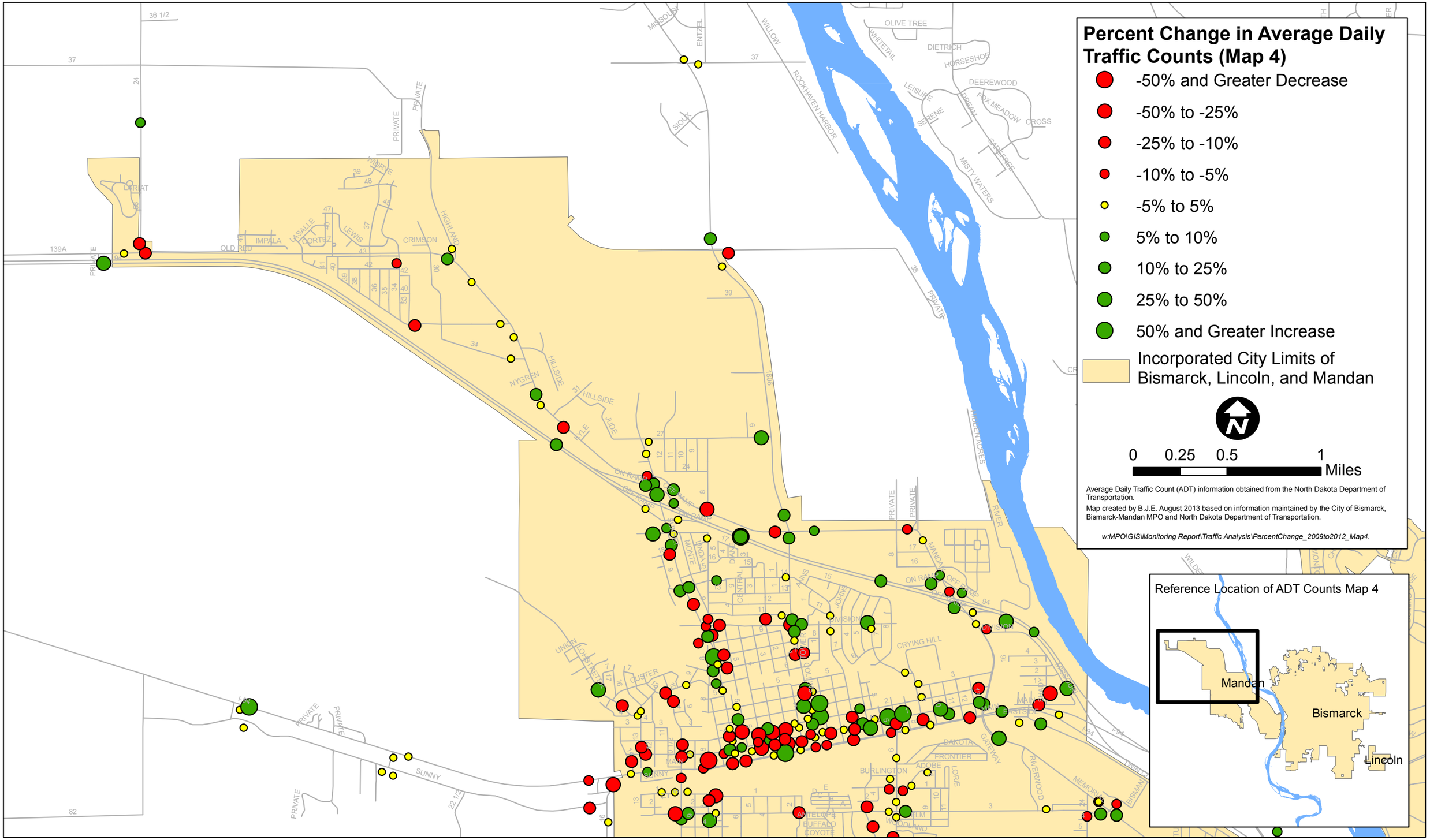
Percent Change of Average Daily Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



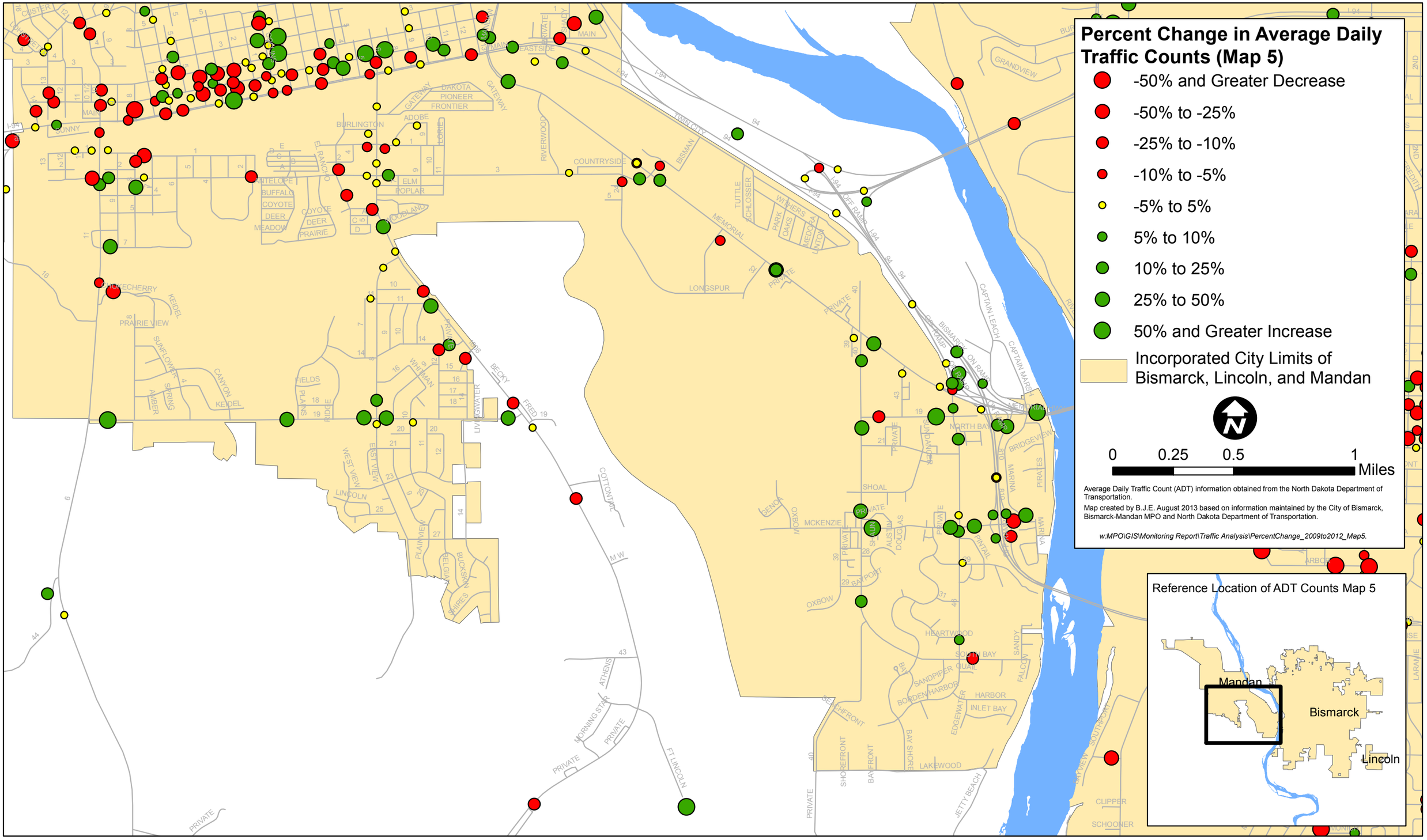
Percent Change of Average Daily Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



Percent Change of Average Daily Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



Percent Change of Average Daily Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



5: Travel

Freight

Goods are transported into, out of, and through the Bismarck-Mandan MPO area generally either by rail, air, truck, or a combination of the aforementioned modes. Often freight "generators" or producers/attractors of freight are considered when analyzing freight movements of a given area. The Bismarck-Mandan MPO area has a variety of freight generators within the region. **Figure 5.11** identifies a general list of industries, by the North American Industrial Classification System (NAICS) group, which may have a propensity for freight movements. Businesses associated with the following NAICS groups are also identified in the map on the following page.

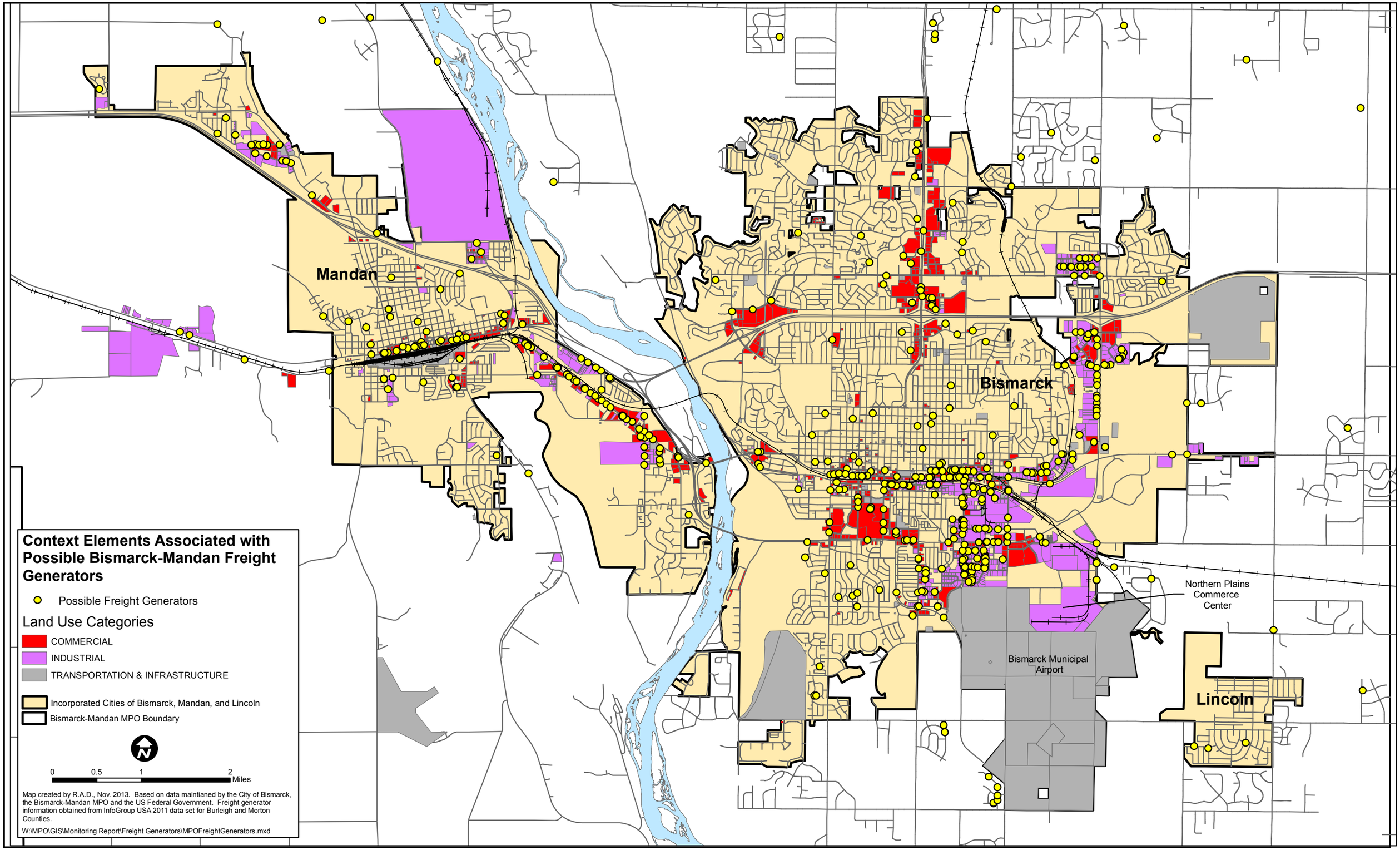
The Bismarck-Mandan MPO area also has two primary locations, where differing modes connect to transfer freight. The Northern Plains Commerce Centre is a transload facility where rail and truck freight are exchanged. The Bismarck Municipal Airport provides a link between freight shipped between air and truck movements.

Figure 5.11: Potential Freight Generators by NAICS in the Bismarck-Mandan MPO Area

112	Animal Production
212	Mining (Except Oil and Gas)
221	Utilities
236	Construction of Buildings
237	Heavy and Civil Engineering Construction
238	Specialty Trade Contractors
321	Wood Product Manufacturing
322	Paper Manufacturing
324	Petroleum and Coal Product Manufacturing
325	Chemical Manufacturing
327	Nonmetallic Mineral Product Manufacturing
332	Fabricated Metal Product Manufacturing
333	Machine Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
337	Furniture and Related Product Manufacturing
423	Merchant Wholesalers, Durable Goods
424	Merchant Wholesalers, Nondurable Goods
425	Wholesale Electronic Marks and Agents and Brokers
441	Motor Vehicle and Parts Dealers
442	Furniture and Home Furnishings Stores
444	Building Material and Garden Equipment and Supplies Dealers
445	Food and Beverage Stores
446	Health and Personal Care Stores
451	Sporting Goods, Hobby, Book, and Music Stores
452	General Merchandise Stores
453	Miscellaneous Store Retailers
454	Nonstore Retailers
481	Air Transportation
484	Truck Transportation
485	Transit and Ground Passenger Transportation
487	Scenic and Sightseeing Transportation
488	Support Activities for Transportation
491	Postal Service
493	Warehousing and Storage
562	Waste Management and Remediation Services

Based on select sectors of the North American Industrial Classification (NAICS)

Possible Freight Generators, Bismarck-Mandan Area, 2011



The following **Figure 5.12** represents some of the significant freight corridors, in the Bismarck-Mandan MPO area, based on the percentage of truck traffic compared to overall traffic, in 2012. The following map on page 52 represents the percent truck traffic compared to the total traffic by location, in the Bismarck-Mandan area.

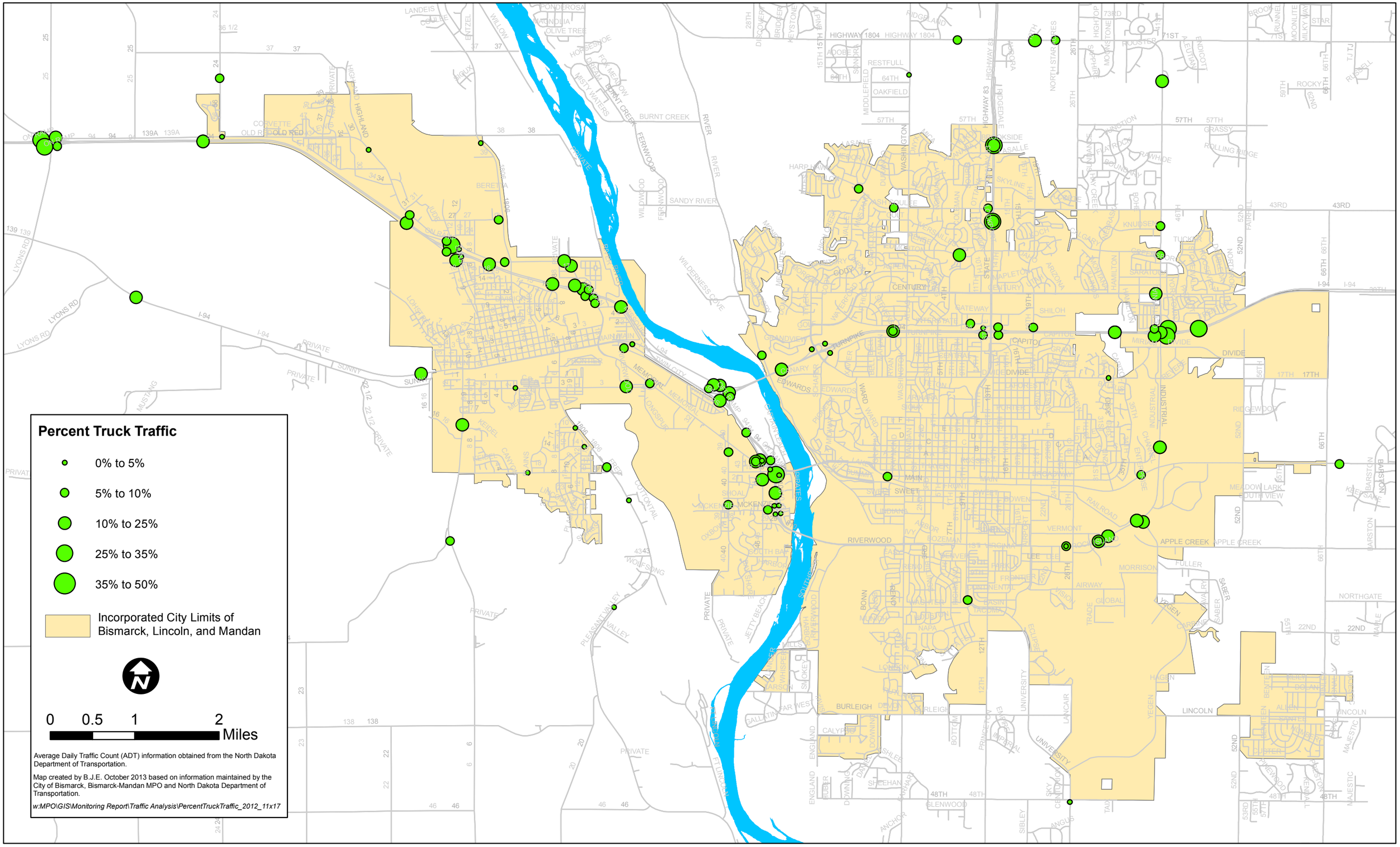
Figure 5.12: Signficant Freight Corridors in the Bismarck-Mandan MPO Area, 2012

Corridor	% Range of Truck Traffic Compared to Total Traffic
I-94 (through the Bismarck-Mandan MPO Area)	10%-35%
US Highway 83 (in Bismarck/Burleigh)	10%-35%
Sunset Drive (between Old Red Trail and Boundary Road in Mandan)	10%-35%
I-194 (in Mandan/Morton)	10%-25%
Business Loop 94 (in Mandan/Morton)	10%-25%
Century Ave. E (between Hamilton St and Centennial Road in Bismarck)	10%-25%
Calgary Avenue (between Washington St. and US Highway 83 in Bismarck)	10%-25%
Old Red Trail (between ND 1806 and I-94 in Mandan)	10%-25%
46th Ave. SE (in Mandan)	10%-25%
3rd St. SE (between Riverwood Ave. SE and 24th Ave. SE in Mandan)	10%-25%
ND Highway 6 (in Mandan/Morton)	5%-25%
71st/Centennial Road (in Bismarck/Burleigh)	5%-25%
Bismarck Expressway (between 26th St. and I-94 in Bismarck)	5%-25%
Memorial Highway (in Mandan)	5%-25%

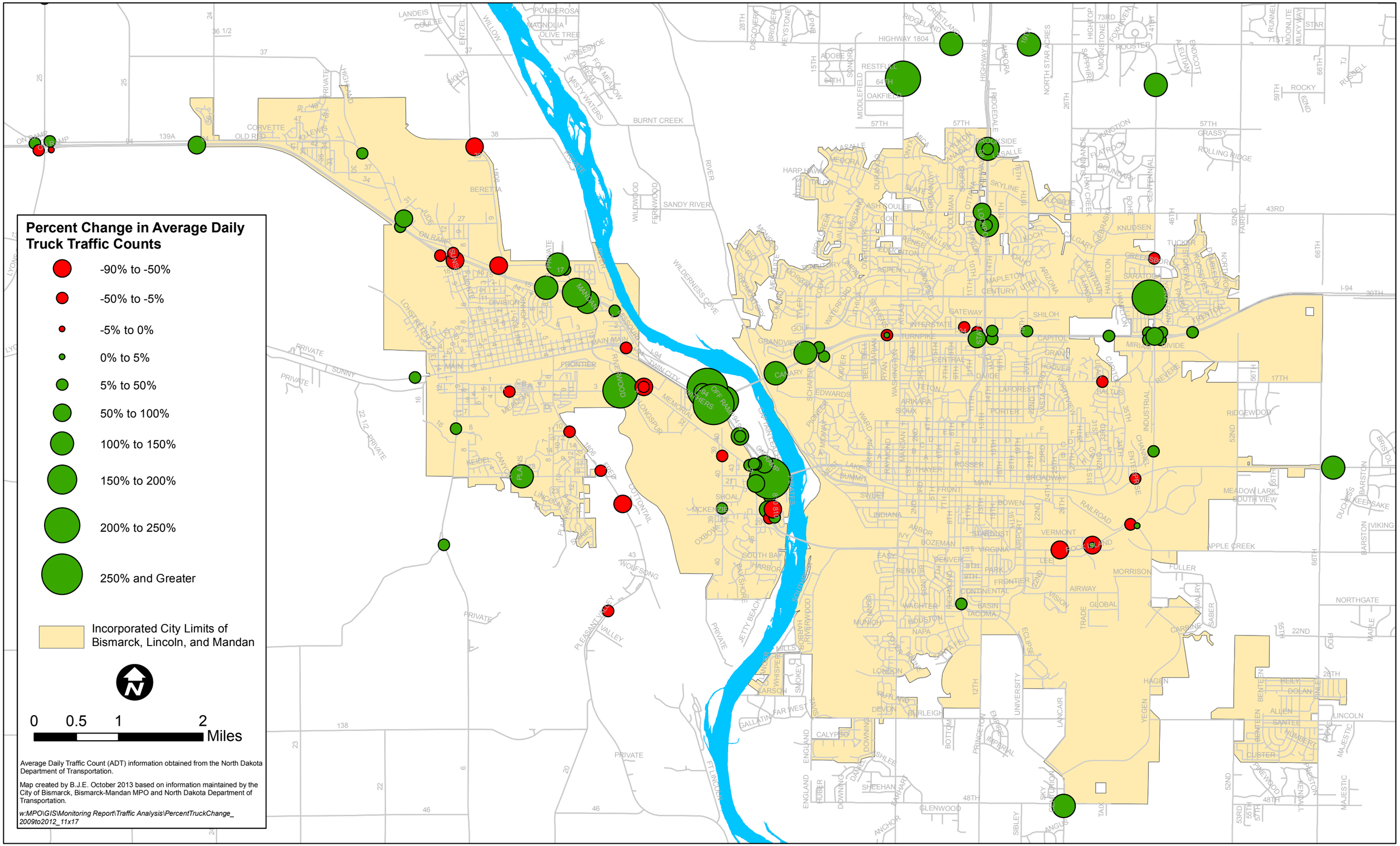
Based on Average Daily traffic count information obtained from the NDDOT

The map on page 53 represents the percent change in truck traffic from 2009 to 2012. Corridors within the Bismarck-Mandan MPO area have experienced both growth and decline in truck traffic during the period. Corridors, such as, I-94, ND 1804, 71st/Centennial, US Highway 83, North Washington Street, 3rd Street SE, 19th Street SE, and portions of Old Red Trail have experienced significant growth in truck traffic from 2009 to 2012. Other corridors, such as, portions of Bismarck Expressway, Memorial Highway, and ND Highway 1806 have experienced significant decline in truck traffic from 2009 to 2012.

Percent Truck Traffic of Total Average Daily Traffic (ADT) in 2012, Bismarck-Mandan Area



Percent Change of Average Daily Truck Traffic Counts (ADT) from 2009-2012, Bismarck-Mandan Area



5: Travel

Functional Classification of Roadways

The Federal Highway Administration (FHWA) defines roadway classifications and procedures to establish and update these systems at local and state levels. Roadways are generally grouped into the following categories: interstate, arterial, collector or local. Subcategories such as principle, major and minor may be applied to better define the roadway and reflect road usage. Roadways functionally classified as an interstate, collector, or arterial are eligible to receive federal transportation funds. The following map on page 54 identifies the functionally classified roadways within the Bismarck-Mandan MPO area.

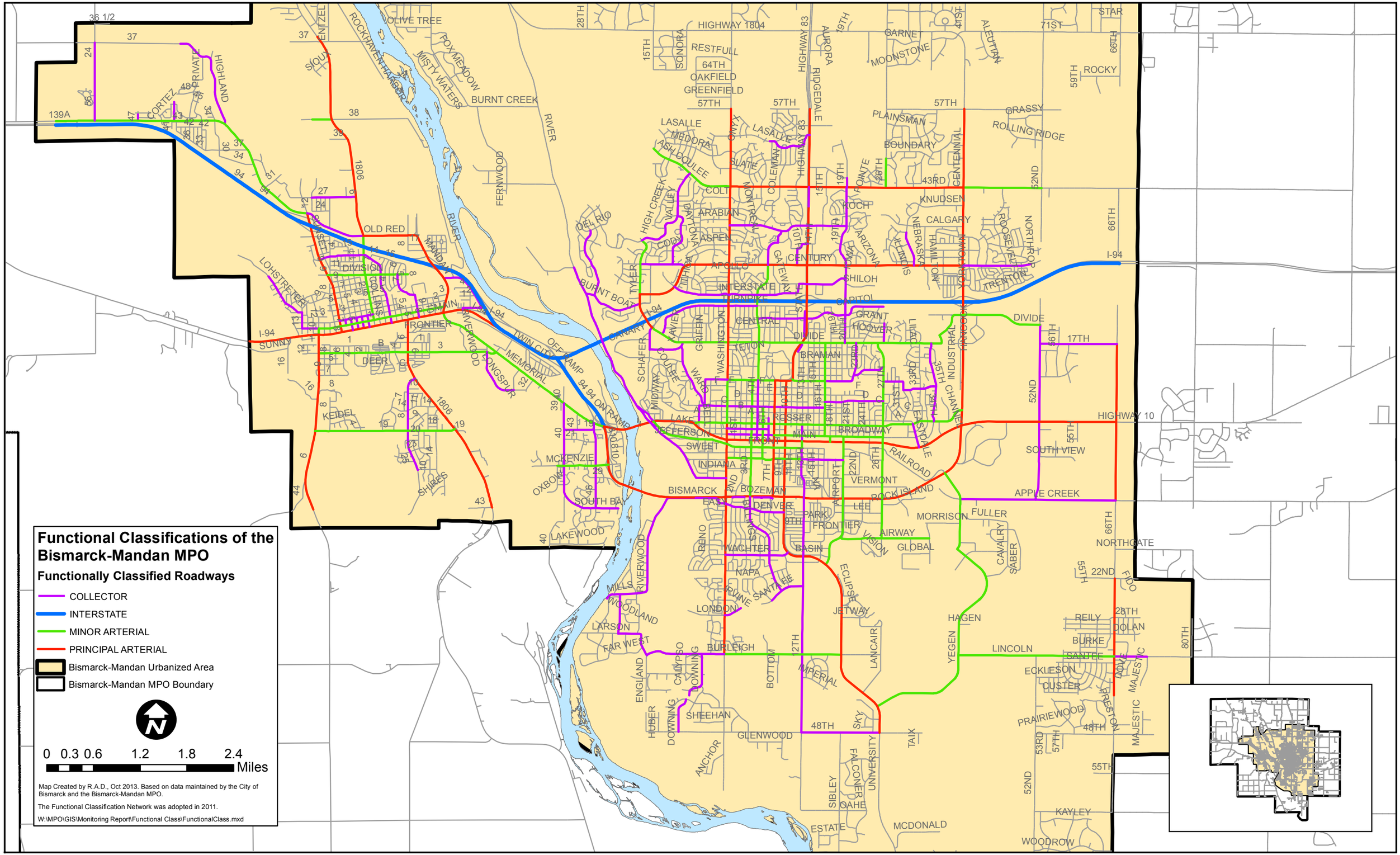
The FHWA has established guidelines for the amount of classified mileage permitted in an Urbanized Area according to functional class. **Figure 5.13** shows the functionally classified centerline mileage of roadways within the Bismarck-Mandan MPO area in comparison to the FHWA recommended percentage ranges. As indicated in **Figure 5.13** the current functionally classified system of the Bismarck-Mandan MPO complies with the recommended FHWA guidelines.

Figure 5.13: Bismarck-Mandan MPO Functionally Classified Roadways in Comparison to FHWA Recommended Guidelines

Network	Length (in Miles)	% of Total Network	FHWA Recommended % of Total Network Range
Local	652.0	77.1%	65-80%
Collector	67.2	7.9%	5-10%
Minor Arterial	51.4	6.1%	15-25%
Principal Arterial	59.4	7.0%	
Interstate	15.4	1.8%	NA
Total	845.4	100.0%	

Based on centerline and functional classification data maintained by the City of Bismarck, Morton County, and the Bismarck-Mandan MPO and , as well as, recommended Functional Classification ranges from FHWA 1989 guidelines

2011 Functionally Classified Roadways, Bismarck-Mandan MPO

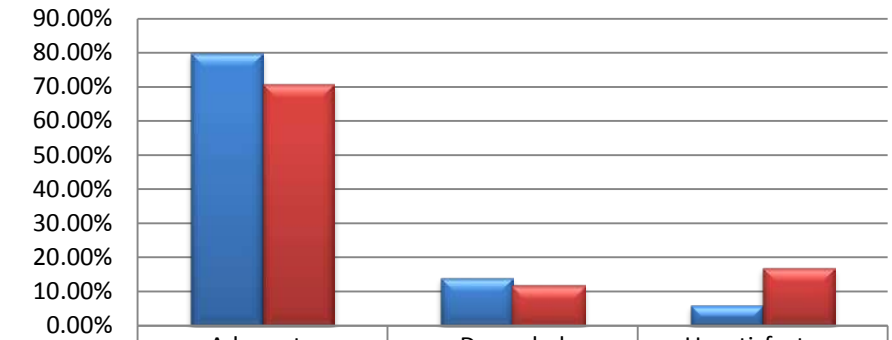


5: Travel

Pavement Management

Preservation of the existing transportation system is not only a goal in the current Bismarck-Mandan MPO 2010-2035 Long Range Transportation Plan but it is also one of the criteria for prioritizing Urban Road projects in the Bismarck-Mandan MPO Transportation Improvement Program (TIP). Therefore, in 2012, the Bismarck-Mandan MPO helped the cities of Bismarck and Mandan fund a pavement management study to examine the condition of pavement materials in the communities. It was intended that this effort would form a baseline understanding of pavement conditions so future efforts could evaluate the effectiveness of pavement management practices. For this study a vehicle with specialized monitoring equipment was utilized to evaluate every roadway within Bismarck and Mandan. The method for evaluation was based on the Pavement Condition Index (PCI), which is an industry standard methodology for evaluating the condition of paved roadways. Based on PCI values a roadway was considered "Adequate", "Degraded", or "Unsatisfactory". The following **Figure 5.14** represents the general citywide pavement condition assessment for Bismarck and Mandan.

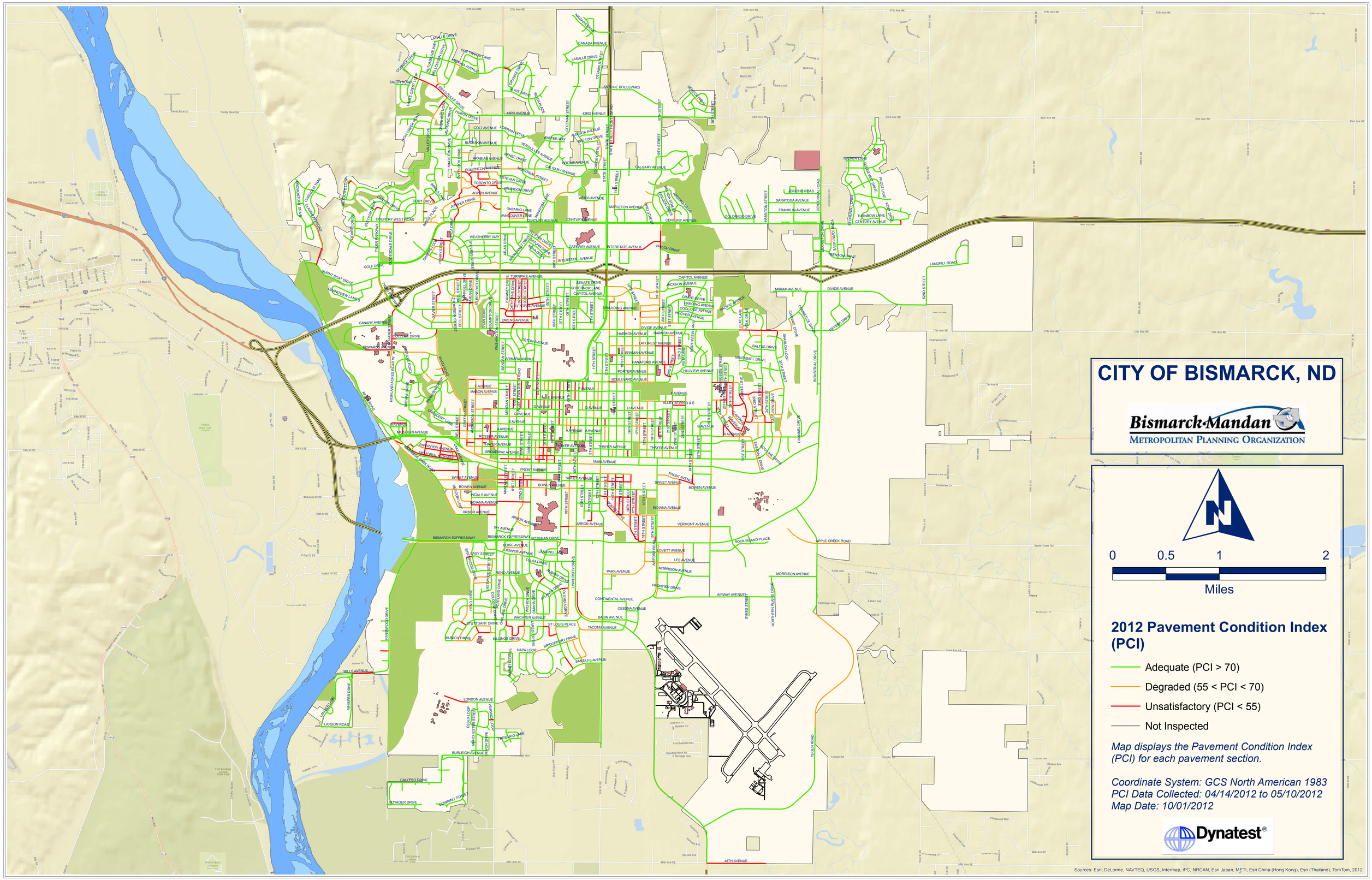
Figure 5.14: Pavement Condition Assessment for Bismarck and Mandan Roadways, 2012

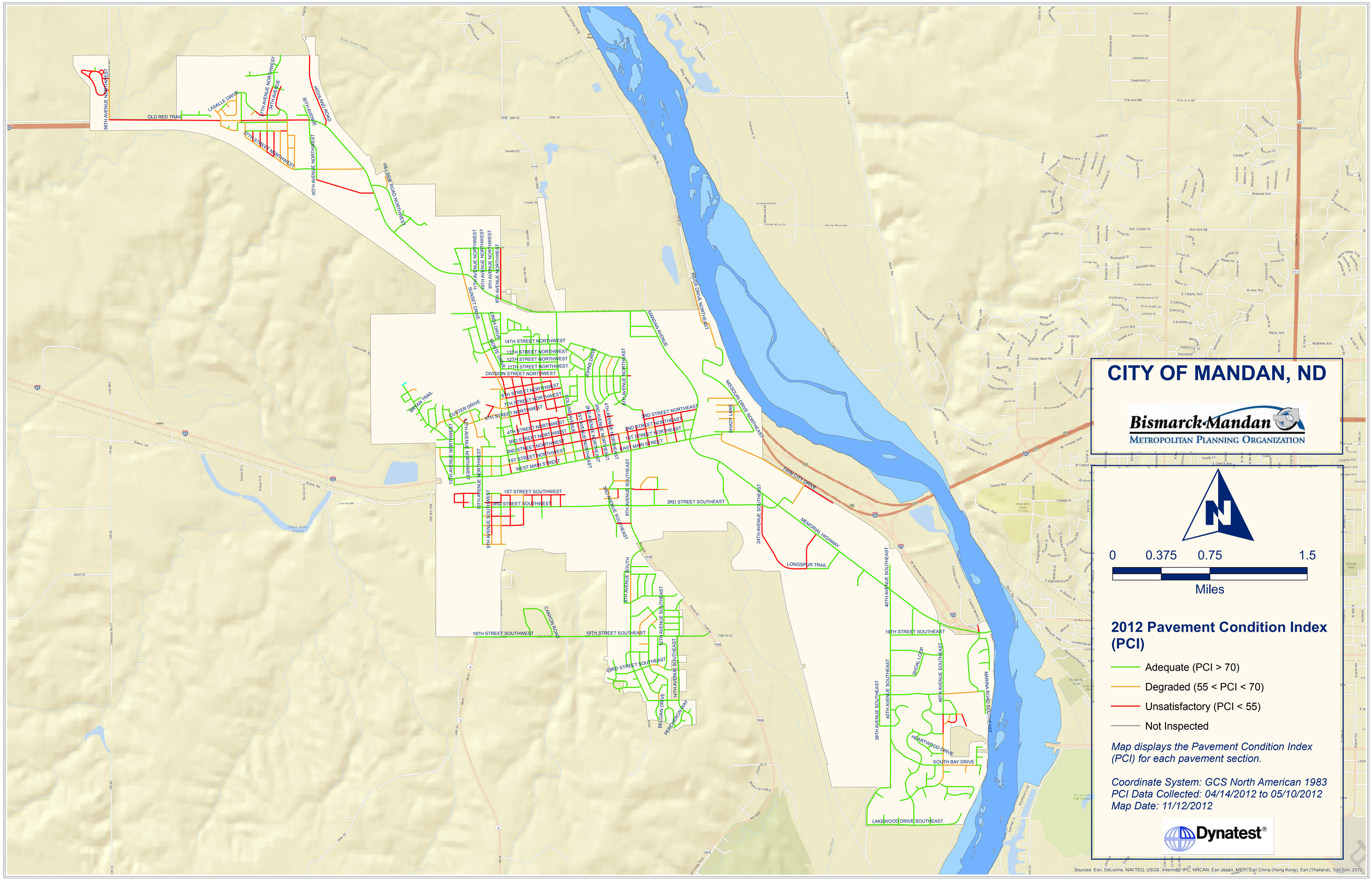


	Adequate	Degraded	Unsatisfactory
Bismarck	80.00%	14.00%	6.00%
Mandan	71.00%	12.00%	17.00%

Based on Bismarck and Mandan State of the Streets Report 2013

In 2012 the majority of pavement in Bismarck and Mandan was considered Adequate. A significantly larger percentage of pavement conditions, in Mandan, was considered "Unsatisfactory" in comparison to Bismarck. Both communities now have "Micropaver" pavement management software for future evaluation. The following maps were taken directly from the *Bismarck and Mandan State of the Street Reports*, associated with the Pavement Management Study, and identify the PCI values of specific roadways in the area.


CITY OF BISMARCK, ND
Bismarck-Mandan
METROPOLITAN PLANNING ORGANIZATION
0
0.5
1
2
Miles
2012 Pavement Condition Index (PCI)
Adequate (PCI > 70)
Degraded (55 < PCI < 70)
Unsatisfactory (PCI < 55)
Not Inspected
Map displays the Pavement Condition Index (PCI) for each pavement section.
Coordinate System: GCS North American 1983
PCI Data Collected: 04/14/2012 to 05/10/2012
Map Date: 10/01/2012
Dynatest®
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012


CITY OF MANDAN, ND
Bismarck-Mandan
METROPOLITAN PLANNING ORGANIZATION
N
0
0.375
0.75
1.5
Miles
2012 Pavement Condition Index (PCI)
Adequate (PCI > 70)
Degraded (55 < PCI < 70)
Unsatisfactory (PCI < 55)
Not Inspected
Map displays the Pavement Condition Index (PCI) for each pavement section.
Coordinate System: GCS North American 1983
PCI Data Collected: 04/14/2012 to 05/10/2012
Map Date: 11/12/2012
Dynatest®
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012.
56TH AVENUE NORTHWEST
OLD RED TRAIL
LASALLE DRIVE
47TH AVENUE NORTHWEST
37TH AVENUE
37TH STREET NORTHWEST
30TH AVENUE
30TH AVENUE NORTHWEST
HIGHLAND ROAD
HILLSIDE ROAD NORTHWEST
11TH AVENUE NORTHWEST
10TH AVENUE NORTHWEST
9TH AVENUE NORTHWEST
8TH AVENUE NORTHWEST
SUNSET DRIVE
LINDA DRIVE
NORTH LANE
14TH STREET NORTHWEST
13TH STREET NORTHWEST
12TH STREET NORTHWEST
11TH STREET NORTHWEST
DIVISION STREET NORTHWEST
8TH STREET NORTHWEST
7TH STREET NORTHWEST
6TH STREET NORTHWEST
4TH STREET NORTHWEST
3RD STREET NORTHWEST
2ND STREET NORTHWEST
1ST STREET NORTHWEST
WEST MAIN STREET
BRYANT TRAIL
CUSTER DRIVE
13TH AVENUE NORTHWEST
12TH AVENUE NORTHWEST
10TH AVENUE NORTHWEST
SIOUX DRIVE
OLD INSIGNIA WAY
2ND AVENUE NORTHEAST
3RD AVENUE NORTHEAST
4TH AVENUE NORTHEAST
5TH AVENUE NORTHEAST
6TH AVENUE NORTHEAST
MANDAN AVENUE
3RD STREET NORTHEAST
2ND STREET NORTHEAST
1ST STREET NORTHEAST
EAST MAIN STREET
RIVER DRIVE NORTHEAST
MISSOURI DRIVE NORTHEAST
SHADY LANE
TWIN CITY DRIVE
MEMORIAL HIGHWAY
LONGSPUR TRAIL
1ST STREET SOUTHWEST
3RD STREET SOUTHWEST
10TH AVENUE SOUTHWEST
9TH AVENUE SOUTHWEST
3RD AVENUE SOUTHEAST
6TH AVENUE SOUTHEAST
3RD STREET SOUTHEAST
24TH AVENUE SOUTHEAST
8TH AVENUE SOUTH
CANYON ROAD
19TH STREET SOUTHWEST
19TH STREET SOUTHEAST
27TH AVENUE SOUTHEAST
23RD STREET SOUTHEAST
14TH AVENUE SOUTHEAST
BELGIAN DRIVE
PERCHERON WAY
40TH AVENUE SOUTHEAST
39TH AVENUE SOUTHEAST
SHOAL LOOP
46TH AVENUE SOUTHEAST
MARINA ROAD SOUTHEAST
HEARTWOOD DRIVE
SOUTH BAY DRIVE
LAKEWOOD DRIVE SOUTHEAST

Bridge Structures

The Federal Highway Administration manages and defines bridge sufficiency ratings using the National Bridge Inventory ratings scale. Under these guidelines, bridges are evaluated on multiple factors. A composite of these measurements, known as a Sufficiency Rating, may equal 100 percent—for entirely sufficient structures—or zero—for entirely deficient structures. The percentage relays how well a structure meets current traffic demands.

A Structural Evaluation is one component of the Sufficiency Rating and comments on the condition of a bridge's structural fitness. Poor status is categorized under two themes: 'Functionally Obsolete' or 'Structurally Deficient'. A functionally obsolete classification means that the structure does not meet current design standards. Due to physical limitations (e.g.: lane width, clearance), the structure cannot adequately meet traffic demands and frequently impedes traffic. This status does not imply a safety issue, only functional deficiency. Structural deficiency is a more serious status and indicates the presence of structural defects. A bridge is classified as structurally deficient if one or more of a bridge's main components has been rated in poor condition (0-4 on the NBI Rating Scale), the load carrying capacity has been surpassed, or water frequently overflows the deck and impedes traffic. Though structures with this classification typically need repair, it is not intended to comment on the severity of the bridges deficiency or label the bridge as unsafe. The NDDOT is the agency responsible for evaluating the sufficiency of bridges throughout the State of North Dakota.

Figure 5.15 shows the number and percentage of functionally obsolete and structurally deficient bridges in the Bismarck-Mandan MPO area. There are 119 bridges within the MPO boundary and 13 have an insufficient rating. According to 2012 inspection reports, roughly 5% of these bridges are identified as functionally obsolete and approximately 2.5% are structurally deficient.

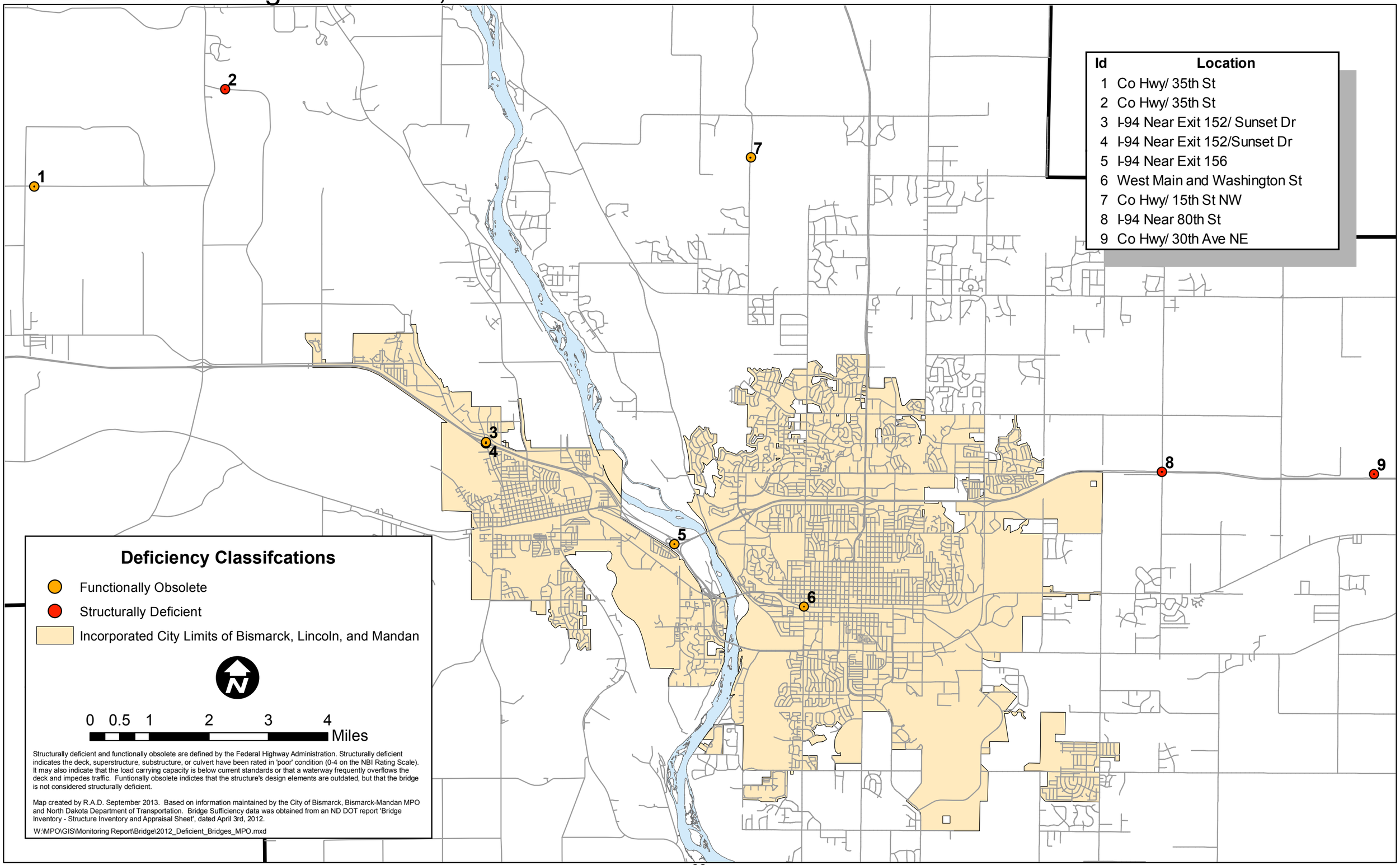
Figure 5.15: Functionally Obsolete and Structurally Deficient Bridges in the Bismarck-Mandan MPO Area

Status	Number of Bridges	% of Total (119)
Functionally Obsolete	6	5%
Structurally Deficient	3	2.5%

Bridge Sufficiency data was obtained from the NDDOT Structure Inventory and Appraisal Sheet for Bridge Inventory, April 3rd, 2012.
** The Bismarck-Mandan MPO area includes Bismarck, Mandan and Lincoln, as well as portions of Burleigh and Morton Counties.*

The following map identifies the locations of functionally obsolete and structurally deficient bridges within the Bismarck-Mandan MPO area.

2012 Deficient Bridge Locations, Bismarck-Mandan Area



5: Travel

Safety

The most concerning information presented within this report is associated with the safety information within the Bismarck-Mandan MPO area. The 2012 North Dakota Crash Summary (developed by the NDDOT) indicates that Burleigh County has the highest crash rate of all counties in the State with 4.11 crashes per million vehicle miles traveled compared to a State crash rate of 1.82 crashes per million vehicle miles traveled.

Annually the NDDOT determines "High Crash" locations for urbanized areas across the state considering the past three years of crash data. In looking at the "3 Year High Crash Locations" for urbanized areas across the state 14 of the top 20 locations occurred in Bismarck from 2009 to 2011. The top three "3 Year High Crash Locations" for urbanized areas statewide are located in Bismarck. Following are the locations and their associated statewide rank:

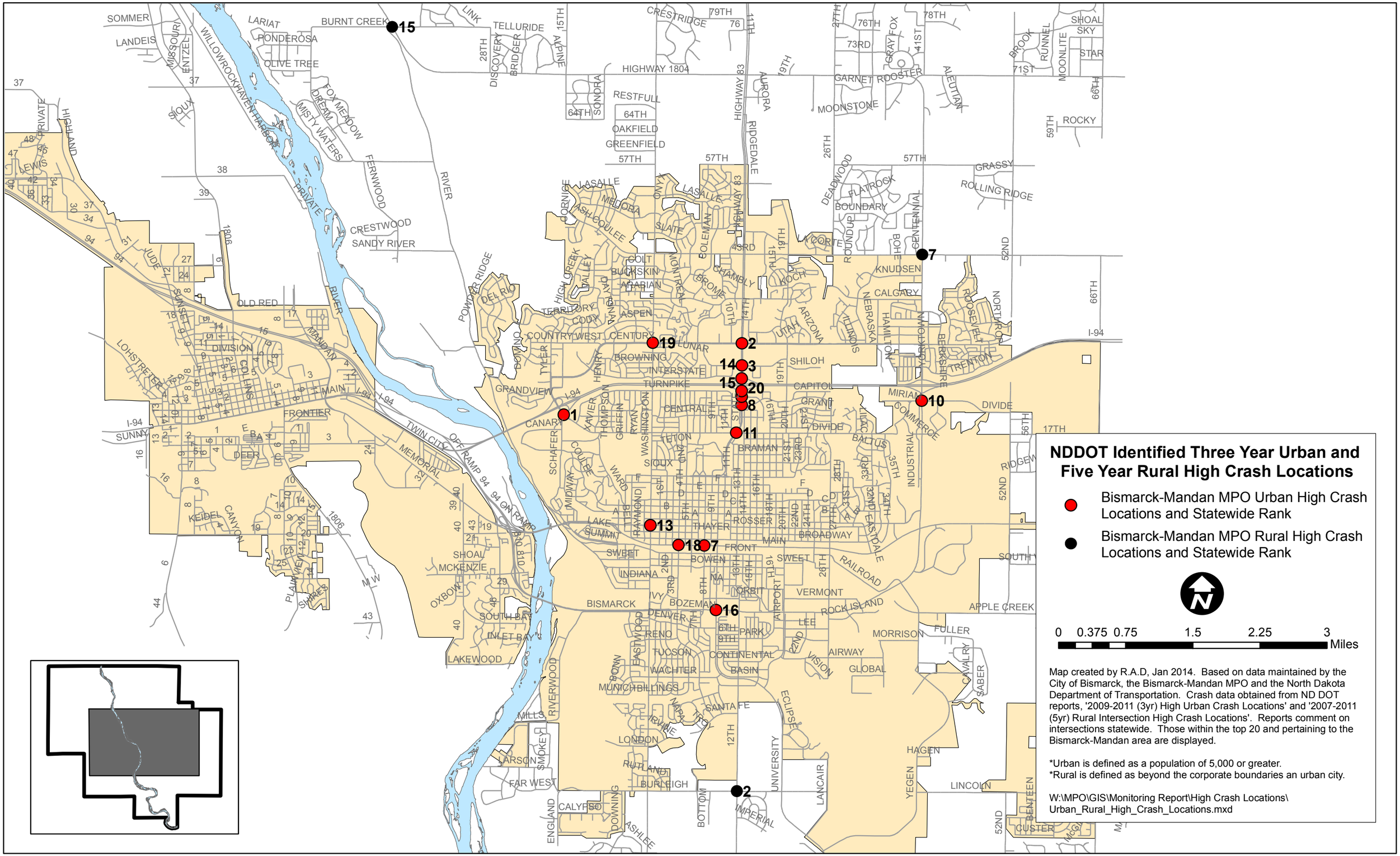
Figure 5.16: Ranking of 3 Year High Crash Locations in Bismarck, ND 2009-2011

City	Location	Statewide Rank
Bismarck	Divide Ave & Schafer St. South Ramps	1
Bismarck	State St. & Century Ave	2
Bismarck	State St. & Interstate Ave	3
Bismarck	Main Ave & 7th St	7
Bismarck	State Street & Capitol Ave	8
Bismarck	Bismarck Expressway & Divide Ave	10
Bismarck	State St. & Divide Ave	11
Bismarck	Washington St. & Rosser Ave	13
Bismarck	State St & I-94 North Ramp	14
Bismarck	State St & Interchange Ave Area	15
Bismarck	Bismarck Expressway & 9th St./University Dr	16
Bismarck	Main Ave & 3rd St	18
Bismarck	Century Ave & Washington St	19
Bismarck	State St. & I-94 South Ramp	20

Based on the NDDOT identified Urban 3-year High Crash Locations 2009-2011

The locations are identified in the following Map. It should be noted that a variety of projects have either recently been completed or are programed to be completed in the near future that address some of the locations identified.

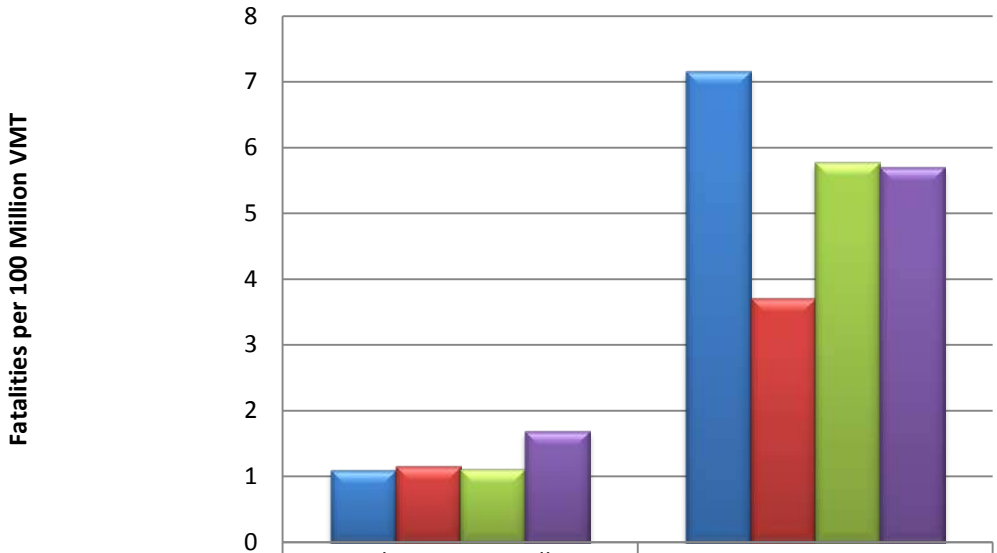
Bismarck-Mandan MPO Urban and Rural High Crash Locations, 2007-2011



5: Travel

Between 2010 and 2012 there were 23 automobile collisions involving fatalities and 138 involving incapacitating injuries in Burleigh and Morton Counties. A common measure of fatal and incapacitating injuries is to compare the total number of each type of crash to 100 million vehicle miles traveled (VMT). The following **Figure 5.17** identifies the 2012 fatal and incapacitating injuries per 100 million vehicle miles traveled in Burleigh and Morton County compared to the State of North Dakota. As the figure indicates fatalities per 100 million VMT are slightly higher on a statewide basis compared to Burleigh and Morton Counties. However, Incapacitating Injuries were significantly higher (per 100 Million VMT) in Burleigh County compared to the State in 2012.

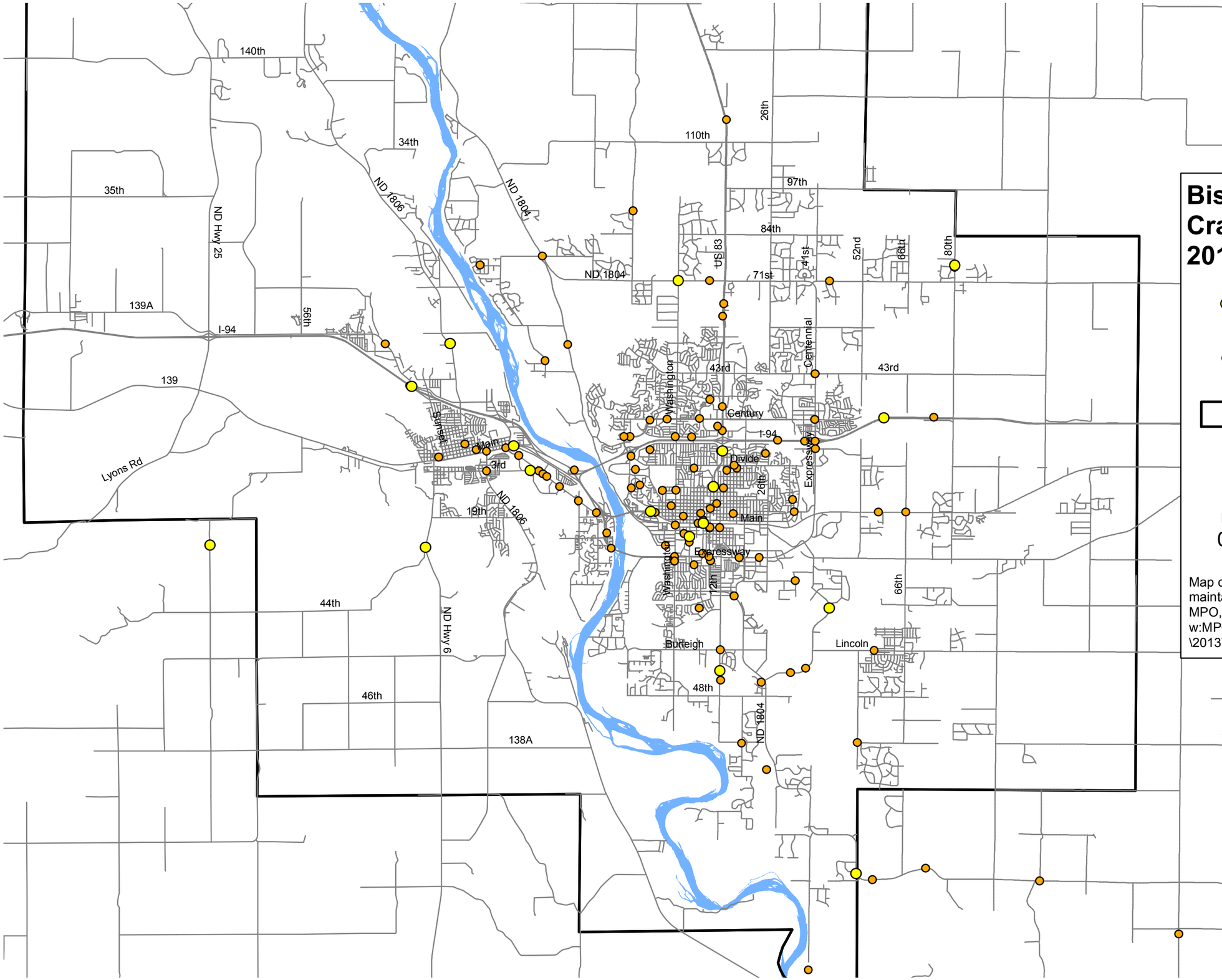
Figure 5.17: Comparison of Fatalities and Incapacitating Injuries per 100 Million VMT for Burleigh, Morton, Burleigh and Morton Counties Combined and North Dakota, 2012



	Fatality per 100 Million VMT	Incapacitating Injuries per 100 Million VMT
Burleigh	1.090777631	7.167967289
Morton	1.160273175	3.712874159
Burleigh and Morton	1.118696495	5.77993189
North Dakota	1.684345357	5.697050473

Based on information from the North Dakota Traffic Report and the North Dakota Crash Summary 2012

The following map depicts the locations of incapacitating injuries and fatalities in the Bismarck-Mandan MPO area from 2010 to 2012.



Bismarck-Mandan MPO Area Crashes by Severity 2010-2012

Crashes Involving a Fatality

Crashes Involving an Incapacitating Injury

Bismarck-Mandan MPO Boundary

N

Miles

0 1.25 2.5 5

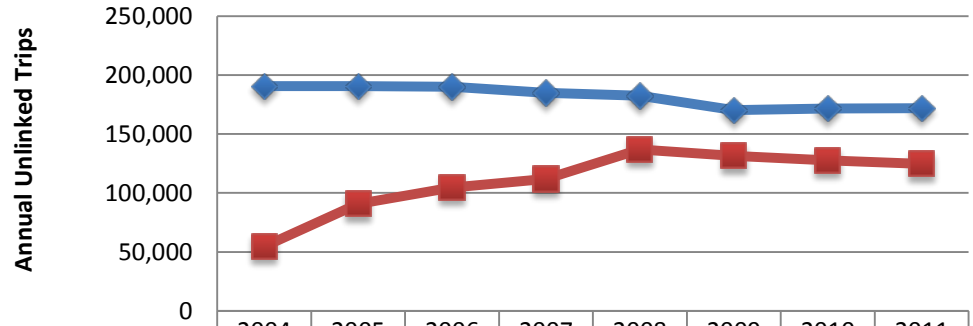
Map created by B.J.E . October 2013. Map based on data maintained by the City or Bismarck, the Bismarck-Mandan MPO, and the NDDOT.
w:MPO\GIS\Monitoring Report\Traffic Analysis\Crash Data \2013\CrashTypeSeverity

5: Travel

Public Transportation

Bis-Man Transit is the Bismarck-Mandan area public transportation provider. It operates both a ParaTransit (Bis-Man ParaTransit) door to door service and a fixed route bus service (Capital Area Transit or CAT). A rider must qualify to be able to ride the ParaTransit service through various eligibility requirements which generally include a disability or any individual 60 years of age or older. The ParaTransit service operates 24 hours a day 7 days a week. The CAT buses are eligible for all individuals to ride and operate on a route structure identified in the map on page 67. The CAT service generally operates from approximately 6am to approximately 7pm (dependent on route) Monday through Saturday (although not all routes are available on Saturday). The CAT service is a "flag stop" service which means riders can flag the bus down at most points along the route structure to board or depart. The current CAT structure is comprised of a series of one way loops which operate out of two hubs including Gateway Mall and Kirkwood Mall, both located in Bismarck. The current route structure provides relatively comprehensive geographic coverage throughout the Bismarck-Mandan area. Current recommendations from the Mobility 2017 Transit Development Plan suggest locating one central hub in the center part of Bismarck to provide bi-directional routes pulsing in and out of the central hub. This would allow for more convenient round trips, as well as, reduce the number of transfers which may be needed to access different parts of the communities. The City of Bismarck is the designated recipient of Federal Transit Administration (FTA) funds and owns the public transportation related facilities, vehicles, and equipment, however the system is contracted out for management and operation.

Figure 5.18: Total Annual Unlinked Trips for Bis-Man Paratransit and CAT for 2004-2011



	2004	2005	2006	2007	2008	2009	2010	2011
Paratransit	190,580	190,518	190,194	185,016	182,467	170,251	171,652	171,892
Fixed Route	54,557	90,692	104,717	111,972	136,933	131,601	127,790	124,653

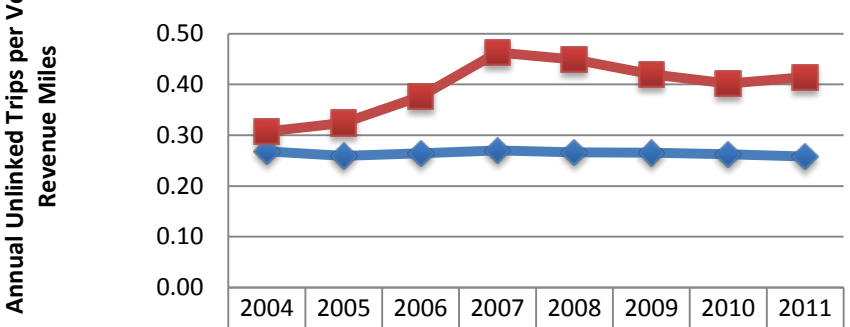
Based on data reported to the National Transit Database from 2004-2011

The fixed route bus service began operating in 2004 in the Bismarck-Mandan area. **Figure 5.18** depicts ridership trends comparing paratransit service to fixed route service. Since 2004 annual trips associated with the paratransit service have slightly declined while annual trips associated with the fixed route service have increased. However, there are still more annual trips provided by the paratransit service in comparison to the fixed route service.

5: Travel

Vehicle revenue miles are a measure of vehicle miles traveled by a transit vehicle while in service. In attempting to understand the level of efficiency of a service, annual trips per annual vehicle revenue miles traveled may be compared. **Figure 5.19** compares annual trips per vehicle revenue mile for the paratransit service and the fixed route service. As the figure indicates the fixed route service has consistently provided more trips per vehicle revenue mile in comparison to the paratransit service.

Figure 5.19: Total Annual Unlinked Trips per Vehicle Revenue Miles for Bis-Man Paratransit and CAT for 2004-2011

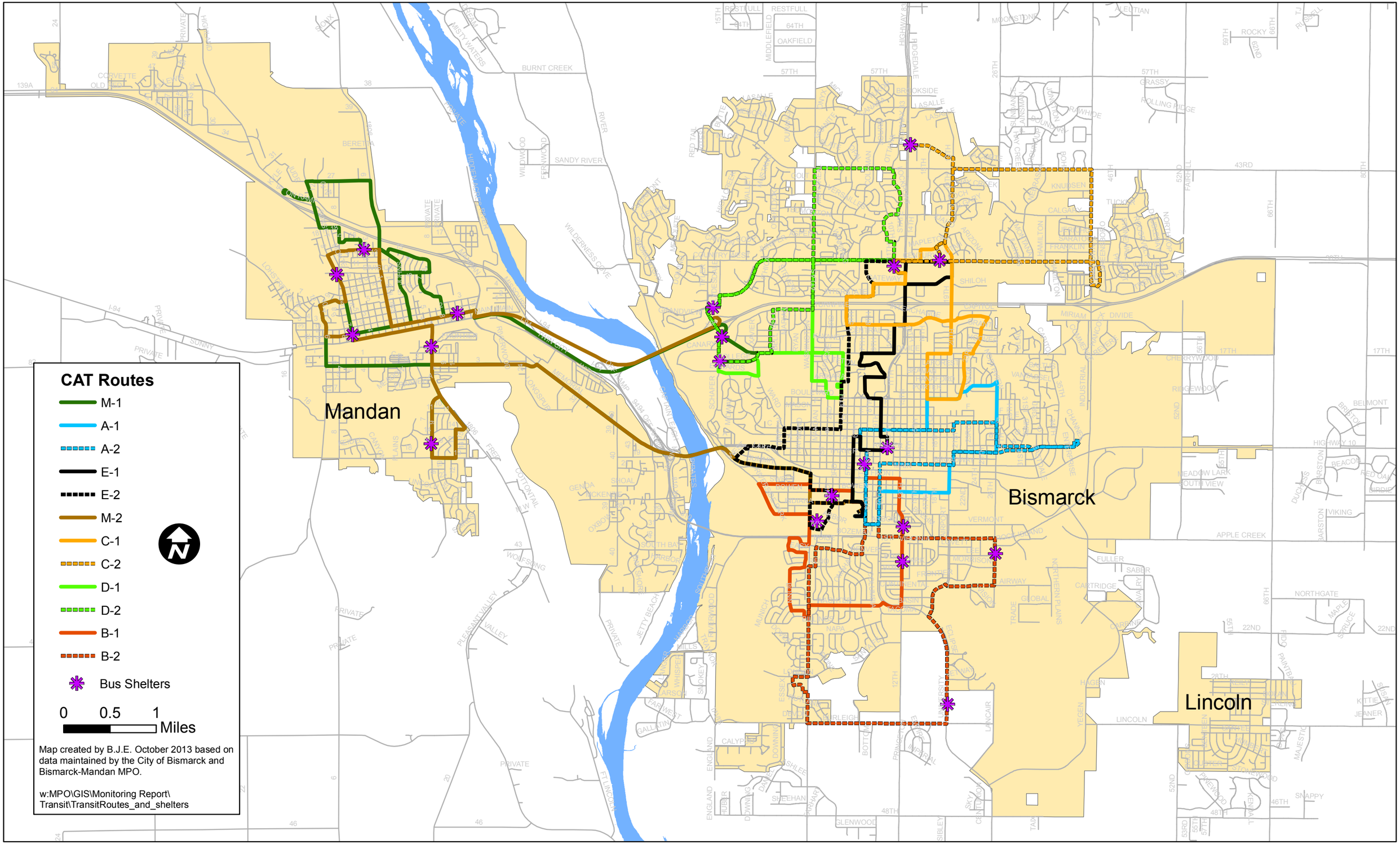


	2004	2005	2006	2007	2008	2009	2010	2011
Paratransit	0.27	0.26	0.26	0.27	0.27	0.27	0.26	0.26
Fixed Route	0.31	0.32	0.38	0.46	0.45	0.42	0.40	0.41

Based on data reported to the National Transit Database from 2004-2011

The current transit fleet of vehicles is comprised of 20 ParaTransit and 10 CAT buses. In assessing the condition of a fleet a comparison can be made to FTA identified "Useful Life Standards", which indicate the typical useful life of a vehicle based on a variety of characteristics such as length, seating capacity, and average cost. The Bis-Man Transit Fleet was compared to the age and mileage FTA useful life standards in Table 2-8 in the FTA document, "Useful Life of Transit Buses and Vans" April 2007 (Report No. FTA VA-26-7229-07.1). For ParaTransit Vehicles the FTA useful life standards are generally five years and/or 150,000 miles. As of October 2013, the average age to the Bis-Man ParaTransit fleet is approximately 5.75 years with an average mileage of 149,620. Currently, approximately 40% of the Bis-Man ParaTransit fleet exceeds FTA defined useful life standards in both age and mileage. The useful life standards for fixed route buses are generally 7-10 years and/or 200,000-350,000 miles depending on vehicle characteristics. Currently, the average age of the CAT fleet is approximately 6.2 years with an average mileage of 242,491. Presently, no CAT vehicles exceed useful life standards in terms of age however 30% of the CAT fleet exceeds useful life mileage standards.

Capital Area Transit (CAT) Routes in the Bismarck-Mandan Area, 2013



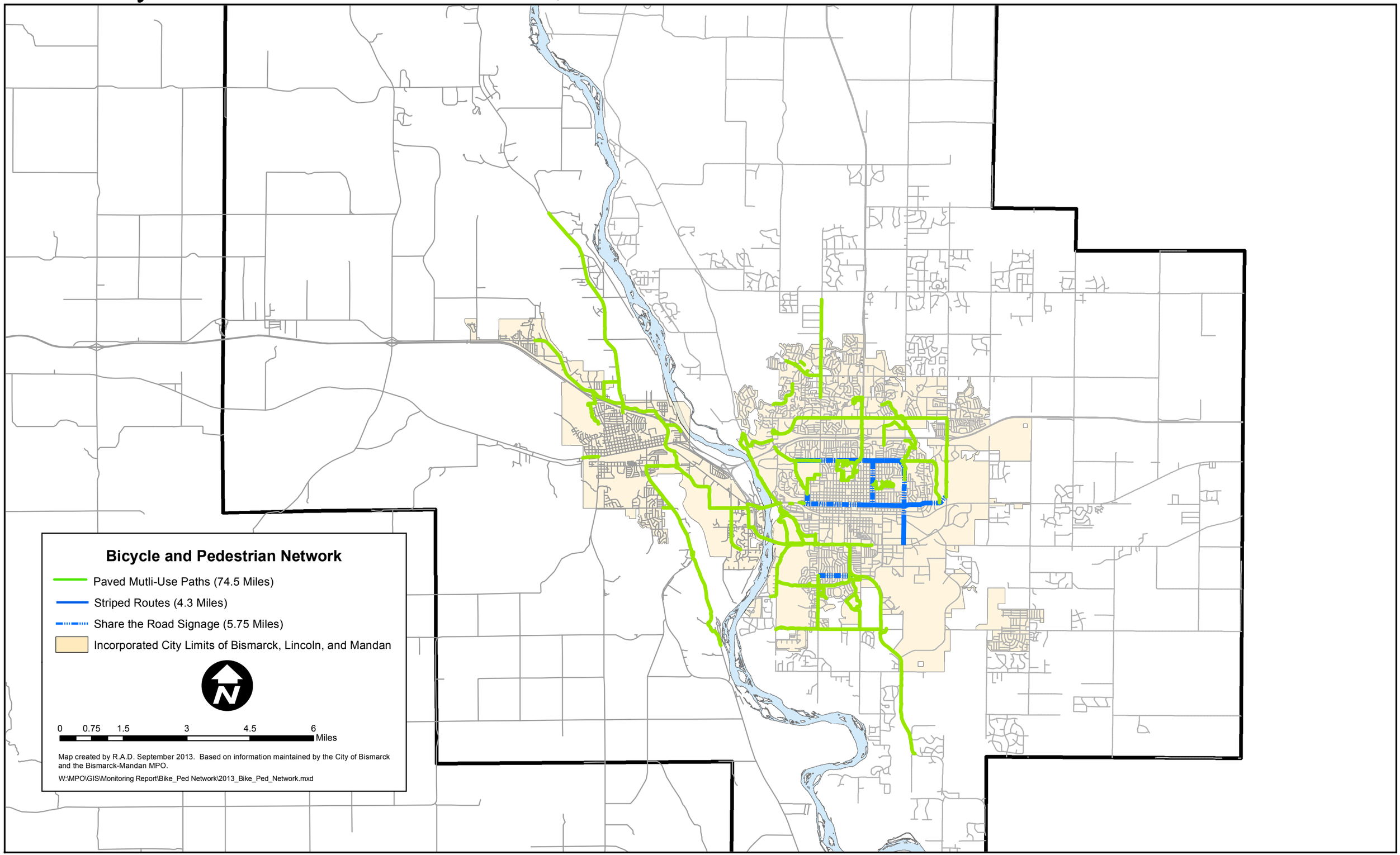
5: Travel

Bicycle and Pedestrian Transportation

The Bismarck-Mandan MPO area has a well-developed bicycle and pedestrian network. This network facilitates movement within each city, offers protected travel across the Missouri River, and allows access to remote recreational areas such as Fort Lincoln State Park. The network is comprised of both on-street and off-street sections. The paved off-street network includes multi-use paths that are at least 8 feet wide. These areas are accessible to pedestrians and cyclists, as well as, other active modes of travel (e.g.: rollerblading, running, etc.). The City of Bismarck has also incorporated on-street bicycle facilities, which include a combination of bicycle lane and “Share the Road” signage and pavement markings. Solid white lines, signs, and painted bike symbols denote protected bike lanes and indicate the correct riding direction (with the flow of traffic). Share the Road signs and pavement markings indicate that motorist should allow adequate space for themselves and cyclists to travel safely. Share the Road signs and Sharrows are used when roadways are too narrow to accommodate a protected bike lane. It should be noted that cycling is allowed on all city streets. However, areas with increased bike usage have been structured to encourage safer travel. The communities of Bismarck and Mandan have relatively extensive sidewalk coverage, throughout the communities. The City of Bismarck has an ordinance requiring the installation of sidewalks as adjacent development occurs. Additionally, the City of Bismarck has a program, which annually focuses on specific parts of the community, to fill “gaps” in the existing sidewalk network.

The following map depicts the paved pedestrian and bicycle network (excluding sidewalks), comprised of 84.55 miles of on and off street facilities. There are 74.5 miles of off-street network, denoted as multi-use trails. This is the largest portion comprising approximately 88% of the bicycle/pedestrian network. There are approximately 4.3 miles or 5% of the system comprised of striped bicycle lanes and signage. Share the Road Signage and pavement markings consist of approximately 5.75 miles or 7% of the network. Striped Routes, at 4.3 miles, compose 5 percent.

2013 Bicycle and Pedestrian Network, Bismarck-Mandan Area



Appendix D: Alternatives Assessment Documents

Items Included:

- Roadway Alternatives Development Summary Memo (May 23, 2014)
- Bicycle and Pedestrian Alternatives List (July 1, 2014)
- Roadway Alternatives Updated Assessment Memo (August 8, 2014)
- Transit Alternatives / Recommendations Memo (August 22, 2014)
- Roadway alternatives presented at September meetings (Sept 17-18)
- Modal performance scoring

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Memorandum

To: Steve Saunders LRTP Steering Committee	envision2040 2015-2040 BISMARCK-MANDAN Long Range Transportation Plan
From: Jason Carbee Jacob Weiss	
Date: May 23, 2014	

RE: 2040 LRTP Roadway Alternatives List

Overview

The purpose of this memorandum is to provide a draft summary list of the roadway alternatives being considered for inclusion in the 2040 Long Range Transportation Plan. The draft roadway alternatives list provided attempts to capture the range of reasonable roadway improvements that should be considered and further analyzed for inclusion in the LRTP. Alternatives have been developed in locations where the technical analyses (traffic congestion, traffic crashes, system connectivity, etc.) or public and stakeholder input indicated a system improvement might be warranted. Additional technical analysis will be completed on these roadway alternatives before we meet again as a group to rank and prioritize the alternatives.

We will provide a similar list to the steering committee for bicycle / pedestrian and transit alternatives. We are still reconciling recently received trail information with the rest of our bicycle and pedestrian alternatives for that document.

Draft Roadway Alternatives

The draft list of roadway alternatives is illustrated in **Figures 1**. The alternatives have been divided into:

- **System management alternatives**: Those that include minor improvements to an existing corridor, such as traffic signal additions, turn lane additions, pavement marking modifications ("restriping") on the existing cross-section, etc.
- **System expansion alternatives**: Those alternatives that include major improvements to an existing corridor, such as a roadway widening, the addition of a new interchange, or construction of a new facility.
- **Developer-funded collector street alternatives**: These collector street alternatives will provide access into / out of new development areas that are anticipated to occur between today and 2040. The collector alignments are consistent with the Fringe Area Plan, and are assumed to be funded by private dollars.
- **Preservation alternatives**: Those alternatives mentioned by steering committee members as projects that would be completed to preserve the existing system. **Not all preservation projects through 2040 will need to be developed and included in the LRTP;** funding

assumptions for future preservation projects will be included in the financial analysis for the LRTP**.** These alternatives will be funded from a different funding category in the LRTP than the management and expansion alternatives outlined in the bullets above.

Table 1 (attached at back) provides a description of the alternatives illustrated in **Figure 1**. Each alternative in the figures and the table is numbered with a unique identifier. The first letter of the identifier indicates the county ("B" or "M"). The three Missouri River crossing alternatives are coded with an "R" identifier for "regional". Segment alternatives are

Developer-funded collectors are not considered in the financial element of the LRTP and are not provided a unique identifier or included in **Table 1**. The roadway alternative list has been developed to include some functional details that include potential locations of new turn lanes and potential intersection treatment details, which MPO study the alternative came from (if relevant), and approximately when improvements would be warranted.

Please note that there are several potential roadway alternatives that we have not shown in **Figure 1** or in **Table 1**. In some cases, these "discarded" alternatives were eliminated based on the findings of past studies, including the 2035 LRTP, and were not considered reasonably implementable. **Table 2** provides a summary of some of those alternatives that have been discarded and the reason for setting them aside.

Table 2. Roadway Alternatives Discarded and not Carried into Alternatives Analysis

Discarded Alternative	Reason Discarded
4-lane widening densely-developed urban corridors, including: • Washington Street between Century and Rosser. • 4th Street between Century and Rosser. • Divide Ave between Tyler Parkway and Expressway.	Insufficient public right-of-way; would require extensive property acquisitions
Widen Main Avenue in Mandan to include a center left-turn lane.	Would require the removal of all on-street parking.
Diagonal arterial connection between Lincoln and southeast Bismarck to Yegen / Expressway Intersection.	Lincoln – Bismarck Connection study discarded this alternative due to floodway impacts, redundancy with current routes.
52nd Street Crossing of I-94.	Former landfill sits on both sides of 52nd Street south of I-94.
3rd Street Underpass of UP Railroad. (Public Comment)	Access impacts to businesses and high costs.
Century Ave directional EB on / WB off ramp connection to I-94 near 52nd Street. (Public Comment)	Not a full service interchange, which is not consistent with FHWA interchange criteria.
US 83 as a freeway between 71st and I-94.	Very high costs and impacts to land access.

Regional Strategy Alternatives

Several of the alternatives we are considering are regional in nature, and do not necessarily apply to a single corridor. These regional alternatives, or strategies, are documented in the bullets below:

- Assess a regional travel demand management program.
- Consider a complete streets policy that sets a framework for how new and retrofitted roadways should accommodate a wider-range of modes and users.
- Emphasize access management on future arterial corridors.
- Establish trail dedication policies for new developments.
- Establish programs that promote bicycling and transit modes for Bismarck-Mandan residents.
- Establish programs that educate both bicyclists and motorists on improving the safety of on-street bicycling.
- Implement a regional safety study that assesses local crash rate concerns.
- Improve and upgrade regional traffic signal equipment and controllers.
- Implement local or regional land use policies that support infill land use patterns with more development density and mixed-uses than currently anticipated for Bismarck-Mandan through 2040.

Next Steps

Please review the draft roadway alternatives list provided in this memorandum and add or modify any management or expansion alternatives that you feel should be considered in the 2040 LRTP. If any of the alternatives in Table 2 should be carried forward instead of discarded, please let us know.

Bicycle, pedestrian and transit alternatives will be provided in a separate memorandum. Over the next few weeks, we will complete additional technical analyses of these alternatives, including any additional alternatives that you provide to supplement this list. The technical analysis of these alternatives will include planning-level evaluations of:

- Cost estimates.
- Traffic operations evaluation.
- Right-of-way and cross-section evaluation.
- Environmental issues screening.
- Other performance measure assessments, determined by MPO staff.

Table 1. Draft Roadway Alternatives Descriptions

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
Segment Alternatives				
B1	Expansion	Congestion	Widen State St to 6 lanes to 71st St; likely widen from south to north in phases. Freeway concept discarded due to access impacts.	
B2	Expansion	Connectivity	Extend 57th St as Arterial Roadway between US 83 / State St and 26th St. Likely 3-lane cross-section.	
B3	Expansion	Connectivity	Reconstruct 66th St from 43rd Ave to 71st Ave and 71st St from Centennial to 66th St as arterial / truck route for Beltway.	North-South Beltway Study
B4	Expansion	Connectivity	Extend 66th St as 4-lane rural roadway between Highway 10 and 43rd Ave	North-South Beltway Study
B5	Expansion	Congestion	Widen 66th St to 4-Lanes between Lincoln Rd and Hwy 10. Signalize 1-mile arterial intersections.	North-South Beltway Study
B6	Expansion	Connectivity	SE Bismarck / Lincoln Beltway; 48th Ave S as rural road between University and 66th; 66th as urban road 48th to Lincoln Rd.	North-South Beltway Study
B7	Expansion	Connectivity	New I-94 Interchange at 66th Street.	
B8	Expansion	Congestion	Extend Divide as a 3-lane or 5-lane arterial from Expressway to 66th; adjacent to future industrial and urban residential	2035 LRTP
B9	Expansion	Congestion	Widen Highway 10 as 4-lane divided arterial between Expressway and 66th.	
B10	Management	Congestion	Lincoln Rd management improvements with new turn lanes, a roundabout @ 52nd, x-walk at McDougall, trail and paved shoulders	Lincoln Rd Corridor Study
B11	Expansion	Connectivity	Extend 52nd Avenue as an arterial roadway between Century and 43rd Avenue.	2035 LRTP
B12	Expansion	Connectivity	I94 Crossing connection between Century and Divide at Hamilton St - provide Hamilton to Nebraska Dr connection for Collector access to 43rd Ave.	
B13	Expansion	Connectivity	Alternate Beltway Alignment (instead of 66th St) along 80th Street.	
B14	Expansion	Connectivity	Extend Century Ave as a 3-Lane or 4-lane Divided arterial between 52nd St and 66th St to support development / traffic growth.	2035 LRTP
B15	Expansion	Congestion	Widen 43rd Ave as 4-Lane Divided Roadway between Washington and Centennial, include bike / ped trail	43rd Avenue Corridor Study

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
B16	Management	Access / Congestion Concern	26th Street signal timing improvements and access control; addresses public conern with queuing and traffic progression along this segment of 26th Street during rush hour.	
B17	Expansion	Connectivity	80th St / I-94 interchange as western option to 66th St interchange.	
B18	Expansion	Congestion	Widen 43rd Ave as 4-Lane Divided Roadway between Centennial and 66th, include bike / ped trail	43rd Avenue Corridor Study
B19	Management	Congestion	Widen Ash Coulee as a 3-lane urban minor arterial. Include bike / ped trail.	43rd Avenue Corridor Study
B20	Management	Access / Congestion	Reconstruct South Washington as a 3-lane urban arterial south of Buleigh to current 4-lane section at creek	
B21	Expansion	Connectivity	Extend Tyler Parkway as 3-lane urban minor arterial from Valley Dr to 64th St.	Northwest Bismarck Subarea Study
B22	Management	Congestion	Restripe 19th Street as 3-lanes between Divide and 43rd; add northbound right-turn lane at Shilo School.	
B23	Expansion	Connectivity	Extend 57th Street between Washington and River Rd as a 3-lane or 5-lane arterial roadway.	Northwest Bismarck Subarea Study
B24	Management	Congestion	Signal upgrades and timing improvements in Washington St corridor from Calgary to Expressway. Stripe turn lanes at key intersections, add signal at Turnpike.	2035 LRTP
B25	Management	Congestion / Safety	3/4 Access Control along Bismarck Expressway and widening at Airport Rd for right-turn lanes for Freight access	
B26	Expansion	Congestion / Safety	Widen Bismarck Expressway to 6-lane divided between Washington and 9th St per Bis Expway Study. Property impacts expected.	Bismarck Expressway Corridor Study
B27	Management	Congestion / Safety	Corridor Management along Bismarck Expressway with signal system upgrades, 3/4 access control at 2nd St and mall entrance.	
B28	Management	Congestion	Restripe Divide Avenue as a 3-lane roadway between Turnpike and 26th Avenue. Evaluate on-street bike intergration options.	2035 LRTP
B29	Expansion	Connectivity	Optional north extension of Beltway utilizing 97th Ave instead of 71st - from Focus Group. Truck / route arterial concept farther from Bismarck.	
B30	Management	Congestion	Add turn lanes at key Main Ave locations. 4-lane divided roadway likely not needed by 2040.	2035 LRTP

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
B31	Expansion	Connectivity	Construct 57th Avenue as 3-lane arterial between Washington St and State St.	2035 LRTP
B32	Management	Congestion / Access	Add turn lanes at Yegen Rd key intersections between Lincoln Rd and Apple Creek Rd	
B33	Expansion	Congestion	Widen Yegen Road to 4-lane Roadway with turn lanes between Apple Creek and Expressway	Lincoln-Bismarck Connection Study
B34	Expansion	Connectivity	Fernwood Road extended as 2-lane rural arterial roadway to relieve River Rd between Burnt Boat and 71st St.	Northwest Bismarck Subarea Study
B35	Management	Congestion / Safety	Implement State Street Safety Study Recommendations. Several added turn lanes along State St and mid-block accesses modified to 3/4 access.	State St Safety Study
B36	Management	Congestion	Restripe Rosser for 3-lanes between Griffin St and Washington St.	
B37	Management	Congestion	4th St signal timing improvements, stripe turn lanes at key intersections, potential new signal at Turnpike.	2035 LRTP
B38	Expansion	Connectivity	Extend 26th St as 2-lane arterial between Calgary and 43rd Ave.	2035 LRTP
B39	Expansion	Connectivity	Provide grade separation of 66th Street from BNSF railroad- anticipate 4-lane bridge.	Lincoln-Bismarck Connection Study
B40	Preserve	Preservation	From Lincoln Rd Corridor Study, raise roadway elevation out of floodplain and add shoulders	Lincoln Rd Corridor Study
B41	Preserve	Preservation	Identified 26th St extension as a preservation project by steering committee.	
B42	Expansion	Congestion	Reconstruct Washington as a 3-lane urban roadway between 57th St and 71st St / Highway 1804.	2035 LRTP
B43	Expansion	Connectivity	After Airway Ave vacation, provide curve transition between Lincoln Rd and North Leg of airway.	Lincoln-Bismarck Connection Study
B44	Management	Congestion	Restripe Avenue C for left-turn lanes at major intersections including Ward Rd, Washington, and EB 3rd St.	
B45	Management	Congestion / Safety	Consider access management for improved safety / operations along Century Curve. Potential Signalization at Country West / Century OR convert to 3/4 access and route left turns from Country West to Century via Interstate Ave Signal.	
B46	Expansion	Connectivity	Extend London Ave between Riverwood and Washington; constructability issues.	2035 LRTP

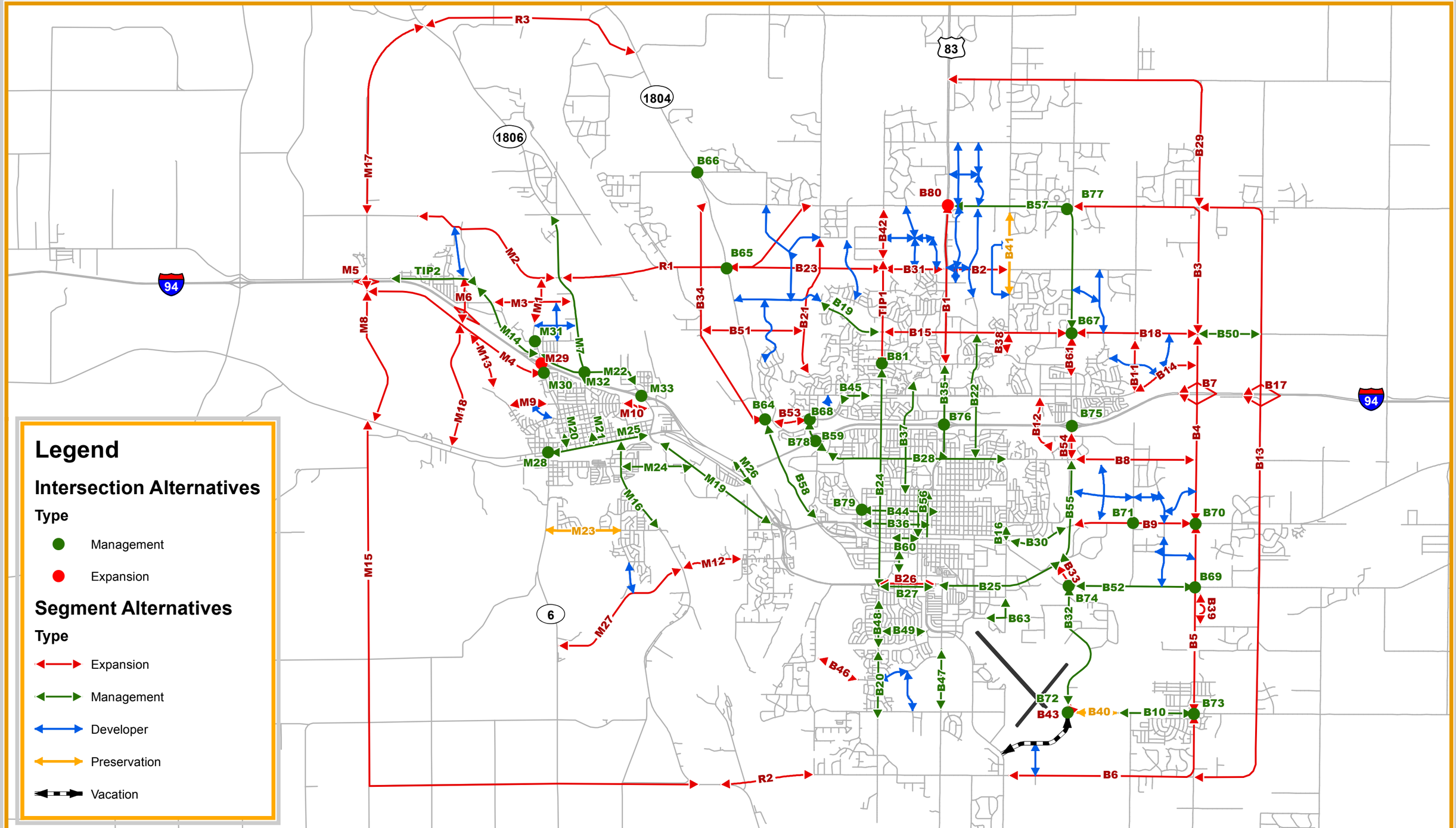
Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
B47	Management	Congestion	Add turn lanes on 12th St at Santa Fe and Burleigh Ave.	
B48	Management	Congestion	Widen Washington to add left turn lanes at Wachter and Reno Signals. Consider NB Left at Munich for Solheim Elementary.	
B49	Management	Congestion	Add left turn lanes on Wachter at collector intersections for future traffic growth.	
B50	Management	Congestion	43rd Ave - Add turn lanes at 66th, 80th and 1/2 mile collector intersection (73rd St?).	43rd Avenue Corridor Study
B51	Expansion	Connectivity	43rd Avenue as a 3-lane or 5-lane arterial between proposed Fernwood and Tyler Pkwy.	Northwest Bismarck Subarea Study
B52	Management	Congestion	Focus on TSM options along Apple Creek due to floodway issues. Turn lanes and intersection improvements at 66th, 55th, 52nd and Yegen.	
B53	Expansion	Connectivity	Extend Century Ave west of Tyler Parkway as a 4-lane roadway to River Road.	Northwest Bismarck Subarea Study
B54	Expansion	Congestion	Widen Bismarck Expressway to 6-lanes between I-94 and Divide Avenue for high future traffic levels.	
B55	Management	Congestion / Freight	Bismarck Expressway - Future Dual SB Left Turn Lanes at Hwy 10; accelleration lane coming out of Yegen to Northbound Expressway	
B56	Management	Congestion	TSM / Signal Improvements along 7th / 9th pair	
B57	Management	Congestion	Add turn lanes and improve intersections similar to 71st and Centennial study.	
B58	Management	Congestion	Add turn lanes at River Rd intersections between Burnt Boat and Fraine Barracks.	
B59	Management	Congestion / Safety	Safety improvements on Tyler Parkway with turn lane additions.	
B60	Management	Connectivity	Restripe Main Ave as 3-lane roadway with bike lines between 1st St and 6th St, per Downtown Bismarck Study.	Downtown Study
B61	Expansion	Congestion	Widen Centennial to 4-lane divided roadway between Jericho and 43rd Avenue.	
B62	Vacation	Airport Expansion	Vacation of Airway Avenue south and west of Lincoln Rd for Airport expansion - from Airport Master Plan.	Airport Master Plan
B63	Management	Connectivity	Pave and improve access via Airway Ave and 26th Street for south access to Wal-Mart and retail area at 26th Street and Bismarck Expressway.	
M1	Expansion	Connectivity	3-lane arterial roadway through N. Mandan growth area. Reserve 100' right-of-way.	North Mandan Study

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
M2	Expansion	Connectivity	2-lane rural collector road on north edge of future urban growth area.	North Mandan Study
M3	Expansion	Connectivity	2-lane arterial through growth area with turn lanes at intersections with Sunset and Collins.	North Mandan Study
M4	Expansion	Connectivity	Extend Boundary Avenue west to support new commercial / industrial development access. Tie into future I-94 crossing / interchange.	North Mandan Study
M5	Expansion	Connectivity	56th Ave Interchange with connection to Old Red Trail and Boundary Road - potentially move slightly east to avoid impacts.	North-South Beltway Study
M6	Expansion	Connectivity	New interchange and / or crossing between Boundary Rd Extension and Old Red Trail along 32nd Ave alignment.	North Mandan Study
M7	Management	Congestion	Highway 1806 - add turn lanes at key intersections such as 27th St, Baretta St, 39th St, 38th St, Sioux St and 37th St.	North Mandan Study
M8	Expansion	Connectivity	56th Ave as 2-lane rural roadway between Boundary Rd / Future Interchange and Business Loop.	North-South Beltway Study
M9	Expansion	Connectivity	Extend Division as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP
M10	Expansion	Connectivity	Extend Division as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP
M12	Expansion	Connectivity	Extend McKenzie across Heart River to Hwy 1806 as rural 2-lane roadway. Reserve 100' right-of-way. New bridge across Heart River.	2035 LRTP
M13	Expansion	Connectivity	As Boundary Road is expanded and commerical / industrial development occur, provide connection between Boundary Rd and Lohstreter.	North Mandan Study
M14	Management	Congestion / Safety	Restripe Old Red Trail with center turn lane between Highland Rd and Sunset Ave for safety. Alternate is 5-lane widening.	North Mandan Study
M15	Expansion	Connectivity	SW Mandan beltway as 2-lane rural roadway between the west Business Loop and Highway 1806 near Ft Lincoln park	North-South Beltway Study
M16	Management	Congestion / Pedestrian Safety	Add Hwy 1806 turn lanes and signals at 8th Ave and 19th St intersections. Make ped crossing improvements at 3rd St intersection. Consider additional NB turn lane @ Main.	
M17	Expansion	Connectivity	Potential new northwest Mandan beltway road, connect potential interchange on 56th Ave with Hwy 1806.	

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
M18	Expansion	Connectivity	West Mandan arterial connection / truck route for potential 30th Ave W crossing of or interchange with I-94 to Old Red Trail.	2035 LRTP
M19	Management	Access Control / Safety	Memorial Highway Study Recommendations. Access Control. Add Signals at 40th Ave and 3rd St, bike facilities.	Memorial Highway Corridor Study
M20	Management	Congestion	Remove stop control from Sunset (6th Ave W) at 2nd and signalize 1st St / Sunset intersection.	
M21	Management	Congestion	As congestion warrants, stripe a southbould left-turn lane on Collins at Main St. Signalize 1st St / Collins.	
M22	Management	Congestion	Reconstruct Old Red Trail as a 2-lane urban with turn lanes between Sunset Rd and Mandan Ave.	North Mandan Study
M23	Preserve	Preservation	Suggested 19th St reconstruction project in Steering Committee Meeting	
M24	Management	Congestion	Restripe with center turn lane between 9th and 11th Ave SE and Riverwood Ave to Memorial Highway.	
M25	Management	Congestion	Not a widening, restripe for turn lanes in key locations. Signal system upgrade.	
M26	Management	Congestion	Implement I-94 study recommendations here.	I-94 Corridor Study
M27	Expansion	Connectivity	Extended McKenzie as 2-lane rural arterial between Hwy 6 and Hwy 1806.	2035 LRTP
R1	Expansion	Connectivity	Northern crossing of Missouri River. New Structure likely over 1/2 mile long.	North Mandan Study
R2	Expansion	Connectivity	Southern crossing of Missouri River. New Structure likely over 1/2 mile long.	2035 LRTP
R3	Expansion	Connectivity	Far North bridge. Requires supporting arterial roadway investments along 110th Ave in Burleigh County and N-S in near Lake in Morton.	
TIP1	Expansion	Congestion	TIP Project for 2015. Widen Washington St to 5-lanes between Calgary and 57th St. Signalize the 57th intersection.	
TIP2	Management	Congestion	TIP Project for 2016. Wident Old Red Trail to 3 lanes. Signal at Highland Rd in future.	North Mandan Study
Intersection Alternatives				
B64	Management	Congestion / safety	1-lane roundabout or trafic signal at River Rd and Burnt Boat. Warranted in near to mid-term.	
B65	Management		1-lane roundabout or rural signal with advanced warning at River Rd / Burnt Creek / Highway 1804.	

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
B66	Management		1-lane roundabout or rural signal. Consider off-set roundabouts or a design that brings together Burnt Creek, Highway 1804 and River Rd.	
B67	Management		Signalize intersection of 43rd Ave and Centennial. Likely warranted in near-term. Needs to accomodate 4-lane divided on 3 approaches in Long-term.	
B68	Management		Signalize intersection of Century and Tyler Parkway. Likely warranted in near to mid-term.	2035 LRTP
B69	Management		Adjust for 2-way Stop Control so that Apple Creek stops, 66th is free. Short term consideration - from Focus Group.	
B70	Management		Turn lane additions at Highway 10 and 66th St; potential dual northbound lefts, and signalization will be warranted in mid- to long-term.	
B71	Management		Signal will be warranted at 52nd and Hwy 10 as adjacent development comes on-line: mid- to long-term	
B72	Management		After Airway Avenue vacation, change control to give free movement to westbound right turns and southbound lefts. B43 is longer-term option.	Lincoln - Bismarck Connection Study
B73	Management		2-lane roundabout or rural traffic signal. Signal warrant will be sooner than 4-lane divided will be needed on 66th and Highway 10.	2035 LRTP
B74	Management		Add turn lanes and signalize Apple Creek / Yegen Rd intersection.	2035 LRTP
B75	Management	Congestion / Safety	Reconstruct and reconfigure Bismarck Expressway / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP
B76	Management		Reconstruct and reconfigure State St / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP
B77	Management		Depending on potential beltway alignment, improve geometry at Centennial Rd / 71st St intersection to address safety concerns.	
B78	Management		Reconfigure Tyler Pkwy / I-94 interchange per I-94 corridor study to address safety and congestion issues.	I94 Study
B79	Management	Congestion	Add turn lanes to SB Ward Rd and WB Ave C to address congestion.	2035 LRTP

Alt Identifier	Improvement Type	Issue Addressed	Alternative Description	Relevant Study Source
B80	Expansion	Congestion	New interchange if beltway ties in at 71st; Option to consider is alterantive intersection design like continous intersection.	
B81	Management	Congestion	New signal at Washington / Calgary. Signal likely warranted in near to mid-term	
M28	Management	Congestion	Improve long-term traffic operations with turn lane and signal improvement Higway 6 and Main. Limited options with bridge on Hwy 6. Longer-term need.	
M29	Expansion	Congestion / Safety	Reconstruct and reconfigure interchange and traffic signals to improve safety and operations to reduce skew.	North Mandan Study
M30	Management	Congestion	Signalize and stripe turn lanes on all approaches at Sunset / Boundary Rd.	North Mandan Study
M31	Management	Congestion	Add turn lanes and signalize Sunset - 27th St intersection.	North Mandan Study
M32	Management	Congestion	Add turn lanes on all approaches of the Old Red Trail / Collin Ave intersection and signalize - likely needed in near term.	North Mandan Study
M33	Management	Congestion / Safety	Reconstruct ramps to reduce skew, add left turn lanes on Mandan Ave under I-94, add signals at ramp terminals.	North Mandan Study



envision2040

Draft Roadway Alternatives List to Analyze

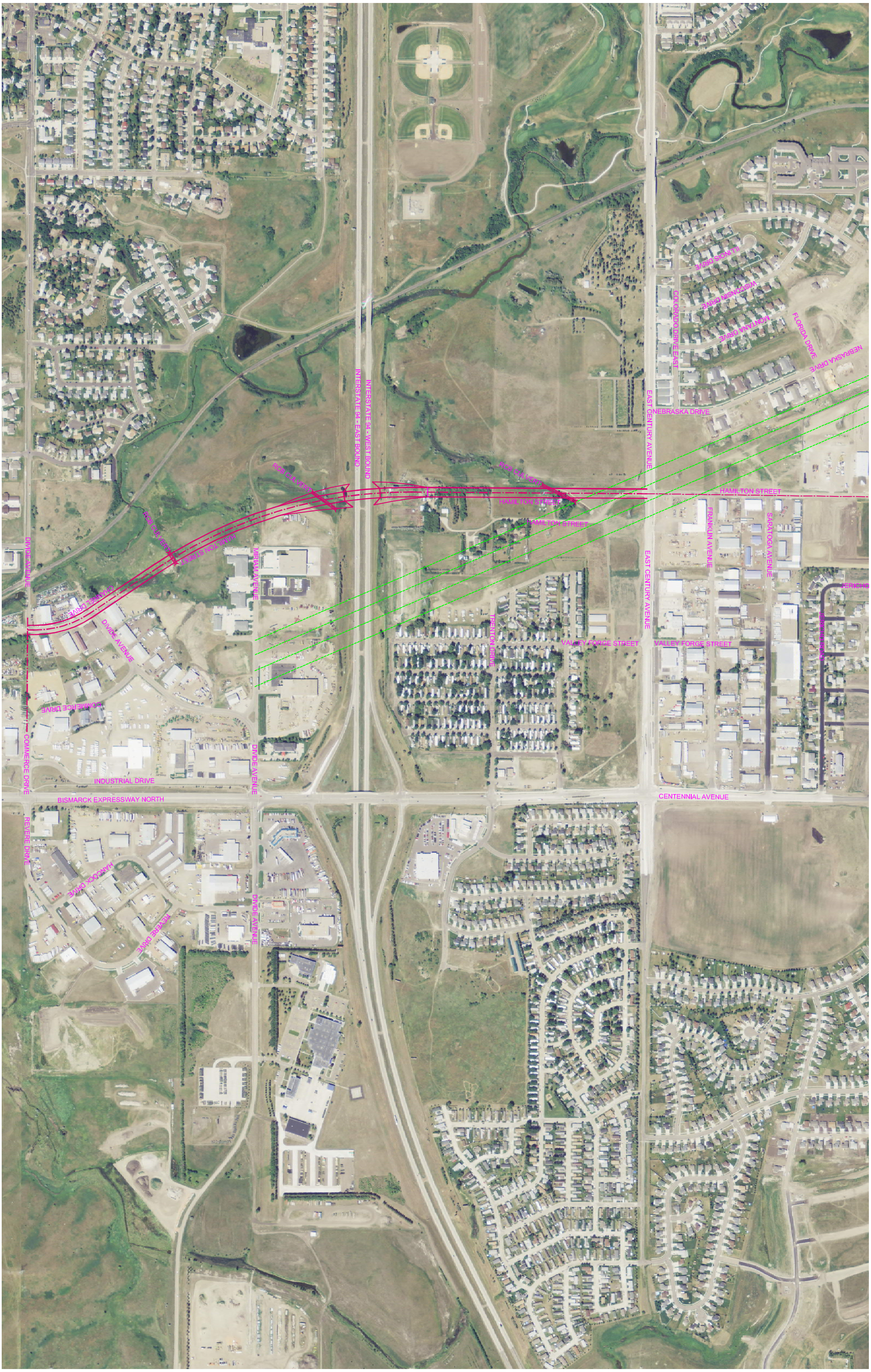
Figure: 1

Date: May 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Planning Concepts for Hamilton St Crossing of I-94

3 Options Provided, June 2014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FLORIDA DRIVE
NEBRASKA DRIVE
ROB CULVERT
HAMILTON STREET
FRANKLIN AVENUE
SARATOGA AVENUE
JERICHO ROAD
DIVIDE AVENUE
CHANNEL DRIVE
MIRIAM AVENUE
TRENTON DRIVE
VALLEY FORGE STREET
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CENTENNIAL AVENUE
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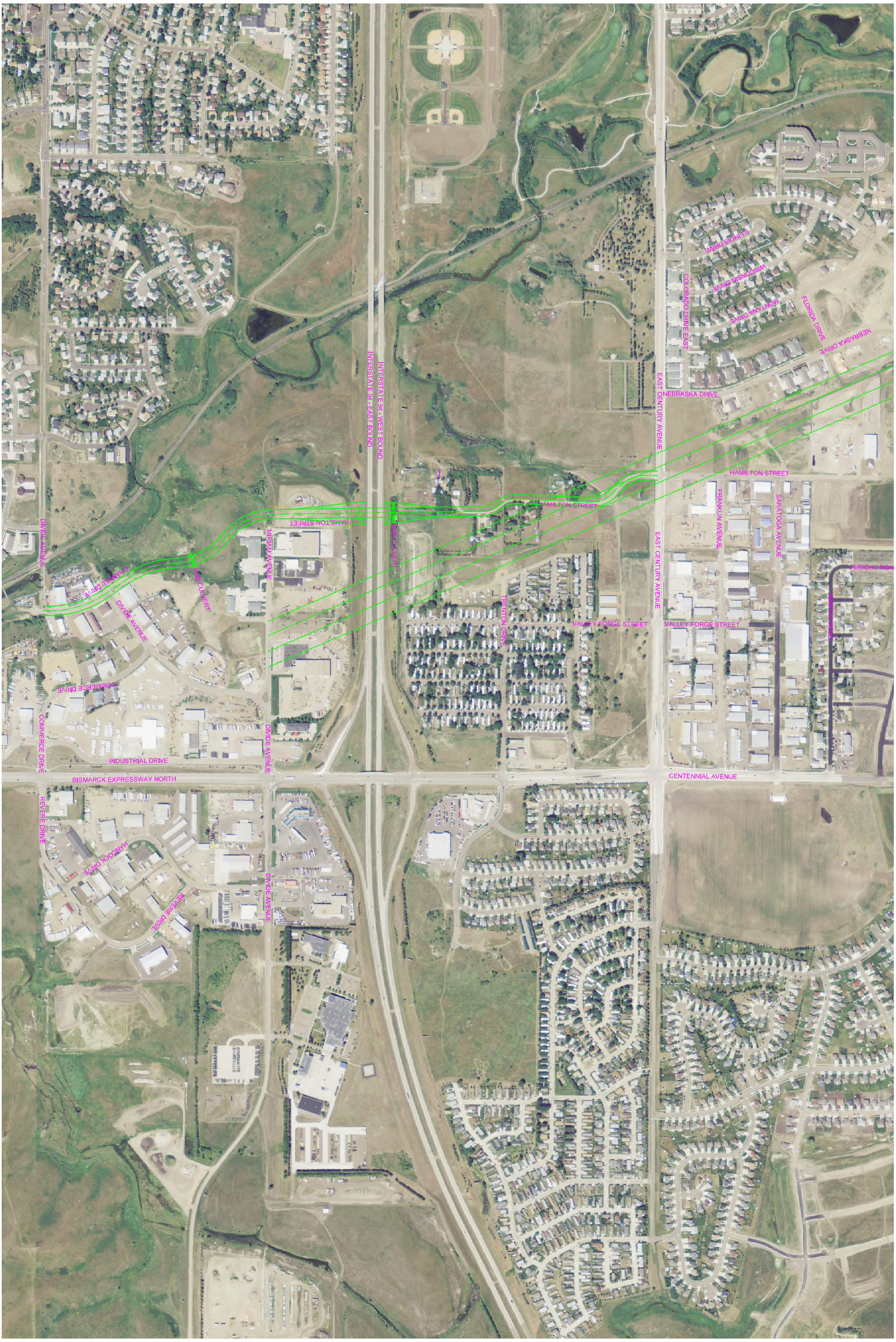
HANCOCK DRIVE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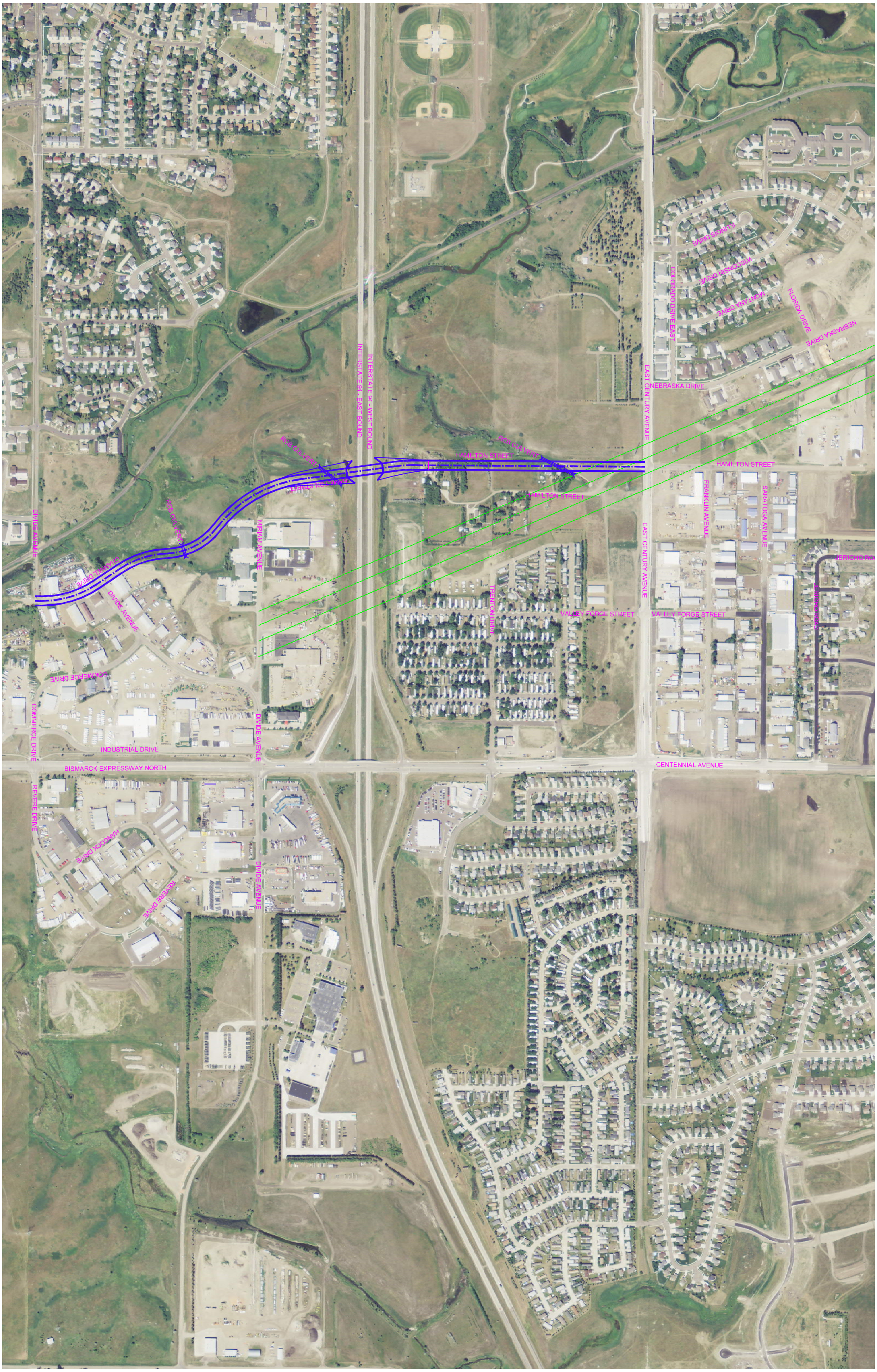
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DIVIDE AVENUE
BISMARCK EXPRESSWAY NORTH
CENTENNIAL AVENUE
REVERE DRIVE
HANCOCK DRIVE
REVERE DRIVE
DIVIDE AVENUE

Date: July 1, 2014
To: Steve Saunders
LRTP Steering Committee
Bismarck Parks and Recreation
Mandan Parks and Recreation
From: Antonio M. Rosell, P.E., AICP, Director, Community Design Group
Jason Carbee, AICP, HDR
Subject: 2040 LRTP Pedestrian and Bicycle Network Alternatives List

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This memorandum provides a summary of the alternatives we propose to carry forward as pedestrian and bicycle network improvement options for the Bismarck-Mandan Long Range Transportation Plan. We request that you review the pedestrian and bicycle alternatives included in this memorandum and provide any comment.

1. Principles and approach

Introduction

Walking is the most basic mode of travel, and is accessible to people through the widest range of ages, income levels, and physical abilities. Bicycling is an inexpensive, convenient and enjoyable way of accessing community destinations and assets. Walking and biking are healthful and economical travel options that improve community health, increase access to local destinations, foster community connection, and help sustain healthy and prosperous local economies. Places where walking and biking are comfortable and inviting are places where people want to live, work, and visit. Creating "Complete Streets" that are safer, more comfortable and accessible for pedestrians and bicyclists, also makes for safer, more comfortable and predictable streets for drivers of motor vehicles.

Walking and biking are fun, healthy and enjoyable activities that benefit individuals and communities.

Approach to walking improvements

An effective and useful pedestrian network provides continuous, well-maintained walking facilities that offer convenient and comfortable connections to useful destinations, including commercial districts,

transit stops, schools, libraries and civic institutions, and parks and recreational amenities. Effective facilities orient users, provide safe crossings of roadways, address user needs for comfort by buffering users from fast-moving motor-vehicle traffic, offer reasonably direct paths to destinations, and are located and designed to address needs for visibility and security. Walking facilities in the Bismarck-Mandan region should address the needs of a walking population that ranges from elementary school-age children to senior citizens who may rely on walkers or mobility devices.

Approach to bicycling improvements

Research and experience from successful bicycle cities show that the way to make bicycling a more inviting option for more residents (and thus increase the use of bicycling as a tool for everyday travel) is to develop continuous bicycle networks that provide reasonably direct connections to useful destinations and that are made up of routes that do not exceed the level of tolerance for traffic stress of the mainstream adult population. Comments received as part of this work reflect residents' concerns about discontinuous bicycle networks, difficult intersections, and stressful interactions with motor-vehicle traffic where facilities are not provided. To support the Bismarck-Mandan region's goals of increasing the share of its population that rides a bicycle for transportation and recreation more often, we propose to address the needs of two types of system users:

Comfortable facilities invite use by a broader segment of the population.

- The system should accommodate casual users, recreational riders, and the needs of residents who have the same level of tolerance to traffic stress as the general mainstream adult population. In general, these system users will tend to avoid on-street routes on busy streets, and prefer trails and routes with greater separation from motor-vehicles, or routes on low-volume, low-speed residential streets. It is estimated that approximately 60% of the general population is included in this category.
- The system should accommodate the needs of bicycle riders who have a greater tolerance for traffic stress, and who may already be bicycling for transportation or recreation. In general, these users are comfortable riding on busier roads if bicycle lanes are provided, and can also share lane space with motorized traffic depending on traffic conditions. It is estimated that approximately 7% to 10% of the population is included in this category. Providing on-street routes that allow for

improved connectivity between activity centers and bicycle generators will help achieve the ridership potential of this population.

Thus, the alternatives that we have provided in this memorandum attempt to improve system connectivity for both sets of users.

Integration with other modes, and tradeoffs

Accommodating the needs of pedestrians, bicyclists and motorists is sometimes seen as a challenge that pits the needs of users of one mode against the needs of users of another. This LRTP chooses a different perspective, and instead recognizes that many Bismarck-Mandan residents are walkers, drivers and cyclists (sometimes even in the same day), and that addressing user safety is not a zero-sum game. All Bismarck-Mandan residents, regardless of the mode they use to complete their daily needs, have the right to safe accommodations for their travel. To improve safety for all users, it may be necessary to reallocate the existing, limited roadway right-of-way, but doing so should never result in decrease of safety for users of a specific mode. Improvements that enhance safety for pedestrians or bicyclists (for example by implementing a "road diet" that converts a four-lane road to a three-lane road and frees up space for wider sidewalks or bicycle lanes) also improve safety for drivers of motor vehicles by making motor-vehicle speeds and maneuvers more consistent and predictable, and therefore reducing crashes and crash severity. The goal of this LRTP is to provide transportation connections that provide access for all modes of travel safely and effectively, in a manner that is consistent with Bismarck-Mandan region's transportation goals, its resources, and within the context of its surroundings. Where the need for safety improvements for pedestrian and bicycle travel has been identified, alternatives presented in this memorandum outline potential cross-section reallocations or expansion. Where needed, we have provided some planning-level discussion of the cross-section needs for pedestrian or bicycle network improvements to consider with these alternatives as we move forward.

2. Methodology

The recommendations for this project are based on the following:

- Recommendations and comments received from members of the public during the LRTP's public comment period and during public workshops (Please see Figure 1)
- Recommendations from Bismarck-Mandan Metropolitan Planning Organization staff (Figure 2) including routes that supplement the on-street bicycle network and distribute bicycle trips to and from neighborhoods and key generators
- Analysis of crash data and safety issues received by the consultant team (Figure 3)

- Evaluation and analysis of existing conditions and route recommendations based on best current practice, site observations and experience by the consultant team (Conceptual Framework: Figure 5; Regional recommendations: Figure 6; Recommendations for Downtown Bismarck: Figure 7)

3. Overview of Existing Conditions - Assets and Challenges

The project team walked and bicycled along many routes and roadways in Bismarck and Mandan. Numerous assets were noted, including several recent improvements to pedestrian and bicycle networks and facilities. The site visits also provided an opportunity for the project team to familiarize itself with the region's already existing and extensive network of sidewalks, calm neighborhood roads, and network of off-road shared-use paths and trails. However, several challenges for pedestrian and bicycle movement were also observed during site visits. Some of these include:

- Gaps and incomplete/disconnected facilities in the pedestrian network
- Short crossing time for pedestrians, especially across wide roads
- Inconsistent marking of pedestrian crossings
- Gaps and incomplete/disconnected facilities in the bicycle network
- Lack of on-road "bicycle only" facilities (for example, the use of sharrows and "Share the Road" signage in place of bicycle lanes or cycletracks)
- Inconsistent signing of bicycle routes and wayfinding
- Insufficient bike parking
- Opportunities for improving driver and bicyclist education, and interactions between them

4. Concepts to Consider

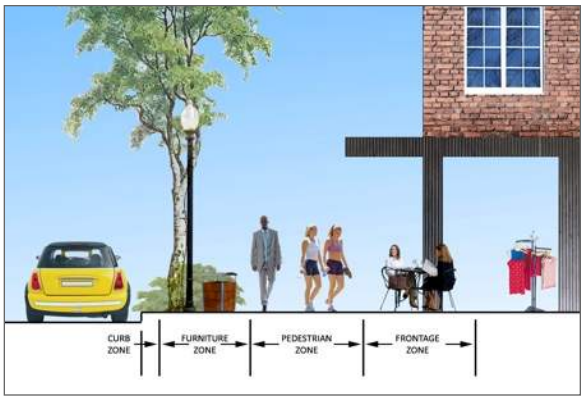
A variety of tools and treatments are recommended to address and improve conditions for pedestrians and bicycle riders in the Bismarck-Mandan region. A brief overview of several options that are recommended for application in the region is provided below. Corridor or route-specific recommendations are provided in Figures 5, 6 and 7 (included with this memo).

4.1 - For Improving Conditions for Pedestrians

Sidewalks

Sidewalks designate space for the exclusive use of pedestrians, and are a foundational element for a system of pedestrian mobility. They are also a vital component of healthy commercial districts, providing access to businesses, space for street furniture and plantings, and for the casual interactions that support community interpersonal connections. Well-designed sidewalks provide four distinct

"zones" that allow them to function in different contexts, with dimensions that respond to the the land uses and locations they serve. The four zones are:



The four sidewalk zones in a commercial district.

- The pedestrian zone: the zone where people walk.
- The frontage zone: the portion of the sidewalk that provides access to businesses or other uses adjacent to the sidewalk.
- The furniture zone: the portion of the sidewalk where trees, newspaper stands, benches, signs and trash receptacles are placed, which helps keep the pedestrian zone free of obstructions for people walking or using wheelchairs. In addition, this zone increases the distance between the pedestrian zone and moving motor-vehicles - increasing comfort and sense of safety for people on foot.
- The curb zone is the outermost edge of the pedestrian realm and is generally raised above the motor-vehicle travelway to create a defined and safe separation between automobiles and pedestrians.

Curb ramps

Curb ramps allow wheelchair users, people with sight or mobility impairments, and parents using strollers to easily enter and exit sidewalks and pedestrian crossings. They also make walking generally more comfortable and safer for all pedestrians. They should be used at all locations where pedestrians are expected to cross. The recommended practice is to provide two perpendicular ramps (rather than a single one at a corner) to better accommodate wheelchair users and reduce conflicts with motor-vehicle traffic.

Marked crosswalks and advanced stop bars

Marked crosswalks are a visual indication of locations where pedestrian crossings can legally and safely occur. They help create a continuous network for pedestrians, and improve safety by alerting motorists to the potential presence of a pedestrian at a crossing. They should be used at all traffic-light controlled intersections, and at stop-sign controlled intersections in main street commercial districts. When placed at locations where more than one lane of travel per direction is possible (including turn lanes), they should be combined with Advanced Stop Bars in order to minimize risk of "Hidden Threat" crashes. Advanced Stop Bars are placed on the roadway at least 10 ft before marked crosswalks.

Curb extensions / Bump-outs

Bump-outs extend the sidewalk and curb into the motor-vehicle parking lanes at intersection locations. These features (also known as "neck-downs") improve safety and convenience by shortening the distance a pedestrian must walk to cross a street; by increasing the visibility of pedestrians to motorists; and by slowing down right-turning motorists. They also decrease the amount of time a pedestrian is in the line of vehicle traffic. Bump-outs work especially well on busy collector streets, on minor arterials where on-street parking is allowed, and in commercial / downtown districts.

Medians / Pedestrian refuge islands

Crossing islands simplify pedestrian crossings and improve safety by dividing the crossing movement into two stages so that pedestrians only cross one direction of traffic at a time. They make crossing high volume roads safer and easier, and allow slower walkers, including children and seniors, to cross wider roads without worrying about getting stranded in the middle of the crossing. This treatment can also provide significant benefits for bicycle riders.

A median crossing island that can improve crossing conditions for pedestrians and cyclists.

Pedestrian Hybrid Beacon / HAWK signal

The Pedestrian Hybrid Beacon (PHB, also know as HAWK or High-Intensity Activated crossWalK) is a pedestrian-activated red-indication signal designed for use at intersection and midblock locations. PHBs, while relatively new to the US, have been in use in Europe for decades and have been successfully deployed in North American cities like Tucson, AZ; Lawrence, KS; and Vancouver, BC.

Pedestrians crossing at a HAWK signal.

The Pedestrian Hybrid Beacon is dark until a pedestrian activates it by pressing the crossing button. It responds immediately, with a flashing yellow pattern that changes to a solid red light providing unequivocal "Stop" guidance to motorists - studies show that they are as effective as traditional stop lights in providing protection for pedestrian crossings. Installed cost for a typical crossing ranges between $75,000 to $150,000. This treatment can also provide significant benefits for bicycle riders.

Rectangular Rapid Flashing Beacon (RRFB)

A Rectangular Rapid Flashing Beacon, or RRFB, is a pedestrian-activated signal that uses an irregular "stutter" flash pattern with very bright amber lights (similar to those on emergency vehicles) to alert drivers to yield to the pedestrians who wish to cross a road. Installed cost for a typical crossing is between $10,000 to $15,000 (for two units, one on either side of a street). This treatment can also provide significant benefits for bicycle riders.

RRFBs can be effective tools for improving pedestrian crossings.

Leading Pedestrian Interval (LPI)

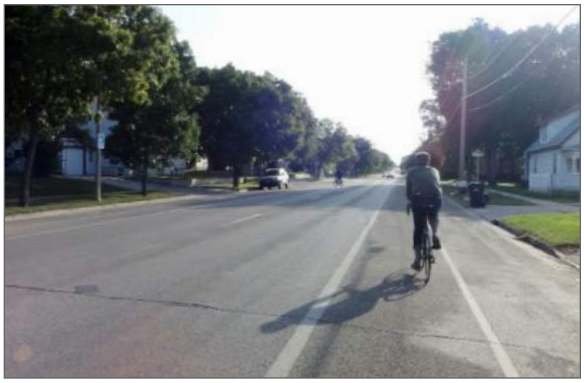
A Leading Pedestrian Interval (LPI) is a traffic signal programming practice that sets the pedestrian walk sign to occur several seconds before the 'green light' at the parallel street. This gives pedestrians a head start into the intersection so that they are more easily seen when cars begin to move forward.

The LPI is typically three to five seconds, and requires only reprogramming of the light sequence and no additional equipment, making it an excellent low-cost solution.

4.2 - For Improving Conditions for Bicycle Riders

Bike Lanes

Bike lanes designate a portion of the roadway for preferential use by bicyclists. Lanes are defined by striping, pavement markings and signage. Bike lanes allow cyclists to travel at their own speed in a space separate from motor vehicle traffic, and increase cyclist comfort and visibility. The minimum recommended width for a bike lane is 5 ft. On some roads, space availability may be a constraint; however, implementing a "road diet" (for example, by converting a four-lane roadway to three-lanes), or decreasing the width of travel lanes (down to 11 ft or 10 ft in urban settings) can free up additional roadway space without reducing motor-vehicle traffic capacity or flow.



Buffered Bike Lanes

Buffered bike lanes provide cyclists with extra space between the bike lane and moving traffic, increasing their comfort. Buffered lanes can provide cyclists with adequate room to pass each other without having to merge into automobile traffic.

Neighborhood Slow Streets

A Neighborhood Slow Street (also sometimes known as a Neighborhood Greenway or a Bicycle Boulevard) is a neighborhood residential street modified to calm automobile traffic and discourage cut-through traffic to make walking and bicycling on those streets more inviting and comfortable. Certain treatments can be applied at intersections to further calm traffic and offer additional priority to pedestrians and cyclists. A speed of twenty miles per hour should be the target motor-vehicle speed on bike boulevards after traffic-calming treatments are applied.

Neighborhood Slow Streets are appropriate for residential streets with initial Average Daily Traffic volumes of 4,000 or less, and are specially useful if they are used to develop a route network that provides access to the destinations typically located along busier roads carrying high speed or high volume traffic. Neighborhood Slow Streets are an effective way of creating lower stress connections for bicycles in the network and are appropriate for many residential streets in Bismarck and Mandan. A network of Neighborhood Slow Streets can help develop a broad network connecting residential areas with other routes and destinations.

Traffic calming treatment along a Neighborhood Slow Street.

Shared-Use Paths and Sidepaths

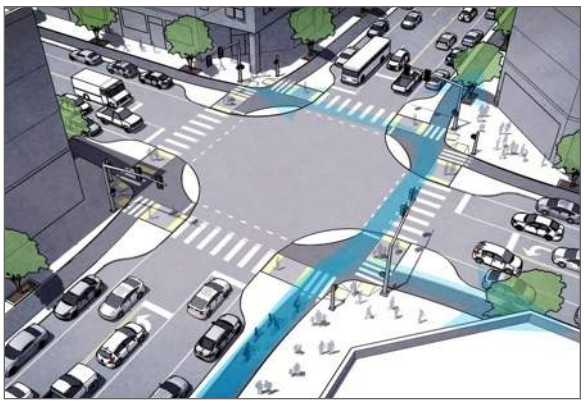
Off-road shared-use paths, also known as multi-use trails, offer completely segregated space away from the street for pedestrians, bicyclists, and other users of non-motorized transportation. These paths often link parks and other recreation destinations, and some serve broader regional connection purposes. Shared-use paths can also exist in the form of shared use "sidepaths" - sidewalk-like facilities paralleling roadways and providing a space for pedestrians and bicyclists to access commercial, residential, and retail destinations. This is common in Bismarck and Mandan. It is important to consider treatment of the sidepath at intersections, as they may bring bicycle riders into the intersection from directions where motorists are not expecting them. Sidepaths are best suited to locations with no or very few intersections or driveways.

Cycletracks

A cycletrack is an exclusive lane for cyclists separated from motor-vehicle traffic by a painted buffer and/or physical barrier (such as a curb, parked cars, or bollards), and separated and distinct from the sidewalk. Different forms of cycletracks include one-way protected cycletracks, raised cycletracks and two-way cycletracks. Cycletracks significantly increase bicycle ridership for people of all ages and experience levels because the significant separation from motorized vehicles greatly increases rider comfort. Cycletracks require more space and infrastructure than conventional bike lanes, and require special design attention at intersections. Cycletracks are the preferred on-street bicycle accommodation where the right-of-way space allows for its installation.

Protected intersections

An emerging concept in the US (though commonplace in the Netherlands for several decades), protected intersections extend the benefits of cycletracks to intersections, where bicyclists face the highest potential for conflicts with motor vehicles. Protected intersections consist of four main elements:



Elements of a Protected Intersection.

- A corner refuge island;
- A forward stop bar for bicyclists;
- Separate, set-back bike and pedestrian crossings; and
- Bicycle-friendly signal phasing (a Leading Bike Interval, akin to the Leading Pedestrian Interval).

Guidance on protected intersections will be included in the forthcoming third edition of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. Use of the NACTO guide is recommended by the Federal Highway Administration (FHWA) to supplement materials from the American Association of State Highway and Transportation Officials (AASHTO).

5. Alternatives Provided

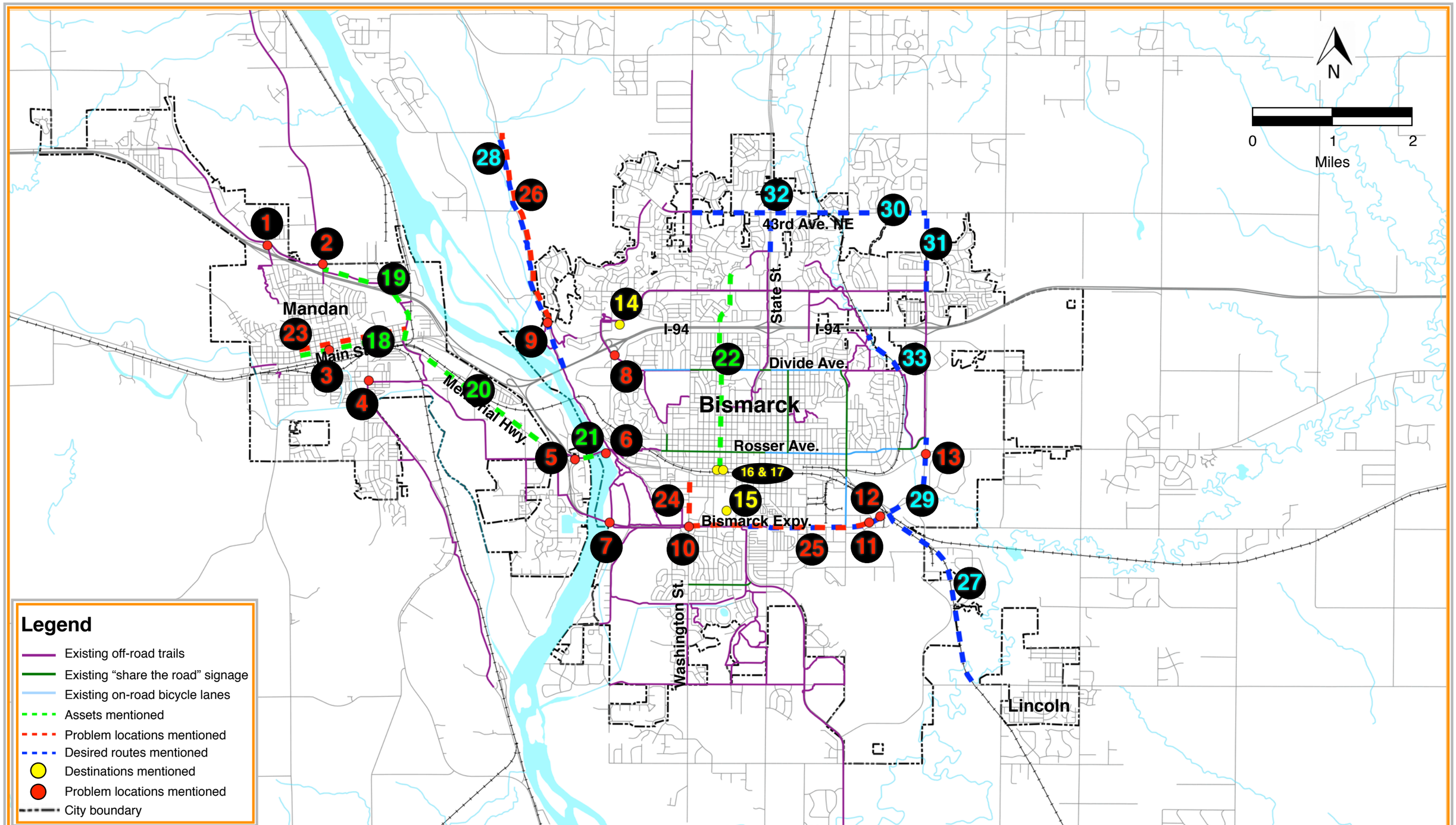
The draft list of bicycle and pedestrian alternatives is illustrated in Figure 4. Table 1 provides a description of the alternatives shown in Figures 5 and 6. Alternatives provided include:

- Shared use path / Trail Alternatives
- Bike lane Alternatives
- Neighborhood Slow Street Alternatives
- Intersection Improvements Alternatives

Please note that the improvement alternatives identified also support and enhance other ongoing initiatives, including Safe Routes to Schools (SRTS) programs.

6. Next Steps

Please review the draft bicycle and pedestrian system alternatives list provided in this memorandum. We would like to get your feedback on the concepts and alternatives provided in this memo, so please respond with any comments or questions that you have to Jason Carbee at jason.carbee@hdrinc.com or at 402-399-1370. CDG and HDR will work together to address any additional concepts that should be added, or any questions / concerns you have with the alternatives provided in this memorandum.



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Public Comments Received - Walking and Bicycling Issues - Sep 2013 Listening Session and Online Map

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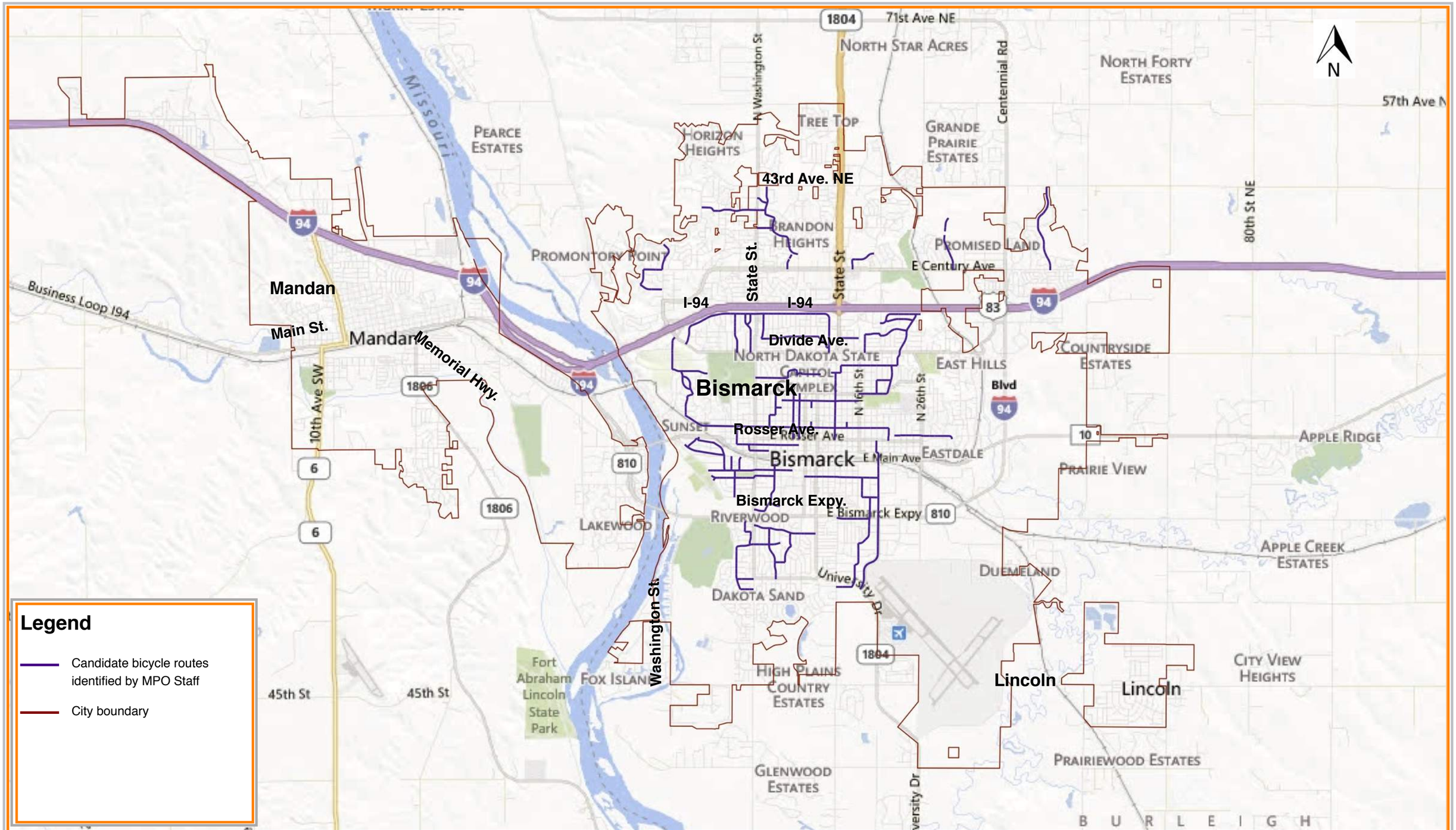
Figure 1

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Candidate bicycle routes identified by MPO Staff

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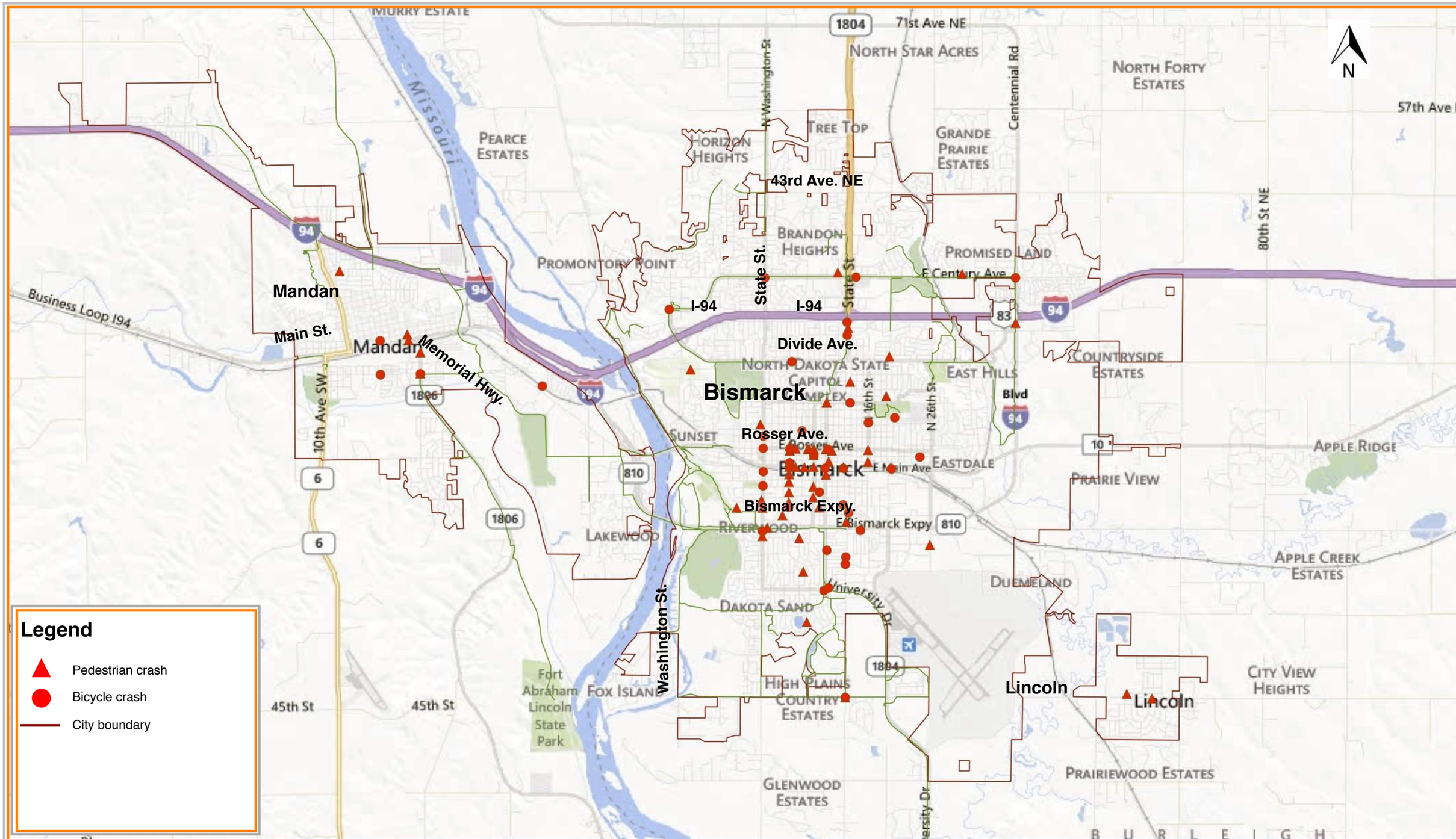
Figure 2

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Pedestrian and Bicycle Crashes

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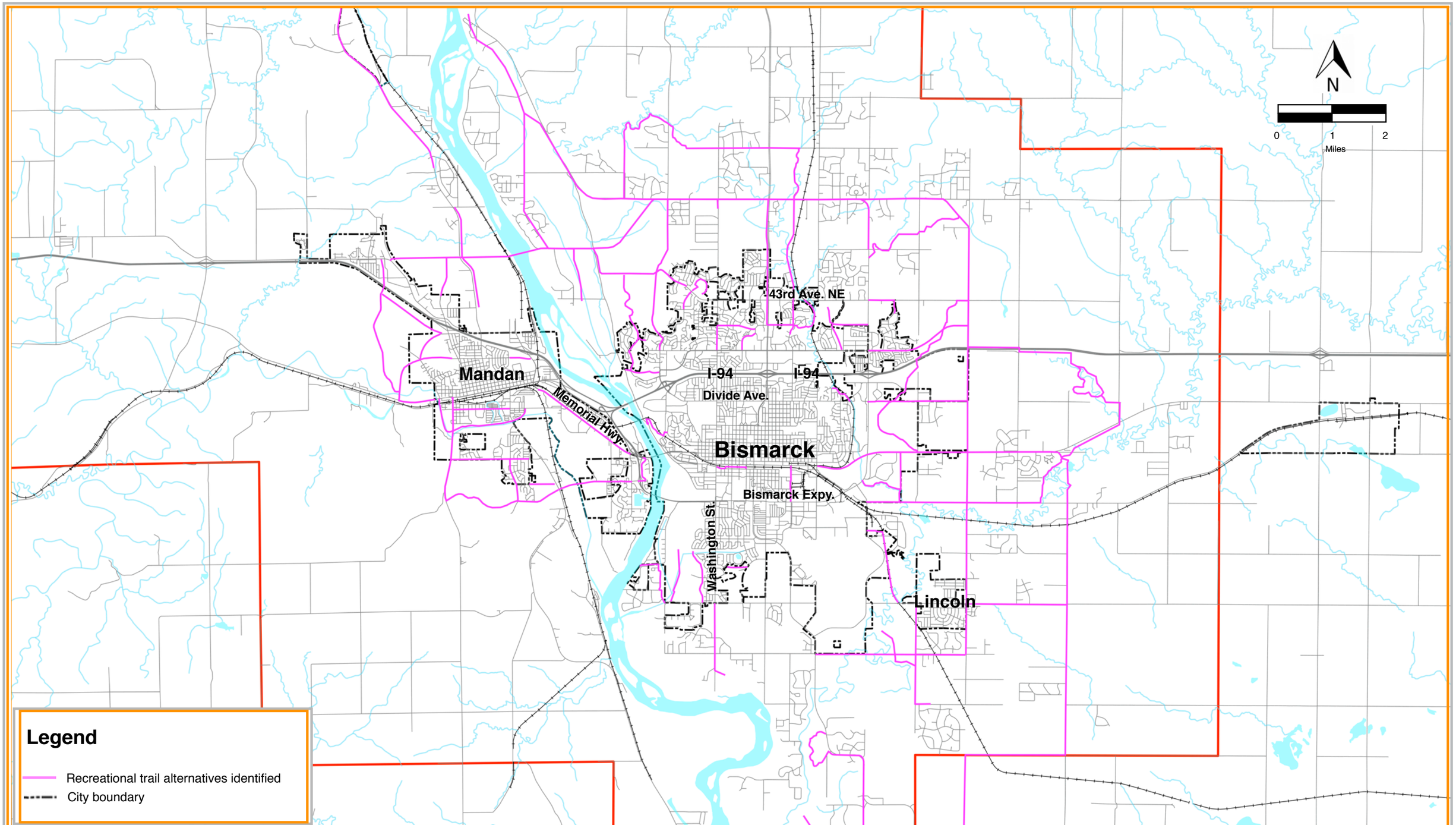
Figure 3

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck;
Bismarck - Mandan MPO; State of ND; HDR

Planned Mandan and Bismarck Parks and Recreation Additional Identified Pedestrian and Bicycle Recreational Trail Alternatives

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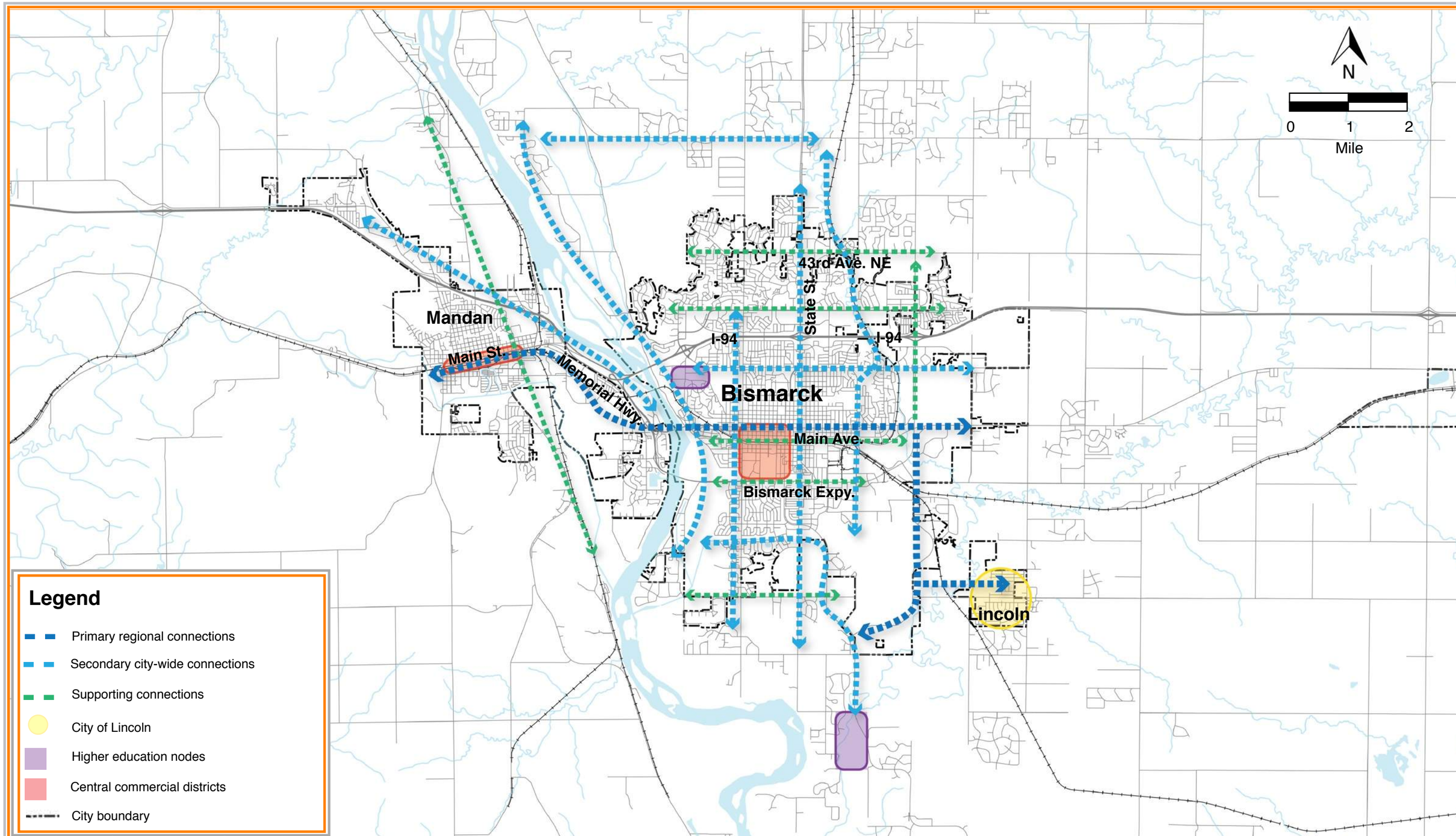
Figure 4

Date: June 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

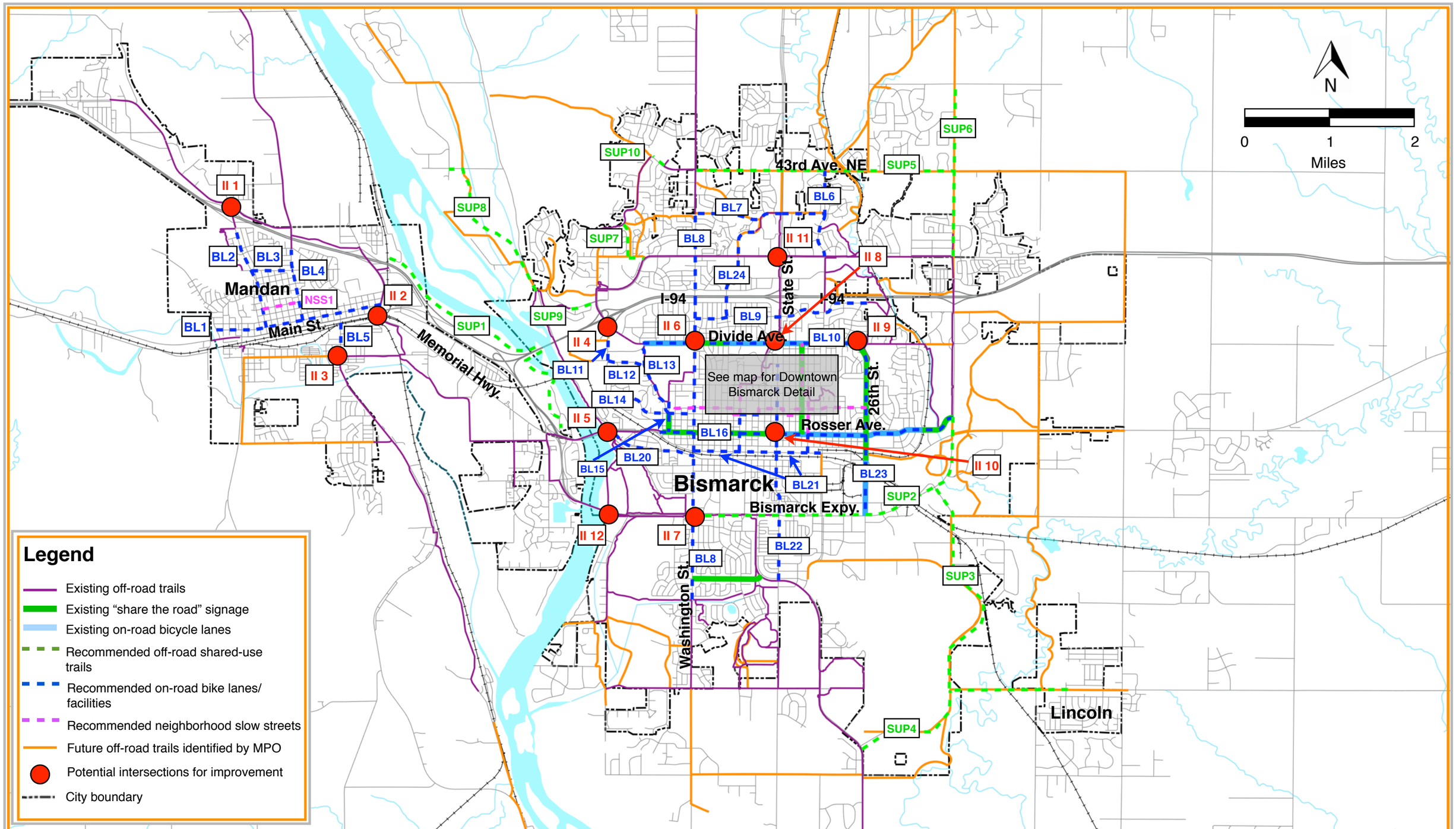
Conceptual Pedestrian and Bicycle Connectivity Framework

DRAFT

Figure 5

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Recommended Pedestrian and Bicycle System Improvements

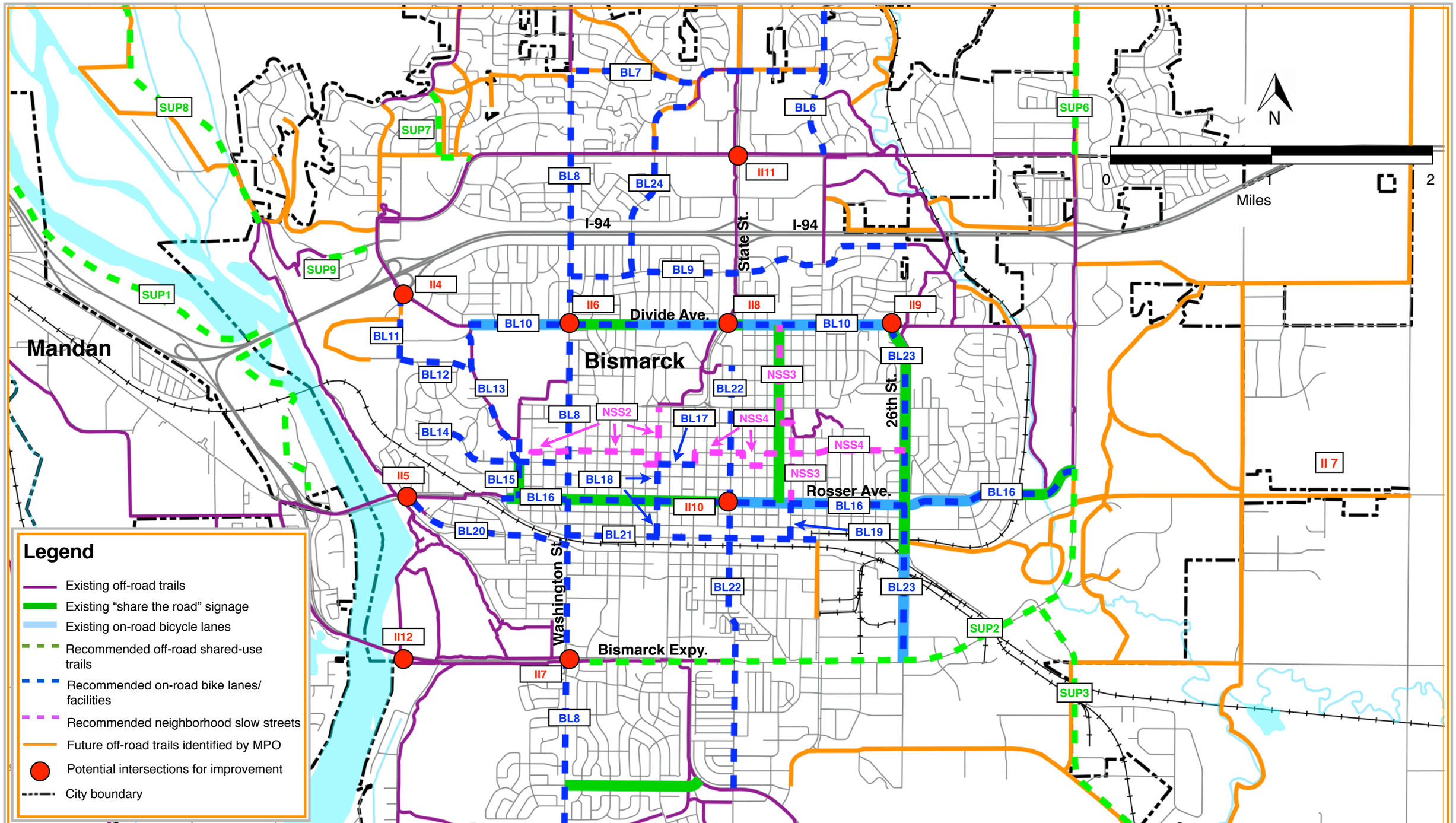
DRAFT

Note: Potential intersections for improvement are based on site visits, LTS analysis, and public guidance. Highlighted intersections are a subset of locations for improvement.

Figure 6

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Recommended Pedestrian and Bicycle System Improvements: Downtown Bismarck

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Note: Potential intersections for improvement are based on site visits, LTS analysis, and public guidance. Highlighted intersections are a subset of locations for improvement.

Figure 7

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Table 1: List of Pedestrian and Bicycle Projects Recommended for Alternatives Analysis

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL1 (Bike Lane)	Mandan: On-street bike lane on 1st Street NW from 14th Avenue NW to Mandan Avenue	(Between 4th Ave NW and 3rd Ave NW) – (P + BL + L + L + BL + P) Specifications: • Back-in angled parking lanes (P) = 16' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 66 ft Current width = 66 ft – no pavement impacts, but requires parking reconfiguration
BL2	Mandan: On-street bike lane on Sunset Drive NW/ 6th Avenue NW from 1st Street NW to Boundary Street NW	(Between 7th St NW and 6th St NW) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 41 ft – Would require expansion of pavement width and removal of parking on one side of street. Motor-vehicle lanes could be narrowed to 10.5 ft to fit within current width. *Note: For user safety and comfort in this context minimum width of bike lane is 6', based on speed and traffic volume. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL3	Mandan: On-street bike lane on Division Street NW from Sunset Drive NW to Collins Avenue	(Between 4th Ave NW and 3rd Ave NW) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 35 ft – Requires 5' expansion of pavement width and removal of parking on one side of street -OR- This segment may be a candidate for implementation as a Neighborhood Slow Street given its speed and traffic volume. This would require no pavement impacts. *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Potential issues with roadway grades.
BL4	Mandan: On-street bike lane on Collins Avenue from 1st Street NW to 14th Street NW	(Between 6th St NW and 7th St NW) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Southern portions of this route have higher traffic volumes and a 6' bike lane would be recommended. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL5	Mandan: On-street bike lane on 6th Avenue SE from 3rd Street SE to Main Street E	(Between 1st St SE and Burlington St SE) - (BL + L + L + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 56 ft Current width = 51 ft – Requires 5' expansion of pavement width -OR- Establish an off-road shared-use path along this route. -OR- Reduce to 3 vehicle travel lanes from 4. This would mean a configuration of (BL + L + CTL + L + BL) and be a proposed width of 45', below the current width of 51 feet, allowing for flexibility. FHWA identifies "Road Diet" 4 to 3 lane conversions as a Proven Safety Countermeasure, please see http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm (A Road Diet is currently being evaluated for this corridor). *Note: The minimum width of a bike lane in this scenario is 6', based on speed and traffic volume.
BL6	Bismarck: On-street bike lane 19th Street North from 43rd Avenue NE to Century Avenue E	(Between Idaho Dr and E Calgary Ave) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Southern portions of this route have higher traffic speeds and a 6' bike lane would be recommended. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL7	Bismarck: On-street bike lane on Calgary Avenue E from Washington Street N to 19th Street N	(Between Valcartier St and Coleman St) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Potential issues with roadway grades.
BL8	Bismarck: On-street bike lane on Washington Street N from Calgary Ave E to existing trail south of Billings Drive	(Between W Ingals Ave and W Indiana Ave) - (BL + L + L + CTL + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Center Turn Lane (CTL) = 11' • Through lanes (L) = 11'	Proposed width = 67 ft Current width = 64 ft – Requires 3' expansion of pavement width (or greater – please note that portions of Washington Street between Divide Avenue and Rosser Avenue have pavement widths of 40 to 44 ft) -OR- Establish an off-road shared-use path along this route. *Note: The minimum width of a bike lane in this scenario is 6', based on speed and traffic volume. Potential issues with roadway grades.
BL9	Bismarck: On-street bike lane on Capitol Ave E from Washington Street N (beginning at N Kavaney Dr) to existing trail east of 23rd Street N/at the end of E Capitol Ave (part of the Hay Creek Trail)	(Between N 7th St and N 8th St) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL10	Bismarck: On-street bike lane on Divide Avenue W from College Drive to 26th Street N (some of this stretch already contains share the road signage and bicycle lanes)	(Between N 15th St and N 16th St) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts -OR- Remove the parking lane from the south side of Divide Avenue along this route (where it exists) and add an 11' center vehicle turn lane. This would mean a configuration of (P + BL + L + CTL + L + BL) and be a proposed width of 51', requiring a 3' expansion of pavement width. Please note that there is currently no parking along the majority of the route on the south side of Divide Avenue, and a center turn lane is currently being considered for the length of this corridor. *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.
BL11	Bismarck: On-street bike lane on Schafer Street from Divide Avenue W to Edwards Avenue	(Between College Dr and Edwards Avenue) - (BL + L + PM + L + BL) Specifications: • Bike lanes (BL) = 5' • Planted Median (PM) = 8' • Through lanes (L) = 11' << Please see Figure 8 attached >>	Proposed width = 40 ft Current width = 48 ft – no pavement impacts *Note: Due to high pedestrian traffic, prevalence of mid-block crossings, and available pavement, the addition of an 8' planted median is recommended. This yields a proposed configuration of 40', allowing flexibility in configuration. *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. *Note: Current pavement width exceeds proposed by 8', allowing for flexibility in configuration.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL12	Bismarck: On-street bike lane on Edwards Avenue from Schafer Street to Ward Road	(Between Schafer St and W Coulee Rd) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street (though it appears parking is lightly used in this location). *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Potential issues with roadway grades.
BL13	Bismarck: On-street bike lane on Ward Road from College Drive to C Avenue W	(Between Edwards Ave and Cottage Dr) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' (or 7') • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 40 ft – Requires 2' expansion of pavement width and removal of parking from one side of the street -OR- Reduce width of parking lane to 7' to avoid pavement impacts -OR- Establish an off-road shared-use path along this route. *Note: The minimum width of a bike lane in this scenario is 6', based on speed and traffic volume. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL14	Bismarck: On-street bike lane on C Avenue W from Highland Acres Road S to Washington Street N	(Between Williams St and N Bell St) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.
BL15	Bismarck: On-street bike lane on N. Griffin Street from W. Rosser Avenue to existing trail along the Tom O'Leary Golf Club (some of this stretch already contains share the road signage)	(Between B Ave W and A Ave W) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL16	Bismarck: On-street bike lane on Rosser Avenue from Bell Street North to the Bismarck Expressway North (some of this stretch already contains share the road signage and bicycle lanes)	(Between Mandan St N and 1st St N) - <u>Minimum Functional:</u> (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' -OR- <u>More Vehicle Separation for Bikes:</u> (P+ BL + B + L + L + B + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Bike Lane Buffers (B) = 3' • Through lanes (L) = 11'	Proposed width in both scenarios = 48 ft <u>Minimum Functional :</u> 48 ft configuration – no pavement impacts and retains parking on both sides of the street; This scenario would include 5' bike lanes -OR- <u>More Vehicle Separation for Bikes:</u> 48 ft configuration – no pavement impacts, but requires removal of parking from one side of the street. With more comfortable facilities, Rosser could become a principal east-west bicycle route. *Note: The minimum width of a bike lane in this scenario varies between 5'-6', based on speed and traffic volume along the route.
BL17	Bismarck: On-street bike lane on C Avenue E from 6th Street N to 9th Street N (to connect with bike boulevard network)	(Between 6th St N and 7th St N) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL18	Bismarck: On-street bike lane on 6th Street N from C Avenue E to Main Avenue E (to connect with bike boulevard network)	(Between A Ave E and B Ave E) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 44 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. *Note: Current pavement width exceeds proposed by 4', allowing for flexibility in configuration.
BL19	Bismarck: On-street bike lane on 17th Street N from Rosser Avenue E to Main Avenue E (to connect with bike boulevard network)	(Between Rosser Ave E and Thayer Ave E) – (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.
BL20	Bismarck: On-street bike lane on Memorial Highway from Fraine Barracks Road to Washington Street S	(Between Bell St S and Griffin St S) – (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 44 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 6', based on speed and traffic volume. *Note: Current pavement width exceeds proposed by 2', allowing for flexibility in configuration.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL21	Bismarck: On-street bike lane on Main Avenue E from Washington Street S to Airport Road	(East of 6th St N) – (P + BL + B + L + L + B + BL + P) Specifications: • Parallel parking lane (P) = 7' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 58 ft Current width = 58 ft – No pavement impacts, no impacts to on-street parking, but would require "Road Diet" 4 to 3 lane conversion (identified by FHWA as a Proven Safety Countermeasure, please see http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm) *Note: The minimum width of a bike lane in this scenario is 6', based on speed and traffic volume.
BL22	Bismarck: On-street bike lane on 12th Street from Braman Avenue to University Drive	(Between Virginia Ave and 4th Ave) – (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Potential issues with roadway grades.
BL23	Bismarck: On-street bike lane on 26th Street N from Divide Avenue E to Bismarck Expressway E	(Between Hillview Ave and Valleyview Ave) – (P+ BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume. Southern portions of this route have higher traffic volumes and a 6' bike lane would be recommended. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
BL24	Bismarck: On-street bike lane on 4th Street N from existing trail south of 10th Street N to Capitol Avenue E	(Between Saturn Dr and Telstar Dr) – (P+ BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts -OR- Remove the parking lane from one side of 4th Street N along this route and add an 11' center vehicle turn lane. This would mean a configuration of (P + BL + L + CTL + L + BL) and be a proposed width of 51', requiring a 3' expansion of pavement width. *Note: A center turn lane is currently being considered for the length of this corridor, which may affect on-street parking. *Note: The minimum width of a bike lane in this scenario is 5', based on speed and traffic volume.
NSS1 (Neighborhood Slow Street)	Mandan: Neighborhood Slow Street on 4th Street NW from 6th Avenue NW to Collins Avenue	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	Potential issues with roadway grades.
NSS2 (multi-street route)	Bismarck: Neighborhood Slow Street on Anderson Street N at C Avenue E (start) → D Avenue W → E Avenue E → 5th Street N → C Avenue E → 6th Street N at Boulevard Avenue E (stop)	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	None

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
NSS3 (multi-street route)	Bismarck: Neighborhood Slow Street on 17th Street N at Rosser Avenue E (start) → F Avenue E → 16th Street N at Divide Avenue N (stop) (parts of this stretch already contain share the road signage)	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	Potential issues with roadway grades.
NSS4 (multi-street route)	Bismarck: Neighborhood Slow Street on 9th Street N at C Avenue E (start) → D Avenue E → 13th Street N → C Avenue E → 15th Street N → D Avenue E at 26th Street N (stop)	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	None
SUP1 (Shared-Use Path)	Mandan: Shared-use path – Pave the natural surface trail from the end of Captain Leach Lane northwest along the river to meet up with River Drive NE and Division Street NE		None
SUP2	Bismarck: Shared-use path along the Bismarck Expressway from S. Washington Street to Rosser Avenue E.		None
SUP3	Bismarck: Shared-use path along Yegen Road, Airway Avenue, and Lincoln Road from the E. Bismarck Expressway to City of Lincoln		None
SUP4	Bismarck: Shared-use path along Airway Avenue from Lincoln Road to University Drive		None
SUP5	Bismarck: Shared-use path along 43rd Avenue NE from North Washington Street to Centennial Road		None

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
SUP6	Bismarck: Shared-use path along Centennial Road from East Century Avenue to 57th Avenue NE		None
SUP7	Bismarck: Shared-use path connecting Valley Drive (the Valley Drive Greenway Trail) to Country West Road and Century Avenue W through the Country West/Ridge Estates neighborhood		None
SUP8	Bismarck: Shared-use path from the terminus of the Riverfront Trail at River Road and Burnt Boat Road northwest to Fernwood Drive and Sandy River Drive		None
SUP9	Bismarck: Shared-use path along Grandview Lane from Tyler Parkway to the existing trail west of Broadview Lane		None
SUP10	Bismarck: Shared-use path along Ash Coulee Drive from the trail east of Mustang Drive to Valley Drive		None
II1 (Intersection Improvement)	Mandan: Sunset Drive and Old Red Trail – consider improvements for pedestrians and bicyclists		
II2	Mandan: Main Street and Mandan Avenue – consider improvements for pedestrians and bicyclists		
II3	Mandan: 3rd Street SE and 6th Avenue SE – consider improvements for pedestrians and bicyclists		
II4	Bismarck: Schafer Street and Divide Avenue W – consider improvements for pedestrians and bicyclists		

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW or Other Impacts
II5	Bismarck: Memorial Highway, Main Avenue W and Fraine Barracks Road – consider improvements for pedestrians and bicyclists		
II6	Bismarck: Divide Avenue W and Washington Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II7	Bismarck: Bismarck Expressway and Washington Street S – consider improvements for pedestrians and bicyclists		
II8	Bismarck: Divide Avenue W and State Street – extend bike lanes through intersection and consider improvements for pedestrians		
II9	Bismarck: Divide Avenue W and 26th Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II10	Bismarck: Rosser Avenue E and 12th Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II11	Bismarck: State Street and Century Avenue E – consider improvements for pedestrians and bicyclists		
II12	Bismarck: Establish consistent tunnel access under the Bismarck Expressway where the Riverfront Trail meets the Bismarck Expressway		

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FIGURE 8

Median Crossing Island for Bismarck State College

Description

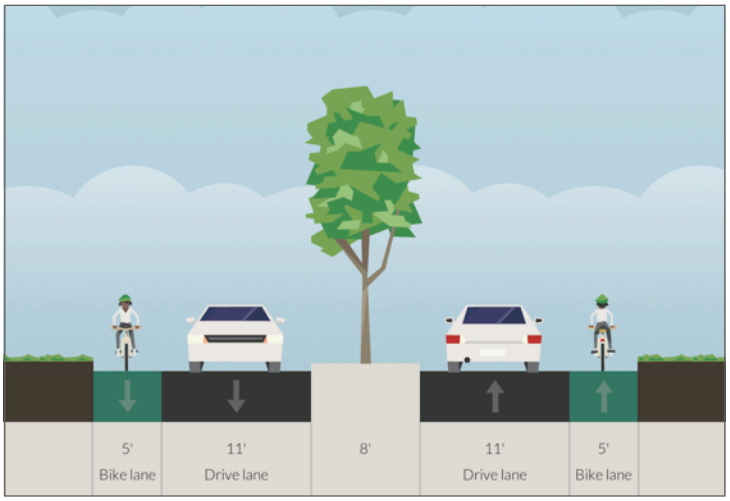
Median crossing islands make pedestrian crossings safer and easier by dividing them into two stages so that pedestrians only have to worry about crossing one direction of traffic at a time. Median crossing islands make busy roads safer and easier to cross. Median crossing islands are recommended by the US Federal Highway Administration (FHWA) as a proven safety countermeasure for pedestrian safety - please see http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_011.htm

Median crossing island (Bainbridge Island, WA, pictured above). Image courtesy of FHWA.

Application to Schafer Street

Currently, Schafer Street has a width of 48 ft.

Due to high pedestrian traffic, prevalence of mid-block crossings, and available pavement, the addition of an 8' planted median is recommended for this road. Additionally, bike lanes, and one lane of motor traffic in each direction are recommended, yielding a proposed configuration of 40 ft (out of 48 ft available), allowing flexibility in configuration.



Proposed configuration for Schafer Street.

Design guidance

- In addition to signage, trees and low ground cover increase visibility to alert drivers of the presence of the median island;
- Minimum width of 6';
- Adequate lighting must be provided; and
- Pedestrian path in the median should be angled so the pedestrian faces traffic before crossing.

HDR | ONE COMPANY *Many Solutions*℠

Memorandum

To: Steve Saunders LRTP Steering Committee	envision2040 2015-2040 BISMARCK-MANDAN Long Range Transportation Plan
From: Jason Carbee	
Date: August 8, 2014	

RE: Updated 2040 LRTP Roadway Alternatives, August 2014

Overview

This memorandum provides additional revisions and information on the roadway alternatives being considered for inclusion in the 2040 Long Range Transportation Plan. This additional information is based on:

- Additional assessments completed by HDR staff in July, including environmental screening and traffic operations and safety assessments.
- Additional comments received from Steering Committee jurisdiction staff, including input from our workshop on July 24.
- Additional input received from the public and stakeholders.

Updated Roadway Alternatives

The revised roadway alternatives are illustrated in **Figure 1**. Details on each of the alternatives are presented in **Table 1**. The alternatives have been divided into several categories, and those categories not shown on the previous map are marked as (New Category):

- **Locally-Funded Near Term Projects (New Category)**: Several projects are currently being completed, or will be completed by 2018, by Burleigh County or the City of Bismarck with the use of local funds. Some of these address issues identified by the LRTP, so it is beneficial to document these projects.
- **TIP Projects (New Category)**: These are projects in the current 2014 Transportation Improvement Program (TIP) that address issues identified by the LRTP.
- **System management alternatives**: Those that include minor improvements to an existing corridor, such as traffic signal additions, turn lane additions, pavement marking modifications ("restriping") on the existing cross-section, etc.
- **System expansion alternatives**: Those alternatives that include major improvements to an existing corridor, such as a roadway widening, the addition of a new interchange, or construction of a new facility.
- **Developer-funded collector street alternatives**: These collector street alternatives will provide access into / out of new development areas that are anticipated to occur between

today and 2040. The collector alignments are consistent with the Fringe Area Plan, and are assumed to be funded by private dollars.

- **Preservation alternatives**: Those alternatives mentioned by steering committee members as projects that could be completed to preserve the existing system. As previously noted, not all preservation projects through 2040 will need to be developed and included in the LRTP**.** Funding assumptions for future preservation projects are included in the financial analysis for the LRTP.

Additionally, **Figure 1** reflects the potential conversion of Airway Avenue / Yegen south of the Airport to private use to accommodate potential airport expansion.

Table 1 has been expanded to reflect the traffic operations, safety, environmental screening assessments, and draft cost estimates completed in July (attached at back). Only those alternatives that the LRTP will need to evaluate for potential inclusion in the final plan (those shown as Expansion or Management alternatives) are included in **Table 1**.

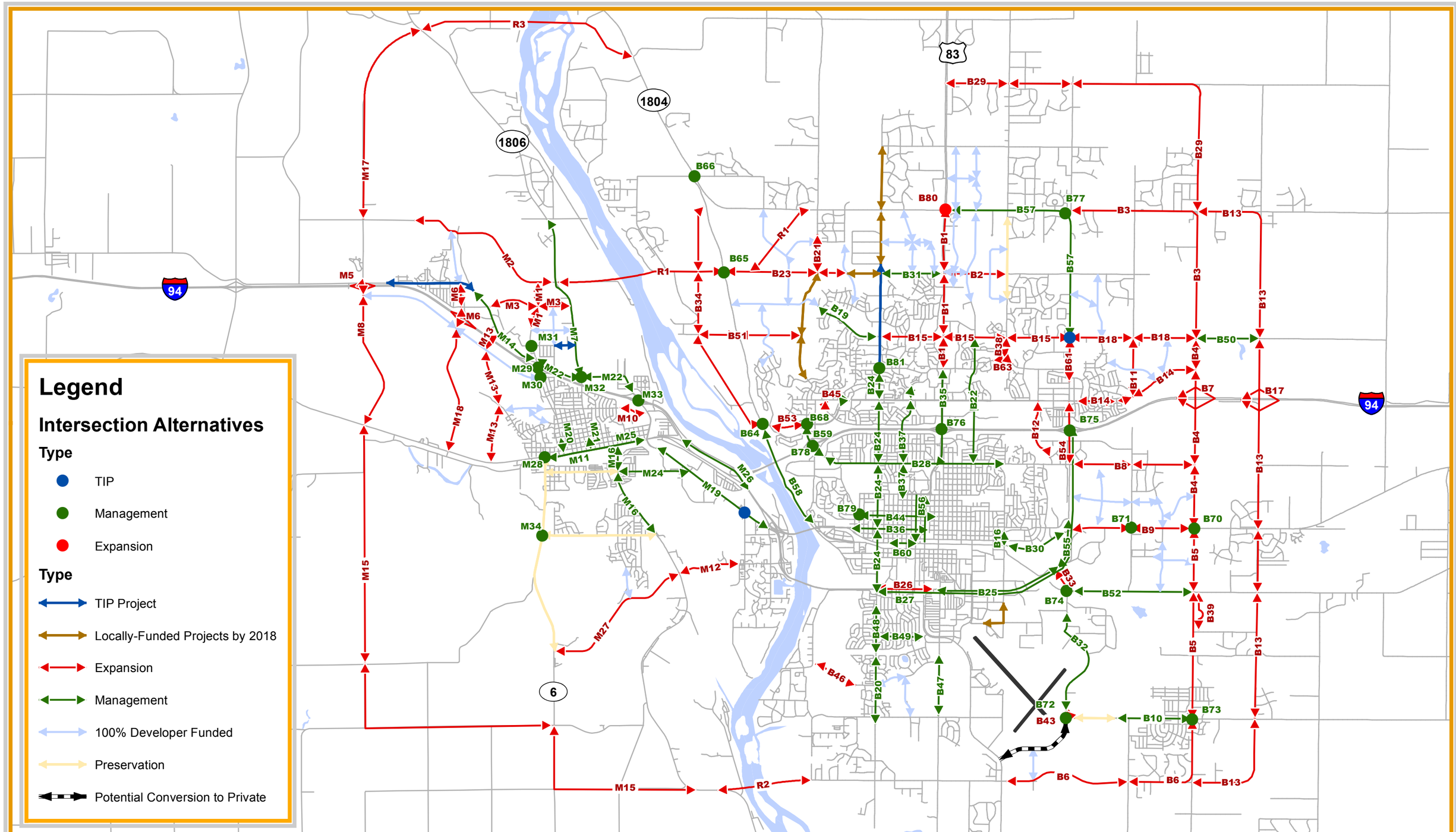
Regional Strategy Alternatives

We continue to consider several alternatives or strategies that are regional in nature, and do not necessarily apply to a single corridor. These regional strategies include:

- **Regional Travel Demand Management (or Mobility Management) Program**. Mobility management strategies aim to improve overall metropolitan area mobility by implementing policies and programs that reduce single-occupant vehicle use on the roadway network, getting more use out of the current transportation system.
- **Traffic Signal System Master Plan**. A traffic signal system master plan would provide a blueprint for improving and upgrade regional traffic signal equipment and controllers. The study would provide an implementation plan addressing system communications, central signal system software, a potential traffic operations center, updates to signal controllers and cabinets, and cameras for monitoring system performance.
- **Complete Streets Policy**, that sets a framework for how new and retrofitted roadways should accommodate a wider-range of modes and users.
- **Local or Regional Land Use Policies**, if implemented would support infill land use patterns with more development density and mixed-uses than currently anticipated for Bismarck-Mandan through 2040.
- **Trail Dedication Policies for New Developments**.
- **Bicycling and Transit Promotion**. Increase awareness and safety for these modes for Bismarck-Mandan residents.

Next Steps

We are looking for feedback from the steering committee on the draft scoring memorandum, and for jurisdictions to provide their feedback on priority alternatives for inclusion in the plan. We are planning for Public Meetings in September, and will have a meeting with the NDDOT management team September 17. We would like to present preliminary prioritized alternatives at that point.



envision2040

Revised Draft Roadway Alternatives List

Figure: 1

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Table 1. Revised Roadway Alternatives Descriptions, August 8, 2014

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
B1	Congestion	State Street: Calgary to 71st Street	Widen State St to 6 lanes to 71st St; likely widen from south to north in phases. Freeway concept discarded due to access impacts.		No-Build LOS F. Project provides LOS C/D through 2025; LOS D/E through 2040.	Reduced peak congestion levels should improve safety compared to no action in corridor. Corridor includes higher crash levels and injury crashes.	Reduces delays in corridor.	$27,500,000	2.5 miles of urban 6-lane widening. Likely constructed in 3 phases.	
B2	Connectivity	57th Avenue: State Street to 26th Street	Extend 57th Ave as Arterial Roadway between US 83 / State St and 26th St. Likely 3-lane cross-section.		Segment would carry 5,000 to 10,000 vpd by 2040. Diverts: 1,500 vehicles per day (vpd) from 71st Ave 2,000 vpd from 43rd Ave 2,500 vpd from State St south of 57th. Moderate Traffic Improvement	-	Slight reduction in regional VMT compared to E+C scenario.	$1,500,000	1 mile of rural roadway.	At-grade crossing of DMVW railroad would need to be negotiated.
B3	Connectivity	66th Street: 43rd Avenue to 71st Avenue 71st Street: Centennial Road to 66th Street	Construct 66th St from 43rd Ave to 71st Ave and 71st St from Centennial to 66th St as arterial / truck route for Beltway. Grade for 5-lanes, but initially build as a 3-lane rural roadway. Restrict full access points to 1/2 mile.	North-South Beltway Study	With B4 and B7 interchange in place, this segment carries 6,000 to 10,000 by 2040. With access control, 3-lanes should provide LOS C through 2040. Diverts: 1,500 to 5,000 vpd from Centennial Rd 6,000 to 10,000 vpd from 80th St 2,000 to 9,000 vpd from 43rd Ave 4,000 vpd from Century east of Centennial	Improved safety for future traffic volumes compared to current 2-lane rural.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses 2 intermittent streams, adjacent to 1 Intermittent stream and 1 associated wetland	$6,000,000	4 miles of rural roadway reconstruction.	
B4	Connectivity	66th Street: Highway 10 / Main Avenue to 43rd Avenue (I-94 Crossing)	Extend 66th St as arterial roadway between Highway 10 and 43rd Ave with I-94 crossing. Restrict full access points to 1/2 mile. Grade for 4-lane divided, build bridge wide enough for 4-lanes, but initially build as a 2-lane rural roadway with turn lanes.	North-South Beltway Study	Segment would carry 8,000 to 25,000 vpd by 2040 (without interchange). 2-lane segment provides LOS C through 2025. 4-lane divided segment likely required by 2040 between Century and Divide. Diverts: 4,000 to 9,000 vpd from Centennial Rd 12,000 to 14,000 vpd from 80th St	Would divert some traffic out of congested Centennial Road / Bismarck Expressway corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety along Centennial / Expressway.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses 1 intermittent stream, adjacent to 1 mapped wetland.	$7,800,000	3 miles of rural roadway reconstruction / new rural roadway. Includes bridge over I-94.	
B4b	Connectivity	66th Street: I-94 to 43rd Avenue	In longer term, widen 66th St to a 4-lane divided between I-94 interchange and 43rd Ave with I-94 crossing. Maintain access control.	North-South Beltway Study	As a 4-lane roadway, provides LOS C through 2040.	Would divert some traffic out of congested Centennial Road / Bismarck Expressway corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety along Centennial / Expressway.	Crosses 1 intermittent stream, adjacent to 1 mapped wetland.	$8,250,000	3/4 mile of 4-lane urban roadway.	Consider developer-assumed funding for 2-lane to 5-lane expansion; adjacent retail expansion would drive the need for more lanes.
B5	Congestion	66th Street: Lincoln Road to Highway 10 / Main Avenue	Reconstruct 66th St as a rural 2-lane road with turn lanes and shoulders between Lincoln Rd and Hwy 10. Restrict full access points to 1/2 mile. Reserve right-of-way for 5-lanes.	North-South Beltway Study	With proper access control, 2-lane roadway with turn lanes at major intersections should provide LOS D or better through 2040. Diverts: 2,000 vpd from Lincoln Rd 1,000 -2,000 vpd from Yegen Rd	Improved safety for future traffic volumes compared to current 2-lane rural.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses Apple Creek (perennial stream), 1 unnamed perennial stream in 2 locations, 2 intermittent streams, and is adjacent to 3 wetlands.	$10,500,000	1 mile of urban roadway, 2 miles of rural roadway reconstruction.	Alternative B39 would provide grade separation (overpass) with BNSF railroad and roundabout at Apple Creek Rd.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
B6	Connectivity	66th Street: Lincoln Road to 48th Avenue South 48th Avenue South: University Drive to 66th Street	SE Bismarck / Lincoln Beltway; Construct 48th Ave S as rural road between University and 66th; Reconstruct 66th as urban road 48th to Lincoln Rd.	North-South Beltway Study	With proper access control, 2-lane roadway with turn lanes at major intersections should provide LOS D or better through 2040. Diverts: 5,000 vpd from Lincoln Rd 2,000 vpd from Yegen Rd 2,000-4,000 vpd from Apple Creek Rd	-	On its own, small improvement in regional VMT. Crosses Apple Creek (perennial stream) in 3 locations, 1 mapped wetland, and is adjacent to 7 mapped wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$8,880,000	4 miles of rural roadway reconstruction / new rural roadway. 1 bridge over Hay Creek assumed. Assume 100% airport funded west of 52nd Street.	Assume some portion of this is funded by Airport due to vacation of Yegen southwest of Lincoln Rd.
B7	Connectivity	Interstate 94 @ 66th Street	New I-94 Interchange at 66th Street.	North-South Beltway Study / I-94 Corridor Study	With B4, B5 and B6 in place, requires 4-lane divided on 66th St between 43rd Ave and I-94 interchange. Interchange prevents need for widening East Divide to 4-lanes. Diverts: 4,000 - 8,000 vpd from Centennial at I-94 2,000 - 5,000 vpd from Centennial Yegen to Divide 10,000 vpd from 80th St 4,000 to 6,000 vpd from Main Ave east of Expressway	Would divert some traffic out of congested Centennial Road corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety in that corridor.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT.	$13,950,000	Interchange less cost of bridge over I-94 (part of B4 costs)	
B8	Congestion	Divide Avenue: Bismarck Expressway to 66th Street	Extend Divide as a 3-lane or 5-lane arterial from Expressway to 66th; adjacent to future industrial and urban residential	2035 LRTP	4-lane arterial required between 52nd and Expressway by 2040; 2-lane rural east of 52nd. 4-lane not required if 66th St interchange is in place. Diverts: 10,000 or more vpd from old E Divide Ave (into Industrial Area) 6,000 to 10,000 vpd from Main Ave east of Expressway	-	Provides small improvement to regional VMT. Crosses 1 intermittent stream in 2 locations, 1 mapped wetland, and is adjacent to 2 mapped wetlands.	$7,500,000	1 mile of urban 3-lane and 1 mile of rural 2-lane with turn lanes.	
B9	Congestion	Main Avenue / Highway: Bismarck Expressway to 66th Street	Widen Main Ave / Highway 10 as 4-lane divided arterial between Expressway and 66th.		Project not required with I-94 interchange and 66th St improvements. Alternative is intersection improvements and access control.	Expected to improve safety compared to no improvements in corridor. Injury crashes in corridor.	Crosses 1 intermittent stream in 2 locations, 1 intermittent stream in 1 location, 1 wetland, and is adjacent to 6 wetlands.	$12,000,000	2 miles of rural 4-lane widening.	
B10	Congestion / Safety	Lincoln Road: 52nd Street to 66th Street	Lincoln Rd management improvements with new turn lanes, a roundabout @ 52nd, crosswalk at McDougall, trail and paved shoulders.	Lincoln Rd Corridor Study	Improvement would provide LOS C capacity through 2040 in Lincoln. Delays and safety concerns at intersections by 2040 in no-build.	Expected to improve safety compared to no improvements in corridor.		$3,260,000	Costs from Lincoln Road Corridor Study grown to 2014 dollars.	$2.9M in 2011 dollars. $3.26M in 2014.
B11	Connectivity	52nd Street: Century Avenue to 43rd Avenue	Extend 52nd Street as an arterial roadway between Century and 43rd Avenue.	2035 LRTP	2-lane arterial provides LOS C through 2040.	-		$5,400,000	0.9 miles of urban roadway.	
B12	Connectivity	Hamilton Street: Century Avenue to Divide Avenue (I-94 Crossing)	I94 crossing connection between Century and Divide at Hamilton St - use Calgary as Hamilton to Nebraska Dr connection, which provides collector access to 43rd Ave.		Carries approximately 10,000 vpd by 2040. LOS C with 2-lane arterial with access control. Diverts: 2,000 - 3,00 vpd from Centennial 3,000 - 4,000 vpd from State St 1,000 vpd from 19th St	Would divert some traffic out of congested Centennial Road corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety in that corridor.	Provides small improvement to regional VMT / VHT. Crosses 1 intermittent stream	$8,900,000	.9 miles of urban 3-lane and bridge over I-94.	

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
B13	Connectivity	80th Street: 71st Avenue to 48th Avenue South	Alternate Beltway Alignment (instead of 66th St) along 80th Street.		Somewhat less diversion than 66th St alignment, additional travel distance required.	Expected to improve safety compared to no improvements in corridor.	Smaller VMT / VHT benefits than 66th Street corridor. Crosses Apple Creek (perennial stream), 5 intermittent streams, 2 mapped wetlands, and is adjacent to 14 mapped wetlands Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$20,600,000	11 miles of rural 2-lane, bridge over I-94.	Not consistent with North-South Beltway Study. Stakeholder input has generally favored current designated beltway.
B14	Connectivity	Century Avenue: Centennial Road to 66th Street	Extend Century Ave as a 3-Lane urban arterial between Centennial and 66th St to support development / traffic growth. Reconstruct to 52nd, new road 52nd to 66th. Reserve ROW for 5-lanes in future.	2035 LRTP	LOS C as 3-lane roadway if 66th Street interchange is built. Diverts 2,000 - 5,000 vpd from 43rd east of Centennial.	Would divert some traffic out of congested 43rd corridor, expected to improve safety in that corridor.	Provides small improvement to regional VMT. Larger benefit to VHT. Crosses 1 intermittent stream	$14,040,000	0.6 miles of 3-lane urban widening, 1.4 miles of new urban 3-lane. Development driven projet - assume some portion is development funded.	3-lanes required if 66th Street Interchange is built. 5-lanes required without an interchange.
B15	Congestion	43rd Avenue: Washington Street to Centennial Road	Widen 43rd Ave as 4-Lane Divided Urban Roadway between Washington and Centennial, include bike / pedestrian trail.	43rd Avenue Corridor Study	Improvements would provide LOS C or better through 2040.	Expected to improve safety compared to no improvements in corridor.		$33,000,000	3-miles of 4-lane urban arterial widening. Likely phased in 1 mile segments.	Phase in 1-mile segments. Washington to State Street is likely first widening segment.
B16	Access / Congestion Concern	26th Street: Rosser Avenue to Main Avenue	26th Street signal timing improvements and access control; addresses public concern with queuing and traffic progression along this segment of 26th Street during rush hour.		Signals along 26th are currently coordinated. Limited benefit potential; high access levels in this segment.	-		$0	No costs - improvement options limited.	
B17	Connectivity	Interstate 94 @ 80th Street	80th St / I-94 interchange as western option to 66th St interchange.		Less traffic diversion than 66th St alignment, additional travel distance required.	-	Smaller VMT / VHT benefits than 66th Street corridor. Crosses 1 intermittent stream in 2 locations	$13,950,000	Interchange less cost of bridge over I-94 (part of B13 costs)	80th Street bridge is being widened and raised in 2015.
B18	Congestion	43rd Avenue: Centennial Road to 66th Street	Widen 43rd Ave as 4-Lane Divided Roadway between Centennial and 66th, include bike / pedestrian trail	43rd Avenue Corridor Study	With no widening and good access control, segment would operate between LOS E / F by 2040 with intersection improvements only. Century Extension (B14) and 66th St interchange (B7 & B4) would improve segment to LOS E with intersection improvements only.	Expected to improve safety compared to no improvements in corridor.	Moderate regional benefit due to VHT improvement. Crosses 2 intermittent streams	$22,000,000	2-miles of 4-lane urban arterial widening. Likely phased in 1 mile segments.	
B19	Congestion	Ash Coulee Drive	Widen Ash Coulee as a 3-lane urban minor arterial. Include bike / pedestrian trail.	43rd Avenue Corridor Study	Provides LOS C through 2040.	Addition of a left-turn lane is expected to improve safety in corridor.		$6,600,000	1.1 miles of 3-lane urban reconstruction / widening.	
B20	Access / Congestion	Washington Street: Drainage Channel to Burleigh Avenue	Reconstruct South Washington as a 3-lane urban arterial south of drainage channel (where current 4-lane section ends) to Burleigh Ave.		With proper access control, provides LOS C through 2040.	Addition of a left-turn lane is expected to improve safety in corridor.		$6,000,000	1 mile of 3-lane urban reconstruction / widening.	
B21	Connectivity	Tyler Parkway: Valley Drive to 64th Street	Extend Tyler Parkway as 3-lane urban minor arterial from Valley Dr to 64th Ave. Alignment could change according to terrain and development. County is currently extending Tyler Parkway in phases to north. Expected to be completed to 57th Ave by 2018.	Northwest Bismarck Subarea Study	Carries 5,000 - 10,000 vpd by 2040, LOS C. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses 2 intermittent streams, adjacent to 2 mapped wetlands	$750,000	County will have completed all of B21 south of 57th Ave by 2018. Assume 1/2 mile rural two lane remains to fund.	

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
B22	Congestion	19th Street: Divide Avenue to Yucca Avenue	Restripe 19th Street as 3-lanes between Divide and Yucca Ave (1/4 mile south of 43rd Ave). Add northbound right-turn lane at Shiloh School. Reconstruct to 3-lane urban between Yucca Ave and 43rd Ave.		Expected to improve operations and safety for turning traffic along 19th St for cross-streets and driveways. No improvement at Divide / 19th intersection from this alternative.	Addition of turn lanes is expected to improve safety in corridor.		$400,000	1 new turn lane, signing and restriping lanes for 2 miles. Likely 2 phases, Century to Divide first.	48' cross section throughout - no removal of on-street parking required to add turn lane. 1150' of urban 3-lane reconstruction north of Yucca.
B23	Connectivity	57th Avenue: Washington Street to River Road	Extend 57th Ave between Washington and River Rd as a 3-lane or 5-lane arterial roadway. County will complete first 1/2 mile of this segment west of Washington in 2014.	Northwest Bismarck Subarea Study	Carries 3,000 to 12,000 vpd. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream), 1 unnamed intermittent stream, adjacent to 1 mapped wetland	$4,875,000	2 miles of new 2-lane rural. Likely 3 phases. Higher costs due to difficult terrain.	
B24	Congestion	Washington Street: Calgary Avenue to Bismarck Expressway	Upgrade corridor signal system and timing improvements in Washington St corridor from Calgary to Expressway. At turn lanes Calgary to Century. Stripe for 3-lane from Century to Avenue D, add turn lanes at key intersections south of Ave D. Potential on-street parking removal south of Divide. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Signal upgrades and timing improvements would improve peak hour delays 10%-15%. Still LOS D/E in corridor.	Signalization and addition of turn lanes is expected to improve safety in corridor - portions of corridor are higher crash frequency with injury crashes.		$280,000	Approximately $20,000 per signal upgrade for new cabinets, Pan-Tilt-Zoom Cameras, Controller upgrade and new fiber. 1-mile of restriping.	48' cross-section north of Divide - sufficient room for turn lane striping.
B25	Congestion / Safety	Bismarck Expressway: 12th Street to Yegen Road	3/4 Access Control along Bismarck Expressway and widening at Airport Rd for right-turn lanes for Freight access.		Minor improvement to traffic operations.	Expected safety improvement for angle crashes; some intersections have higher crash frequencies.		$500,000	2 turn lanes, intersection reconstruction for access control.	
B26	Congestion / Safety	Bismarck Expressway: Washington Street to 12th Street	Widen Bismarck Expressway to 6-lane divided between Washington and 12th St per Bismarck Expressway Study. Property impacts expected.	Bismarck Expressway Corridor Study	Will provide LOS C operations through 2040.	Expected improvement to safety for high crash and injury crash corridor. Some concerns for pedestrian crossings due to wider roadway.		$24,000,000	1 miles of 6-lane widening, right-of-way acquisition.	Expensive project with extensive impacts, potentially lower priority.
B27	Congestion / Safety	Bismarck Expressway: Washington Street to 12th Street	Corridor Management along Bismarck Expressway with signal system upgrades, 3/4 access control or right-in, right-out only at 2nd St and mall entrance. Signal system upgrade should be extended to include all of Expressway / Centennial Corridor between Century and Washington. Upgrade signal system, add fiber, add pan-tilt-zoom cameras, coordinate with upgraded central signal system software, re-optimize signals.		Safety improvements from access control. Travel delay improvements of 10%-15% reductions due to signal system upgrades. Still LOS D / E through 2040. Current TIP project for 2015 plans to convert signals in corridor to protected / permitted, which will provide some benefits over existing operations.	Expected to improve safety compared to no improvements in corridor.		$1,500,000	Upgrade to 7 signals between Washington and 12th Street, including 7th/Arbor and 9th/Arbor	
B28	Congestion	Divide Avenue: Turnpike Avenue to 26th Street	Restripe Divide Avenue as a 3-lane roadway between Turnpike and 26th Street. Evaluate on-street bike integration options - requires removal of on-street parking. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Improves traffic operations from LOS E/F to LOS D by 2040.	Expected to improve safety compared to no improvements in corridor.		$290,000	2.9 miles of restriping / signing.	On-Street parking removal - impacts to bike lanes?
B29	Connectivity	97th Avenue: US 83 to 66th Street 66th Street: 71st Avenue to 97th Avenue	Optional north extension of Beltway utilizing 97th Ave instead of 71st - from Focus Group. Truck / route arterial concept farther from Bismarck.		Somewhat less diversion than 71st St connection.	-	Crosses Hay Creek (intermittent stream), 2 unnamed intermittent streams, 1 wetland, and is adjacent to 5 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$9,000,000	6 miles of new rural 2-lane / reconstructed rural 2-lane.	Not consistent with North-South Beltway Study. Stakeholder input has generally favored current designated beltway.

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B30	Congestion	Main Avenue: 26th Street to Bismarck Expressway	Add turn lanes at key Main Ave locations east of 26th Street, including Eastdale.	2035 LRTP	Should provide LOS C for segment through 2040.	Expected to improve safety compared to no improvements in corridor.		$600,000	Assumes 3 new turn lanes constructed.	Assume three turn lane additions required.
B31	Connectivity	57th Avenue: Washington Street to State Street	57th Avenue was constructed as a two-lane rural street between Washington St and State St in 2014. Alternative would add turn lanes to this rural section.	2035 LRTP	Operations at LOS C by 2040. With Project B23 in place, traffic demand much higher in this corridor and operations decline to LOS F by 2040.	Expected to improve safety compared to no improvements in corridor.		$800,000	Assumes 4 new turn lanes constructed.	
B32	Congestion / Access	Yegen Road: Lincoln Road to Morrison Avenue	Add turn lanes on Yegen Rd at key intersections between Lincoln Rd and Morrison Ave		Provides LOS C through 2040.	Expected to improve safety compared to no improvements in corridor.		$1,200,000	Assumes 6 new turn lanes constructed.	Assume 6 turn lane additions required - widening at turn lanes needed.
B33	Congestion	Yegen Road: Bismarck Expressway to Apple Creek Road	Widen Yegen Road to 4-lane Roadway with turn lanes between Apple Creek and Expressway	Lincoln-Bismarck Connection Study	Provides LOS C through 2040. Project not necessary with 66th St beltway.	Expected to improve safety compared to no improvements in corridor.		$2,400,000	Assumes 0.4 miles of rural roadway widening.	
B34	Connectivity	Fernwood Drive: 71st Avenue / Highway 1804 to Burnt Boat	Fernwood Drive extended as 2-lane rural arterial roadway to relieve River Rd between Burnt Boat and 71st St.	Northwest Bismarck Subarea Study	Fernwood as rural 2-lane with turn lanes at major intersections. Would divert most through traffic from River Road to improve operations. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream) in 2 locations, 1 unnamed intermittent stream, adjacent to 5 mapped wetlands. Adjacent to the Missouri River. Runs adjacent to Missouri River. Listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish	$5,850,000	3.9 miles of new 2-lane rural roadway. Likely constructed in 3 phases.	
B35	Congestion / Safety	State Street: Calgary Road to Divide Avenue	Implement State Street Safety Study Recommendations. Several added turn lanes along State St and mid-block accesses modified to 3/4 access. Comprehensive signal system upgrade and retiming in this corridor.	State St Safety Study	Addresses safety issues in corridor. Near term project. With improvements, operations improve but will range from LOS D to F at some intersections. Additional delay reductions of 10%-15% from signal system upgrade and retiming.	Expected improvement to safety for high crash and injury crash corridor.		$4,250,000	Currently being designed, preliminary cost estimate from study.	
B36	Congestion	Rosser Avenue: Main Avenue to Washington St	Restripe Rosser for 3-lanes between Main Ave and Washington St. With on-street bike routes, would require on-street parking removal. Evaluate implementation plan in low-cost urban corridor study.		Improve operations to LOS D or better in corridor by 2040.	Expected to improve safety by separating turning traffic from through traffic.		$40,000	0.4 miles of restriping for center left-turn lane.	With center turn lane and bike lanes, would require removal of on-street parking.
B37	Congestion	4th Street: Century Avenue to Boulevard Avenue	4th St signal timing improvements, stripe turn lanes at key intersections, potential new signal at Turnpike. On-street parking restrictions at locations of turn lane restriping. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Improve operations to LOS D in corridor by 2040. Signals are relatively spread out - limited benefits from signal timing improvements.	Expected to improve safety by separating turning traffic from through traffic.		$300,000	Assume 1 new signal and 0.5 miles of restriping.	
B38	Connectivity	26th Street: Calgary Avenue to 43rd Avenue	Extend 26th St as 2-lane arterial between Calgary and 43rd Ave.	2035 LRTP	Some traffic diversion benefits for 19th St and Centennial.	-		$2,500,000	Assume 1/3 mile of new urban 3-lane roadway.	Constructability issues due to right-of-way and topography issues.
B39	Connectivity	66th Street at BNSF Railroad	Provide grade separation of 66th Street from BNSF railroad- anticipate 4-lane bridge. Realign 66th Street and construct with Apple Creek / 66th Street roundabout.	Lincoln-Bismarck Connection Study	12,300 ADT by 2040 - FRA crossing inventory indicates 19 trains / day currently on BNSF line. Max train speed here is 60 mph. Exposure index is relatively high.	Reduces autos, bicycle and pedestrian exposure to BNSF trains. No identified car-train crashes in 2010 to 2012 period.		$10,600,000	Cost estimate from County - requires realignment, right-of-way acquisition, new structure and roundabout.	

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B42	Congestion	Washington Street: 57th Street to 71st Street / Highway 1804	Reconstruct Washington as a 3-lane roadway between 57th St and 71st St / Highway 1804. County currently extending Washington north of 71st to tie into 84th Street.	2035 LRTP	With northwest Bismarck improvements in place, this project provides LOS C traffic operations through 2040 with proper access control.	Expected to improve safety by separating turning traffic from through traffic.		$0	County will widen this to 3-lane rural roadway by 2018, using county funding.	Removed. Not needed in LRTP due to near-term County project to build as 3-lane.
B43	Connectivity	Lincoln Road at Yegen Road	After Airway Ave vacation, provide curve transition between Lincoln Rd and North Leg of airway.	Lincoln-Bismarck Connection Study	Eliminate stop for north leg - east leg connection improves traffic flow here. LOS C through 2040.	Limited safety effects.		$300,000	Assume 0.2 miles of new rural 2-lane for re-worked curve.	
B44	Congestion	Avenue C: Ward Rd to 3rd Street	Restripe Avenue C for left-turn lanes at major intersections including Ward Rd and EB 3rd St. On-Street parking removal at locations of turn lane restriping.		Restriping only in targeted locations - improves operations slightly.	Expected to improve safety by separating turning traffic from through traffic.		$20,000	Assume 0.2 miles restriping / signing.	Cannot widen at Washington due to historic designation.
B45	Congestion / Safety	Interstate Ave Extension to Country West. Once Complete, Restrict Left Turns at Century Ave / Country West	Extend Interstate Avenue to Country West Road and convert Country West / Century Ave to right-in, right-out access after Interstate Ave extension.		Improvement to traffic operations on Country West Drive. Safety improvements should reduce angle crashes.	Expected to improve safety by managing access and limiting turning traffic.		$1,500,000	0.2 miles of urban 3-lane roadway.	Alternative adjusted based on July 24 meeting.
B46	Connectivity	London Avenue: Riverwood Road to Washington Street	Extend London Ave between Riverwood and Washington; constructability issues.	2035 LRTP	Minor traffic benefits, connection serves area adjacent to river with limited projected housing growth.	-	Crosses 1 intermittent stream, 1 mapped wetland, and is adjacent to 5 wetlands. Park District concerns noted.	$1,125,000	Assume 3/4 mile of new 2-lane rural roadway.	Potential impacts with lower mobility benefits - likely a lower priority.
B47	Congestion	12th Street: Santa Fe Avenue to Burleigh Avenue	In long term, consider adding turn lanes on 12th St at Santa Fe and Burleigh Ave. On-street parking restrictions at locations of turn lane restriping.		Improves traffic operations to LOS C, improves safety.	Expected to improve safety by separating turning traffic from through traffic.		$800,000	Add 4 turn lanes.	Road was rebuilt in 2013.
B48A	Safety	Washington Street: Denver Avenue to Drainage Channel	In the near term, consider restriping Washington south of Reno as 3-lane roadway. Capacity issues are likely to arise closer to 2030 or 2040. Evaluate implementation plan in low-cost urban corridor study.		3-lane provides sufficient capacity through 2025. 3-lane fails by 2040 - 5-lane alternative provides LOS C through 2040.	3-lane sections typically are safer treatments than 4-lane sections without turn lanes.		$70,000	0.7 miles of restriping / signing.	City suggestion that this corridor be restriped for 3-lanes.
B48B	Congestion	Washington Street: Denver Avenue to Drainage Channel	In long term, restore 4-lane cross-section and widen at Wachter and Reno signalized intersections to add turn lanes.		5-lane alternative provides LOS C through 2040.	Reduced peak congestion levels should improve safety compared to no action in corridor.		$1,200,000	Assume 6 new turn lanes for 4-lane section.	Potential negative perception of going from 4-lane to 3-lane and then back to 4-lane with turn lanes in later years.
B49	Congestion	Wachter Avenue: Washington Street to University Avenue	Add left turn lanes on Wachter at collector intersections for future traffic growth. On-street parking restrictions at locations of turn lane restriping.		Provides LOS C through 2040.	Expected to improve safety by separating turning traffic from through traffic.		$20,000	0.2 miles of restriping / signing.	Assume 2 turn lanes.
B50	Congestion	43rd Avenue: 66th Street to 80th Street	43rd Ave - Add turn lanes at 66th, 80th and 1/2 mile collector intersection (73rd St?).	43rd Avenue Corridor Study	With 66th Street improvements (B4 and B7), provides LOS C through 2040.	Expected to improve safety by separating turning traffic from through traffic.	Crosses 1 intermittent stream, adjacent to 1 pond/wetland, and is adjacent to 5 other wetlands.	$1,200,000	Assume 6 new turn lanes.	Assume rural cross-section
B51	Connectivity	43rd Avenue: Fernwood Drive to Tyler Parkway	43rd Avenue as a rural 2-lane arterial between proposed Fernwood and Tyler Pkwy.	Northwest Bismarck Subarea Study	Provides LOS C through 2040. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of Northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream), 1 intermittent stream, and is adjacent to 1 mapped wetland.	$3,650,000	1.6 miles of new 2-lane rural. Likely construct in 2 phases. Higher costs due to difficult terrain.	Rural x-section per NW Subarea Study
B52	Congestion	Apple Creek Road: Yegen Road to 66th Street	Focus on TSM options along Apple Creek due to floodway issues. Turn lanes and intersection improvements at 66th, 55th, 52nd and Yegen.		Stand alone, provides LOS C through 2040. Main Ave / Hwy 10 and 66th St improvements would divert sufficient traffic from Apple Creek that only turn lanes at 52nd / Apple Creek are needed by 2040.	Expected to improve safety by separating turning traffic from through traffic.	Crosses Hay Creek (perennial stream), 1 unnamed perennial stream, 1 unnamed intermittent stream, is adjacent to 5 mapped wetlands.	$400,000	This project accounts for 2 turn lane addition - 1 at 52nd and 1 at 55th.	Assume 2 turn lanes.

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B53	Connectivity	Century Avenue: Tyler Parkway to River Road	Extend Century Ave west of Tyler Parkway as a 2-lane roadway to River Road. Reserve sufficient right-of-way for 4-lane roadway.	Northwest Bismarck Subarea Study	Provides LOS C through 2040. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	Converting Century - Tyler into a 4-legged intersection and moving traffic from Burnt Boat to Century west of Tyler has the potential to improve safety along Tyler Parkway.	Significant public opposition to this alternative during Northwest Bismarck Subarea study.	$3,750,000	Assume 1/2 mile of new urban 2-lane roadway.	
B54	Congestion	Bismarck Expressway: Century Avenue to Divide Avenue (New Location)	Widen Bismarck Expressway to 6-lanes between Century Ave and Divide Ave for high future traffic levels.	2035 LRTP	Provides LOS C through 2040. With 66th Street crossing and interchange, and a reconfigured Centennial interchange (B75), segment operates at LOS E in 2040 without B54 improvements.	Reduced congestion should improve safety, increased crossing distance for pedestrians is a potential concern. Consider safety neutral.		$11,000,000	Assume 1-mile of 6-lane urban roadway.	Likely limited benefit from 6-laning compared to cost and impacts.
B55	Congestion / Freight	Bismarck Expressway: Yegen Road to Main Avenue	Bismarck Expressway - Future Dual SB Left Turn Lanes at Hwy 10; acceleration lane coming out of Yegen to Northbound Expressway		Improves operations at intersection by 2040; with 66th St (B4, B5, B7) improvements and Divide Ave Extension (B8), corridor will operate at LOS C through 2040.	Expected to provide some improvement to safety in corridor.		$400,000	Add 2 turn lanes.	
B56	Congestion	7th Street: Boulevard Avenue to Main Avenue 9th Street: Boulevard Avenue to Main Avenue	Signal timing improvements along 7th / 9th pair		Optimization study should provide low-cost improvement in corridor. 5-10% reduction in delays during peaks. Lower priority for signal system upgrades.	Minimal safety benefits.		$0	No costs - improvement options limited.	
B57	Congestion	71st Avenue: State Street / US 83 to Centennial Road Centennial Road: 71st Avenue to 43rd Ave	Widen 71st Ave / Centennial Rd to 3-lane roadway, improve access control similar to 71st and Centennial study.	71st Street and Centennial Road Study	Should provide LOS C for segment through 2040.	Expected to improve safety by separating turning traffic from through traffic and reducing congestion.		$10,200,000	Costs taken from 2035 LRTP and grown to 2014 dollars.	
B58	Congestion	River Road: Burnt Boat Road to Fraine Barracks	Add turn lanes at River Rd intersections between Burnt Boat and Fraine Barracks.		Limited turning traffic into driveways along this segment; low potential for improved operations. Widening not practical.	Minimal safety benefits.		$0	No costs - improvement options limited.	Limited possibilities for turn lanes, eliminate this alternative.
B59	Congestion / Safety	Tyler Parkway: Century Avenue to Schafer Road	Safety improvements on Tyler Parkway with turn lane additions. Signal timing improvements / potentially adaptive signal system. Safety / geometrics study recommended. Recommend additional study as part of Signal System Master Plan.	I-94 Corridor Study	Limited ability for substantial improvements in this corridor. No-Build in 2040 is LOS E/F. Likely LOS D/E attainable by 2040 with turn lane additions. Adaptive signal system from Interstate Ave / Century Ave to Schafer / Divide Ave might be beneficial with variable traffic due to retail and college in corridor.	Potential for improved traffic safety in a high crash frequency corridor.		$600,000	Costs from I-94 study	I-94 Corridor study recommends turn lane improvements at Burnt Boat intersection.
B60	Connectivity	Main Avenue: 1st Street to 7th Street	Restripe Main Ave as 3-lane roadway with bike lanes between 1st St and 6th St, pedestrian and streetscape improvements per Downtown Bismarck Study.	Downtown Study	LOS D/E between 3rd and 9th by 2040 as a 3-lane section. Safety improvement over 4-lane section.	Expected to improve safety by separating turning traffic from through traffic.		$3,500,000	Costs from Downtown Bismarck Study	
B61	Congestion	Centennial Road: Jericho Road to 43rd Avenue	Widen Centennial to 4-lane urban divided roadway between Jericho and 43rd Avenue in long term. Near term County project will widen this segment to 3-lanes.		66th Street project has limited diversion for Centennial north of Century. Project provides LOS D through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$9,350,000	0.85 miles of urban roadway widened to 4-lane divided.	
B62	Airport Expansion	Yegen Road: University Avenue to Lincoln Road	Vacation of Airway Avenue / Yegen Road south and west of Lincoln Rd for Airport expansion - from Airport Master Plan. Convert to private use for access to ND National Guard property.	Airport Master Plan	Loss of through traffic on Yegen diverts an extra 1,000 Yegen Road Southeast of Bismarck Expressway. S 48th extension (B6) carries 8,000 vpd.	-		$0	No costs	

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B63	Connectivity	Calgary Avenue at DMVW Railroad and Hay Creek	Extend Calgary Avenue across DMVW Railroad and Hay Creek. Assume bridge over DMVW and Hay Creek.	2035 LRTP	Completes important NE Bismarck collector connection. Provides moderate traffic benefit to Century Ave and 43rd Ave.	-	Provides direct route in neighborhood, some reduction on VMT.	$7,100,000	1/3 mile of new urban roadway and bridge.	
B64	Congestion / safety	Burnt Boat / River Road Intersection	1-lane roundabout or traffic signal at River Rd and Burnt Boat. Warranted in near to mid-term.		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown	
B65	Congestion / Safety	Burnt Creek Loop South (57th Avenue) / River Road Intersection	1-lane roundabout or rural signal with advanced warning at River Rd / Burnt Creek Loop South. Implemented only if B23 and / or R1 is built.		From a traffic perspective, would not be required if B34 is built, which diverts traffic from River Rd.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown	Potential constructability issues.
B66	Congestion / Safety	Burnt Creek Loop North / River Road / Highway 1804 Intersections	1-lane roundabout or rural signal. Consider off-set roundabouts or a design that brings together Burnt Creek, Highway 1804 and River Rd.		Either option provides sufficient capacity through 2040.	Expected to improve safety at the intersection; 1 injury crash in 2010 to 2012 period.		$1,600,000	2 Roundabouts assumed for cost	
B68	Congestion / Safety	Century Avenue / Tyler Parkway Intersection	Signalize intersection of Century and Tyler Parkway. Likely warranted in near to mid-term.	2035 LRTP	Improves operations for northbound and southbound traffic - signal in isolation provides LOS C through 2040.	Expected to improve safety at the intersection with injury crashes.		$250,000	1 signal	
B69	Congestion	Apple Creek Road / 66th Street Intersection	Recently converted to 4-way stop. In the long-term, consider constructing roundabout at this intersection. Consider in tandem with BNSF crossing (B39).		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$0	Costs included in B39.	
B70	Congestion / Safety	Highway 10 / 66th Street Intersection	Turn lane additions at Highway 10 and 66th St; potential dual northbound lefts, and signalization will be warranted in mid- to long-term.		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection; 1 injury crash in 2010 to 2012 period.		$1,000,000	Roundabout with bypass lanes shown	
B71	Congestion / Safety	Highway 10 / 52nd Street Intersection	Signal will be warranted at 52nd and Hwy 10 as adjacent development comes on-line: mid- to long-term		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$250,000	1 signal	
B72	Congestion	Lincoln Road / Yegen Road Intersection	After Airway Avenue vacation, change control to give free movement to westbound right turns and southbound lefts. B43 is longer-term option.	Lincoln - Bismarck Connection Study	Improves traffic operations for heavy movements in near term.	Limited safety effects.		$5,000	Minimal signing costs and temporary warning sign costs assumed	
B73	Congestion / Safety	Lincoln Road / 66th Street Intersection	1-lane roundabout or rural traffic signal.	2035 LRTP	Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown	
B74	Congestion / Safety	Apple Creek Road / Yegen Road Intersection	Signalize Apple Creek / Yegen Rd intersection. Intersection recently widened improved to serve industrial development.	2035 LRTP	Provides LOS C through 2040.	Expected to improve safety at the intersection.		$250,000	1 signal	Old Highway Rd approaches recently widened - only restriping required and signal required. Yegen requires no widening.
B75	Congestion / Safety	Bismarck Expressway / Centennial Road Interchange with I-94	Reconstruct and reconfigure Bismarck Expressway / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	Improves traffic operations at interchange through 2040; congestion issues remain on Centennial between Divide and Century.	Expected to improve safety through interchange, currently a high crash corridor.		$18,000,000	Costs from I-94 study	
B76	Congestion / Safety	State Street Interchange with I-94	Reconstruct and reconfigure State St / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	Improves traffic operations at interchange through 2040; congestion issues remain on State Street north of I-94.	Expected to improve safety through interchange, currently a high crash corridor.		$18,000,000	Costs from I-94 study	Near term project to restripe WB I-94 entrance ramp taper at State St.
B77	Congestion / Safety	71st Avenue / Centennial Road Intersection	Depending on potential beltway alignment, improve geometry / improve advanced warning at Centennial Rd / 71st St intersection to address safety concerns.		Limited traffic impacts.	Expected to improve safety through curve / intersection.		$300,000	Cost represents rural signal with advanced warning flashers.	
B78	Congestion / Safety	Tyler Parkway / Divide Avenue Interchange with I-94	Reconfigure Tyler Pkwy / I-94 interchange with ramp reconstructions and taper adjustments per I-94 corridor study to address safety and congestion issues.	I94 Study	Improves traffic operations at interchange through 2040; congestion issues remain on Tyler Parkway and Divide Avenue.	Expected to improve safety through interchange, currently a high crash corridor.		$2,500,000	Costs from I-94 study	Near term project to restripe ramp tapers at Tyler Pkwy.

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B79	Congestion	Avenue C / Ward Road Intersection	Add turn lanes to SB Ward Rd and WB Ave C to address congestion.	2035 LRTP	Improves intersection to LOS C through 2040.	Expected to improve safety at the intersection.		$400,000	2 turn lanes	Might require some minor reconstruction, no right-of-way impacts expected. Signal adjustments required.
B80	Congestion	71st Street / State St (US 83) Intersection	New interchange if beltway ties in at 71st; Option to consider is alternative intersection design like continuous flow intersection.		Interchange would provide LOS C through 2040.	Expected to improve safety at intersection.		$15,000,000	New Interchange Cost	Longer term consideration.
B81	Congestion	Calgary Avenue / Washington Street Intersection	New signal at Washington / Calgary. Signal likely warranted in near to mid-term		Improves operations on Calgary approach to LOS C through 2040.	Expected to improve safety at intersection.		$250,000	1 signal	
M1	Connectivity	Sunset Dr: Middle School to 28th Street	Extend Sunset as a 3-lane arterial roadway through N. Mandan growth area to 38th St. Phased as development occurs. Reserve 100' right-of-way.	North Mandan Study	Provides LOS C through 2040. Carries 2,000 to 5,000 vpd by 2040. Increases traffic on Sunset north of I-94 by 2,000 vpd. Diverts: 5,000 vpd from Collins north of Old Red Trail 1,500 from Old Red Trail east of Sunset	Expected to improve safety in corridors where traffic is diverted from.	Slight reduction in regional VMT compared to E+C scenario.	$5,625,000	3/4 mile of new urban roadway. Development driven project - consider partially developer funded.	
M2	Connectivity	New roadway between 38th Street at Highway 1806 and 37th Street at Highland Rd	2-lane collector along 37th St and 38th Street between Highland Road and Highway 1806 (future bridge corridor) on north edge of future urban growth area. East 1/4 mile in phase 1 likely urban section, remainder is rural. Reserve sufficient right-of-way for longer term arterial (beyond 2040).	North Mandan Study	Without north bridge, this segment carries approximately 2,000 vpd and diverts 500 vpd from Old Red Trail.	-	Crosses Rock Haven Creek (intermittent stream), 1 unnamed intermittent stream, 1 wetland, and is adjacent to 2 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$8,575,000	0.3 miles of new 2-lane urban, 2.3 miles of new 2-lane rural roadway. Higher costs due to difficult terrain. Development driven project - consider partially developer funded.	
M3	Connectivity	37th Street NW: Collins / Highway 1806 to Old Red Trail	Extension of 37th St NW as 2-lane collector or minor arterial between Collins (Hwy 1806) and Old Red Trail through growth area. Include turn lanes at intersections with Sunset and Collins. Alignment subject to change as development occurs.	North Mandan Study	Provides LOS C through 2040.	-	Crosses 1 mapped wetland.	$8,475,000	1/2 mile of new 3-lane urban roadway (east of Sunset) and 0.8 miles of rural roadway (west of Sunset). 1 turn lane at Sunset and 1 turn lane at Old Red Trail. Development driven project - consider partially developer funded.	
M4	Connectivity	Boundary Road extension west of current terminus	Extend Boundary Road west to support new commercial / industrial development access. Tie into future I-94 crossing / interchange (M5 or M6). Roadway is development driven. Reserve sufficient right-of-way for longer term arterial (beyond 2040).	North Mandan Study	Provides LOS C through 2040.	-	Crosses 3 intermittent streams, adjacent to 3 wetlands. Adjacent to Lions Park	$4,800,000	3.2 miles of rural 2-lane roadway. Development driven project - consider partially developer funded.	
M5	Connectivity	56th Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	56th Ave Interchange with connection to Old Red Trail and Boundary Road. Location might need to shift 1/4 mile east to avoid development impacts.	North-South Beltway Study	Approximately 7,000 vpd use interchange by 2040. 2-lane 56th Ave NW and Boundary Rd provide LOS C through 2040.	-	Some benefits to regional VMT reduction. Crosses intermittent stream in 2 locations.	$15,000,000	New Interchange Cost	Potentially move slightly east to avoid impacts.
M6	Connectivity	32nd Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	New interchange and / or crossing between Boundary Rd Extension and Old Red Trail along 32nd Ave alignment.	North Mandan Study	Approximately 11,000 vpd use interchange by 2040. 3-lane 32nd Ave NW and Boundary Rd provide LOS C through 2040. Diverts 5,000 vpd from Sunset north of I-94 - improves this location to LOS D by 2040 with interchange improvements (M 29).	-	Some benefits to regional VMT reduction. Crosses one intermittent stream in 2 locations, is adjacent to 2 wetlands.	$15,500,000	New Interchange Cost with 0.2 miles of new rural 2-lane roadway.	Alternative could avoid rebuilding 32nd Avenue, and instead use 37th St NW to access Old Red Trail. However, without direct access to Old Red Trail this concpet might not be considered full access interchange by FHWA.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
M7	Congestion / Safety	Highway 1806 / Collins Avenue: 37th Street to Old Red Trail	Highway 1806 / Collins Ave - add turn lanes at key intersections such as 27th St, Beretta St, 39th St, 38th St, Sioux St and 37th St. Assume minor Highway 1806 realignment at 38th Street to create right-angle intersection with Alternative M2.	North Mandan Study	Improves safety along this corridor as traffic volumes increase on Collins / Highway 1806. Provides LOS C through most of Hwy 1806 corridor by 2040 with Sunset extension (M1) in place. Old Red Trail / Collins intersection operates at LOS E/F.	Reduced traffic congestion and separated turning traffic should improve safety.		$1,600,000	Add 8 turn lanes	
M8	Connectivity	56th Avenue NW: extended Boundary Road to I-94 Business Loop (Main St)	56th Ave as 2-lane rural roadway between Boundary Rd / Future Interchange and Business Loop.	North-South Beltway Study	As part of a beltway, this segment carries less than 3,000 vpd. LOS C with 2-lane roadway. Diverts: 1,000 vpd from Main St 500 vpd from Sunset	Diverts some traffic from Main St - expected to provide some safety improvement in that corridor.	Limited effects on VMT and VHT. Crosses the Heart River (a Level 3 stream), 1 associated wetland, 1 Level 4 stream in 2 locations, 1 Level 5 stream, and is adjacent to 3 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$7,908,000	2.2 Miles of 2-lane rural roadway. New Heart River Bridge. Higher costs due to difficult terrain.	Longer-term alternative. Likely beyond 2040 time frame in terms of need.
M9	Connectivity	Division Street: Lohstreter Road to west terminus at Schools Building / Park.	Extend Division west to Lohstreter as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	Improved connectivity in growth area - LOS C through 2040. Diverts 1,500 vpd from Main St east of Sunset by 2040.	-	Crosses 1 intermittent stream. Adjacent to Sunset Park, Abuts Mandan Aquatic Center	$4,500,000	0.6 miles of new 3-lane urban roadway. Development driven project - consider partially developer funded.	Part of potential extension to 7th St NW.
M10	Connectivity	Division Street: 8th Avenue E to Mandan Avenue	Extend Division east to Mandan Ave as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	Carries up to 6,500 vpd by 2040 and provides LOS C through 2040. Increases traffic volumes on Division east of Collins by 2,000 to 3,000 vpd. Diverts: 4,000 vpd from Main St 2,000 vpd from Old Red Trail	-	Low to Moderate reduction in regional VMT and VHT due to new connection. Crosses 1 mapped wetland. Past studies identified potential cultural resources in this corridor.	$3,750,000	1/2 mile of new 3-lane urban roadway.	Provides a detour route during construction on Mandan Ave and Sunset Dr interchanges.
M11	Congestion / Safety	Main Street: 8th Ave W to 3rd Ave E	Restripe Main St for a center left-turn lane between 8th Ave W and 3rd Ave E. Would require the removal of on-street parking along Main St.		2040 No-Build is LOS D west of 6th Ave, LOS E east of 6th Ave. Restriping would improve to LOS C and D respectively. Other projects such as McKenzie Extension (M12) and Division Extension (M10) divert traffic from Main and make this project unnecessary.	Reduced traffic congestion and separated turning traffic should improve safety.	Local opposition to removal of on-street parking.	$20,000	Assume 0.2 miles of restriping / signing.	
M12	Connectivity	McKenzie Rd: 39th Ave E to Highway 1806	Extend McKenzie across Heart River to Hwy 1806 as rural 2-lane roadway. Reserve 100' right-of-way. New bridge across Heart River. Signalize intersection with Highway 1806. Add signals at McKenzie / Expressway interchange ramps and at McKenzie / 40th Ave.	2035 LRTP	Carries approximately 12,000 vpd by 2040. 2-lane roadway provides LOS C with limited access. Diverts: 5,000 vpd from 3rd St S 4,000 - 5,000 vpd from Main St 3,000 - 5,000 vpd from Memorial Hwy	Expected to divert significant traffic levels from highest crash frequency corridors in Mandan (Main St and Memorial Hwy).	Moderate reduction in regional VMT and VHT due to new connection. Crosses the Heart River (perennial stream), 1 unnamed intermittent stream in 2 locations, 1 unnamed intermittent stream in 1 location, and 3 mapped wetlands.	$7,300,000	Assume 1 mile of new rural 2-lane road, 2 turn lanes, 3 new traffic signals, and bridge over Heart River.	
M13	Connectivity	20th Avenue West: Old Red Trail to I-94 Business Loop (Main St) with I-94 grade separation.	As Boundary Road is expanded and commercial / industrial development occur, provide connection between Boundary Rd and Lohstreter.	North Mandan Study	2-lane provides LOS C through 2040. Similar diversion to M8.	Diverts some traffic from Main St - expected to provide some safety improvement in that corridor.	Limited effects on VMT and VHT. Crosses Heart River and an unrated stream. Adjacent to Lions Park	$15,000,000	Assume 2.1 miles of new 2-lane rural roadway and new bridges over Heart River and I-94. Potentially construct in 3 phases. Higher costs due to difficult terrain. Portion of Lohstreter to Boundary segment potentially developer-funded.	Some interest in this to support development, serve truck traffic. Constructability issues - some roadway grades would approach 12%.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
M14	Congestion / Safety	Old Red Trail: Highland Road to Sunset Avenue.	Restripe Old Red Trail with center turn lane between Highland Rd and Sunset Ave for safety. Alternate is 5-lane widening. Signal likely warranted at 37th Ave NW / Old Red Trail by 2040.	North Mandan Study	3-lane roadway should provide LOS D through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$400,000	1.5 miles of restriping / signing. 1 new traffic signal.	On boundary of LOS D/E by 2040. Assume 3 lanes (LT, RT) on each approach.
M15	Connectivity	SW Mandan Beltway: I-94 Business Loop (Main St) to Highway 1806	SW Mandan beltway as 2-lane rural roadway between the west Business Loop and Highway 1806 near Ft Lincoln park	North-South Beltway Study	Between Main Ave and Hwy 6, carries approximately 1,000 vpd by 2040; 4,000 vpd between Hwy 6 and Hwy 1806.	-	Minimal effect on VMT and VHT. Crosses the Heart river (perennial stream), adjacent to 1 pond/wetland, adjacent to 9 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$21,200,000	11 miles of rural 2-lane. Higher costs due to difficult terrain.	Adjusted to reflect comments from Morton County planning. Likely not warranted until after 2040.
M16	Congestion / Pedestrian Safety	Highway 1806 / 6th Ave E: 19th Street to Main Street	Add Hwy 1806 turn lanes and signals at 8th Ave and 19th St intersections. Make pedestrian crossing improvements at 3rd St intersection. Consider additional NB turn lane @ Main. Evaluate segment north of 8th Ave in low-cost urban street study.		Turn lanes and signals provide LOS C at 8th Ave and 19th St. Added lanes could likely improve operations at 6th Ave / Main from LOS F to LOS E. Additional study at 6th Ave E / Main recommended in future as congestion increases.	Reduced traffic congestion and separated turning traffic should improve safety.		$900,000	2 signals and 2 turn lanes at 8th and 19th assumed.	Limited ability to add capacity at Main St due to railroad underpass. Improvements at McKenzie (M12) support this investment, and ties into 19th St and 3rd St preservation projects. Consider "road diet" to reduce 4-lane section between 6th St SE and Main St.
M17	Connectivity	NW Mandan Beltway: 37th St to Highway 1806	Potential new northwest Mandan beltway road, connect potential interchange on 56th Ave with Hwy 1806.		Carries approximately 2,000 vpd by 2040. LOS C as a 2-lane.	-	Crosses 1 intermittent stream, is adjacent to 1 intermittent stream, crosses 2 mapped wetlands, and is adjacent to 3 mapped wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$9,400,000	Assume 3.4 miles of new 2-lane rural. Higher costs due to difficult terrain.	Longer-term alternative. Likely beyond 2040 time frame in terms of need.
M18	Connectivity	32nd Avenue W: extended Boundary Road to I-94 Business Loop (Main St)	West Mandan arterial connection / truck route for potential 32nd Ave W crossing of or interchange with I-94 to Old Red Trail.	2035 LRTP	2-lane provides LOS C through 2040. Similar, but slightly lower diversion to M8 and M13.	-	Limited effects on VMT and VHT. Crosses the Heart River (perennial stream), 1 intermittent stream.	$10,108,000	Assume 2 miles of new 2-lane rural. New Heart River Bridge.	
M19	Access Control / Safety	Memorial Highway: Main Street to I-194	Complete urban reconstruction required, consistent with Memorial Highway Study Recommendations. Access management elements, including new signal at 3rd St and pedestrian and bike facilities.	Memorial Highway Corridor Study	Provides LOS C through 2040.	Improved intersection control, pedestrian amenities and turn lanes provide improved safety, including at high-crash frequency intersection (46th / Memorial Hwy).		$1,125,000	Expansion costs are new signal and 2.5 mile bike trail.	
M20	Congestion	6th Ave W: 3rd Street N to Main Street	Remove stop control from Sunset (6th Ave W) at 2nd and signalize 1st St / Sunset intersection.		Provides LOS C through 2040.	-		$250,000	Assume signal cost only.	City brought up potential one-way conversion of 2nd to eastbound only. Consider in Downtown Mandan Study.
M21	Congestion	Collins Avenue: 1st Street N to Main Street	As congestion warrants, stripe a southbound left-turn lane on Collins at Main St. Signalize 1st St / Collins.		Provides LOS C through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$250,000	Assume signal cost only.	No widening impacts to the curb bulb-outs expected - 40' width available. No parking impacts expected. Potential for signal at 2nd Street / Collins in longer-term.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
M22	Congestion / Freight	Old Red Trail: Sunset Avenue to Mandan Avenue Interchange	Reconstruct Old Red Trail as a 2-lane urban with turn lanes between Collins Ave and Mandan Ave. Restripe for 3-lanes between Sunset and Collins. Add NB truck lane for Tesoro entrance, improve eastbound radius at Old Red Trail / Mandan Avenue curve by Tesoro. Widen turn radii and add turn lanes at Collins.	North Mandan Study	Provides LOS C for most of corridor; LOS C/D between Tesoro and I-94 interchange with access control.	Reduced traffic congestion and separated turning traffic should improve safety.		$4,880,000	Reconstruct as 0.8 miles of urban 2-lane. Restripe only west of Collins. Assumes Collins / Old Red Trail intersection is already reconstructed. Likely copleted in 2 phases.	Assume 4 turn lanes. Segment between Mandan Avenue interchange and Tesoro might be nearest-term need.
M24	Congestion	3rd Street: 9th Ave SE to 11th Ave SE and Riverwood Ave to Memorial Highway	Restripe 3rd Street with center turn lane between 9th and 11th Ave SE and Riverwood Ave to Memorial Highway.		Provides LOS C through 2040. Project not necessary with McKenzie extension (M12).	Separated turning traffic should improve safety.		$40,000	Assume 0.4 miles restriping.	Potential alternate truck route when restriped.
M25	Congestion / Safety	Main Street at Collins Avenue and 3rd Avenue W	Restripe Main St for turn lanes in key locations - potentially Collins and 3rd Ave W. As congestion / safety concerns increase at intersections without turn lanes, consider regulating left turns. Requires some on-street parking removal adjacent to restriped intersections. Signal system upgrade is part of TIP for 2016.		Would improve traffic flow at intersections with turn lanes. Once signal system upgrade is in place, optimize signals.	Reduced traffic congestion and separated turning traffic should improve safety.	Local opposition to removal of on-street parking.	$80,000	Assume 0.4 miles restriping. Signal system upgrade in TIP. Assume adjustments to 2 signals for turn lanes.	
M26	Congestion	I-94 at I-194/Main St interchange	Reconstruct I-94 between Main Street and I-194.	I-94 Corridor Study	Should provide LOS C for segment through 2040.	Expected to improve safety through interchange area with improved ramp design.		$33,100,000	Costs from I-94 study	
M27	Connectivity	McKenzie Rd: Highway 1806 to Highway 6	Extended McKenzie as 2-lane rural arterial between Hwy 6 and Hwy 1806.	2035 LRTP	In tandem with east McKenzie extension (M12), carries 2,000 to 5,000 vpd between Hwy 1806 and Hwy 6. 2-lane provides LOS C through 2040.	Some diversion of traffic from Main Street improves safety on that corridor.	This segment has minor reduction in regional VMT and VHT. Crosses 1 intermittent stream. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$6,875,000	2.5 miles of new rural roadway.	Long-term truck route alignment.
M28	Congestion	10th Ave W (Highway 6) / Main Street Intersection	Improve long-term traffic operations with turn lane and signal improvement Highway 6 and Main. Add eastbound right-turn lane. Limited options with bridge on Hwy 6. Longer-term need.		Not needed for capacity if McKenzie extension (M12) is completed.	Limited safety effects in near term.		$200,000	Assume eastbound right turn lane.	Limited capability to expand 10th Ave W on railroad bridge for northbound movement.
M29a	Congestion / Safety	Sunset Drive Interchange at I-94	In near term, add traffic signals at ramp terminals.	North Mandan Study / I-94 Corridor Study	Improves operations at interchange to LOS C through 2040.	Expected to improve safety at interchange.		$500,000	Assumes two traffic signals.	
M29b	Congestion / Safety	Sunset Drive Interchange at I-94	In longer term, reconstruct and reconfigure I-94 / Sunset interchange to reduce skew.	North Mandan Study / I-94 Corridor Study	Improves operations at interchange to LOS C through 2040.	Expected to improve safety at interchange.		$19,500,000	Costs from I-94 study	
M30	Congestion	Boundary Road / Sunset Drive Intersection	Signalize and stripe turn lanes on all approaches at Sunset / Boundary Rd. Coordinate with I-94 interchange signals (M29a). Minor reconstruction to improve drainage on west side of Sunset.	North Mandan Study	Improves operations for short-term. Long term interchange improvement at Sunset / I-94 will improve corridor operations.	Expected to improve safety at intersection.		$350,000	Costs reflect minor construction and signal improvement.	
M31	Congestion	27th Street N / Sunset Drive Intersection	Add turn lanes and signalize Sunset - 27th St intersection. Consider striping 3-lane section on 27th St between NW 12th Ave and Sunset to facilitate traffic flow from signal, separate turning traffic into Middle School.	North Mandan Study	Improves operations to LOS C through 2040 at intersection.	Expected to improve safety at intersection.		$300,000	0.5 miles of restriping, 1 traffic signal	

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions	Comments
M32	Congestion	Old Red Trail / Collins Avenue Intersection	Add turn lanes on all approaches of the Old Red Trail / Collins Ave intersection and signalize - likely needed in near term.	North Mandan Study	With Sunset Drive extension (M1), provides LOS C/D at intersection through 2040.	Expected to improve safety at intersection.		$2,160,000	Add 2 turn lanes, reconstruct 1/4 mile of urban 3-lane road west of Collins, and restripe for 0.1 mile on west leg. Add 1 signal.	
M33a	Congestion / Safety	Mandan Avenue Interchange with I-94	In shorter-term, reconstruct ramps to reduce skew and add signals at ramp terminals, restripe taper.	North Mandan Study / I-94 Corridor Study	Signals should provide LOS C at interchange terminals through 2025.	Expected to improve safety at interchange.		$520,000	Costs from I-94 study; 2 signals and new pavement makrings on ramp.	
M33b	Congestion / Safety	Mandan Avenue Interchange with I-94	In longer-term, reconstruct bridge to add left turn lanes on Mandan Ave under I-94.	North Mandan Study / I-94 Corridor Study	Added left-turn lane on Mandan Avenue should provide LOS C through 2040.	Expected to improve safety at interchange.		$14,480,000	Costs from I-94 study	
M34	Freight / Safety	19th Street S / Highway 6 (10th Avenue SW)	Add southbound left turn lane and westbound right turn lane for safety, freight flow.		Provides sufficient capacity through 2040.	Separated turning traffic should improve safety.		$400,000	2 new turn lanes at intersection.	
R1	Connectivity	Northern Bridge Corridor between 38th St in Mandan and 57th Avenue in Bismarck	Northern crossing of Missouri River. New Structure likely over 1/2 mile long.	North Mandan Study	Low to With North Mandan Study assumptions (arterial bridge crossing at 40 mph), carries 13,600 vpd. Diverts: 5,500 vpd from I-94 Bridge 2,000 vpd from Memorial Bridge 500 vpd from Expressway Bridge 1,000 vpd from Old Red Trail east of Collins	-	Low level of reduction in VMT. Crosses the Missouri River, Burnt Creek (intermittent stream), 2 intermittent streams, and is adjacent to 4 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover.	$90,000,000	Costs grown to 2014 dollars from 2035 LRTP	
R2	Connectivity	Southern Bridge Corridor between 46th Street in Mandan and 48th Avenue South in Bismarck	Southern crossing of Missouri River. New Structure likely over 1/2 mile long.	2035 LRTP	With I-94 Study assumptions (Expressway bridge crossing at 60 mph), carries 9,600 vpd. Diverts: 5,000 vpd from Expressway Bridge 2,500 vpd from Memorial Bridge	-	Crosses the Missouri River, 1 intermittent stream, 1 wetland, and is adjacent to 2 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover. Crosses Fort Abraham State Park	$111,000,000	Costs grown to 2014 dollars from 2035 LRTP	
R3	Connectivity	Northern Bridge Corridor near 34th Street in Morton County to 110th Avenue in Burleigh County	Far North bridge. Requires supporting arterial roadway investments along 110th Ave in Burleigh County and N-S in near Lake in Morton.		Carries approximately 25% less traffic than R1.	-	Crosses the Missouri River, Otter Creek (intermittent stream), Square Butte Creek (intermittent stream), 1 unnamed intermittent stream, 1 mapped wetland, and is adjacent to 2 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover. Crosses Eagles Park	$90,000,000	Similar costs to R1.	Not consistent with Northern Bridge Corridor Study or North-South Beltway Study.

Memo

To:	Steve Saunders Robin Werre LRTP Steering Committee
From:	Jason Carbee, HDR
Date:	August 22, 2014

envision2040
2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

RE: 2040 LRTP Transit Alternatives / Recommendations

This memorandum provides a summary of the transit alternatives we propose to carry forward for inclusion in the Bismarck-Mandan Long Range Transportation Plan (LRTP). A comprehensive transit planning study was completed for the Bismarck-Mandan metropolitan area within the last two years, the Bismarck-Mandan Transit Development Plan (TDP). The TDP was called *Mobility 2017: Transit Roadmap for Bismarck and Mandan*[1]. The study's main goal was to provide a review of transit services in the area, to promote a sustainable transit program, while keeping up with the demand. Mobility 2017 was similar in many ways to a Long Range Transportation Plan:

- It assessed the quality of service on the current system
- It looked at future trends
- Identified gaps / needs in service
- Developed a list of potential alternatives to address those needs
- Identified a locally-preferred, financially constrained implementation plan.

Mobility 2017 differed from the 2040 LRTP in that it was a 5-year transit study, consistent with the window often used for transit plans. As such, the *Mobility 2017* roadmap is the basis of the alternatives we plan to carry forward in the LRTP.

Mobility 2017 Transit Alternatives

Through the detailed analysis and public input process completed for *Mobility 2017*, recommendations were included that addressed both transit systems in Bismarck-Mandan: the fixed route bus system called Capital Area Transit (CAT) and the door-to-door demand response system called Bis-Man Paratransit.

Fixed Route Recommendations

Service expansion recommendations were developed that achieve the following objectives:

- Increase funding and improve service headways / frequencies to a minimum of 60 minutes during the midday, 30 minutes during peak times.
- Match service levels with demand, focusing on enhancing ridership rather than providing coverage throughout the region.

[1] *Mobility 2017: Transit roadmap for Bismarck and Mandan*, Final Report, February 2012.

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- Eliminate one-way loop routes. Bi-directional service provides the most direct routing and eliminates confusion associated with service that is provided in only one direction.
- Minimize or eliminate double transfers. With the exception of one route in north Bismarck, all routes would pulse into and out of a single transfer location.
- De-emphasize service to elementary and middle schools, allowing for school tripper service if necessary.
- Establish a transit hub in central Bismarck, with coordinated routes timed with minimized wait times.

The current CAT route system is shown in **Figure 1**. The recommended CAT route system (as provided in the *Mobility 2017* document) is shown in **Figure 2**.

Bis-Man Paratransit Service Recommendations

An area of emphasis in *Mobility 2017* is that enhancing the CAT fixed route service will benefit everyone, including many current users of the Bis-Man Paratransit service. Thus, it was recommended to fund improved CAT fixed route service by shifting some resources from paratransit to the fixed routes. These principals guided the paratransit service recommendations:

- People who are able to use CAT should use CAT; Bis-Man Paratransit should be considered a service or safety net limited to those whose disability prevents their use of CAT.
- Any cost savings resulting from curtailing the use of Bis-Man Paratransit by those who can use CAT should be dedicated to improving CAT.
- Any changes to Bis-Man Paratransit should be rolled out simultaneously with improvements to CAT and should be presented to the public as a comprehensive service enhancement plan.
- Revisions to Bis-Man Paratransit service policies or eligibility criteria should be phased in over time.
- Bis-Man Paratransit/CAT staff should develop a comprehensive public outreach and media campaign to inform and educate members of the public of proposed changes before and during the time any revisions are implemented, as well as closely informing its own Board of Directors of the tradeoffs involved.

Specific recommendations from *Mobility 2017* for paratransit service were:

- Maintain the high quality of service offered by Bis-Man Paratransit.
- Bis-Man Paratransit is encouraged to revise certification criteria to be consistent with ADA requirements. This means that eligibility for Bis-Man Paratransit should be based on whether or not the applicant has a disability that prevents use of fixed-route transit service.
- Bis-Man Paratransit should revise the eligibility process by which applications are reviewed and certified, and should consider an in-person assessment to carefully and thoroughly

document whether or not the applicant is able to use CAT and, if not, what conditions or circumstances prevents use of CAT. Some individuals may be deemed conditionally eligible, and could use Bis-Man Paratransit some of the time rather than all of the time.

- Bis-Man riders' eligibility status does not expire. It is reasonable to expect users of the service to recertify their eligibility status every few years.
- Bis-Man Paratransit should complement CAT. It should ideally operate within the same service area. Service to Lincoln and the University of Mary should be funded by these entities in order to continue to be provided.
- One alternative that would allow Bis-Man Paratransit to provide service where or when CAT does not operate would be to consider such trips as "premium service" and charge a premium fare.
- It is recommended that the transit system invest in the purchase of several (three or four) wheelchair-accessible taxi vehicles in order to provide more flexibility to the fleet and to improve mobility options for residents and visitors of the Bismarck-Mandan area.

Status of the Mobility 2017 Recommendations

Development of a downtown transit center is considered crucial to initiating the comprehensive set of transit alternatives presented above for the CAT fixed route bus system. Local efforts since the *Mobility 2017* report have focused on identifying a location for the downtown transit center and securing funding to construct it. As the recommendations from *Mobility 2017* have yet to be implemented, they are being carried forward in the 2040 Long Range Transportation Plan as the short-term alternatives for the transit system.

Longer-Term Illustrative Transit Alternatives

As noted in *Mobility 2017*, short-term system improvements should focus on enhance the services currently in place by improving service headways and improving service levels to enhance ridership. Longer term service expansions might include longer hours of operation and route extensions, once immediate system needs have been addressed. Based on the findings of *Mobility 2017*, our evaluation of the 2040 land development projections for the Bismarck-Mandan area, and the input received during our involvement process, there are several additional alternatives that should be considered during the longer-term years of the LRTP. Potential longer-term route extensions might include:

- **Extension of Bus Service to Lincoln**. As Lincoln continues to grow, and Bismarck continues to grow to the east and south, extension of a bus route to Lincoln might make sense in the future. At current densities and development patterns, it is expected that this route would be one of the lower-demand bus routes on the CAT system. If future development patterns included increased density and mixed uses, this route could be a more productive route from a ridership perspective. As the *Mobility 2017* report noted, identifying revenue for such extensions in the current funding environment is difficult, and some City of Lincoln funding would likely be required.

- **Extension of Bus Service to the University of Mary**. Student populations can often be a significant source of transit demand, and many members of the community have suggested extending bus service to the University of Mary campus. The campus lies approximately 4 miles south of the closest current CAT bus route. As with an extension to Lincoln, this route extension would likely require funding contributions from the University, potentially from student fees. Additional survey and data assessment is recommended before the route is implemented. The University is currently in a relatively rural setting south of Bismarck, with extensive on-campus parking available, and a relatively high level of students with an automobile on campus[2].
- **Extension of Bus Service into North Mandan.** New commercial and residential development is anticipated in North Mandan beyond the current Route D. If future development patterns would support it, a route extension might make sense in the future.
- **US 83 / State Street North Service Extension**. New commercial services, shopping, and employment continue to develop to the north of to 71st Street extension. The current assumption is that the density and level of development would be similar to current commercial development along State Street north of I-94, with potentially higher levels of office employment mixed in. As this development occurs, there might be expanded demand for transit service along US 83 / State Street.
- **Park and Ride Lots for Commuters.** As Bismarck-Mandan continues to grow and become a center for employment in the region, travel demand will increase, parking near dense employment centers may become more restricted and / or expensive, and commute trips will get longer; factors over time would make park and ride options more attractive. The concept is likely several years from being a significant program, but would be an effective tool in an overall “Travel Demand Management” strategy for the metropolitan area. In this option, satellite parking lots would be established on the periphery of the Bismarck-Mandan area that allow commuters to drive from home to the lot, park their vehicles and either carpool / rideshare or commute into the cities via some form of public transit from the lot. As the CAT system shifts to more direct routes with more frequent service, the park and ride transit option will be more attractive to some commuters in the future.

Discarded Transit Alternatives

Through the public and stakeholder input portions of the study, several suggestions were provided for transit route extensions into lower-density suburban areas of Bismarck and Mandan. Route extensions into these types of developments tend to yield very low ridership levels, and have the unfortunate side effect of making the route longer and spreading transit resources more thinly. The current priority for the transit system is to increase route productivity and ridership by making routes more direct with a shorter travel time and more frequent. Thus, many of these suggestions are inconsistent with the current CAT system objectives, and were not carried forward as a recommendation in the Long Range Transportation Plan.

[2] According to *US News and World Report* education rankings data, 95% of students on campus have cars. http://colleges.usnews.rankingsandreviews.com/best-colleges/university-of-mary-2992

Next Steps

Please review the recommendations in this memorandum, and verify if there is anything you would like to change. My plan would be to present the funding assessment provided in Mobility 2017, present some of the planning efforts that study included in developing these recommendations, and then provide these recommendations as the transit element of the Long Range Transportation Plan.

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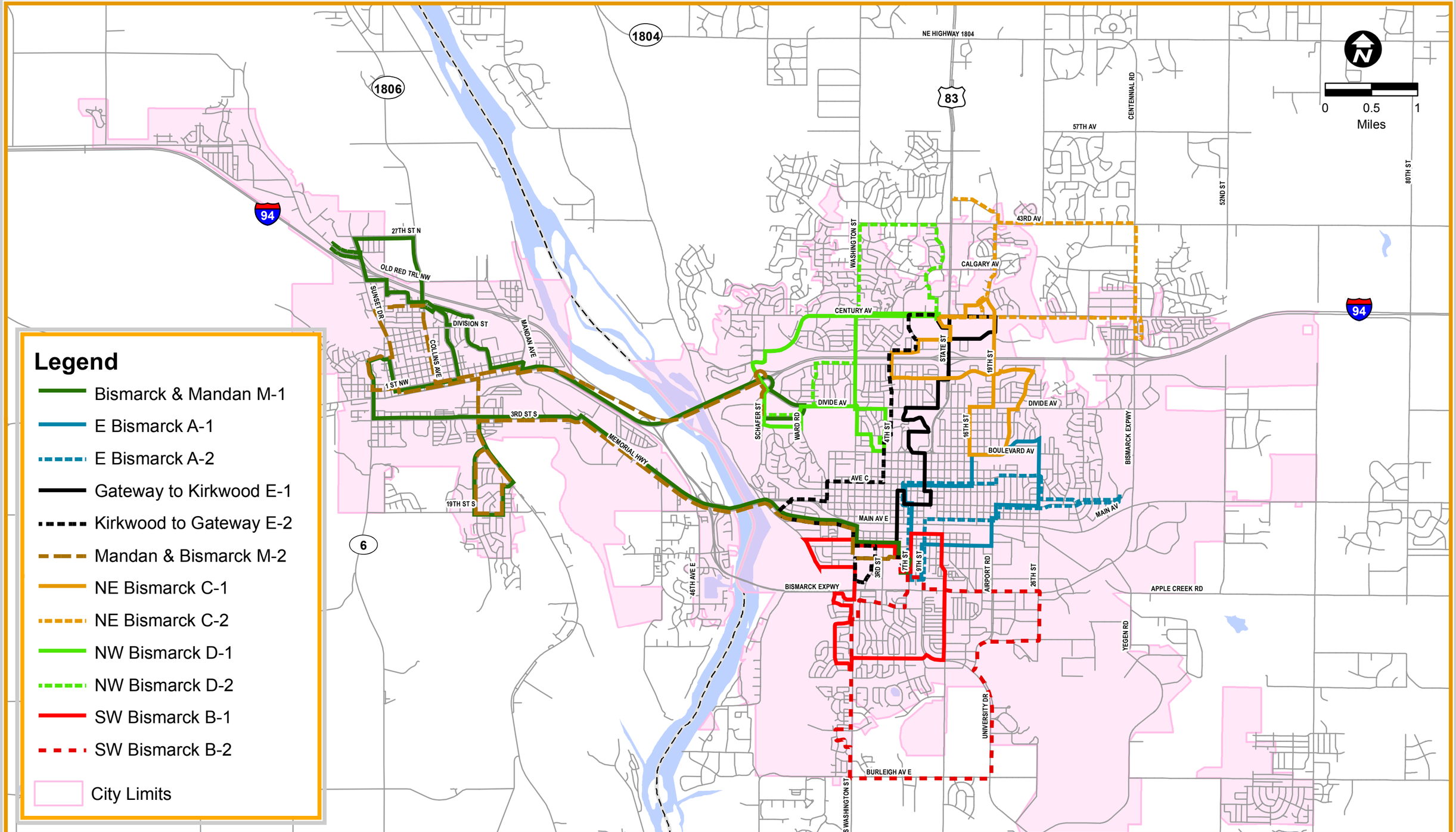


envision2040

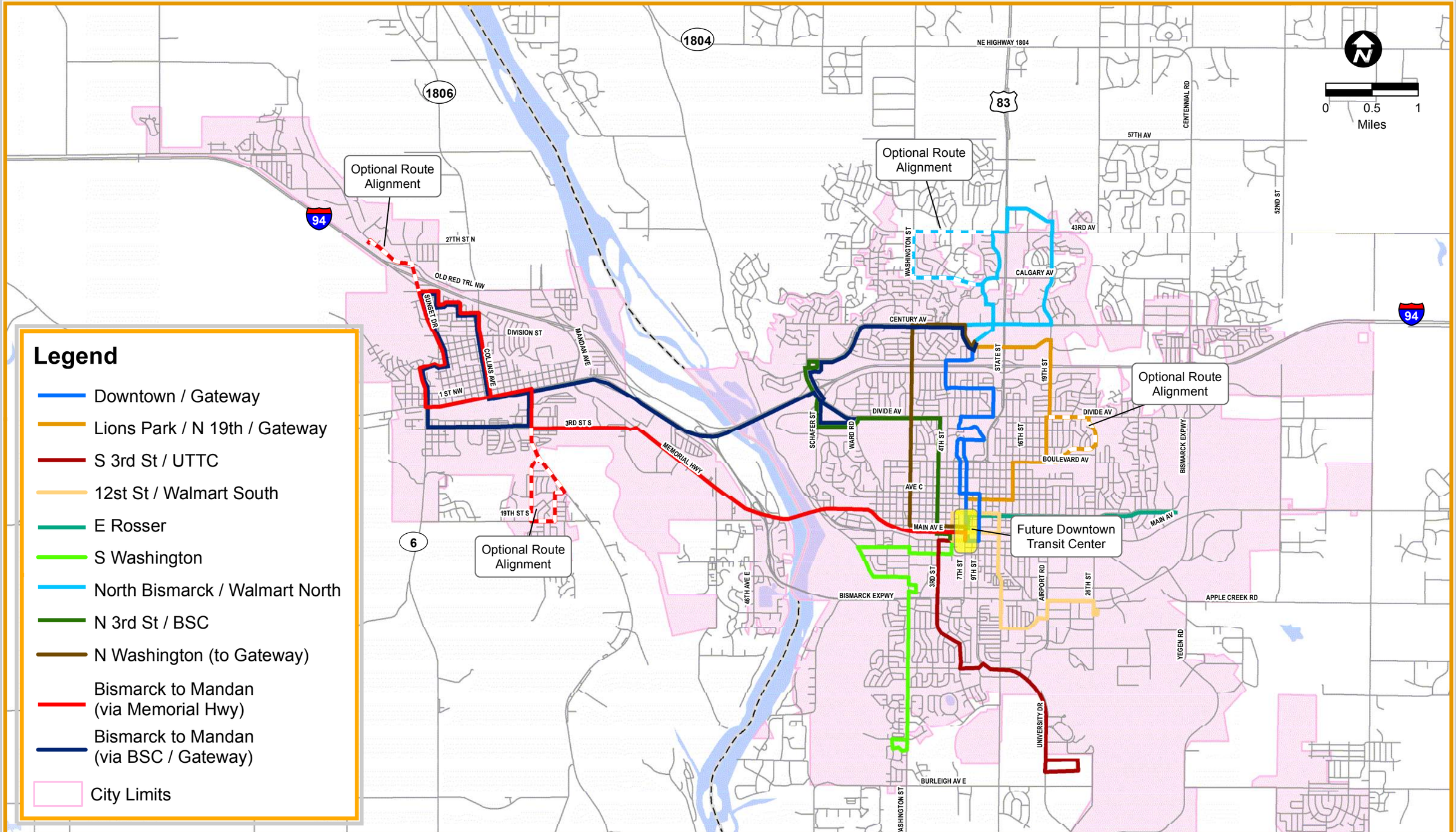
Sources: Bismarck-Mandan MPO GIS.

Current Capital Area Transit Bus Routes

Figure: 1

Date: Aug 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Source: Mobility 2017.

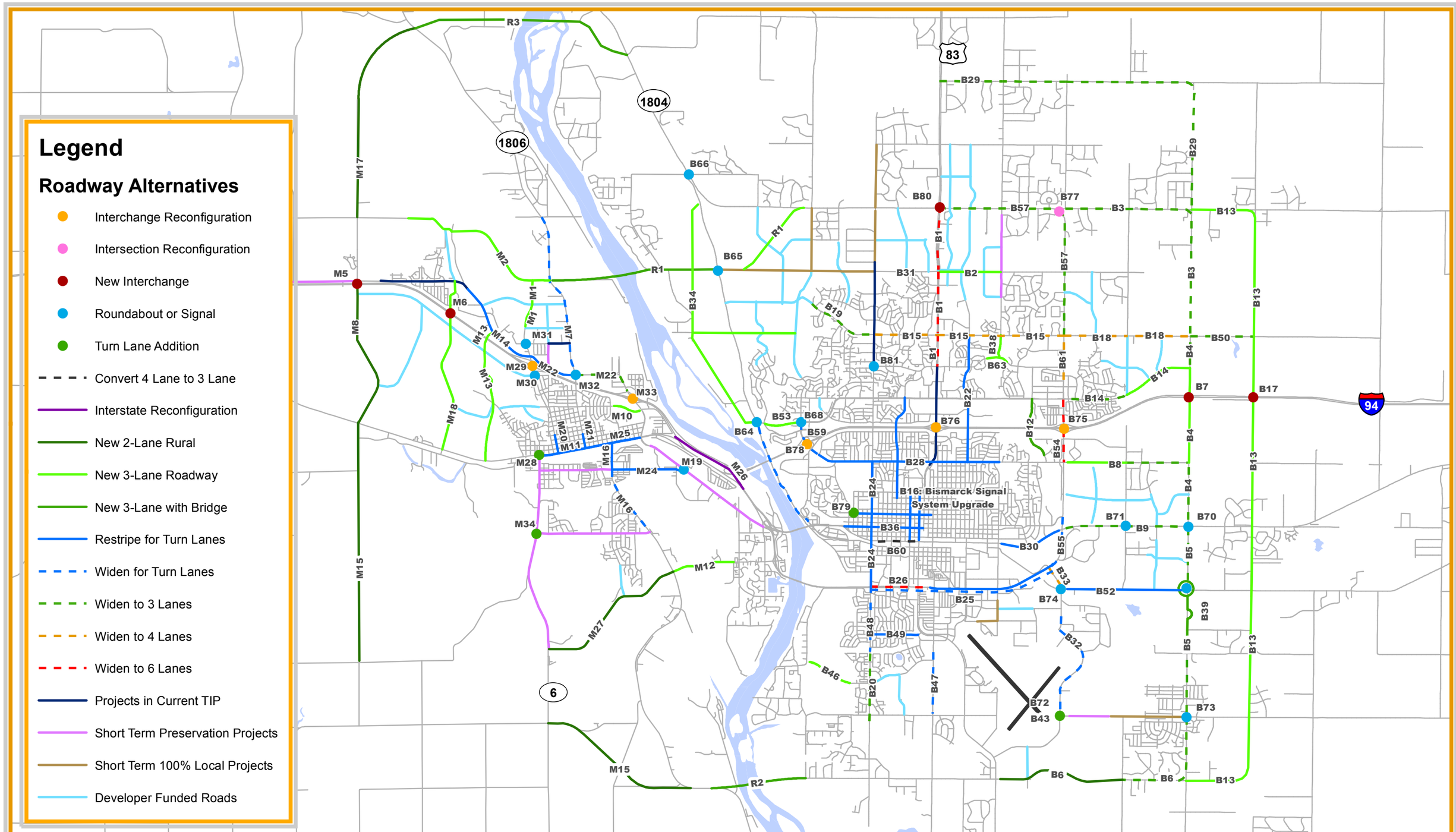
Recommended Capital Area Transit Bus Routes

Figure: 2

Date: Aug 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Roadway Alternatives Presented at September 17-18 Workshops



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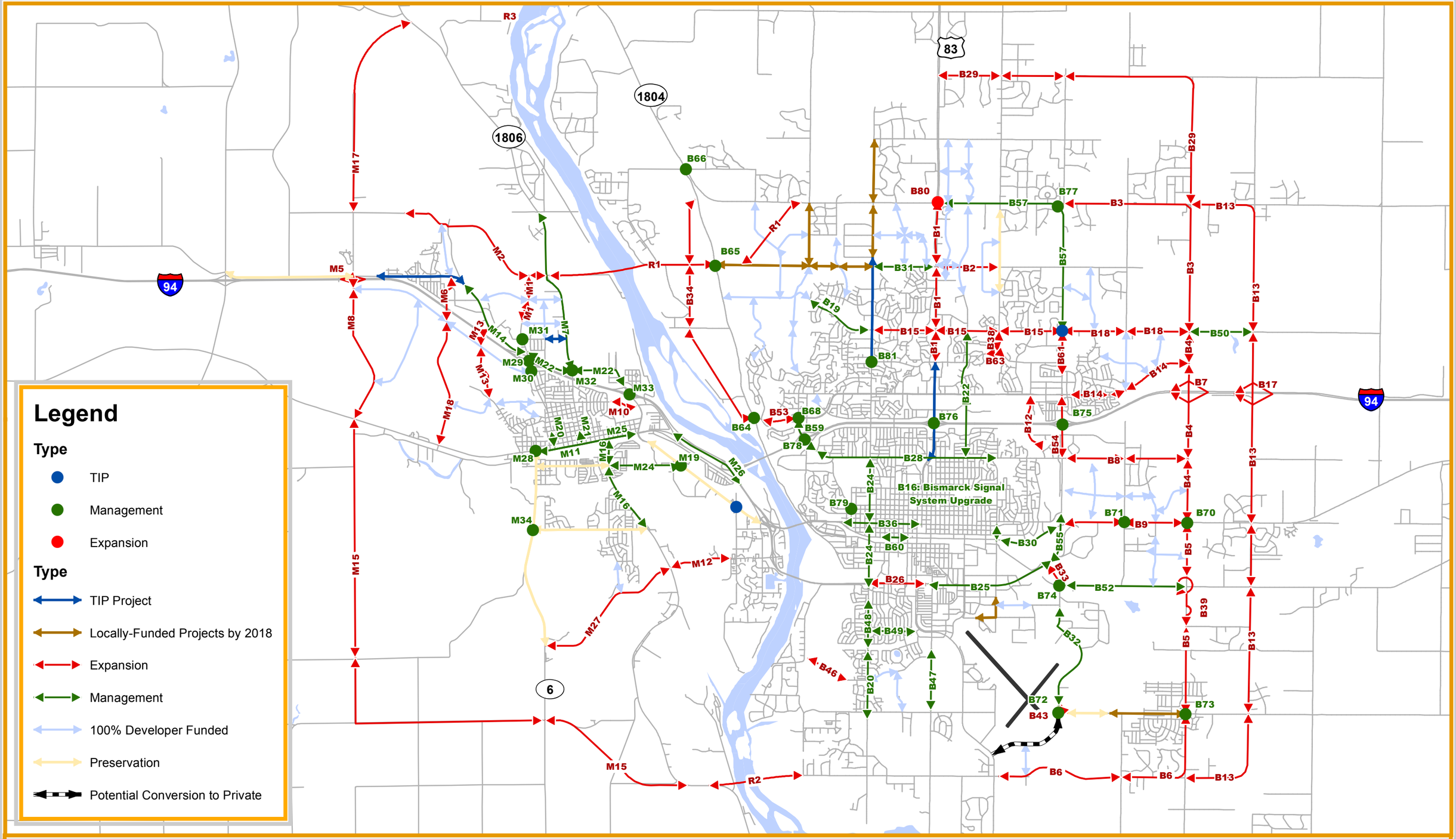
Revised Draft Roadway Alternatives List

Figure: 1

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Revised Draft Roadway Alternatives List

Figure: 1

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Table 1. Revised Roadway Alternatives Descriptions, September 4, 2014

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B1a	Congestion	State Street: 57th to 71st Street	Widen State St to 6 lanes to 71st St; likely widen from south to north in phases. Freeway concept discarded due to access impacts.		No-Build LOS F. Project provides LOS C/D through 2025; LOS D/E through 2040.	Reduced peak congestion levels should improve safety compared to no action in corridor. Corridor includes higher crash levels and injury crashes.	Reduces delays in corridor.	$11,000,000	1 mile of urban 6-lane widening. Likely constructed in 3 phases.
B1b	Congestion	State Street: 43rd to 57th St						$11,000,000	1 mile of urban 6-lane widening. Likely constructed in 3 phases.
B1c	Congestion	State Street: Calgary to 43rd Street						$5,500,000	0.5 miles of urban 6-lane widening. Likely constructed in 3 phases.
B2	Connectivity	57th Avenue: State Street to 26th Street	Extend 57th Ave as Arterial Roadway between US 83 / State St and 26th St. Likely 3-lane cross-section.		Segment would carry 5,000 to 10,000 vpd by 2040. Diverts: 1,500 vehicles per day (vpd) from 71st Ave 2,000 vpd from 43rd Ave 2,500 vpd from State St south of 57th. Moderate Traffic Improvement	-	Slight reduction in regional VMT compared to E+C scenario.	$1,500,000	1 mile of rural roadway.
B3	Connectivity	66th Street: 43rd Avenue to 71st Avenue 71st Street: Centennial Road to 66th Street	Construct 66th St from 43rd Ave to 71st Ave and 71st St from Centennial to 66th St as arterial / truck route for Beltway. Grade for 5-lanes, but initially build as a 3-lane rural roadway. Restrict full access points to 1/2 mile. Include trail with 3-lane widening.	North-South Beltway Study	With B4 and B7 interchange in place, this segment carries 6,000 to 10,000 by 2040. With access control, 3-lanes should provide LOS C through 2040. Diverts: 1,500 to 5,000 vpd from Centennial Rd 6,000 to 10,000 vpd from 80th St 2,000 to 9,000 vpd from 43rd Ave 4,000 vpd from Century east of Centennial	Improved safety for future traffic volumes compared to current 2-lane rural.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses 2 intermittent streams, adjacent to 1 Intermittent stream and 1 associated wetland	$7,400,000	4 miles of rural roadway reconstruction. 4 miles of paved trail.
B4	Connectivity	66th Street: Highway 10 / Main Avenue to 43rd Avenue (I-94 Crossing)	Extend 66th St as arterial roadway between Highway 10 and 43rd Ave with I-94 crossing. Restrict full access points to 1/2 mile. Grade for 4-lane divided, build bridge wide enough for 4-lanes, but initially build as a 2-lane rural roadway with turn lanes. Include trail with 3-lane widening.	North-South Beltway Study	Segment would carry 8,000 to 25,000 vpd by 2040 (without interchange). 2-lane segment provides LOS C through 2025. 4-lane divided segment likely required by 2040 between Century and Divide. Diverts: 4,000 to 9,000 vpd from Centennial Rd 12,000 to 14,000 vpd from 80th St	Would divert some traffic out of congested Centennial Road / Bismarck Expressway corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety along Centennial / Expressway.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses 1 intermittent stream, adjacent to 1 mapped wetland.	$8,850,000	3 miles of rural roadway reconstruction / new rural roadway. Includes bridge over I-94. 3 miles of paved trail.
B4b	Connectivity	66th Street: I-94 to 43rd Avenue	In longer term, widen 66th St to a 4-lane divided between I-94 interchange and 43rd Ave with I-94 crossing. Maintain access control.	North-South Beltway Study	As a 4-lane roadway, provides LOS C through 2040.	Would divert some traffic out of congested Centennial Road / Bismarck Expressway corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety along Centennial / Expressway.	Crosses 1 intermittent stream, adjacent to 1 mapped wetland.	$8,250,000	3/4 mile of 4-lane urban roadway.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B5	Congestion	66th Street: Lincoln Road to Highway 10 / Main Avenue	Reconstruct 66th St as a rural 2-lane road with turn lanes and shoulders between Lincoln Rd and Hwy 10. Restrict full access points to 1/2 mile. Reserve right-of-way for 5-lanes. Include trail with 3-lane widening.	North-South Beltway Study	With proper access control, 2-lane roadway with turn lanes at major intersections should provide LOS D or better through 2040. Diverts: 2,000 vpd from Lincoln Rd 1,000 -2,000 vpd from Yegen Rd	Improved safety for future traffic volumes compared to current 2-lane rural.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT. Crosses Apple Creek (perennial stream), 1 unnamed perennial stream in 2 locations, 2 intermittent streams, and is adjacent to 3 wetlands.	$10,545,000	1 mile of urban roadway, 2 miles of rural roadway reconstruction. 3 miles of paved trail.
B6	Connectivity	66th Street: Lincoln Road to 48th Avenue South 48th Avenue South: University Drive to 66th Street	SE Bismarck / Lincoln Beltway; Construct 48th Ave S as rural road between University and 66th; Reconstruct 66th as urban road 48th to Lincoln Rd. Include trail with 3-lane widening.	North-South Beltway Study	With proper access control, 2-lane roadway with turn lanes at major intersections should provide LOS D or better through 2040. Diverts: 5,000 vpd from Lincoln Rd 2,000 vpd from Yegen Rd 2,000-4,000 vpd from Apple Creek Rd	-	On its own, small improvement in regional VMT. Crosses Apple Creek (perennial stream) in 3 locations, 1 mapped wetland, and is adjacent to 7 mapped wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$10,280,000	4 miles of rural roadway reconstruction / new rural roadway. 4 miles of trail. 1 bridge over Hay Creek assumed. Assume roadwork is 100% airport funded west of 52nd Street.
B7	Connectivity	Interstate 94 @ 66th Street	New I-94 Interchange at 66th Street.	North-South Beltway Study / I-94 Corridor Study	With B4, B5 and B6 in place, requires 4-lane divided on 66th St between 43rd Ave and I-94 interchange. Interchange prevents need for widening East Divide to 4-lanes. Diverts: 4,000 - 8,000 vpd from Centennial at I-94 2,000 - 5,000 vpd from Centennial Yegen to Divide 10,000 vpd from 80th St 4,000 to 6,000 vpd from Main Ave east of Expressway	Would divert some traffic out of congested Centennial Road corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety in that corridor.	As part of East Beltway combination of projects, provides a significant reduction in regional VMT and VHT.	$13,950,000	Interchange less cost of bridge over I-94 (part of B4 costs)
B8a	Congestion	Divide Avenue: Bismarck Expressway to 52nd Street	Extend Divide as a 3-lane urban arterial from Expressway to 52nd Street; adjacent to future industrial and urban residential	2035 LRTP	4-lane arterial required between 52nd and Expressway by 2040if 66th St interchange is not in place. Diverts: 10,000 or more vpd from old E Divide Ave (into Industrial Area) 6,000 to 10,000 vpd from Main Ave east of Expressway	-	Provides small improvement to regional VMT. Crosses 1 intermittent stream in 2 locations, 1 mapped wetland, and is adjacent to 2 mapped wetlands.	$6,000,000	1 mile of urban 3-lane.
B8b	Congestion	Divide Avenue: 52nd Street to 66th Street	Improve Divide as a 2-lane rural road with turn lanes from 52nd Street to 66th Street.		2-lane rural east of 52nd. 4-lane not required			$1,500,000	$0
B9	Congestion	Main Avenue / Highway: Bismarck Expressway to 66th Street	Widen Main Ave / Highway 10 as 4-lane divided arterial between Expressway and 66th.		Project not required with I-94 interchange and 66th St improvements. Alternative is intersection improvements and access control or 3-lane urban widening.	Expected to improve safety compared to no improvements in corridor. Injury crashes in corridor.	Crosses 1 intermittent stream in 2 locations, 1 intermittent stream in 1 location, 1 wetland, and is adjacent to 6 wetlands.	$12,000,000	2 miles of rural 4-lane widening.
B10	Congestion / Safety	Lincoln Road: 52nd Street to 66th Street	Lincoln Rd management improvements with new turn lanes, a roundabout @ 52nd, crosswalk at McDougall, trail and paved shoulders.	Lincoln Rd Corridor Study	Improvement would provide LOS C capacity through 2040 in Lincoln. Delays and safety concerns at intersections by 2040 in no-build.	Expected to improve safety compared to no improvements in corridor.		$3,260,000	Costs from Lincoln Road Corridor Study grown to 2014 dollars.
B11	Connectivity	52nd Street: Century Avenue to 43rd Avenue	Extend 52nd Street as an arterial roadway between Century and 43rd Avenue.	2035 LRTP	2-lane arterial provides LOS C through 2040.	-		$5,400,000	0.9 miles of urban roadway.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B12	Connectivity	Hamilton Street: Century Avenue to Divide Avenue (I-94 Crossing)	I94 crossing connection between Century and Divide at Hamilton St - use Calgary as Hamilton to Nebraska Dr connection, which provides collector access to 43rd Ave.		Carries approximately 10,000 vpd by 2040. LOS C with 2-lane arterial with access control. Diverts: 2,000 - 3,00 vpd from Centennial 3,000 - 4,000 vpd from State St 1,000 vpd from 19th St	Would divert some traffic out of congested Centennial Road corridor - currently includes some higher crash frequency and injury crash intersections. Expected to improve safety in that corridor.	Provides small improvement to regional VMT / VHT. Crosses 1 intermittent stream	$8,900,000	.9 miles of urban 3-lane and bridge over I-94. I-94 bridge over Hamilton is also possible.
B13	Connectivity	80th Street: 71st Avenue to 48th Avenue South	Alternate Beltway Alignment (instead of 66th St) along 80th Street.		Somewhat less diversion than 66th St alignment, additional travel distance required.	Expected to improve safety compared to no improvements in corridor.	Smaller VMT / VHT benefits than 66th Street corridor. Crosses Apple Creek (perennial stream), 5 intermittent streams, 2 mapped wetlands, and is adjacent to 14 mapped wetlands Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$20,600,000	11 miles of rural 2-lane, bridge over I-94.
B14	Connectivity	Century Avenue: Centennial Road to 66th Street	Extend Century Ave as a 3-Lane urban arterial between Centennial and 66th St to support development / traffic growth. Reconstruct to 52nd, new road 52nd to 66th. Reserve ROW for 5-lanes in future.	2035 LRTP	LOS C as 3-lane roadway if 66th Street interchange is built. Diverts 2,000 - 5,000 vpd from 43rd east of Centennial.	Would divert some traffic out of congested 43rd corridor, expected to improve safety in that corridor.	Provides small improvement to regional VMT. Larger benefit to VHT. Crosses 1 intermittent stream	$14,040,000	0.6 miles of 3-lane urban widening, 1.4 miles of new urban 3-lane. Development driven projet - assume some portion is development funded.
B15a	Congestion / Safety	43rd Avenue: Washington Street to State St	Widen 43rd Ave as 4-Lane Divided Urban Roadway between Washington and State St, include bike / pedestrian trail.	43rd Avenue Corridor Study	Improvements would provide LOS C or better through 2040.	Expected to improve safety compared to no improvements in corridor.		$11,000,000	1 mile of Urban arterial widening with trail
B15b	Congestion / Safety	43rd Avenue: State St to 26th St	Widen 43rd Ave as 4-Lane Divided Urban Roadway between State St and 26th St, include bike / pedestrian trail.	43rd Avenue Corridor Study	Improvements would provide LOS C or better through 2040.	Expected to improve safety compared to no improvements in corridor.		$14,000,000	1 mile of Urban arterial widening with trail. Higher costs for hill, RR crossing and culvert.
B15c	Congestion / Safety	43rd Avenue: 26th St to Centennial Road	Widen 43rd Ave as 4-Lane Divided Urban Roadway between 26th and Centennial, include bike / pedestrian trail.	43rd Avenue Corridor Study	Improvements would provide LOS C or better through 2040.	Expected to improve safety compared to no improvements in corridor. With other adjacent improvements, 5-lane widening might not be needed by 2040.		$11,000,000	1 mile of Urban arterial widening with trail
B16	Congestion / Safety	Bismarck Signal System Upgrades and Traffic Management Center. Corridors: Washington St, Bismarck Expressway, State St, Rosser St, 43rd Ave	Comprehensive signal system upgrades in key urban corridors. Implement Traffic Management Center and complete fiber optic connections in these corridors, including new signal cabinets, software, pan-tilt-zoom cameras (in some corridors). First implement traffic signal master plan and communications plan.		Signal upgrades and timing improvements would improve peak hour delays 10%-15%. High return on investment when comparing delay reduction compared to cost.	-		$4,000,000	City of Bismarck costs.
B17	Connectivity	Interstate 94 @ 80th Street	80th St / I-94 interchange as western option to 66th St interchange.		Less traffic diversion than 66th St alignment, additional travel distance required.	-	Smaller VMT / VHT benefits than 66th Street corridor. Crosses 1 intermittent stream in 2 locations	$13,950,000	Interchange less cost of bridge over I-94 (part of B13 costs)

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B18a	Congestion	43rd Avenue: Centennial Road to 52nd Street	Widen 43rd Ave as 4-Lane Divided Roadway between Centennial and 66th, include bike / pedestrian trail.	43rd Avenue Corridor Study	With no widening and good access control, segment would operate between LOS E / F by 2040 with intersection improvements only. Century Extension (B14) and 66th St interchange (B7 & B4) would improve segment to LOS E with intersection improvements only.	Expected to improve safety compared to no improvements in corridor.	Moderate regional benefit due to VHT improvement. Crosses 2 intermittent streams	$11,000,000	1-mile of 4-lane urban arterial widening.
B18b		43rd Avenue: 52nd Street to 66th Street						$11,000,000	1-mile of 4-lane urban arterial widening.
B19	Congestion	Ash Coulee Drive	Widen Ash Coulee as a 3-lane urban minor arterial. Include bike / pedestrian trail.	43rd Avenue Corridor Study	Provides LOS C through 2040.	Addition of a left-turn lane is expected to improve safety in corridor.		$6,600,000	1.1 miles of 3-lane urban reconstruction / widening.
B20	Access / Congestion	Washington Street: Drainage Channel to Burleigh Avenue	Reconstruct South Washington as a 3-lane urban arterial south of drainage channel (where current 4-lane section ends) to Burleigh Ave.		With proper access control, provides LOS C through 2040. Assume new signalized intersection north of Burleigh Ave.	Addition of a left-turn lane is expected to improve safety in corridor.		$6,000,000	1 mile of 3-lane urban reconstruction / widening.
B21	Connectivity	Tyler Parkway: Valley Drive to 64th Street	Extend Tyler Parkway as 3-lane urban minor arterial from Valley Dr to 64th Ave. Alignment could change according to terrain and development. County is currently extending Tyler Parkway in phases to north. Expected to be completed to 57th Ave by 2018.	Northwest Bismarck Subarea Study	Carries 5,000 - 10,000 vpd by 2040, LOS C. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses 2 intermittent streams, adjacent to 2 mapped wetlands	$750,000	Development Driven
B22a	Congestion	19th Street: Divide Avenue to Century Avenue	Restripe for 3-lanes through this section. Add northbound right-turn lane at Shiloh School.		Expected to improve operations and safety for turning traffic along 19th St for cross-streets and driveways. No improvement at Divide / 19th intersection from this alternative.	Addition of turn lanes is expected to improve safety in corridor.		$500,000	1 new turn lane, signing and pavement markings for 1 mile. Added cost for utilities south of Shiloh.
B22b		19th Street:Century Avenue to 43rd Avenue	Restripe 19th Street as 3-lanes between Divide and Koch Ave (1/4 mile south of 43rd Ave). Reconstruct to 3-lane urban between Koch Ave and 43rd Ave.					$1,600,000	Signing and restriping lanes for 1 mile. Urban reconstruction north of Koch.
B23	Connectivity	57th Avenue: Washington Street to River Road	Extend 57th Ave between Washington and River Rd as a 3-lane or 5-lane arterial roadway. County will complete first 1/2 mile of this segment west of Washington in 2014.	Northwest Bismarck Subarea Study	Carries 3,000 to 12,000 vpd. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream), 1 unnamed intermittent stream, adjacent to 1 mapped wetland	$4,875,000	2 miles of new 2-lane rural. Likely 3 phases. Higher costs due to difficult terrain.
B24	Congestion	Washington Street: Calgary Avenue to Bismarck Expressway	Upgrade corridor signal system and timing improvements in Washington St corridor from Calgary to Expressway. At turn lanes Calgary to Century. Stripe for 3-lane from Century to Avenue D, add turn lanes at key intersections south of Ave D. Potential on-street parking removal south of Divide. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Signal upgrades and timing improvements would improve peak hour delays 10%-15%. Still LOS D/E in corridor.	Signalization and addition of turn lanes is expected to improve safety in corridor - portions of corridor are higher crash frequency with injury crashes.		$280,000	Approximately $20,000 per signal upgrade for new cabinets, controller upgrade and new fiber. 1-mile of restriping.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B25	Congestion / Safety	Bismarck Expressway: 12th Street to Yegen Road	3/4 Access Control along Bismarck Expressway and widening at Airport Rd for right-turn lanes for Freight access.		Minor improvement to traffic operations.	Expected safety improvement for angle crashes; some intersections have higher crash frequencies.		$1,500,000	2 turn lanes, intersection reconstruction for access control. Assume $1M in right-of-way costs
B26	Congestion / Safety	Bismarck Expressway: Washington Street to 12th Street	Widen Bismarck Expressway to 6-lane divided between Washington and 12th St per Bismarck Expressway Study. Property impacts expected.	Bismarck Expressway Corridor Study	Will provide LOS C operations through 2040.	Expected improvement to safety for high crash and injury crash corridor. Some concerns for pedestrian crossings due to wider roadway.		$24,000,000	1 miles of 6-lane widening, right-of-way acquisition.
B28	Congestion	Divide Avenue: Turnpike Avenue to 26th Street	Restripe Divide Avenue as a 3-lane roadway between Turnpike and 26th Street. Evaluate on-street bike integration options - requires removal of on-street parking. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Improves traffic operations from LOS E/F to LOS D by 2040.	Expected to improve safety compared to no improvements in corridor.		$290,000	2.9 miles of restriping / signing.
B29	Connectivity	97th Avenue: US 83 to 66th Street 66th Street: 71st Avenue to 97th Avenue	Optional north extension of Beltway utilizing 97th Ave instead of 71st - from Focus Group. Truck / route arterial concept farther from Bismarck.		Somewhat less diversion than 71st St connection.	-	Crosses Hay Creek (intermittent stream), 2 unnamed intermittent streams, 1 wetland, and is adjacent to 5 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$9,000,000	6 miles of new rural 2-lane / reconstructed rural 2-lane.
B30	Congestion	Main Avenue: 26th Street to Bismarck Expressway	Add turn lanes at key Main Ave locations east of 26th Street, including Eastdale.	2035 LRTP	Should provide LOS C for segment through 2040.	Expected to improve safety compared to no improvements in corridor.		$600,000	Assumes 3 new turn lanes constructed.
B31	Connectivity	57th Avenue: Washington Street to State Street	57th Avenue was constructed as a two-lane rural street between Washington St and State St in 2014. Alternative would add turn lanes to this rural section.	2035 LRTP	Operations at LOS C by 2040. With Project B23 in place, traffic demand much higher in this corridor and operations decline to LOS F by 2040.	Expected to improve safety compared to no improvements in corridor.		$800,000	Assumes 4 new turn lanes constructed.
B32	Congestion / Access	Yegen Road: Lincoln Road to Morrison Avenue	Add turn lanes on Yegen Rd at key intersections between Lincoln Rd and Morrison Ave		Provides LOS C through 2040.	Expected to improve safety compared to no improvements in corridor.		$1,200,000	Assumes 6 new turn lanes constructed.
B33	Congestion	Yegen Road: Bismarck Expressway to Apple Creek Road	Widen Yegen Road to 4-lane Roadway with turn lanes between Apple Creek and Expressway	Lincoln-Bismarck Connection Study	Provides LOS C through 2040. Project not necessary with 66th St beltway.	Expected to improve safety compared to no improvements in corridor.		$2,400,000	Assumes 0.4 miles of rural roadway widening.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
B34	Connectivity	Fernwood Drive: 71st Avenue / Highway 1804 to Burnt Boat	Fernwood Drive extended as 2-lane rural arterial roadway to relieve River Rd between Burnt Boat and 71st St.	Northwest Bismarck Subarea Study, River Road Study	Fernwood as rural 2-lane with turn lanes at major intersections. Would divert most through traffic from River Road to improve operations. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream) in 2 locations, 1 unnamed intermittent stream, adjacent to 5 mapped wetlands. Adjacent to the Missouri River. Runs adjacent to Missouri River. Listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish	$5,850,000	3.9 miles of new 2-lane rural roadway. Likely constructed in 3 phases.
B36	Congestion	Rosser Avenue: Main Avenue to Washington St	Upgrade Rosser signal system. Restripe Rosser for 3-lanes between Main Ave and Washington St. With on-street bike routes, would require on-street parking removal. Evaluate implementation plan in low-cost urban corridor study.		Improve operations to LOS D or better in corridor by 2040.	Expected to improve safety by separating turning traffic from through traffic.		$180,000	Signal upgrades (7) and 0.4 miles of restriping for center left-turn lane.
B37	Congestion	4th Street: Century Avenue to Boulevard Avenue	4th St signal timing improvements, stripe turn lanes at key intersections, potential new signal at Turnpike. On-street parking restrictions at locations of turn lane restriping. Evaluate implementation plan in low-cost urban corridor study.	2035 LRTP	Improve operations to LOS D in corridor by 2040. Signals are relatively spread out - limited benefits from signal timing improvements.	Expected to improve safety by separating turning traffic from through traffic.		$450,000	Assume 1 new signal and 0.5 miles of restriping.
B38	Connectivity	26th Street: Calgary Avenue to 43rd Avenue	Extend 26th St as 2-lane arterial between Calgary and 43rd Ave.	2035 LRTP	Some traffic diversion benefits for 19th St and Centennial.	-		$2,500,000	Assume 1/3 mile of new urban 3-lane roadway.
B39	Connectivity	66th Street at BNSF Railroad	Provide grade separation of 66th Street from BNSF railroad- anticipate 4-lane bridge. Realign 66th Street and construct with Apple Creek / 66th Street roundabout.	Lincoln-Bismarck Connection Study	12,300 ADT by 2040 - latest information is 30 trains / day use BNSF line. Max train speed here is 60 mph. Exposure index is relatively high.	Reduces autos, bicycle and pedestrian exposure to BNSF trains. No identified car-train crashes in 2010 to 2012 period.		$10,600,000	Cost estimate from County - requires realignment, right-of-way acquisition, new structure and roundabout.
B42	Congestion	Washington Street: 57th Street to 71st Street / Highway 1804	Reconstruct Washington as a 3-lane roadway between 57th St and 71st St / Highway 1804. County currently extending Washington north of 71st to tie into 84th Street.	2035 LRTP	With northwest Bismarck improvements in place, this project provides LOS C traffic operations through 2040 with proper access control.	Expected to improve safety by separating turning traffic from through traffic.	Note: This project was added back as a Federal-Aid alternative later in the LRTP.	$0	County will widen this to 3-lane rural roadway by 2018, using county funding.
B43	Connectivity	Lincoln Road at Yegen Road	Intersection improvements to emphasize connection between north leg (Yegan Rd) and east leg (Lincoln Rd)	Lincoln-Bismarck Connection Study	Eliminate stop for north leg - east leg connection improves traffic flow here. LOS C through 2040.	Limited safety effects.		$300,000	Assume 0.2 miles of new rural 2-lane for re-worked curve.
B44	Congestion	Avenue C: Ward Rd to 3rd Street	Restripe Avenue C for left-turn lanes at major intersections including Ward Rd and EB 3rd St. On-Street parking removal at locations of turn lane restriping.		Restriping only in targeted locations - improves operations slightly.	Expected to improve safety by separating turning traffic from through traffic.		$20,000	Assume 0.2 miles restriping / signing.

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B45	Congestion / Safety	Interstate Ave Extension to Country West. Once Complete, Restrict Left Turns at Century Ave / Country West	Extend Interstate Avenue to Country West Road and convert Country West / Century Ave to right-in, right-out access after Interstate Ave extension.		Improvement to traffic operations on Country West Drive. Safety improvements should reduce angle crashes.	Expected to improve safety by managing access and limiting turning traffic.		$1,500,000	0.2 miles of urban 3-lane roadway.
B46	Connectivity	London Avenue: Riverwood Road to Washington Street	Extend London Ave between Riverwood and Washington; constructability issues.	2035 LRTP	Minor traffic benefits, connection serves area adjacent to river with limited projected housing growth.	-	Crosses 1 intermittent stream, 1 mapped wetland, and is adjacent to 5 wetlands. Park District concerns noted.	$1,125,000	Assume 3/4 mile of new 2-lane rural roadway.
B47	Congestion	12th Street: Santa Fe Avenue to Burleigh Avenue	In long term, consider adding turn lanes on 12th St at Santa Fe and Burleigh Ave. On-street parking restrictions at locations of turn lane restriping.		Improves traffic operations to LOS C, improves safety.	Expected to improve safety by separating turning traffic from through traffic.		$800,000	Add 4 turn lanes.
B48A	Safety	Washington Street: Denver Avenue to Drainage Channel	In the near term, consider restriping Washington south of Reno as 3-lane roadway. Capacity issues are likely to arise closer to 2030 or 2040. Evaluate implementation plan in low-cost urban corridor study.		3-lane provides sufficient capacity through 2025. 3-lane fails by 2040 - 5-lane alternative provides LOS C through 2040.	3-lane sections typically are safer treatments than 4-lane sections without turn lanes.		$70,000	0.7 miles of restriping / signing.
B48B	Congestion	Washington Street: Denver Avenue to Drainage Channel	In long term, restore 4-lane cross-section and widen at Wachter and Reno signalized intersections to add turn lanes.		5-lane alternative provides LOS C through 2040.	Reduced peak congestion levels should improve safety compared to no action in corridor.		$1,200,000	Assume 6 new turn lanes for 4-lane section.
B49	Congestion	Wachter Avenue: Washington Street to University Avenue	Add left turn lanes on Wachter at collector intersections for future traffic growth. On-street parking restrictions at locations of turn lane restriping.		Provides LOS C through 2040.	Expected to improve safety by separating turning traffic from through traffic.		$20,000	0.2 miles of restriping / signing.
B50	Congestion	43rd Avenue: 66th Street to 80th Street	43rd Ave - Add turn lanes at 66th, 80th and 1/2 mile collector intersection (73rd St?).	43rd Avenue Corridor Study	With 66th Street improvements (B4 and B7), provides LOS C through 2040.	Expected to improve safety by separating turning traffic from through traffic.	Crosses 1 intermittent stream, adjacent to 1 pond/wetland, and is adjacent to 5 other wetlands.	$1,200,000	Assume 6 new turn lanes.
B51	Connectivity	43rd Avenue: Fernwood Drive to Tyler Parkway	43rd Avenue as a rural 2-lane arterial between proposed Fernwood and Tyler Pkwy.	Northwest Bismarck Subarea Study	Provides LOS C through 2040. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	-	As part of Northwest Bismarck arterial roadway combination of projects, provides a moderate reduction in regional VMT and VHT. Crosses Burnt Creek (intermittent stream), 1 intermittent stream, and is adjacent to 1 mapped wetland.	$3,650,000	1.6 miles of new 2-lane rural. Likely construct in 2 phases. Higher costs due to difficult terrain.
B52	Congestion	Apple Creek Road: Yegen Road to 66th Street	Focus on TSM options along Apple Creek due to floodway issues. Turn lanes and intersection improvements at 66th, 55th, 52nd and Yegen.		Stand alone, provides LOS C through 2040. Main Ave / Hwy 10 and 66th St improvements would divert sufficient traffic from Apple Creek that only turn lanes at 52nd / Apple Creek are needed by 2040.	Expected to improve safety by separating turning traffic from through traffic.	Crosses Hay Creek (perennial stream), 1 unnamed perennial stream, 1 unnamed intermittent stream, is adjacent to 5 mapped wetlands.	$400,000	This project accounts for 2 turn lane addition - 1 at 52nd and 1 at 55th.

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B53	Connectivity	Century Avenue: Tyler Parkway to River Road	Extend Century Ave west of Tyler Parkway as a 2-lane roadway to River Road. Reserve sufficient right-of-way for 4-lane roadway.	Northwest Bismarck Subarea Study	Provides LOS C through 2040. All Northwest Subarea projects combined divert: 2,000 - 4,00 vpd from State St 2,000 - 4,000 vpd from River Rd 2,000 - 3,000 vpd from 43rd Ave W of State St 2,000 to 6,000 vpd from Highway 1804 west of US 83	Converting Century - Tyler into a 4-legged intersection and moving traffic from Burnt Boat to Century west of Tyler has the potential to improve safety along Tyler Parkway.	Significant public opposition to this alternative during Northwest Bismarck Subarea study.	$3,750,000	Assume 1/2 mile of new urban 2-lane roadway.
B54	Congestion	Bismarck Expressway: Century Avenue to Divide Avenue (New Location)	Widen Bismarck Expressway to 6-lanes between Century Ave and Divide Ave for high future traffic levels.	2035 LRTP	Provides LOS C through 2040. With 66th Street crossing and interchange, and a reconfigured Centennial interchange (B75), segment operates at LOS E in 2040 without B54 improvements.	Reduced congestion should improve safety, increased crossing distance for pedestrians is a potential concern. Consider safety neutral.		$11,000,000	Assume 1-mile of 6-lane urban roadway.
B55	Congestion / Freight	Bismarck Expressway: Yegen Road to Main Avenue	Bismarck Expressway - Future Dual SB Left Turn Lanes at Hwy 10; acceleration lane coming out of Yegen to Northbound Expressway. Add SB Right Turn lane at Main Ave.		Improves operations at intersection by 2040; with 66th St (B4, B5, B7) improvements and Divide Ave Extension (B8), corridor will operate at LOS C through 2040.	Expected to provide some improvement to safety in corridor.		$800,000	Add 3 turn lanes - signal adjustment costs.
B56	Congestion	7th Street: Boulevard Avenue to Main Avenue 9th Street: Boulevard Avenue to Main Avenue	Signal timing improvements along 7th / 9th pair. Restripe turn lanes in select locations, including 7th Street / Avenue C.		Optimization study should provide low-cost improvement in corridor. 5-10% reduction in delays during peaks. Lower priority for signal system upgrades.	Minimal safety benefits.		$0	No costs - improvement options limited.
B57	Congestion	71st Avenue: State Street / US 83 to Centennial Road Centennial Road: 71st Avenue to 43rd Ave	Widen 71st Ave / Centennial Rd to 3-lane roadway, improve access control similar to 71st and Centennial study. Trail adjacent to roadway.	71st Street and Centennial Road Study	Should provide LOS C for segment through 2040.	Expected to improve safety by separating turning traffic from through traffic and reducing congestion.		$10,200,000	Costs taken from 2035 LRTP and grown to 2014 dollars.
B58	Congestion	River Road: Burnt Boat Road to Fraine Barracks	Add turn lanes at River Rd intersections between Burnt Boat and Fraine Barracks.		Limited turning traffic into driveways along this segment; low potential for improved operations. Widening not practical.	Minimal safety benefits.		$0	No costs - improvement options limited.
B59	Congestion / Safety	Tyler Parkway: Century Avenue to Schafer St	Safety improvements on Tyler Parkway with turn lane additions. Signal timing improvements / potentially adaptive signal system. Safety / geometrics study recommended. Recommend additional study as part of Signal System Master Plan and Low-Cost Urban Streets Study.	I-94 Corridor Study	Limited ability for substantial improvements in this corridor. No-Build in 2040 is LOS E/F. Likely LOS D/E attainable by 2040 with turn lane additions. Adaptive signal system from Interstate Ave / Century Ave to Schafer / Divide Ave might be beneficial with variable traffic due to retail and college in corridor.	Potential for improved traffic safety in a high crash frequency corridor.		$600,000	Costs from I-94 study
B60	Connectivity	Main Avenue: 1st Street to 7th Street	Restripe Main Ave as 3-lane roadway with bike lanes between 1st St and 6th St, pedestrian and streetscape improvements per Downtown Bismarck Study.	Downtown Study	LOS D/E between 3rd and 9th by 2040 as a 3-lane section. Safety improvement over 4-lane section.	Expected to improve safety by separating turning traffic from through traffic.		$3,500,000	Costs from Downtown Bismarck Study

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B61	Congestion	Centennial Road: Jericho Road to 43rd Avenue	Widen Centennial to 4-lane urban divided roadway between Jericho and 43rd Avenue in long term. Near term County project will widen this segment to 3-lanes.		66th Street project has limited diversion for Centennial north of Century. Project provides LOS D through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$9,350,000	0.85 miles of urban roadway widened to 4-lane divided.
B62	Airport Expansion	Yegen Road: University Avenue to Lincoln Road	Vacation of Airway Avenue / Yegen Road south and west of Lincoln Rd for Airport expansion - from Airport Master Plan. Convert to private use for access to ND National Guard property.	Airport Master Plan	Loss of through traffic on Yegen diverts an extra 1,000 Yegen Road west of Airport to Bismarck Expressway. S 48th extension (B6) carries 8,000 vpd.	-		$0	No costs
B63	Connectivity	Calgary Avenue at DMVW Railroad and Hay Creek	Extend Calgary Avenue across DMVW Railroad and Hay Creek. Assume at-grade crossing. Bridge over DMVW and Hay Creek very expensive for a collector street.	2035 LRTP	Completes NE Bismarck collector connection. Provides moderate traffic benefit to Century Ave and 43rd Ave.	-	Provides direct route in neighborhood, some reduction on VMT.	$2,500,000	1/3 mile of new urban roadway.
B64	Congestion / safety	Burnt Boat / River Road Intersection	1-lane roundabout or traffic signal at River Rd and Burnt Boat. Warranted in near to mid-term.		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown
B65	Congestion / Safety	Burnt Creek Loop South (57th Avenue) / River Road Intersection	1-lane roundabout or rural signal with advanced warning at River Rd / Burnt Creek Loop South. Implemented only if B23 and / or R1 is built.		From a traffic perspective, would not be required if B34 is built, which diverts traffic from River Rd.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown
B66	Congestion / Safety	Burnt Creek Loop North / River Road / Highway 1804 Intersections	1-lane roundabout or rural signal. Consider off-set roundabouts or a design that brings together Burnt Creek, Highway 1804 and River Rd.		Either option provides sufficient capacity through 2040.	Expected to improve safety at the intersection; 1 injury crash in 2010 to 2012 period.		$1,600,000	2 Roundabouts assumed for cost
B68	Congestion / Safety	Century Avenue / Tyler Parkway Intersection	Signalize intersection of Century and Tyler Parkway. Likely warranted in near to mid-term.	2035 LRTP	Improves operations for northbound and southbound traffic - signal in isolation provides LOS C through 2040.	Expected to improve safety at the intersection with injury crashes.		$400,000	1 signal
B69	Congestion	Apple Creek Road / 66th Street Intersection	Recently converted to 4-way stop. In the long-term, consider constructing roundabout at this intersection. Consider in tandem with BNSF crossing (B39).		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$0	Costs included in B39.
B70	Congestion / Safety	Highway 10 / 66th Street Intersection	Roundabout OR turn lane additions and traffic signal at Highway 10 and 66th St - signalized option includes potential dual northbound lefts. Will be warranted in mid- to long-term.		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection; 1 injury crash in 2010 to 2012 period.		$1,000,000	Roundabout with bypass lanes shown
B71	Congestion / Safety	Highway 10 / 52nd Street Intersection	Signal will be warranted at 52nd and Hwy 10 as adjacent development comes on-line: mid- to long-term		Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$400,000	1 signal
B72	Congestion	Lincoln Road / Yegen Road Intersection	After Airway Avenue vacation, change control to give free movement to westbound right turns and southbound lefts. B43 is longer-term option.	Lincoln - Bismarck Connection Study	Improves traffic operations for heavy movements in near term.	Limited safety effects.		$5,000	Minimal signing costs and temporary warning sign costs assumed
B73	Congestion / Safety	Lincoln Road / 66th Street Intersection	1-lane roundabout or rural traffic signal.	2035 LRTP	Provides sufficient traffic operations through 2040.	Expected to improve safety at the intersection.		$800,000	Roundabout cost shown
B74	Congestion / Safety	Apple Creek Road / Yegen Road Intersection	Signalize Apple Creek / Yegen Rd intersection. Intersection recently widened improved to serve industrial development.	2035 LRTP	Provides LOS C through 2040.	Expected to improve safety at the intersection.		$400,000	1 signal
B75	Congestion / Safety	Bismarck Expressway / Centennial Road Interchange with I-94	Reconstruct and reconfigure Bismarck Expressway / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	Improves traffic operations at interchange through 2040; congestion issues remain on Centennial between Divide and Century.	Expected to improve safety through interchange, currently a high crash corridor.		$18,000,000	Costs from I-94 study

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B76	Congestion / Safety	State Street Interchange with I-94	Reconstruct and reconfigure State St / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	Improves traffic operations at interchange through 2040; congestion issues remain on State Street north of I-94.	Expected to improve safety through interchange, currently a high crash corridor.		$18,000,000	Costs from I-94 study
B77	Congestion / Safety	71st Avenue / Centennial Road Intersection	Depending on potential beltway alignment, improve geometry / improve advanced warning at Centennial Rd / 71st St intersection to address safety concerns.		Limited traffic impacts.	Expected to improve safety through curve / intersection.		$300,000	Cost represents rural signal with advanced warning flashers.
B78	Congestion / Safety	Tyler Parkway / Divide Avenue Interchange with I-94	Reconfigure Tyler Pkwy / I-94 interchange with ramp reconstructions and taper adjustments per I-94 corridor study to address safety and congestion issues.	I94 Study	Improves traffic operations at interchange through 2040; congestion issues remain on Tyler Parkway and Divide Avenue.	Expected to improve safety through interchange, currently a high crash corridor.		$2,500,000	Costs from I-94 study
B79	Congestion	Avenue C / Ward Road Intersection	Add turn lanes to SB Ward Rd and WB Ave C to address congestion. Alternate option: mini-urban roundabout.	2035 LRTP	Improves intersection to LOS C through 2040.	Expected to improve safety at the intersection.		$400,000	2 turn lanes
B80	Congestion	71st Street / State St (US 83) Intersection	New interchange if beltway ties in at 71st; Option to consider is alternative intersection design like continuous flow intersection. Potentially part of overall access reductions on US 83 to improve traffic flow.		Interchange would provide LOS C through 2040.	Expected to improve safety at intersection.		$15,000,000	New Interchange Cost
B81	Congestion	Calgary Avenue / Washington Street Intersection	New signal at Washington / Calgary. Signal likely warranted in near to mid-term		Improves operations on Calgary approach to LOS C through 2040.	Expected to improve safety at intersection.		$400,000	1 signal
M1	Connectivity	Sunset Dr: Middle School to 38th Street	Extend Sunset as a 3-lane arterial roadway through N. Mandan growth area to 38th St. Phased as development occurs. Reserve 100' right-of-way.	North Mandan Study	Provides LOS C through 2040. Carries 2,000 to 5,000 vpd by 2040. Increases traffic on Sunset north of I-94 by 2,000 vpd. Diverts: 5,000 vpd from Collins north of Old Red Trail 1,500 from Old Red Trail east of Sunset	Expected to improve safety in corridors where traffic is diverted from.	Slight reduction in regional VMT compared to E+C scenario.	$5,625,000	3/4 mile of new urban roadway. Development driven project - consider partially developer funded.
M2	Connectivity	New roadway between 38th Street at Highway 1806 and 37th Street at Highland Rd	2-lane collector along 37th St and 38th Street between Highland Road and Highway 1806 (future bridge corridor) on north edge of future urban growth area. East 1/4 mile in phase 1 likely urban section, remainder is rural. Reserve sufficient right-of-way for longer term arterial (beyond 2040).	North Mandan Study	Without north bridge, this segment carries approximately 2,000 vpd and diverts 500 vpd from Old Red Trail.	-	Crosses Rock Haven Creek (intermittent stream), 1 unnamed intermittent stream, 1 wetland, and is adjacent to 2 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$8,575,000	0.3 miles of new 2-lane urban, 2.3 miles of new 2-lane rural roadway. Higher costs due to difficult terrain. Development driven project - consider partially developer funded.
M4	Connectivity	Boundary Road extension west of current terminus	Extend Boundary Road west to support new commercial / industrial development access. Tie into future I-94 crossing / interchange (M5 or M6). Roadway is development driven. Reserve sufficient right-of-way for longer term arterial (beyond 2040).	North Mandan Study	Provides LOS C through 2040.	-	Crosses 3 intermittent streams, adjacent to 3 wetlands. Adjacent to Lions Park	$4,800,000	3.2 miles of rural 2-lane roadway. Development driven project - consider partially developer funded.

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M5	Connectivity	56th Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	56th Ave Interchange with connection to Old Red Trail and Boundary Road. Location might need to shift 1/4 mile east to avoid development impacts.	North-South Beltway Study	Approximately 7,000 vpd use interchange by 2040. 2-lane 56th Ave NW and Boundary Rd provide LOS C through 2040.	-	Some benefits to regional VMT reduction. Crosses intermittent stream in 2 locations.	$15,000,000	New Interchange Cost
M6	Connectivity	32nd Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	New interchange and / or crossing between Boundary Rd Extension and Old Red Trail along 32nd Ave alignment.	North Mandan Study	Approximately 11,000 vpd use interchange by 2040. 3-lane 32nd Ave NW and Boundary Rd provide LOS C through 2040. Diverts 5,000 vpd from Sunset north of I-94 - improves this location to LOS D by 2040 with interchange improvements (M 29).	-	Some benefits to regional VMT reduction. Crosses one intermittent stream in 2 locations, is adjacent to 2 wetlands.	$15,500,000	New Interchange Cost with 0.2 miles of new rural 2-lane roadway.
M7	Congestion / Safety	Highway 1806 / Collins Avenue: 37th Street to Old Red Trail	Highway 1806 / Collins Ave - add turn lanes at key intersections such as 27th St, Beretta St, 39th St, 38th St, Sioux St and 37th St. Assume minor Highway 1806 realignment at 38th Street to create right-angle intersection with Alternative M2.	North Mandan Study	Improves safety along this corridor as traffic volumes increase on Collins / Highway 1806. Provides LOS C through most of Hwy 1806 corridor by 2040 with Sunset extension (M1) in place. Old Red Trail / Collins intersection operates at LOS E/F.	Reduced traffic congestion and separated turning traffic should improve safety.		$1,200,000	Add 6 turn lanes. Assume near turn lanes at Berreta and 27th are developer-funded.
M8	Connectivity	56th Avenue NW: extended Boundary Road to I-94 Business Loop (Main St)	56th Ave as 2-lane rural roadway between Boundary Rd / Future Interchange and Business Loop.	North-South Beltway Study	As part of a beltway, this segment carries less than 3,000 vpd. LOS C with 2-lane roadway. Diverts: 1,000 vpd from Main St 500 vpd from Sunset	Diverts some traffic from Main St - expected to provide some safety improvement in that corridor.	Limited effects on VMT and VHT. Crosses the Heart River (a Level 3 stream), 1 associated wetland, 1 Level 4 stream in 2 locations, 1 Level 5 stream, and is adjacent to 3 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$7,908,000	2.2 Miles of 2-lane rural roadway. New Heart River Bridge. Higher costs due to difficult terrain.
M9	Connectivity	Division Street: Lohstreter Road to west terminus at Schools Building / Park.	Extend Division west to Lohstreter as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	Improved connectivity in growth area - LOS C through 2040. Diverts 1,500 vpd from Main St east of Sunset by 2040.	-	Crosses 1 intermittent stream. Adjacent to Sunset Park, Abuts Mandan Aquatic Center	$4,500,000	0.6 miles of new 3-lane urban roadway. Development driven project - consider partially developer funded.
M10	Connectivity	Division Street: 8th Avenue E to Mandan Avenue	Extend Division east to Mandan Ave as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	Carries up to 6,500 vpd by 2040 and provides LOS C through 2040. Increases traffic volumes on Division east of Collins by 2,000 to 3,000 vpd. Diverts: 4,000 vpd from Main St 2,000 vpd from Old Red Trail	-	Low to Moderate reduction in regional VMT and VHT due to new connection. Crosses 1 mapped wetland. Past studies identified potential cultural resources in this corridor.	$3,750,000	1/2 mile of new 3-lane urban roadway.
M11	Congestion / Safety	Main Street: 8th Ave W to 3rd Ave E	Targeted turn lane additions and limited on-street parking removals west of 2nd St NW. Potential conversion of cross-streets to one-way traffic operation. Addition of 1 traffic signal in the corridor. Implement based on future Mandan Downtown Corridor Study outcome.		2040 No-Build is LOS D west of 6th Ave, LOS E east of 6th Ave. Restriping would improve to LOS C and D respectively. Other projects such as McKenzie Extension (M12) and Division Extension (M10) divert traffic from Main and make this project unnecessary.	Reduced traffic congestion and separated turning traffic should improve safety.	Local opposition to removal of on-street parking.	$420,000	Assume 0.2 miles of restriping / signing. New traffic signal.

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M12	Connectivity	McKenzie Rd: 39th Ave E to Highway 1806	Extend McKenzie across Heart River to Hwy 1806 as rural 2-lane roadway. Reserve 100' right-of-way. New bridge across Heart River. Signalize intersection with Highway 1806. Add signals at McKenzie / Expressway interchange ramps and at McKenzie / 40th Ave. Include trail with new roadway.	2035 LRTP	Carries approximately 12,000 vpd by 2040. 2 lane roadway provides LOS C with limited access. Diverts: 5,000 vpd from 3rd St S 4,000 - 5,000 vpd from Main St 3,000 - 5,000 vpd from Memorial Hwy	Expected to divert significant traffic levels from highest crash frequency corridors in Mandan (Main St and Memorial Hwy).	Moderate reduction in regional VMT and VHT due to new connection. Crosses the Heart River (perennial stream), 1 unnamed intermittent stream in 2 locations, 1 unnamed intermittent stream in 1 location, and 3 mapped wetlands.	$7,700,000	Assume 1 mile of new rural 2-lane road, 2 turn lanes, 3 new traffic signals, and bridge over Heart River. 1 mile of trail.

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M13a	Connectivity	20th Avenue West: Old Red Trail to Proposed Boundary Road Extension with I-94 grade separation	As Boundary Road is expanded and commercial / industrial development occur, provide connection between Boundary Rd and Lohstreter.	North Mandan Study	2-lane provides LOS C through 2040. Similar diversion to M8.	Diverts some traffic from Main St - expected to provide some safety improvement in that corridor.	Limited effects on VMT and VHT. Crosses Heart River and an unrated stream. Adjacent to Lions Park	$5,433,000	Assume 0.3 miles of new 2-lane rural roadway and new bridge over I-94. Higher costs due to difficult terrain.
M13b		20th Avenue West: Proposed Boundary Rd Extension to Lohstreter / Division Ave						$2,475,000	Assume 0.9 miles of new 2-lane rural roadway. Higher costs due to difficult terrain. Portion of Lohstreter to Boundary segment potentially developer-funded.
M14	Congestion / Safety	Old Red Trail: Highland Road to Sunset Avenue.	Restripe Old Red Trail with center turn lane between Highland Rd and Sunset Ave for safety. Alternate is 5-lane widening. Signal likely warranted at 37th Ave NW / Old Red Trail by 2040.	North Mandan Study	3-lane roadway should provide LOS D through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$550,000	1.5 miles of restriping / signing. 1 new traffic signal.
M15	Connectivity	SW Mandan Beltway: I-94 Business Loop (Main St) to Highway 1806	SW Mandan beltway as 2-lane rural roadway between the west Business Loop and Highway 1806 near Ft Lincoln park	North-South Beltway Study	Between Main Ave and Hwy 6, carries approximately 1,000 vpd by 2040; 4,000 vpd between Hwy 6 and Hwy 1806.	-	Minimal effect on VMT and VHT. Crosses the Heart river (perennial stream), adjacent to 1 pond/wetland, adjacent to 9 wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$21,200,000	11 miles of rural 2-lane. Higher costs due to difficult terrain.
M16	Congestion / Pedestrian Safety	Highway 1806 / 6th Ave E: 19th Street to Main Street	Add Hwy 1806 turn lanes and signals at 8th Ave and 19th St intersections. Make pedestrian crossing improvements at 3rd St intersection. Consider additional NB turn lane @ Main. Evaluate segment north of 8th Ave in low-cost urban street study.		Turn lanes and signals provide LOS C at 8th Ave and 19th St. Added lanes could likely improve operations at 6th Ave / Main from LOS F to LOS E. Additional study at 6th Ave E / Main recommended in future as congestion increases.	Reduced traffic congestion and separated turning traffic should improve safety.		$1,060,000	2 signals and 2 turn lanes at 8th and 19th assumed.
M17	Connectivity	NW Mandan Beltway: 37th St to Highway 1806	Potential new northwest Mandan beltway road, connect potential interchange on 56th Ave with Hwy 1806.		Carries approximately 2,000 vpd by 2040. LOS C as a 2-lane.	-	Crosses 1 intermittent stream, is adjacent to 1 intermittent stream, crosses 2 mapped wetlands, and is adjacent to 3 mapped wetlands. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$9,400,000	Assume 3.4 miles of new 2-lane rural. Higher costs due to difficult terrain.
M18	Connectivity	32nd Avenue W: extended Boundary Road to I-94 Business Loop (Main St)	West Mandan arterial connection / truck route for potential 32nd Ave W crossing of or interchange with I-94 to Old Red Trail.	2035 LRTP	2-lane provides LOS C through 2040. Similar, but slightly lower diversion to M8 and M13.	-	Limited effects on VMT and VHT. Crosses the Heart River (perennial stream), 1 intermittent stream.	$10,108,000	Assume 2 miles of new 2-lane rural. New Heart River Bridge.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
M19	Congestion / Safety	Traffic Signal at 3rd St and Memorial Highway	Traffic signal likely warranted by 2040.		Provides LOS C through 2040.	Improved safety for traffic turning onto		$400,000	
M20	Congestion	6th Ave W: 3rd Street N to Main Street	Remove stop control from Sunset (6th Ave W) at 2nd and signalize 1st St / Sunset intersection.		Provides LOS C through 2040.	-		$400,000	Assume signal cost.
M21	Congestion	Collins Avenue: 2nd Street N to Main Street	As congestion warrants, stripe a southbound left-turn lane on Collins at Main St. Signalize 1st St / Collins and 2nd St / Collins.		Provides LOS C through 2040.	Reduced traffic congestion and separated turning traffic should improve safety.		$800,000	Assume signal cost (x2).
M22	Congestion / Freight	Old Red Trail: Sunset Avenue to Mandan Avenue Interchange	Reconstruct Old Red Trail as a 2-lane urban with turn lanes between Collins Ave and Mandan Ave. Restripe for 3-lanes between Sunset and Collins. Add NB truck lane for Tesoro entrance, improve eastbound radius at Old Red Trail / Mandan Avenue curve by Tesoro. Widen turn radii and add turn lanes at Collins.	North Mandan Study	Provides LOS C for most of corridor; LOS C/D between Tesoro and I-94 interchange with access control.	Reduced traffic congestion and separated turning traffic should improve safety.		$4,880,000	Reconstruct as 0.8 miles of urban 2-lane. Restripe only west of Collins. Assumes Collins / Old Red Trail intersection is already reconstructed. Likely copleted in 2 phases.
M24	Congestion	3rd Street: 9th Ave SE to 11th Ave SE and Riverwood Ave to Memorial Highway	Restripe 3rd Street with center turn lane between 9th and 11th Ave SE and Riverwood Ave to Memorial Highway.		Provides LOS C through 2040. Project not necessary with McKenzie extension (M12).	Separated turning traffic should improve safety.		$40,000	Assume 0.4 miles restriping.
M25	Congestion / Safety	Main Street at Collins Avenue and 3rd Avenue W	Restripe Main St for turn lanes in key locations - potentially Collins and 3rd Ave W. As congestion / safety concerns increase at intersections without turn lanes, consider regulating left turns. Requires some on-street parking removal adjacent to restriped intersections. Signal system upgrade is part of TIP for 2016.		Would improve traffic flow at intersections with turn lanes. Once signal system upgrade is in place, optimize signals.	Reduced traffic congestion and separated turning traffic should improve safety.	Local opposition to removal of on-street parking.	$80,000	Assume 0.4 miles restriping. Signal system upgrade in TIP. Assume adjustments to 2 signals for turn lanes.
M26	Congestion	I-94 at I-194/Main St interchange	Reconstruct I-94 between Main Street and I-194.	I-94 Corridor Study	Should provide LOS C for segment through 2040.	Expected to improve safety through interchange area with improved ramp design.		$33,100,000	Costs from I-94 study
M27	Connectivity	McKenzie Rd: Highway 1806 to Highway 6	Extended McKenzie as 2-lane rural arterial between Hwy 6 and Hwy 1806.	2035 LRTP	In tandem with east McKenzie extension (M12), carries 2,000 to 5,000 vpd between Hwy 1806 and Hwy 6. 2-lane provides LOS C through 2040.	Some diversion of traffic from Main Street improves safety on that corridor.	This segment has minor reduction in regional VMT and VHT. Crosses 1 intermittent stream. Crosses open grassy areas, listed species may include: burrowing owl, peregrine falcon, Baird's sparrow, loggerhead shrike, ferruginous hawk, and black-footed ferret.	$6,875,000	2.5 miles of new rural roadway.
M28	Congestion	10th Ave W (Highway 6) / Main Street Intersection	Improve long-term traffic operations with turn lane and signal improvement Highway 6 and Main. Add eastbound right-turn lane. Limited options with bridge on Hwy 6. Longer-term need.		Not needed for capacity if McKenzie extension (M12) is completed.	Limited safety effects in near term.		$200,000	Assume eastbound right turn lane.

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
M29a	Congestion / Safety	Sunset Drive Interchange at I-94	In near term, add traffic signals at ramp terminals.	North Mandan Study / I-94 Corridor Study	Improves operations at interchange to LOS C through 2040.	Expected to improve safety at interchange.		$800,000	Assumes two traffic signals.
M29b	Congestion / Safety	Sunset Drive Interchange at I-94	In longer term, reconstruct and reconfigure I-94 / Sunset interchange to reduce skew.	North Mandan Study / I-94 Corridor Study	Improves operations at interchange to LOS C through 2040.	Expected to improve safety at interchange.		$19,200,000	Costs from I-94 study
M30	Congestion	Boundary Road / Sunset Drive Intersection	Signalize and stripe turn lanes on all approaches at Sunset / Boundary Rd. Coordinate with I-94 interchange signals (M29a). Minor reconstruction to improve drainage on west side of Sunset.	North Mandan Study	Improves operations for short-term. Long term interchange improvement at Sunset / I-94 will improve corridor operations.	Expected to improve safety at intersection.		$520,000	Costs reflect minor construction and signal improvement.
M31	Congestion	27th Street N / Sunset Drive Intersection	Add turn lanes and signalize Sunset - 27th St intersection. Consider striping 3-lane section on 27th St between NW 12th Ave and Sunset to facilitate traffic flow from signal, separate turning traffic into Middle School.	North Mandan Study	Improves operations to LOS C through 2040 at intersection.	Expected to improve safety at intersection.		$480,000	0.5 miles of restriping, 1 traffic signal
M32	Congestion	Old Red Trail / Collins Avenue Intersection	Add turn lanes on all approaches of the Old Red Trail / Collins Ave intersection and signalize - likely needed in near term. Temporary signal and lane additions in near term (locally-funded). Permanent signal and curb-gutter reconstruction in mid-term.	North Mandan Study	With Sunset Drive extension (M1), provides LOS C/D at intersection through 2040.	Expected to improve safety at intersection.		$2,310,000	Add 2 turn lanes, reconstruct 1/4 mile of urban 3-lane road west of Collins, and restripe for 0.1 mile on west leg. Add 1 signal.
M33a	Congestion / Safety	Mandan Avenue Interchange with I-94	In shorter-term, reconstruct ramps to reduce skew and add signals at ramp terminals, restripe taper.	North Mandan Study / I-94 Corridor Study	Signals should provide LOS C at interchange terminals through 2025.	Expected to improve safety at interchange.		$820,000	Costs from I-94 study; 2 signals and new pavement makrings on ramp.
M33b	Congestion / Safety	Mandan Avenue Interchange with I-94	In longer-term, reconstruct bridge to add left turn lanes on Mandan Ave under I-94.	North Mandan Study / I-94 Corridor Study	Added left-turn lane on Mandan Avenue should provide LOS C through 2040.	Expected to improve safety at interchange.		$14,180,000	Costs from I-94 study
M34	Freight / Safety	19th Street S / Highway 6 (10th Avenue SW)	Add southbound left turn lane and westbound right turn lane for safety, freight flow.		Provides sufficient capacity through 2040.	Separated turning traffic should improve safety.		$400,000	2 new turn lanes at intersection.
R1	Connectivity	Northern Bridge Corridor between 38th St in Mandan and 57th Avenue in Bismarck	Northern crossing of Missouri River. New Structure likely over 1/2 mile long.	North Mandan Study	Low to With North Mandan Study assumptions (arterial bridge crossing at 40 mph), carries 13,600 vpd. Diverts: 5,500 vpd from I-94 Bridge 2,000 vpd from Memorial Bridge 500 vpd from Expressway Bridge 1,000 vpd from Old Red Trail east of Collins	-	Low level of reduction in VMT. Crosses the Missouri River, Burnt Creek (intermittent stream), 2 intermittent streams, and is adjacent to 4 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover.	$90,000,000	Costs grown to 2014 dollars from 2035 LRTP

Alt Identifier	Issue Addressed	Location	Alternative Description	Relevant Study Source	Traffic Operations Impacts / 2040 Traffic Diversion	Traffic Safety	Environmental Screening Summary	Draft Planning Level Cost Estimate	Cost Estimate Assumptions
R2	Connectivity	Southern Bridge Corridor between 46th Street in Mandan and 48th Avenue South in Bismarck	Southern crossing of Missouri River. New Structure likely over 1/2 mile long.	2035 LRTP	With I-94 Study assumptions (Expressway bridge crossing at 60 mph), carries 9,600 vpd. Diverts: 5,000 vpd from Expressway Bridge 2,500 vpd from Memorial Bridge	-	Crosses the Missouri River, 1 intermittent stream, 1 wetland, and is adjacent to 2 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover. Crosses Fort Abraham State Park	$111,000,000	Costs grown to 2014 dollars from 2035 LRTP
R3	Connectivity	Northern Bridge Corridor near 34th Street in Morton County to 110th Avenue in Burleigh County	Far North bridge. Requires supporting arterial roadway investments along 110th Ave in Burleigh County and N-S in near Lake in Morton.		Carries approximately 25% less traffic than R1.	-	Crosses the Missouri River, Otter Creek (intermittent stream), Square Butte Creek (intermittent stream), 1 unnamed intermittent stream, 1 mapped wetland, and is adjacent to 2 wetlands. Crosses Missouri River, listed species include: Least tern, piping plover, Pallid sturgeon, blue sucker, flathead chub, sicklefin chub, sturgeon chub, and paddlefish. Missouri River is USFWS Critical Habitat for piping plover. Crosses Eagles Park	$90,000,000	Similar costs to R1.

Memo

To:	Steve Saunders Rachel Drewlow LRTP Steering Committee
From:	Jason Carbee
Date:	July 22, 2014

envision2040
2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

RE: 2040 LRTP Preliminary Roadway Alternatives Scoring

This memorandum builds upon the *2040 LRTP Draft Alternatives Performance Scoring Approach* memo we provided July 14 by applying that methodology and providing a preliminary set of performance scores for the roadway alternatives being considered for the 2040 Long Range Transportation Plan (LRTP) update. We want to get these in front of you so you can start thinking about how you, as a committee, would score these projects.

Please note that the ultimate results of the scoring are not intended to be the final "answer" in terms of project selection; this scoring is really intended to provide guidance on how well each alternative addresses the range of transportation priorities identified by the community. In some cases, it will make sense to select projects for inclusion in the LRTP based on information not easily summarized by these composite performance scores.

Bicycle and pedestrian and transit alternatives will be evaluated next month and provided for your review. As we have previously noted, the roadway alternatives evaluation is significantly more complex with more alternatives and analysis perspectives and we want to be able to complete at least 2 iterations of roadway performance scoring with your prior to finalizing them.

How Preliminary Scores Were Completed

Table 1 provides the summary of the scoring methodology, with some minor adjustments made since the July 14 memorandum. **Figure 1** documents the roadway alternatives for your reference. The bullets below provide some of the details of how this scoring system was applied for each of the performance perspectives with the alternatives information available:

- **Traffic LOS / Delay**: This assessed the relative levels of benefits between alternatives in terms of how it addressed existing and forecasted traffic delays (LOS D or worse) and how much it could benefit adjacent corridors through traffic diversion. The updated roadway alternatives table and figure sent in my e-mail on Friday, July 18 provide details on this performance perspective for each alternative.
- **Cost Efficiency**: This is an order-of-magnitude estimate of the level of delay reduction (vehicle hours traveled (VHT)) or vehicle miles traveled (VMT) reduction compared to the project cost. Not all projects were modeled, but planning estimates of potential delay reduction were completed based on the 2040 no-build network (existing-plus-committed projects). Those parts of the network with the greatest travel-model forecasted future delays are the locations where improvements will provide the greatest benefits for this

category. Those locations of greatest 2040 E+C scenario delays include east and northeast Bismarck, northwest Bismarck, and to a lesser extent North Mandan. Low cost improvements that addressed localized congestion, such as signal system upgrades, were also considered the most cost-efficient. Cost estimates and VMT/VHT notes were provided for major regional projects in the updated roadway alternatives table and figure sent in my e-mail on Friday, July 18.

- **New Regional Route Connections**: Any new arterial or freeway connections (or existing roads that are upgraded to provide a regional / arterial connection) of 1-mile or longer were given one point.
- **North-South Travel Improvement**: Since north-south travel improvement has been an emphasis area throughout the LRTP involvement phases with stakeholders and the public, this element provides one point for alternatives that improve north-south travel operations or connections.
- **New Connectivity / Continuity**: This measure is different than the "new regional route connections" measure, as it addresses the desire to fill in gaps in the overall transportation network, rather than focusing on upgraded regional corridors. Higher points are awarded for filling in large gaps (1/2 mile gap or more) in the current system.
- **Access Management**: If the alternative includes elements that specifically contain access management elements, they are scored with this performance perspective.
- **Bicycle, Trail or Sidewalk Connectivity**: If the alternative was anticipated to include a trail, on-street route, or major new sidewalk connection, it was scored with this perspective. Information from other studies (i.e., if the alternative included a side path) was considered for this performance perspective.
- **Environmental Effects**: An environmental screening of potential impacts was completed by HDR environmental staff. This review included consideration of adjacent wetlands and waters of US, evaluating the potential presence on threatened and endangered species habitat, adjacent historical districts or properties, and potential Section 4(f) and 6(f) impacts. At this level of analysis, with loosely defined corridors and planning-level project details, these should merely be raised and considered for future design-level projects. Those considerations were balanced with any benefits to regional VMT and VHT reductions that improve regional fuel consumption and air quality. The updated roadway alternatives table and figure sent in my e-mail on Friday, July 18 provide details on this performance perspective for each alternative.
- **Environmental Justice / ADA Benefits**: This analysis reviewed locations of environmental justice populations based on the latest American Community Survey. The analysis looks for higher concentrations of minority populations (at the Census block level) and poverty populations (at the Census block-group level) and gives points to those alternatives that provide improved mobility for those populations. **Figure 2** and **Figure 3** provide mapping of the preliminary environmental justice populations for minority and poverty populations. There were limited alternatives noted that would provide enhanced

ADA accessibility. Please review these in your jurisdiction and see if there are ADA opportunities we missed.

- **Retail Access**: Those projects which were adjacent to significant retail locations in Bismarck and Mandan were given points for this perspective. The highest 10 TAZs in terms of existing retail employment were identified and placed into retail clusters, in addition to the downtown areas so that the following areas were deemed major retail areas:
    - Highest Retail Concentrations:
        - Kirkwood Mall Area – Washington to 9th Street north of Bismarck Expressway.
        - Both sides of State Street between I-94 and 57th Avenue.
    - Second Tier Retail Concentrations:
        - Southeast Bismarck Wal-Mart – 26th and Bismarck Expressway.
        - North Mandan Wal-Mart – East of Sunset at Old Red Trail.
        - Pinehurst – Southeast of Century Avenue / Tyler Parkway.
        - Downtown Mandan.
        - Downtown Bismarck.
- **On-Street Parking Impact:** Those restriping alternatives that would require the removal of on-street parking were deducted points on this element. Those projects that had only targeted locations of parking removal were scored -1, those projects with several blocks are parking removal were scored -2.
- **Freight Corridor Mobility:** Those alternatives that supported mobility in freight corridors (truck routes or corridors with direct access to industrial development) or in future freight corridors, such as beltway projects on both sides of the River, were provided points.
- **Vehicle, Pedestrian, or Bike Safety:** Projects were awarded points if the alternative addressed a high crash location, a location with injury crashes, or a location with bicycle and pedestrian crashes, as identified in the 2010-2012 existing conditions evaluations (http://envisionbisman2040.com/resources/existing-conditions-evaluations/#Safety).
- **Consistency with Other Plans / Studies:** Those alternatives that have been studied and promoted by other plans, including the 2035 LRTP, North Mandan Study, I-94 Corridor Study, North-South Beltway Study, Downtown Bismarck Study, and the Northwest Bismarck Subarea Study, were provided points.

The preliminary alternatives scoring is provided in Table 2.

Next Steps

The scoring approach we used for memorandum will be presented at our workshop on July 24 at a higher level of detail. Due to our limited amount of time at the workshop, we will not likely get into the details of the individual scores. We are hoping that you can each provide your feedback and questions on this by **August 7, 2014**, and we can adjust these scores accordingly.

Table 1. Draft Bismarck-Mandan 2040 LRTP Performance Measure Scoring

LRTP Project Performance Perspective	Draft Alternative / Project Scoring Approach				Scoring Discussion	Related LRTP Objective	MPO-Identified Performance Goals / Performance Measurement Areas
	+ 2	+ 1	0	-2			
	Very Good	Good	Neutral	Poor			
Maintain and Improve Mobility and Connections							
Level of Service / Delay Improvements	Improves failing corridor to LOS D or better in improvement corridor; or significantly improves travel reliability.	Improves traffic operations in existing corridor; or diverts traffic to improve adjacent corridor operations.	Limited effect on traffic operations.	Degrades traffic operations.	Assumes LOS D is still regional target. Apply to existing and future traffic levels as appropriate.	1A	Reduce travel delays (Existing and Future LOS / delay improvements). Reduce congestion on current network (Existing LOS / Delay improvement).
Cost Efficiency: Projected VMT / VHT Benefits per Dollar Spent	Highest ranking tier of benefits / dollar spent.	Next tier of benefits / dollar spent.	Limited benefits / dollar spent OR cannot measure.	Negative VMT / VHT benefits.	Compare VMT and VHT reductions to cost. Rank projects against one another. Cannot measure smaller projects that aren't modeled.	1B	Incrementally improve the current system in a cost effective manner.
Regional Route Connection Improvements		New arterial or freeway facility that is 1 mile long or longer.	No effect on arterial or freeway mileage.	Elimination of Arterial or Freeway.	Current local roads upgraded to arterial standards considered. This is a regional priority, but somewhat overlaps with other connectivity measures, so only +1 potential.	1C	Facilitate longer-distance travel in the region.
North-South Travel Improvement		Improves traffic operations for north-south corridor.	No traffic operations effect for north-south corridor.		This is a regional priority, but somewhat overlaps with other mobility measures, so only provided +1 potential.		Improve public perception of N/S travel throughout the MPO.
Roadway Connectivity / Continuity	New roadway connection where a gap of 1/2 mile or more existed before.	Provides a new connection between two existing roadways	No change roadway connectivity.	Reduces roadway connectivity.	Determine distance of new road to nearest existing road. Needs to complete connection between existing roads.	1D	Improve system continuity / reduce system gaps.
Access Management	Alternative makes access levels consistent with policy where they are not today.	Alternative makes access levels more consistent with policy than current levels.	No effect on access levels.	Alternative makes access levels less consistent with policy.	Compare to access management policies by jurisdiction. Most alternatives likely not measurable for access benefits.	1E	Provide appropriate land access / travel mobility balance.
Enhance Modal Alternatives							
CAT Fixed Route Productivity / Ridership	Increase in transit efficiency / effectiveness to improve fixed route competitiveness.		No change in transit service / competitiveness.	Decrease in transit efficiency / effectiveness.	Assumes that lower headways / more frequent service or reduced route travel time leads to higher ridership.	2A	Increase the CAT ridership.
Paratransit to Fixed Route Ridership Shift	Potential to shift rides to fixed route from paratransit.		No effect on shifting trips from paratransit to fixed route.		Only score paratransit specific alternatives for this criterion.		Encourage transition of Paratransit Clients to the Fixed Route System.
Rideshare Component	Improves rideshare / transit options for commuters into Bismarck-Mandan.		No change in rideshare / transit options for Bismarck-Mandan commuters.	Reduces rideshare / transit options for commuters into Bismarck-Mandan.	Limited number of projects that will address rideshare.	2B	Improve transit and rideshare opportunities for travelers commuting into Bismarck-Mandan and improves community awareness of transit services and usage.
Multimodal Connectivity Elements, including a Downtown Transit Hub.	Highest ranked tier of improved connections between various modes. Moves region closer to downtown transit hub.	Next tier of improved modal connections.	No change in modal connections.	Degrades connections between various modes.	Ranks projects / programs that enhance connections between two or more modes - many projects will score "0". Downtown Transit Hub will score in highest tier.	2D	Create multimodal connections between bicycle, pedestrian, auto and transit; including development of downtown transit hub.

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Table 1. Draft Bismarck-Mandan 2040 LRTP Performance Measure Scoring (continued)

LRTP Project Performance Perspective	Draft Alternative / Project Scoring Approach				Scoring Discussion	Related LRTP Objective	MPO-Identified Performance Goals / Performance Measurement Areas
	+ 2	+ 1	0	- 2			
	Very Good	Good	Neutral	Poor			
Enhance Modal Alternatives (continued)							
Bicycle Route or Trail Connectivity / Continuity	New bicycle / pedestrian connection where gap of 1/2 mile or more existed before.	Provides a new connection between two existing bike / pedestrian facilities.	No change in pedestrian / bike facility mileage.	Reduction in pedestrian / bike facility mileage.	Measure distance on each side of new facility, determine how close nearest existing facility is located. Needs to complete a connection between two existing facilities.	2E	Connect future multi-use paths to the current bike-pedestrian system. Connect future on-street routes to the current bike-pedestrian system.
Sidewalk Connectivity	Provides sidewalk connection to neighborhoods and retail / employment areas that are currently disconnected.	Provides sidewalk connection where none exists today.	No change in sidewalk connections.	Reduction in sidewalk connections.	Consider sidewalks that connect currently disconnected neighborhoods / subareas get highest score.		Reduce gaps in the regional sidewalk network.
Limit Impacts on Natural and Built Environment							
Level of Environmental and Built Impacts	Highest ranked tier of reduced transportation system impacts with no major system impacts.	Next tier of reduced transportation system impacts.	No overall effect on transportation system impacts.	Project would overall increase transportation system impacts.	Look at several factors such as projected VMT, VHT, property impacts, potential threatened and endangered species, wetlands and floodway impacts. Rank by comparing relative benefits of various projects.	4D	Consider the natural and built environment when establishing street design. Consider the natural and built environment when evaluating future motorized and non-motorized routes.
Environmental Justice access and ADA elements	Project incorporates new ADA elements, or directly improves mobility for EJ populations.		No effect ADA elements, or EJ mobility.	Project decreases ADA elements or degrades mobility for EJ populations.	Ultimately documented as a part of EJ analysis. Sidewalks already included as a part of bike / pedestrian access - just concentrate on EJ and ADA for this one.	4E	Ensure that mobility-challenged populations, such as low income, disabled and senior citizens have travel options in the region. EJ-defined blocks and block groups from MPO.
Effectively Move Goods / Enhance the Local Economy							
Retail Center Access	Highest ranked tier of projects that improve access to retail center.	Next tier of improved retail access projects.	Project does not change access to retail center.	Project degrades access to retail centers.	Define retail centers as top 10 retail TAZs in metro area and downtowns.	5C	Use transportation initiatives and projects to support retail and build a sense of community.
On-street Parking Availability	Improves availability of public parking.		Does not change availability of public parking.	Decreases availability of public parking.	Likely comes into play when we talk about TSM options that remove on-street parking or add on-street parking. -1 for spot parking removals.		Improve parking availability.
Improved Mobility / Safety in Freight Corridors	Highest ranked tier of projects that improve freight mobility or safety in freight corridor or future freight corridor.	Next tier of improved of improved freight mobility / safety in freight corridor or future freight corridor.	Project does not affect freight mobility or safety.	Project negatively impacts freight mobility or safety in freight corridor.	Focus analysis on truck routes and rail crossings. For major investments, review improved geometrics or VHT in freight corridor for improvement. Highest rankings adjacent to industrial development.	5A	Identify major freight generators within the area and investigate freight movement patterns.

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Table 1. Draft Bismarck-Mandan 2040 LRTP Performance Measure Scoring (continued)

LRTP Project Performance Perspective	Draft Alternative / Project Scoring Approach				Scoring Discussion	Related LRTP Objective	MPO-Identified Performance Goals / Performance Measurement Areas
	+ 2	+ 1	0	- 2			
	Very Good	Good	Neutral	Poor			
Safety and Security Needs							
Vehicle Safety Issue	Project directly addresses an identified vehicular or bicycle/pedestrian safety issue area.	Project should improve vehicular or bicycle / pedestrian safety in area not identified as safety issue; or improves safety through traffic diversion from a safety issue corridor.	No effect on vehicular or bicycle / pedestrian safety.	Project would increase safety concerns at an identified vehicular or bicycle/pedestrian safety issue area.	Use the intersections and segments identified in the safety conditions memo; does the project address some of the potential contributing factors.	6A	Reduce crash frequency, fatalities and/or serious injuries between motorized vehicles within the MPO.
Bike / Ped Safety Issue							Reduce crash frequency, fatalities and/or serious injuries between motorized vehicles and pedestrians/bicyclists within the MPO.
Plan Consistency							
Consistency with Other Plans or Studies	Project is consistent with results of other plan or study.		Project not addressed in another study.	Project is inconsistent with other Plan / Study.	Keep this one simple; it either was or was not included as a recommendation or technically feasible alternative.		Consistency with other plans / studies.

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Table 2. Preliminary Roadway Alternatives Scoring

Alt Identifier	Location	Alternative Description	Relevant Study Source	Performance Perspectives														
				Traffic Level of Service / Delay	Cost Efficiency	New Regional Route Connections	North-South Travel Improvement	New Connectivity / Continuity	Access Management	Bicycle Route, Trail or Sidewalk Connectivity	Environmental Effects	EJ / ADA Benefits	Retail Access	On-Street Parking Impact	Freight Corridor Mobility	Vehicle, Pedestrian, or Bike Safety	Consistency with Other Plans / Studies	Draft Roadway Score
Segment Alternatives																		
B1	State Street: Calgary to 71st Street	Widen State St to 6 lanes to 71st St; likely widen from south to north in phases. Freeway concept discarded due to access impacts.		1	1	0	1	0	0	2	1	0	2	0	1	2	0	**11**
B2	57th Avenue: State Street to 26th Street	Extend 57th Ave as Arterial Roadway between US 83 / State St and 26th St. Likely 3-lane cross-section.		1	1	1	0	2	0	2	1	0	2	0	0	0	0	**10**
B3	66th Street: 43rd Avenue to 71st Avenue 71st Street: Centennial Road to 66th Street	Construct 66th St from 43rd Ave to 71st Ave and 71st St from Centennial to 66th St as arterial / truck route for Beltway. Grade for 5-lanes, but initially build as a 3-lane rural roadway. Restrict full access points to 1/2 mile.	North-South Beltway Study	2	1	1	1	0	0	2	1	0	0	0	1	1	2	**12**
B4	66th Street: Highway 10 / Main Avenue to 43rd Avenue (I-94 Crossing)	Extend 66th St as arterial roadway between Highway 10 and 43rd Ave with I-94 crossing. Restrict full access points to 1/2 mile. Grade for 4-lane divided, build wide bridge for 4-lanes, but initially build as a 2-lane rural roadway with turn lanes.	North-South Beltway Study	2	2	1	1	2	0	2	2	0	0	0	1	1	2	**16**
B4b	66th Street: I-94 to 43rd Avenue	In longer term, widen 66th St to a 4-lane divided between I-94 interchange and 43rd Ave with I-94 crossing. Maintain access control.	North-South Beltway Study	2	1	1	1	0	0	2	2	0	0	0	1	1	2	**13**
B5	66th Street: Lincoln Road to Highway 10 / Main Avenue	Reconstruct 66th St as a rural 2-lane road with turn lanes and shoulders between Lincoln Rd and Hwy 10. Signalize 1-mile arterial intersections. Restrict full access points to 1/2 mile.	North-South Beltway Study	2	1	1	1	0	0	2	2	0	0	0	1	1	2	**13**
B6	66th Street: Lincoln Road to 48th Avenue South 48th Avenue South: University Drive to 66th Street	SE Bismarck / Lincoln Beltway; Construct 48th Ave S as rural road between University and 66th; Reconstruct 66th as urban road 48th to Lincoln Rd.	North-South Beltway Study	2	1	1	0	2	0	2	0	0	0	0	1	0	2	**11**
B7	Interstate 94 @ 66th Street	New I-94 Interchange at 66th Street.	North-South Beltway Study / I-94 Corridor Study	2	1	1	1	2	0	2	2	0	0	0	1	1	2	**15**
B8	Divide Avenue: Bismarck Expressway to 66th Street	Extend Divide as a 3-lane or 5-lane arterial from Expressway to 66th; adjacent to future industrial and urban residential.	2035 LRTP	2	1	1	0	1	0	2	2	0	0	0	1	0	0	**10**
B9	Main Avenue / Highway: Bismarck Expressway to 66th Street	Widen Main Ave / Highway 10 as 4-lane divided arterial between Expressway and 66th.		2	1	0	0	0	0	2	1	2	0	0	1	1	0	**10**
B10	Lincoln Road: 52nd Street to 66th Street	Lincoln Rd management improvements with new turn lanes, a roundabout @ 52nd, x-walk at McDougall, trail and paved shoulders	Lincoln Rd Corridor Study	2	1	0	0	0	0	2	1	2	0	0	0	1	2	**11**
B11	52nd Street: Century Avenue to 43rd Avenue	Extend 52nd Street as an arterial roadway between Century and 43rd Avenue.	2035 LRTP	1	1	0	1	1	0	2	1	0	0	0	0	0	0	**7**

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B12	Hamilton Street: Century Avenue to Divide Avenue (I-94 Crossing)	I94 crossing connection between Century and Divide at Hamilton St - use Calgary as Hamilton to Nebraska Dr connection, which provides collector access to 43rd Ave.		1	1	1	1	2	0	2	1	2	0	0	0	1	0	**12**
B13	80th Street: 71st Avenue to 48th Avenue South	Alternate Beltway Alignment (instead of 66th St) along 80th Street.		1	1	1	1	0	0	2	1	0	0	0	1	1	0	**9**
B14	Century Avenue: Centennial Road to 66th Street	Extend Century Ave as a 3-Lane urban arterial between Centennial and 66th St to support development / traffic growth. Reconstruct to 52nd, new road 52nd to 66th. Reserve ROW for 5-lanes in future.	2035 LRTP	2	2	1	0	2	0	2	1	0	0	0	0	1	0	**11**
B15	43rd Avenue: Washington Street to Centennial Road	Widen 43rd Ave as 4-Lane Divided Urban Roadway between Washington and Centennial, include bike / pedestrian trail.	43rd Avenue Corridor Study	2	2	1	0	0	0	2	1	0	2	0	0	1	2	**13**
B16	Bismarck Signal System Upgrades and Traffic Management Center. Corridors: Washington St, Bismarck Expressway, State St.	Comprehensive signal system upgrades in key urban corridors. Implement Traffic Management Center and complete fiber optic connections in these corridors, including new signal cabinets, software, pan-tilt-zoom cameras (in some corridors). First implement traffic signal master		1	2	0	1	0	0	0	1	2	2	0	1	0	2	**12**
B17	Interstate 94 @ 80th Street	80th St / I-94 interchange as western option to 66th St interchange.		1	1	1	1	2	0	2	1	0	0	0	1	0	0	**10**
B18	43rd Avenue: Centennial Road to 66th Street	Widen 43rd Ave as 4-Lane Divided Roadway between Centennial and 66th, include bike / pedestrian trail.	43rd Avenue Corridor Study	1	2	1	0	0	0	2	2	0	0	0	0	1	2	**11**
B19	Ash Coulee Drive	Widen Ash Coulee as a 3-lane urban minor arterial. Include bike / pedestrian trail.	43rd Avenue Corridor Study	2	1	0	0	0	0	2	1	0	0	0	0	1	2	**9**
B20	Washington Street: Drainage Channel to Burleigh Avenue	Reconstruct South Washington as a 3-lane urban arterial south of drainage channel (where current 4-lane section ends) to Burleigh Ave. No impacts to existing trail.		2	1	0	1	0	0	0	1	0	0	0	0	1	0	**6**
B21	Tyler Parkway: Valley Drive to 64th Street	Extend Tyler Parkway as 3-lane urban minor arterial from Valley Dr to 64th St.	Northwest Bismarck Subarea Study	1	1	1	1	2	0	2	2	0	0	0	0	0	2	**12**
B22	19th Street: Divide Avenue to Yucca Avenue	Restripe 19th Street as 3-lanes between Divide and Yucca Ave (1/4 mile south of 43rd Ave). Add northbound right-turn lane at Shiloh School. Reconstruct to 3-lane urban between Yucca Ave and 43rd Ave. Sidewalks added north of Yucca.		1	1	0	1	0	0	1	1	2	0	0	1	1	0	**9**
B23	57th Avenue: Washington Street to River Road	Extend 57th Ave between Washington and River Rd as a 3-lane or 5-lane arterial roadway.	Northwest Bismarck Subarea Study	1	1	1	0	2	0	2	2	0	0	0	0	0	2	**11**
B24	Washington Street: Calgary Avenue to Bismarck Expressway	Upgrade corridor signal system and timing improvements in Washington St corridor from Calgary to Expressway. At turn lanes Calgary to Century. Stripe for 3-lane from Century to Avenue D, add turn lanes at key intersections south of Ave D. Future corridor study to develop implementation plan. Potential on-street parking removal south of Divide.	2035 LRTP	1	2	0	1	0	0	0	1	2	0	-1	1	2	0	**9**
B25	Bismarck Expressway: 12th Street to Yegen Road	3/4 Access Control along Bismarck Expressway and widening at Airport Rd for right-turn lanes for Freight access.		1	1	0	0	0	1	0	0	2	1	0	2	2	0	**10**

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B26	Bismarck Expressway: Washington Street to 12th Street	Widen Bismarck Expressway to 6-lane divided between Washington and 12th St per Bismarck Expressway Study. Property impacts expected.	Bismarck Expressway Corridor Study	2	0	0	0	0	1	0	0	2	2	0	1	1	2	**11**
B27	Bismarck Expressway: Washington Street to 12th Street	Corridor Management along Bismarck Expressway with signal system upgrades, 3/4 access control at 2nd St and mall entrance. Signal system upgrade should be extended to include all of Expressway / Centennial Corridor between Century and Washington. Upgrade signal system, add fiber, add pan-tilt-zoom cameras, coordinate with upgraded central signal system software, re-optimize signals.		1	2	0	0	0	1	0	1	2	2	0	1	1	0	**11**
B28	Divide Avenue: Turnpike Avenue to 26th Street	Restripe Divide Avenue as a 3-lane roadway between Turnpike and 26th Street. Evaluate on-street bike integration options - requires removal of on-street parking. Future corridor study to develop implementation plan.	2035 LRTP	1	1	0	0	0	0	0	1	2	0	-2	1	1	0	**5**
B29	97th Avenue: US 83 to 66th Street 66th Street: 71st Avenue to 97th Avenue	Optional north extension of Beltway utilizing 97th Ave instead of 71st - from Focus Group. Truck / route arterial concept farther from Bismarck.		1	0	1	0	0	0	2	0	0	0	0	1	0	0	**5**
B30	Main Avenue: 26th Street to Bismarck Expressway	Add turn lanes at key Main Ave locations east of 26th Street, including Eastdale.	2035 LRTP	2	1	0	0	0	0	0	1	2	0	0	2	1	0	**9**
B31	57th Avenue: Washington Street to State Street	57th Avenue was constructed as a two-lane rural street between Washington St and State St in 2014. Alternative would add turn lanes to this rural section.	2035 LRTP	2	1	0	0	0	0	2	1	0	2	0	0	1	0	**9**
B32	Yegen Road: Lincoln Road to Morrison Avenue	Add turn lanes on Yegen Rd at key intersections between Lincoln Rd and Morrison Ave		2	1	0	1	0	0	0	1	0	0	0	0	1	0	**6**
B33	Yegen Road: Bismarck Expressway to Apple Creek Road	Widen Yegen Road to 4-lane Roadway with turn lanes between Apple Creek and Expressway	Lincoln-Bismarck Connection Study	2	1	0	1	0	0	2	1	0	0	0	2	1	2	**12**
B34	Fernwood Drive: 71st Avenue / Highway 1804 to Burnt Boat	Fernwood Drive extended as 2-lane rural arterial roadway to relieve River Rd between Burnt Boat and 71st St.	Northwest Bismarck Subarea Study	1	1	1	1	0	0	2	2	0	0	0	0	0	2	**10**
B35	State Street: Calgary Road to Divide Avenue	Implement State Street Safety Study Recommendations. Several added turn lanes along State St and mid-block accesses modified to 3/4 access. Comprehensive signal system upgrade and retiming in this corridor.	State St Safety Study	1	2	0	1	0	0	0	1	2	2	0	1	2	2	**14**
B36	Rosser Avenue: Main Avenue to Washington St	Restripe Rosser for 3-lanes between Main Ave and Washington St. With on-street bike routes, would require on-street parking removal. Part of low-cost urban road improvement study.		1	1	0	0	0	0	0	1	2	0	-2	0	1	0	**4**

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B37	4th Street: Century Avenue to Boulevard Avenue	4th St signal timing improvements, stripe turn lanes at key intersections, potential new signal at Turnpike. On-street parking restrictions at locations of turn lane restriping. Part of low-cost urban road improvement study.	2035 LRTP	1	1	0	1	0	0	0	1	0	0	-1	0	1	0	**4**
B38	26th Street: Calgary Avenue to 43rd Avenue	Extend 26th St as 2-lane arterial between Calgary and 43rd Ave.	2035 LRTP	1	1	0	1	1	0	2	1	2	0	0	0	0	0	**9**
B39	66th Street at BNSF Railroad	Provide grade separation of 66th Street from BNSF railroad- anticipate 4-lane bridge. Consider in tandem with Apple Creek / 66th Street roundabout (B69).	Lincoln-Bismarck Connection Study	2	1	0	1	2	0	2	0	0	0	0	1	2	2	**13**
B42	Washington Street: 57th Street to 71st Street / Highway 1804	Reconstruct Washington as a 3-lane urban roadway between 57th St and 71st St / Highway 1804.	2035 LRTP	2	2	0	1	0	0	2	1	0	0	0	1	1	0	**10**
B43	Lincoln Road at Yegen Road	After Airway Ave vacation, provide curve transition between Lincoln Rd and North Leg of airway.	Lincoln-Bismarck Connection Study	1	0	0	0	0	0	0	0	0	0	0	0	0	2	**3**
B44	Avenue C: Ward Rd to 3rd Street	Restripe Avenue C for left-turn lanes at major intersections including Ward Rd and EB 3rd St. On-Street parking removal at locations of turn lane restriping.		1	1	0	0	0	0	0	1	2	0	-1	0	1	0	**5**
B45	Century Avenue: Springfield Street to Hackberry Street	Consider access management for improved safety / operations along Century Curve. Potential Signalization at Country West / Century OR convert to 3/4 access and route left turns from Country West to Century via Interstate Ave Signal.		1	1	0	0	0	1	0	1	0	0	0	1	1	0	**6**
B46	London Avenue: Riverwood Road to Washington Street	Extend London Ave between Riverwood and Washington; constructability issues with wastewater treatment facility and floodway.	2035 LRTP	1	0	0	0	1	0	2	0	0	0	0	0	0	0	**4**
B47	12th Street: Santa Fe Avenue to Burleigh Avenue	In long term, consider adding turn lanes on 12th St at Santa Fe and Burleigh Ave. On-street parking restrictions at locations of turn lane restriping.		1	1	0	1	0	0	0	1	0	0	-1	0	1	0	**4**
B48A	Washington Street: Denver Avenue to Drainage Channel	In the near term, consider restriping Washington south of Reno as 3-lane roadway. Capacity issues are likely to arise closer to 2030 or 2040. Public perception issue?		0	0	0	0	0	0	1	0	0	0	0	0	1	0	**2**
B48B	Washington Street: Denver Avenue to Drainage Channel	In long term, restore 4-lane cross-section and widen at Wachter and Reno signalized intersections to add turn lanes.		2	1	0	1	0	0	0	1	0	0	0	1	1	0	**7**
B49	Wachter Avenue: Washington Street to University Avenue	Add left turn lanes on Wachter at collector intersections for future traffic growth.On-street parking restrictions at locations of turn lane restriping.		2	1	0	0	0	0	0	1	0	0	-1	0	1	0	**4**
B50	43rd Avenue: 66th Street to 80th Street	43rd Ave - Add turn lanes at 66th, 80th and 1/2 mile collector intersection (73rd St?).	43rd Avenue Corridor Study	2	2	0	0	0	0	0	1	0	0	0	0	1	2	**8**
B51	43rd Avenue: Fernwood Drive to Tyler Parkway	43rd Avenue as a rural 2-lane arterial between proposed Fernwood and Tyler Pkwy.	Northwest Bismarck Subarea Study	1	1	1	0	2	0	2	2	0	0	0	0	0	2	**11**

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B52	Apple Creek Road: Yegen Road to 66th Street	Focus on TSM options along Apple Creek due to floodway issues. Turn lanes and intersection improvements at 66th, 55th, 52nd and Yegen.		2	1	0	0	0	0	0	1	0	0	0	0	1	0	**5**
B53	Century Avenue: Tyler Parkway to River Road	Extend Century Ave west of Tyler Parkway as a 2-lane roadway to River Road. Reserve sufficient right-of-way for 4-lane roadway.	Northwest Bismarck Subarea Study	1	1	0	0	1	0	2	1	0	0	0	0	1	1	**8**
B54	Bismarck Expressway: Century Avenue to Divide Avenue (New Location)	Widen Bismarck Expressway to 6-lanes between Century Ave and Divide Ave for high future traffic levels.	2035 LRTP	2	2	0	1	0	0	0	1	0	0	0	1	0	0	**7**
B55	Bismarck Expressway: Yegen Road to Main Avenue	Bismarck Expressway - Future Dual SB Left Turn Lanes at Hwy 10; acceleration lane coming out of Yegen to Northbound Expressway.		2	1	0	0	0	0	0	1	0	0	0	2	1	0	**7**
B56	7th Street: Boulevard Avenue to Main Avenue 9th Street: Boulevard Avenue to Main Avenue	Signal timing improvements along 7th / 9th pair		1	1	0	1	0	0	0	0	2	0	0	1	0	0	**6**
B57	71st Avenue: State Street / US 83 to Centennial Road Centennial Road: 71st Avenue to 43rd Ave	Widen 71st Ave / Centennial Rd to 3-lane roadway, improve access control similar to 71st and Centennial study.	71st Street and Centennial Road Study	2	1	0	1	0	1	2	1	0	0	0	1	1	2	**12**
B58	River Road: Burnt Boat Road to Fraine Barracks	Add turn lanes at River Rd intersections between Burnt Boat and Fraine Barracks.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
B59	Tyler Parkway: Century Avenue to Schafer Road	Safety improvements on Tyler Parkway with turn lane additions. Signal timing improvements / potentially adaptive signal system. Safety / geometrics study recommended.	I-94 Corridor Study	1	2	0	1	0	0	0	1	0	1	0	1	2	2	**11**
B60	Main Avenue: 1st Street to 7th Street	Restripe Main Ave as 3-lane roadway with bike lanes between 1st St and 6th St, pedestrian and streetscape improvements per Downtown Bismarck Study.	Downtown Study	0	0	0	0	0	0	2	0	2	1	0	0	2	2	**9**
B61	Centennial Road: Jericho Road to 43rd Avenue	Widen Centennial to 4-lane urban divided roadway between Jericho and 43rd Avenue in long term. Near term County project will widen this segment to 3-lanes. Assumes trail built west of Centennial.		1	2	0	1	0	0	2	1	0	0	0	1	1	0	**9**
B62	Yegen Road: University Avenue to Lincoln Road	Vacation of Airway Avenue / Yegen Road south and west of Lincoln Rd for Airport expansion - from Airport Master Plan. Convert to private use for access to ND National Guard property.	Airport Master Plan	0	0	0	0	-2	0	0	0	0	0	0	0	0	2	**0**
B63	Calgary Avenue at DMVW Railroad and Hay Creek	Extend Calgary Avenue across DMVW Railroad and Hay Creek. Assume bridge over DMVW and Hay Creek.	2035 LRTP	1	1	0	0	2	0	2	1	2	0	0	0	0	0	**9**

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M1	Sunset Dr: Middle School to 28th Street	Extend Sunset as a 3-lane arterial roadway through N. Mandan growth area to 38th St. Reserve 100' right-of-way.	North Mandan Study	1	2	0	1	2	0	2	1	0	0	0	0	1	2	**12**
M2	New roadway between 38th Street at Highway 1806 and 39th Street at Highland Rd	2-lane rural collector along 37th St and 38th Street between Highland Road and Highway 1806 (future bridge corridor) on north edge of future urban growth area.	North Mandan Study	0	0	1	0	1	0	2	0	0	0	0	0	0	2	**6**
M3	37th Street NW: Collins / Highway 1806 to Old Red Trail	Extension of 37th St NW as 2-lane arterial between Collins (Hwy 1806) and Old Red Trail through growth area. Include turn lanes at intersections with Sunset and Collins.	North Mandan Study	1	1	1	0	1	0	2	1	2	0	0	1	0	2	**12**
M4	Boundary Road extension west of current terminus	Extend Boundary Road west to support new commercial / industrial development access. Tie into future I-94 crossing / interchange (M5 or M6).	North Mandan Study	1	1	1	0	1	0	2	0	0	0	0	1	0	2	**9**
M5	56th Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	56th Ave Interchange with connection to Old Red Trail and Boundary Road.	North-South Beltway Study	1	1	1	1	2	0	0	1	0	0	0	1	0	2	**10**
M6	32nd Avenue NW Interchange and roadway connection between Old Red Trail and extended Boundary Road	New interchange and / or crossing between Boundary Rd Extension and Old Red Trail along 32nd Ave alignment.	North Mandan Study	1	1	1	1	2	0	2	1	0	0	0	1	0	2	**12**
M7	Highway 1806 / Collins Avenue: 37th Street to Old Red Trail	Highway 1806 / Collins Ave - add turn lanes at key intersections such as 27th St, Beretta St, 39th St, 38th St, Sioux St and 37th St.	North Mandan Study	1	2	0	1	0	0	0	1	2	1	0	1	1	2	**12**
M8	56th Avenue NW: extended Boundary Road to I-94 Business Loop (Main St)	56th Ave as 2-lane rural roadway between Boundary Rd / Future Interchange and Business Loop.	North-South Beltway Study	1	0	1	1	2	0	2	1	0	0	0	2	1	2	**13**
M9	Division Street: Lohstreter Road to west terminus at Schools Building / Park.	Extend Division west to Lohstreter as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	1	1	0	0	1	0	2	1	0	0	0	0	0	0	**6**
M10	Division Street: 8th Avenue E to Mandan Avenue	Extend Division east to Mandan Ave as 2-lane minor arterial, future urban residential development adjacent to road.	2035 LRTP	1	1	0	0	2	0	2	1	2	0	0	0	0	2	**11**
M11	Main Street: 8th Ave W to 3rd Ave E	Restripe Main St for a center left-turn lane between 8th Ave W and 3rd Ave E. Would require the removal of on-street parking along Main St.		1	1	0	0	0	0	0	1	2	1	-2	1	1	0	**6**
M12	McKenzie Rd: 39th Ave E to Highway 1806	Extend McKenzie across Heart River to Hwy 1806 as rural 2-lane roadway. Reserve 100' right-of-way. New bridge across Heart River. Signalize intersection with Highway 1806. Add signals at McKenzie / Expressway interchange ramps and at McKenzie / 40th Ave.	2035 LRTP	2	1	1	0	2	0	2	2	0	0	0	1	1	2	**14**

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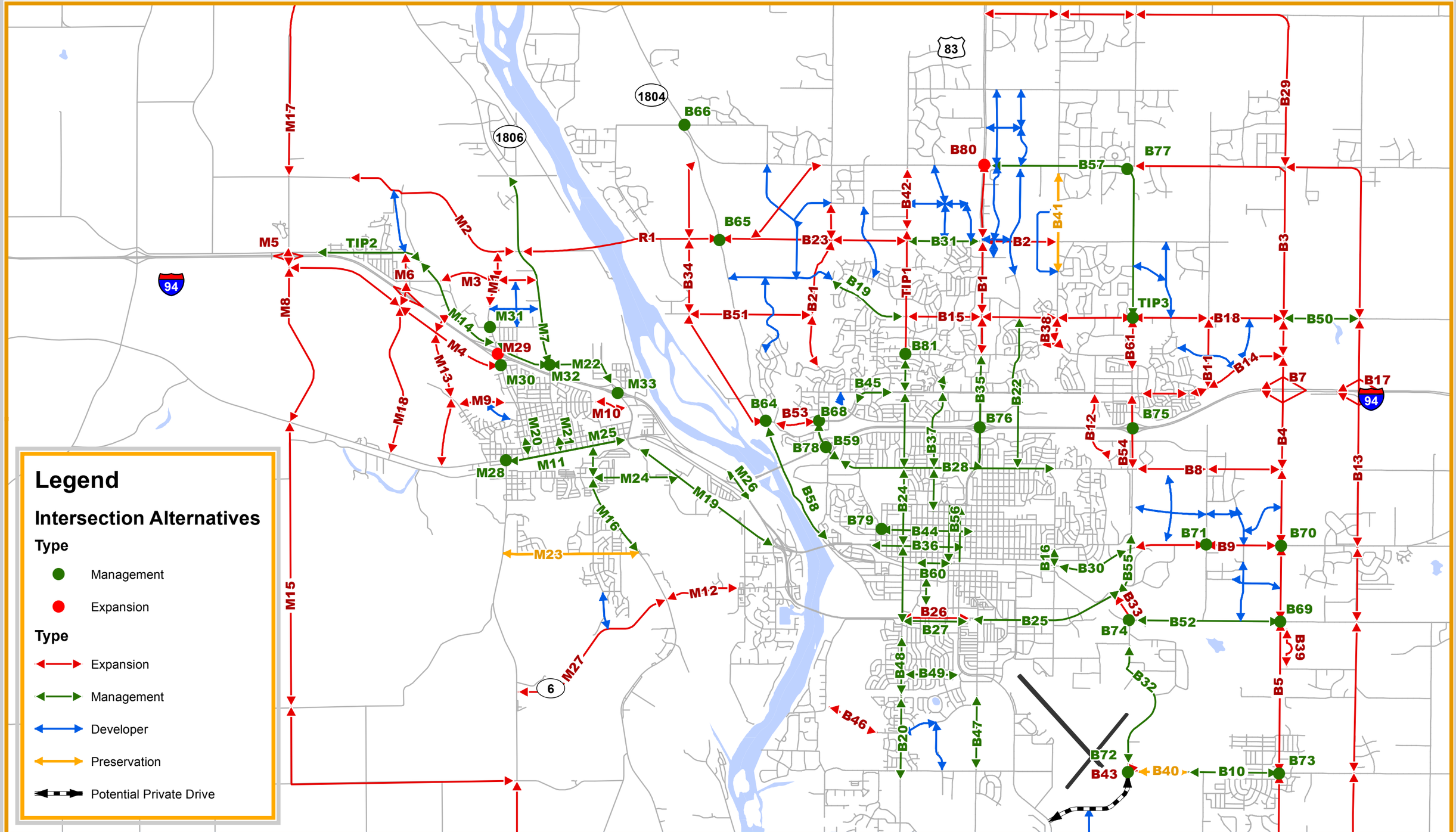
M13	20th Avenue West: Old Red Trail to I-94 Business Loop (Main St) with I-94 grade separation.	As Boundary Road is expanded and commercial / industrial development occur, provide connection between Boundary Rd and Lohstreter.	North Mandan Study	1	1	1	1	2	0	2	1	0	0	0	1	0	2	**12**
M14	Old Red Trail: Highland Road to Sunset Avenue.	Restripe Old Red Trail with center turn lane between Highland Rd and Sunset Ave for safety. Alternate is 5-lane widening.	North Mandan Study	1	1	0	1	0	0	0	1	0	0	0	1	1	2	**8**
M15	SW Mandan Beltway: I-94 Business Loop (Main St) to Highway 1806	SW Mandan beltway as 2-lane rural roadway between the west Business Loop and Highway 1806 near Ft Lincoln park	North-South Beltway Study	0	0	1	0	2	0	2	0	0	0	0	1	0	2	**8**
M16	Highway 1806 / 6th Ave E: 19th Street to Main Street	Add Hwy 1806 turn lanes and signals at 8th Ave and 19th St intersections. Make pedestrian crossing improvements at 3rd St intersection. Consider additional NB turn lane @ Main.		2	1	0	1	0	0	1	1	2	0	0	1	1	0	**10**
M17	NW Mandan Beltway: 37th St to Highway 1806	Potential new northwest Mandan beltway road, connect potential interchange on 56th Ave with Hwy 1806.		0	0	1	0	2	0	2	0	0	0	0	1	0	0	**6**
M18	32nd Avenue W: extended Boundary Road to I-94 Business Loop (Main St)	West Mandan arterial connection / truck route for potential 32nd Ave W crossing of or interchange with I-94 to Old Red Trail.	2035 LRTP	1	1	1	1	2	0	2	1	0	0	0	2	1	2	**14**
M19	Memorial Highway: Main Street to I-194	Memorial Highway Study Recommendations. Access Control. Add Signal at 3rd St, bike facilities.	Memorial Highway Corridor Study	2	0	0	0	0	1	2	1	2	1	0	2	2	2	**15**
M20	6th Ave W: 3rd Street N to Main Street	Remove stop control from Sunset (6th Ave W) at 2nd and signalize 1st St / Sunset intersection.		2	1	0	1	0	0	0	1	2	0	0	0	0	0	**7**
M21	Collins Avenue: 1st Street N to Main Street	As congestion warrants, stripe a southbound left-turn lane on Collins at Main St. Signalize 1st St / Collins.		2	1	0	1	0	0	0	1	2	1	0	0	1	0	**9**
M22	Old Red Trail: Sunset Avenue to Mandan Avenue Interchange	Reconstruct Old Red Trail as a 2-lane urban with turn lanes between Sunset Rd and Mandan Ave. Add NB truck lane for Tesoro entrance, improve eastbound radius at Old Red Trail / Mandan Avenue curve by Tesoro. Widen turn radii and add turn lanes at Collins.	North Mandan Study	2	1	0	1	0	0	1	1	0	1	0	2	1	2	**12**
M24	3rd Street: 9th Ave SE to 11th Ave SE and Riverwood Ave to Memorial Highway	Restripe 3rd Street with center turn lane between 9th and 11th Ave SE and Riverwood Ave to Memorial Highway.		2	1	0	0	0	0	0	1	2	0	0	0	1	0	**7**
M25	Main Street at Collins Avenue and 3rd Avenue W	Restripe Main St for turn lanes in key locations - potentially Collins and 3rd Ave W. As congestion / safety concerns increase at intersections without turn lanes, consider regulating left turns. Requires some on-street parking removal adjacent to restriped intersections. Signal system upgrade is part of TIP for 2016.		1	1	0	0	0	0	0	1	2	1	-1	1	1	0	**7**
M26	I-94 at I-194/Main St interchange	Reconstruct I-94 between Main Street and I-194.	I-94 Corridor Study	2	1	0	0	0	0	0	1	0	0	0	1	1	2	**8**

Alt Identifier	Location	Alternative Description	Relevant Study Source	Performance Perspectives														
				Traffic Level of Service / Delay	Cost Efficiency	New Regional Route Connections	North-South Travel Improvement	New Connectivity / Continuity	Access Management	Bicycle Route, Trail or Sidewalk Connectivity	Environmental Effects	EJ / ADA Benefits	Retail Access	On-Street Parking Impact	Freight Corridor Mobility	Vehicle, Pedestrian, or Bike Safety	Consistency with Other Plans / Studies	Draft Roadway Score
M27	McKenzie Rd: Highway 1806 to Highway 6	Extended McKenzie as 2-lane rural arterial between Hwy 6 and Hwy 1806.	2035 LRTP	1	1	1	0	2	0	2	1	0	0	0	0	1	0	**9**
R1	Northern Bridge Corridor between 38th St in Mandan and 57th Avenue in Bismarck	Northern crossing of Missouri River. New Structure likely over 1/2 mile long.	North Mandan Study	1	0	1	0	2	0	2	0	2	0	0	1	0	2	**11**
R2	Southern Bridge Corridor between 46th Street in Mandan and 48th Avenue South in Bismarck	Southern crossing of Missouri River. New Structure likely over 1/2 mile long.	2035 LRTP	1	0	1	0	2	0	2	0	2	0	0	1	0	0	**9**
R3	Northern Bridge Corridor near 34th Street in Morton County to 110th Avenue in Burleigh County	Far North bridge. Requires supporting arterial roadway investments along 110th Ave in Burleigh County and N-S in near Lake in Morton.		1	0	1	0	2	0	2	0	0	0	0	1	0	0	**7**
Intersection Alternatives																		
B64	Burnt Boat / River Road Intersection	1-lane roundabout or traffic signal at River Rd and Burnt Boat. Warranted in near to mid-term.		2	1	0	1	0	0	0	1	0	0	0	0	1	0	**6**
B65	Burnt Creek Loop South (57th Avenue) / River Road Intersection	1-lane roundabout or rural signal with advanced warning at River Rd / Burnt Creek Loop South. Implemented only if B23 and / or R1 is built.		1	1	0	1	0	0	0	1	0	0	0	0	1	0	**5**
B66	Burnt Creek Loop North / River Road / Highway 1804 Intersections	1-lane roundabout or rural signal. Consider off-set roundabouts or a design that brings together Burnt Creek, Highway 1804 and River Rd.		2	1	0	1	0	0	0	1	0	0	0	1	2	0	**8**
B68	Century Avenue / Tyler Parkway Intersection	Signalize intersection of Century and Tyler Parkway. Likely warranted in near to mid-term.	2035 LRTP	2	2	0	1	0	0	0	1	0	1	0	1	2	0	**10**
B69	Apple Creek Road / 66th Street Intersection	Recently converted to 4-way stop. In the long-term, consider constructing roundabout at this intersection. Consider in tandem with BNSF crossing (B39).		2	1	0	1	0	0	0	1	0	0	0	0	1	0	**6**
B70	Highway 10 / 66th Street Intersection	Turn lane additions at Highway 10 and 66th St; potential dual northbound lefts, and signalization will be warranted in mid- to long-term.		2	1	0	1	0	0	0	1	0	0	0	1	2	0	**8**
B71	Highway 10 / 52nd Street Intersection	Signal will be warranted at 52nd and Hwy 10 as adjacent development comes on-line: mid- to long-term		1	1	0	1	0	0	0	1	0	0	0	1	1	0	**6**
B72	Lincoln Road / Yegen Road Intersection	After Airway Avenue vacation, change control to give free movement to westbound right turns and southbound lefts. B43 is longer-term option.	Lincoln - Bismarck Connection Study	1	1	0	1	0	0	0	0	0	0	0	0	1	2	**6**
B73	Lincoln Road / 66th Street Intersection	1-lane roundabout or rural traffic signal.	2035 LRTP	2	1	0	1	0	0	0	1	0	0	0	0	1	0	**6**
B74	Apple Creek Road / Yegen Road Intersection	Signalize Apple Creek / Yegen Rd intersection. Intersection recently widened improved to serve industrial development.	2035 LRTP	2	2	0	1	0	0	0	1	0	0	0	1	1	0	**8**

Alt Identifier	Location	Alternative Description	Relevant Study Source	Performance Perspectives														
				Traffic Level of Service / Delay	Cost Efficiency	New Regional Route Connections	North-South Travel Improvement	New Connectivity / Continuity	Access Management	Bicycle Route, Trail or Sidewalk Connectivity	Environmental Effects	EJ / ADA Benefits	Retail Access	On-Street Parking Impact	Freight Corridor Mobility	Vehicle, Pedestrian, or Bike Safety	Consistency with Other Plans / Studies	Draft Roadway Score
B75	Bismarck Expressway / Centennial Road Interchange with I-94	Reconstruct and reconfigure Bismarck Expressway / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	2	1	0	1	0	0	0	1	0	0	0	2	2	0	**9**
B76	State Street Interchange with I-94	Reconstruct and reconfigure State St / I-94 interchange to improve flow per I-94 Corridor Study.	2035 LRTP	2	2	0	1	0	0	0	1	0	2	0	2	2	0	**12**
B77	71st Avenue / Centennial Road Intersection	Depending on potential beltway alignment, improve geometry / improve advanced warning at Centennial Rd / 71st St intersection to address safety concerns.		1	1	0	1	0	0	0	1	0	0	0	1	1	0	**6**
B78	Tyler Parkway / Divide Avenue Interchange with I-94	Reconfigure Tyler Pkwy / I-94 interchange with ramp reconstructions and taper adjustments per I-94 corridor study to address safety and congestion issues.	I94 Study	2	2	0	1	0	0	0	1	0	1	0	1	2	2	**12**
B79	Avenue C / Ward Road Intersection	Add turn lanes to SB Ward Rd and WB Ave C to address congestion.	2035 LRTP	2	1	0	1	0	0	0	1	2	0	-1	0	1	2	**9**
B80	71st Street / State St (US 83) Intersection	New interchange if beltway ties in at 71st; Option to consider is alternative intersection design like continuous flow intersection.		1	1	0	1	0	0	0	1	0	0	0	1	1	0	**6**
B81	Calgary Avenue / Washington Street Intersection	New signal at Washington / Calgary. Signal likely warranted in near to mid-term.		2	2	0	1	0	0	0	1	2	0	0	1	1	0	**10**
M28	10th Ave W (Highway 6) / Main Street Intersection	Improve long-term traffic operations with turn lane and signal improvements at Highway 6 / Main. Limited options with bridge on Hwy 6. Longer-term need; potentially not needed if M27 is implemented.		1	1	0	1	0	0	0	1	2	0	0	1	0	0	**7**
M29	Sunset Drive Interchange at I-94	Reconstruct and reconfigure I-94 / Sunset interchange with coordinated traffic signals to improve safety and operations to reduce skew.	North Mandan Study / I-94 Corridor Study	2	2	0	1	0	0	0	1	0	1	0	1	1	2	**11**
M30	Boundary Road / Sunset Drive Intersection	Signalize and stripe turn lanes on all approaches at Sunset / Boundary Rd. Minor reconstruction to improve drainage on west side of Sunset.	North Mandan Study	2	2	0	1	0	0	0	1	0	0	0	0	1	2	**9**
M31	27th Street N / Sunset Drive Intersection	Add turn lanes and signalize Sunset - 27th St intersection. Condsider striping 3-lane section on 27th St between NW 12th Ave and Sunset to facilitate traffic flow from signal, separate turning traffic into Middle School.	North Mandan Study	2	1	0	1	0	0	0	1	0	1	0	0	1	2	**9**
M32	Old Red Trail / Collins Avenue Intersection	Add turn lanes on all approaches of the Old Red Trail / Collins Ave intersection and signalize - likely needed in near term.	North Mandan Study	1	2	0	1	0	0	0	1	0	0	0	1	1	2	**9**
M33	Mandan Avenue Interchange with I-94	In near-term, reconstruct ramps to reduce skew and add signals at ramp terminals. In longer-term, reconstruct bridge to add left turn lanes on Mandan Ave under I-94.	North Mandan Study	2	1	0	1	0	0	0	1	0	0	0	1	1	2	**9**



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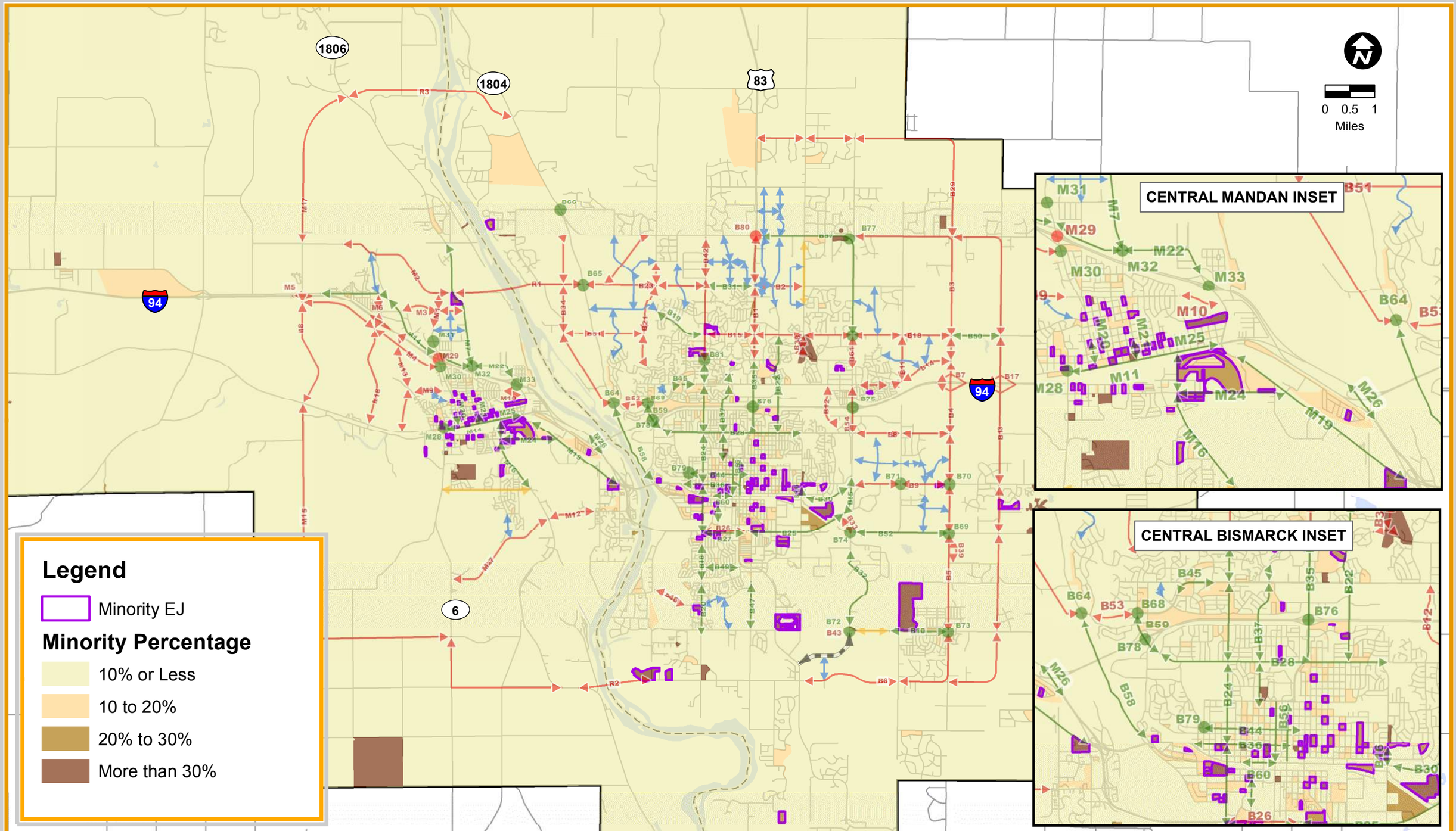
Revised Draft Roadway Alternatives List

Figure: 1

Date: July 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

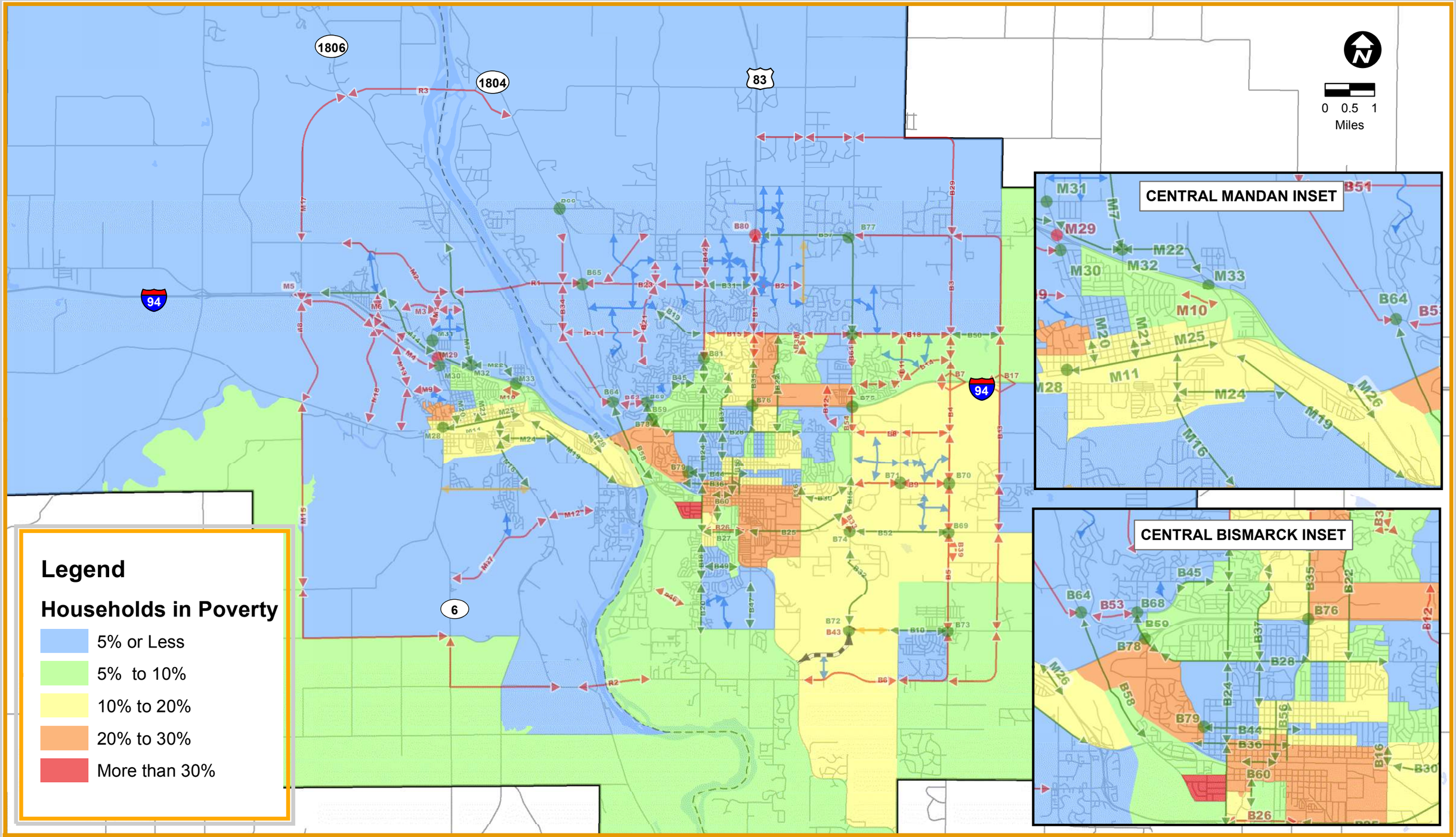
Sources: 2010 US Census, HDR.

Environmental Justice Populations:
2010 Percentage Minority by Census Block
and 10 or More Population

Figure: 3

Date: Apr 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



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Sources: 2008 to 2012 American Community Survey, HDR.

Environmental Justice Populations:
2010 Percentage Households in Poverty
by Census Block Group

Figure: 3

Date: Apr 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Table. Bicycle and Pedestrian Alternatives Project Performance Scoring

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
BL1 (Bike Lane)	Bike Lane	Mandan: On-street Bike Lane on 1st Street NW/NE from 14th Avenue NW to Mandan Avenue	1	1	2	1	0	2	0	N/A	7
BL2	Bike Lane	Mandan: On-street Bike Lane on Sunset Drive NW/6th Avenue NW from 1st Street NW to Boundary Road NW	1	1	2	1	-2	1	0	N/A	4
BL3	Bike Lane	REMOVED									
BL4	Bike Lane	Mandan: On-street Bike Lane on Collins Avenue from 1st Street NW to 14th Street NW	1	1	2	1	-2	1	0	N/A	4
BL5	Bike Lane	Mandan: On-street Bike Lane on 6th Avenue SE from 3rd Street SE to Main Street E	1	1	2	1	0	2	0	N/A	7
BL6	Bike Lane	Bismarck: On-street Bike Lane on 19th Street North from Century Avenue E to 43rd Avenue NE	1	2	2	0	0	1	0	N/A	6
BL7	Bike Lane	Bismarck: On-street Bike Lane on Calgary Avenue E from Washington Street N to 19th Street N	0	2	2	2	0	1	2	N/A	9
BL8a	Bike Lane	Bismarck: On-street Bike Lane on Washington Street N from Divide Avenue E to Calgary Ave E	1	2	2	0	0	1	2	N/A	8
BL8b	Bike Lane	Bismarck: On-street Bike Lane on Washington Street S from existing trail south of Billings Drive to W Bismarck Expressway	2	2	2	0	0	2	0	N/A	8
BL8c	Bike Lane	Bismarck: On-street Bike Lane on Washington Street S from W Bismarck Expressway to Main Ave E	2	1	2	1	0	2	0	N/A	8
BL9	Bike Lane	Bismarck: On-street Bike Lane on Capitol Ave E from Washington Street N (beginning at N Kavaney Dr) to existing trail east of 23rd Street N/at the end of E Capitol Ave (part of the Hay Creek Trail)	1	2	2	0	-2	1	2	N/A	6

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
BL10	Bike Lane	Bismarck: On-street Bike Lane on Divide Avenue from College Drive to 26th Street N (some of this stretch already contains share the road signage and bicycle lanes)	1	1	2	0	0	1	0	N/A	5
BL11	Bike Lane	Bismarck: On-street Bike Lane on Schafer Street from Divide Avenue W to Edwards Avenue	1	1	0	0	0	1	0	N/A	3
BL12	Bike Lane	Bismarck: On-street Bike Lane on Edwards Avenue from Schafer Street to Ward Road	1	1	0	0	-2	1	0	N/A	1
BL13	Bike Lane	Bismarck: On-street Bike Lane on Ward Road from W Avenue C to College Drive	0	1	0	0	-2	1	0	N/A	0
BL14	Bike Lane	Bismarck: On-street Bike Lane on W Avenue C from Highland Acres Road S to Washington Street N	0	1	0	0	-2	1	0	N/A	0
BL15	Bike Lane	Bismarck: On-street Bike Lane on Griffin Street N from Rosser Avenue W to existing trail along the Tom O'Leary Golf Club (some of this stretch already contains share the road signage)	0	1	0	0	-2	1	0	N/A	0
BL16	Bike Lane	Bismarck: On-street Bike Lane on Rosser Avenue from Bell Street N to the Bismarck Expressway E (some of this stretch already contains share the road signage and bicycle lanes)	2	1	2	1	0	2	2	N/A	10
BL17	Bike Lane	Bismarck: On-street Bike Lane on E Avenue C from 6th Street N to 9th Street N (to connect with bike boulevard network)	1	1	0	0	0	1	1	N/A	4
BL18	Bike Lane	Bismarck: On-street Bike Lane on 6th Street N from Main Avenue E to E Avenue C (to connect with bike boulevard network)	2	1	2	1	-2	2	2	N/A	8
BL19	Bike Lane	Bismarck: On-street Bike Lane on 17th Street N from Main Avenue E to Rosser Avenue E (to connect with bike boulevard network)	1	1	2	1	0	2	1	N/A	8

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
BL20	Bike Lane	Bismarck: On-street Bike Lane on Memorial Highway from Fraine Barracks Road/Main Avenue W to Washington Street S	1	1	2	1	0	1	0	N/A	6
BL21	Bike Lane	Bismarck: On-street Bike Lane on Main Avenue E from Washington Street S to 26th Street	2	1	2	1	0	2	1	N/A	9
BL22	Bike Lane	Bismarck: On-street Bike Lane on 12th Street from University Drive to Braman Avenue	2	1	2	1	0	2	0	N/A	8
BL23	Bike Lane	Bismarck: On-street Bike Lane on 26th Street from Bismarck Expressway E to Divide Avenue E (bicycle lanes exist currently between Railroad Avenue and Bismarck Expressway)	2	1	2	1	0	1	2	N/A	9
BL24	Bike Lane	Bismarck: On-street Bike Lane on 4th Street N/Dominion Street from Boulevard Avenue E to existing shared-use trail at 10th Street N/Gateway Pond	1	2	0	0	0	1	2	N/A	6
BL25	Bike Lane	Mandan: On-Street Bike Lane on Memorial Highway from 46th Avenue SE to Main Street E	1	2	2	1	0	2	2	N/A	10
NSS1 (Neighborhood Slow Street)	Neighborhood Slow Street	Mandan: Neighborhood Slow Street on 4th Street NW Starts: 4th Street NW at 6th Avenue NW Ends: 4th Street NW at Collins Avenue	0	1	2	0	0	1	0	N/A	4
NSS2 (multi-street route)	Neighborhood Slow Street	Bismarck: Neighborhood Slow Street Starts: Anderson Street N at E Avenue C Route includes: W Avenue D, E Avenue D, 5th Street N, and E Avenue C Ends: 6th Street N at Boulevard Avenue E	0	1	2	0	0	2	0	N/A	5

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
NSS3 (multi-street route)	Neighborhood Slow Street	Bismarck: Neighborhood Slow Street Starts: 17th Street N at Rosser Avenue E Route includes: E Avenue F Ends: 16th Street N at Divide Avenue N Parts of this stretch already contain share the road signage	**0**	**1**	**2**	**1**	**0**	**2**	**1**	**N/A**	**7**
NSS4 (multi-street route)	Neighborhood Slow Street	Bismarck: Neighborhood Slow Street Starts: 9th Street N at E Avenue C Route includes: E Avenue D, 13th Street N, E Avenue C, and 15th Street N Ends: E Avenue D at 26th Street N	**2**	**1**	**2**	**0**	**0**	**2**	**2**	**N/A**	**9**
NSS5 (multi-street route)	Neighborhood Slow Street	Bismarck: Neighborhood Slow Street Starts: 1st Street N at Main Ave E Route includes: 1st Street N, Arikara Ave E, and Meredith Dr Ends: Meredith Drive at Divide Ave E	**2**	**1**	**2**	**1**	**0**	**2**	**2**	**N/A**	**10**
NSS6	Neighborhood Slow Street	Mandan: Neighborhood Slow Street Starts: 14th Street NW at Sunset Drive NW Ends: 14th Street NW at Collins Avenue	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**N/A**	**4**
PED1	Sidewalk	Mandan: In TIP for 2014: Sidewalk, signage, pavement markings along 37th Avenue NW	**0**	**N/A**	**0**	**0**	**0**	**1**	**0**	**2**	**3**
PED2	Sidewalk	Mandan: Complete identified gap in sidewalk network along 6th Avenue NE	**1**	**N/A**	**2**	**0**	**0**	**1**	**0**	**2**	**6**

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
PED3	Sidewalk	Mandan: Complete identified gap in sidewalk network along Frontier Trail S from 6th Ave SE to Gateway Trail W	1	N/A	2	0	0	2	0	2	7
PED4	Sidewalk	Mandan: Complete identified gap in sidewalk network along 3rd Street SE and Bisman Ave SE from Riverwood Ave SE to Twin City Drive	0	N/A	2	0	0	1	0	2	5
PED5	Sidewalk	Bismarck: Complete identified sidewalk gap in SE Bismarck near Northern Plains Commerce Center	1	N/A	0	0	0	1	0	2	4
II1 (Intersection Improvement)	Intersection Improvement	Mandan: Sunset Drive and Old Red Trail - consider improvements for pedestrians and bicyclists	1	N/A	2	0	N/A	1	N/A	N/A	4
II2	Intersection Improvement	Mandan: Main Street and Mandan Avenue - consider improvements for pedestrians and bicyclists	1	N/A	2	1	N/A	1	N/A	N/A	5
II3	Intersection Improvement	Mandan: 3rd Street SE and 6th Avenue SE - consider improvements for pedestrians and bicyclists	1	N/A	2	0	N/A	2	N/A	N/A	5
II4	Intersection Improvement	Bismarck: Schafer Street and Divide Avenue W - consider improvements for pedestrians and bicyclists	1	N/A	0	0	N/A	1	N/A	N/A	2
II5	Intersection Improvement	Bismarck: Memorial Highway, Main Avenue W and Fraine Barracks Road - consider improvements for pedestrians and bicyclists	1	N/A	2	0	N/A	1	N/A	N/A	4
II6	Intersection Improvement	Bismarck: Divide Avenue W and Washington Street N - extend Bike Lanes through intersection and consider improvements for pedestrians	0	N/A	0	0	N/A	1	N/A	N/A	1
II7	Intersection Improvement	Bismarck: Bismarck Expressway and Washington Street S - consider improvements for pedestrians and bicyclists	2	N/A	2	0	N/A	2	N/A	N/A	6
II8	Intersection Improvement	Bismarck: Divide Avenue W and State Street - extend Bike Lanes through intersection and consider improvements for pedestrians	0	N/A	0	0	N/A	1	N/A	N/A	1

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
II9	Intersection Improvement	Bismarck: Divide Avenue W and 26th Street N - extend Bike Lanes through intersection and consider improvements for pedestrians	1	N/A	0	0	N/A	1	N/A	N/A	2
II10	Intersection Improvement	Bismarck: Rosser Avenue E and 12th Street N - extend Bike Lanes through intersection and consider improvements for pedestrians	1	N/A	2	1	N/A	2	N/A	N/A	6
II11	Intersection Improvement	Bismarck: State Street and Century Avenue E - consider improvements for pedestrians and bicyclists	1	N/A	0	2	N/A	2	N/A	N/A	5
II12	Intersection Improvement	Bismarck: Establish consistent tunnel access under the Bismarck Expressway where the Riverfront Trail meets the Bismarck Expressway	0	N/A	0	0	N/A	1	N/A	N/A	1
II13	Intersection Improvement	Bismarck: Explore the use of an Pedestrian Hybrid Beacon/HAWK signal from Southridge Lane across University Drive/1804 to access the shared-use path on the west side of University Avenue	0	N/A	0	0	N/A	1	N/A	N/A	1
II14 - THIS ALTERNATIVE HAS BEEN CHANGED	Intersection Improvement	Bismarck: Implement a Rectangular Rapid Flashing Beacon (RRFB) or other beacon and high-visibility crosswalks at crossing of Main Ave where proposed shared-use path meets Main Ave from Washington Street below	2	N/A	0	1	N/A	2	N/A	N/A	5
II15	Intersection Improvement	Bismarck: Establish improvements for pedestrians and bicyclists in shared-use path facility where Centennial Rd/W Bismarck Expressway crosses over I-94	1	N/A	0	0	N/A	1	N/A	N/A	2
II16	Intersection Improvement	Mandan: Memorial Highway and 46th Avenue SE - Consider improvements for pedestrians and bicyclists such as high-visibility crosswalks and a flashing indicator beacon where shared-use path crosses Memorial Highway	1	N/A	2	0	N/A	1	N/A	N/A	4

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
II17 - THIS HAS BEEN ADDED	Intersection Improvement	Bismarck: Intersection improvements here to transition bicyclists from on-street bicycle lanes into shared-use path up to Main Ave	2	N/A	2	1	N/A	2	N/A	N/A	7
SUP1 (Shared-Use Path)	Shared Use Path	Mandan: Two-way shared-use path - Pave the natural surface trail from the end of Captain Leach Lane northwest along the river to meet up with River Drive NE and Division Street NE	0	1	0	0	0	1	0	N/A	2
SUP2	Shared Use Path	Bismarck: Two-way shared-use path along the Bismarck Expressway from existing trail at 12th Street S to Rosser Avenue E	2	2	2	1	0	1	2	N/A	10
SUP3	Shared Use Path	Bismarck: Two-way shared-use path along Yegen Road, Airway Avenue, and Lincoln Road from the E. Bismarck Expressway to City of Lincoln	0	1	2	0	0	2	2	N/A	7
SUP4	Shared Use Path	Bismarck: Two-way shared-use path from Lincoln Road to 48th Avenue SE and University Drive	0	1	0	0	0	0	2	N/A	3
SUP5	Shared Use Path	Bismarck: Two-way shared-use path along 43rd Avenue NE from North Washington Street to 52nd Street NE	1	2	2	2	0	0	2	N/A	9
SUP6	Shared Use Path	Bismarck: Two-way shared-use path along Centennial Road from existing trail at Jericho Road to 57th Avenue NE	1	2	0	0	0	1	2	N/A	6
SUP7	Shared Use Path	Bismarck: Two-way shared-use path connecting Valley Drive (the Valley Drive Greenway Trail) to Country West Road and Century Avenue W through the Country West/Ridge Estates neighborhood	0	2	0	0	0	1	2	N/A	5
SUP8	Shared Use Path	Bismarck: Two-way shared-use path from the terminus of the Riverfront Trail at River Road and Burnt Boat Road northwest to Fernwood Drive and Sandy River Drive	0	2	0	0	0	1	2	N/A	5

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP9	Shared Use Path	Bismarck: Two-way shared-use path along Grandview Lane from Tyler Parkway to the existing trail west of Broadview Lane	1	2	0	1	0	2	2	N/A	8
SUP10	Shared Use Path	REMOVED									
SUP11	Shared Use Path	Bismarck: Two-way shared-use path along west side of Washington Street N from Divide Avenue E to connect of Tom O'Leary Trail south of Arikara Avenue E	1	2	0	0	0	1	0	N/A	4
SUP12	Shared Use Path	Bismarck: Two-way shared-use path on 7th Street S from Bismarck Expressway (connects to existing shared-use path) to Main Ave E	1	1	0	2	0	2	2	N/A	8
SUP13	Shared Use Path	Bismarck: Two-way shared-use path along E Boulevard Ave to connect to existing path on Capitol Grounds	1	1	0	0	0	1	0	N/A	3
SUP14	Shared Use Path	Upgrade existing sidewalk on east side of S Washington St to allow for two-way pedestrian and bicycle traffic to and from Main Ave	1	1	2	1	0	2	0	N/A	7
SUP 16	Shared Use Path	Captain's Landing Trail	0	1	0	0	0	0	2	N/A	3
SUP 17	Shared Use Path	3rd St Trail	1	1	2	0	0	2	2	N/A	8
SUP 18	Shared Use Path	Riverwood Golf Course	0	1	2	0	0	0	2	N/A	5
SUP 19	Shared Use Path	Mills Ave Trail	0	1	0	0	0	0	2	N/A	3
SUP 20	Shared Use Path	Multiuse trail	0	2	2	0	0	0	0	N/A	4
SUP 21	Shared Use Path	Connection to the Dunes	0	2	0	0	0	0	0	N/A	2
SUP 22	Shared Use Path	South Washington Trail	0	2	0	0	0	0	2	N/A	4
SUP 23	Shared Use Path	East Main Trail	1	1	2	0	0	0	2	N/A	6
SUP 24	Shared Use Path	South 19th St Trail	0	2	2	0	0	1	0	N/A	5
SUP 25	Shared Use Path	Highway 10 East Trail	0	2	2	0	0	0	2	N/A	6

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP 26	Shared Use Path	Hwy 1804 Trail	0	2	0	0	0	0	2	N/A	4
SUP 27	Shared Use Path	Calgary Trail Extension	1	2	2	0	0	0	0	N/A	5
SUP 28	Shared Use Path	West Beltway Trail	0	2	0	0	0	0	2	N/A	4
SUP 29	Shared Use Path	East Bismarck Creek Trail	0	1	2	0	0	0	0	N/A	3
SUP 30	Shared Use Path	State Street Trail Extension	1	2	0	2	0	0	2	N/A	7
SUP 31	Shared Use Path	East Divide Trail	0	2	0	0	0	0	2	N/A	4
SUP 32	Shared Use Path	Ash Coulee Trail	0	2	0	0	0	0	0	N/A	2
SUP 33	Shared Use Path	Lincoln Road Trail	0	2	0	0	0	0	0	N/A	2
SUP 34	Shared Use Path	Horizon Loop Trail	0	1	0	0	0	0	0	N/A	1
SUP 35	Shared Use Path	Calgary Trail Extension	1	2	2	2	0	0	2	N/A	9
SUP 36	Shared Use Path	Missouri River Trail Extension (pave)	0	2	0	0	0	0	0	N/A	2
SUP 37	Shared Use Path	Connection between 1806 and Harmon Lake.	0	2	0	0	0	0	2	N/A	4
SUP 38	Shared Use Path	Apple Creek Rd Trail	0	2	0	0	0	0	2	N/A	4
SUP 39	Shared Use Path	East Bismarck Creek Trail	0	2	0	0	0	0	0	N/A	2
SUP 40	Shared Use Path	Apple Creek-Hwy 10 Connector	0	2	0	0	0	0	0	N/A	2
SUP 41	Shared Use Path	Apple Creek-Hwy 10 Connector	0	1	0	0	0	0	0	N/A	1
SUP 42	Shared Use Path	South 52nd Street Trail	0	2	2	0	0	0	0	N/A	4
SUP 43	Shared Use Path	South Airport Trails	0	1	0	0	0	0	0	N/A	1
SUP 44	Shared Use Path	Riverwood Burleigh Connector	0	1	0	0	0	0	2	N/A	3
SUP 45	Shared Use Path	Southeast Loop Trail	0	2	0	0	0	0	0	N/A	2
SUP 46	Shared Use Path	East Loop Trail/McDowell Dam	0	2	2	0	0	0	0	N/A	4

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP 47	Shared Use Path	East Loop Trail/McDowell Dam	0	2	0	0	0	0	0	N/A	2
SUP 48	Shared Use Path	East Loop Trail/McDowell Dam	0	2	0	0	0	0	0	N/A	2
SUP 49	Shared Use Path	Centennial Rd Trail Extension	0	2	0	0	0	0	2	N/A	4
SUP 50	Shared Use Path	Northeast Trail Connector	0	2	0	0	0	0	0	N/A	2
SUP 51	Shared Use Path	DMVW Trail	1	2	0	2	0	0	2	N/A	7
SUP 52	Shared Use Path	North 19th St Trail	1	2	2	2	0	0	2	N/A	9
SUP 53	Shared Use Path	North Bismarck Trail Loop	0	2	0	0	0	0	0	N/A	2
SUP 54	Shared Use Path	North Washington Connector	0	2	0	0	0	0	2	N/A	4
SUP 55	Shared Use Path	North Washington Trail	1	2	2	0	0	0	2	N/A	7
SUP 56	Shared Use Path	Southeast Loop Trail	0	2	0	0	0	0	0	N/A	2
SUP 57	Shared Use Path	U of Mary Loop	0	1	0	0	0	1	0	N/A	2
SUP 58	Shared Use Path	4th St - Calgary Trail Connect	1	1	0	0	0	0	2	N/A	4
SUP 59	Shared Use Path	Highway 10 - Division St Loop	0	2	0	0	0	0	0	N/A	2
SUP 60	Shared Use Path	Boundary Rd Loop	1	2	0	0	0	0	2	N/A	5
SUP 61	Shared Use Path	McKenzie Trail Extension West	0	2	0	0	0	0	2	N/A	4
SUP 62	Shared Use Path	West Mandan Trail	0	2	0	0	0	0	0	N/A	2
SUP 63	Shared Use Path	West Mandan Trail Connector	1	1	0	0	0	0	0	N/A	2
SUP 64	Shared Use Path	Northern Bridge Trail	0	2	0	0	0	0	2	N/A	4
SUP 65	Shared Use Path	Division St East	1	2	0	0	0	0	2	N/A	5
SUP 66	Shared Use Path	South Mandan Trail Loop	0	2	2	0	0	0	0	N/A	4
SUP 67	Shared Use Path	8th Ave SE Trail	1	2	0	0	0	0	0	N/A	3

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP 68	Shared Use Path	Northern Bridge Trail	0	2	0	0	0	0	2	N/A	4
SUP 69	Shared Use Path	West Beltway Trail	0	2	0	0	0	0	2	N/A	4
SUP 70	Shared Use Path	McKenzie Trail Extension	0	2	0	0	0	0	2	N/A	4
SUP 71	Shared Use Path	NW Subarea Trail	0	2	0	0	0	0	0	N/A	2
SUP 72	Shared Use Path	Heart River Trail	1	2	2	0	0	0	0	N/A	5
SUP 73	Shared Use Path	19th St Trail	1	2	2	0	0	0	2	N/A	7
SUP 74	Shared Use Path	10th Ave SW Trail	1	2	0	0	0	0	2	N/A	5
SUP 75	Shared Use Path	Apple Creek Rd Trail	0	2	0	0	0	0	0	N/A	2
SUP 76	Shared Use Path	Lincoln Rail Trail Connection	0	2	0	0	0	0	0	N/A	2
SUP 77	Shared Use Path	Highway 10 East Trail	0	2	0	0	0	0	0	N/A	2
SUP 78	Shared Use Path	Apple Creek Rd Trail	0	2	0	0	0	0	0	N/A	2
SUP 79	Shared Use Path	State Street Trail Extension	0	2	0	2	0	0	2	N/A	6
SUP 80	Shared Use Path	Century Ave Trail Extension	0	2	0	0	0	0	2	N/A	4
SUP 81	Shared Use Path	West Beltway Trail	0	2	0	0	0	0	0	N/A	2
SUP 82	Shared Use Path	Northern Bridge Trail	0	2	0	0	0	0	2	N/A	4
SUP 83	Shared Use Path	Sunset Extension	1	2	0	2	0	0	2	N/A	7
SUP 84	Shared Use Path	Southland - Cottonwood Connector	0	1	0	0	0	0	0	N/A	1
SUP 85	Shared Use Path	Beltway-48th St Segment	0	2	0	0	0	0	0	N/A	2
SUP 86	Shared Use Path	Memorial Highway Trail	1	1	2	0	0	0	2	N/A	6
SUP 87	Shared Use Path	Highway 10 - Division St Loop	1	2	2	0	0	0	2	N/A	7
SUP 88	Shared Use Path	71st Ave Trail	0	2	0	0	0	0	2	N/A	4

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP 89	Shared Use Path	Hwy 1804 Trail	0	2	0	0	0	0	2	N/A	4
SUP 90	Shared Use Path	Highland Acres - River Road Connection	0	2	0	0	0	0	0	N/A	2
SUP 91	Shared Use Path	DMVW Trail	0	2	0	0	0	0	2	N/A	4
SUP 92	Shared Use Path	Riverwood - Burleigh Connector	0	2	2	0	0	0	0	N/A	4
SUP 93	Shared Use Path	Valley Drive Spur	0	2	0	0	0	0	0	N/A	2
SUP 94	Shared Use Path	Clairmont Valley Dr Trail	0	2	2	0	0	0	0	N/A	4
SUP 95	Shared Use Path	Valley Drive Trail Extension	0	2	0	0	0	0	2	N/A	4
SUP 96	Shared Use Path	Ash Coulee Trail	0	2	0	0	0	0	0	N/A	2
SUP 97	Shared Use Path	Edgewood Centrury Trail Connection	0	1	0	0	0	0	0	N/A	1
SUP 98	Shared Use Path	Calgary Trail Extension	0	1	2	0	0	0	2	N/A	5
SUP 99	Shared Use Path	Star Gazer Park Trail Connection	1	2	0	0	0	0	2	N/A	5
SUP 100	Shared Use Path	Hay Creek - Lilac Ln Connection	0	1	0	0	0	0	0	N/A	1
SUP 101	Shared Use Path	Sunrise School connector	0	2	0	0	0	0	0	N/A	2
SUP 102	Shared Use Path	Move Highway 1806 Trail	0	0	2	0	0	0	0	N/A	2
SUP 103	Shared Use Path	Railroad trail from Downtown Bismarck Study. Requires signifcant coordination with BNSF.	2	1	2	2	0	0	2	N/A	9
SUP 104	Shared Use Path	71st Ave Trail	0	2	0	0	0	0	2	N/A	4
SUP 105	Shared Use Path	West Beltway Trail	0	2	0	0	0	0	2	N/A	4
SUP 106	Shared Use Path	71st Ave Trail	0	2	0	0	0	0	2	N/A	4
SUP 107	Shared Use Path	Ash Coulee Trail	0	2	0	0	0	0	2	N/A	4
SUP 108	Shared Use Path	West Mandan Lohstretor Connection	0	2	0	0	0	0	2	N/A	4
SUP 109	Shared Use Path	South Mandan Trail Loop	0	2	0	0	0	0	2	N/A	4

Alternative Project ID	Type	Project Description	PROJECT PERFORMANCE SCORING								
			Multimodal Connectivity Elements	Bicycle Route or Trail Connectivity / Continuity	Environmental Justice Access and ADA Elements	Retail Center Access	On-Street Parking Availability	Bike/Ped Safety Issue	Consistency with Other Plans or Studies	Sidewalk Connectivity	Total Project Score
SUP 110	Shared Use Path	Roberta Dr - Harmon Lake Connection	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**N/A**	**1**

Appendix E: Additional Bicycle and Pedestrian Documentation

Items Included:

- Pedestrian and Bike Existing Conditions Memo (Community Design Group, January 15, 2014)
- Pedestrian and Bike Project Memo (Community Design Group, August 15, 2014)

envision2040

Pedestrian and Bicycle System

REPORT ON EXISTING CONDITIONS

DRAFT 2 - 01/15/14

2015-2040
BISMARCK-MANDAN
Long Range Transportation Plan

1. Introduction

This report provides a summary of existing conditions for pedestrian and bicycle circulation in the Bismarck - Mandan metropolitan region. The purpose of this report is to provide a foundation for recommendations for non-motorized transportation to be included as part of Envision 2040, the Bismarck- Mandan MPO's Long-Range Transportation Plan.

The following types of data and information have been collected:

- Background data, including relevant city, county, regional, and state plans and GIS data;
- Observation of site conditions obtained through in-person visits; and
- Comments received from the general public, including comments received at in-person workshops and through online data collected via email and the project website.

Data and information collected serves as the basis for the existing system performance evaluation, modeling of user demand, and the analysis of system connectivity and LTS (level of traffic stress) analysis.

Downtown Bismarck is a prominent, pedestrian-friendly destination for business and recreation in the Bismarck-Mandan metropolitan region.

A growing network of marked on-road bike lanes provide additional comfort and convenience to area cyclists.

2. Background Data

2.1 - GIS and Baseline Data

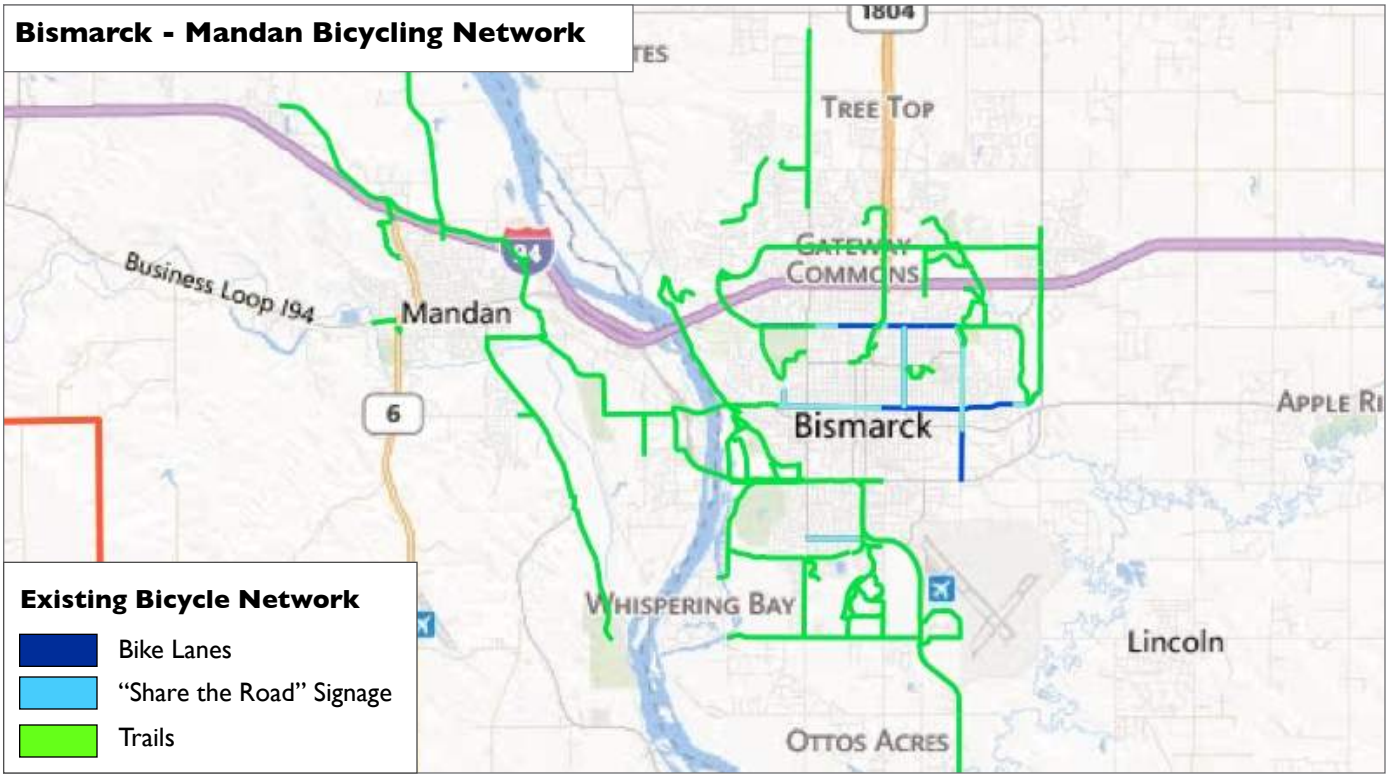
Geographic information systems (GIS) data was provided by the Bismarck-Mandan MPO, and was supplemented by data obtained from other sources, including US Census and North Dakota Department of Transportation.

Data collected includes:

- Existing trails (off-road shared use paths)
- Existing bicycle lanes and "share the road" signage
- City and corporate limits
- Streets
- Water bodies
- Traffic volumes (AADT)
- Traffic analysis zone (TAZ) boundaries

Data which is not available because it is not currently collected or has not yet been received includes:

- Pedestrian and bicycle counts
- Sidewalk locations
- Metropolitan travel demand model data
- Location of traffic signals
- Crash locations per mode



Sample map: Bismarck-Mandan's existing bicycle network, developed from collected GIS information.

2.2 - Related Plans

Related plans were collected and reviewed to better understand current non-motorized transportation system conditions as well as previous planning efforts.

Bismarck and Mandan are developing a network of marked Bike Routes adjacent to roadways.

2010-2035 Bismarck-Mandan Long Range Transportation Plan (LRTP)

The previous LRTP, completed in late 2009, recommended on-street and off-street improvements throughout Bismarck and Mandan. On-street route network recommendations were limited to roadways where widening or the removal of parking lanes was not needed. Off-street route network improvements included trail improvements proposed to be paid for through Transportation Enhancement and general roadway project funding. No specific pedestrian or bicycle improvements were recommended or proposed. The LRTP proposed the development of a Bicycle and Pedestrian Master Plan to explore specific route and treatment options.

A network of sidewalks is available in many areas of Bismarck and Mandan.

2012 Bismarck-Mandan Travel Demand Study

This study provides an overview of resident travel behavior throughout Bismarck and Mandan. The study identifies the inclusion of walking and biking modes as a potential improvement for the travel model. The Model Review Working Group determined that a non-motorized transportation component would require the collection of significant local data.

2014-2017 Bismarck-Mandan Transportation Improvement Program (TIP)

This is the current TIP for the Bismarck - Mandan MPO and outlines roadway and trail improvements to be made in 2014 - 2017. Projects include reconstruction, widening, traffic signal improvements, milling and overlaying, and trail improvements. Specific to walking is a sidewalk, signage, and pavement marking project slated in Mandan along 37th Avenue Northwest.

3. Observations from Site Visits

3.1 - Introduction

Existing conditions for the Bismarck and Mandan pedestrian and bicycle networks were observed during site visits on September 16 and 17, 2013. Site visits included biking and walking on trails, sidewalks, bridges, and roads in Bismarck and Mandan. While it was not possible to observe the entire network, the goal was to directly experience as much of the pedestrian and bicycle network as possible by following a pre-defined route chosen to maximize the number of potentially-relevant sites and conditions.

Shared use paths in Bismarck and Mandan serve transportation and recreation needs for area pedestrians and bicyclists.

Specific attention was given to experiencing the following corridors and areas for walking and bicycling safety, connectivity and access:

In Bismarck:

- East Divide Avenue
- North Washington Street
- East Rosser Avenue
- East Main Avenue
- South 7th Street
- North 26th Street
- Riverfront Trail
- Residential streets in Central Bismarck
- Memorial Highway Bridge
- North Dakota State Capitol Grounds
- Downtown Bismarck

Downtown Mandan offers many assets for walkability.

In Mandan:

- 2nd Street Northwest
- 1st Street Northwest
- Downtown Mandan

Walking and bicycling along these routes provided a fuller picture for understanding the current network's safety and comfort, connectedness, and related characteristics. Numerous photographs and notes were taken to document the experience and provide a foundation for developing recommendations and improvements.

Special attention was directed towards observing, evaluating, and documenting:

- Regionally significant corridors for pedestrians and bicyclists;
- Low stress connections - current and potential;
- Existing assets for pedestrians and bicyclists;
- Barriers/dangerous areas for pedestrians and bicyclists; and
- Origins and destinations.

3.2 - Summary of Observations

3.2.1 - Assets

Numerous assets for walking and cycling currently exist along Bismarck and Mandan streets and destinations, including:

An extensive network of sidewalks and walkways

Sidewalks are a basic element for pedestrian mobility. Bismarck and Mandan's business districts and many residential neighborhoods have an extensive network of sidewalks in place. *Please see Reference Images A, K, and L on the next pages.*

Calm residential streets

Many residential streets in Bismarck and Mandan provide calm traffic conditions and comfortable routes for pedestrians and bicyclists. Many of these could be designated as "Neighborhood Slow Streets." *Please see image B.*

Extensive network of off-road shared-use paths/trails

Bismarck-Mandan has an extensive network of shared-use paths and trails connecting bicyclists and pedestrians to shopping, education and recreation destinations, and offering access to natural assets, including the Missouri River. Shared-use paths along major roadways provide walking and biking space. Many shared-use paths include "Bike Route" signage. See photo A on Figure 1, Reference Photos: Assets. *Please see images C and D.*

Pedestrian refuge medians at intersections

Pedestrian refuge medians are present at several busy intersections with 4 or more lanes of traffic. Refuge medians make longer intersections more manageable by breaking up the crossing distance. *Please see image E.*

Improvements to the pedestrian network

Several recently-constructed pedestrian network improvements were observed, including ADA complaint curb ramps, signage at crossings, pedestrian activated signals, bump-outs, and vegetated buffers. These make the pedestrian network more comfortable and accessible for a range of users. *Please see images E, F and G.*

A growing network of on-road bicycle infrastructure

Numerous sharrows ("Share the lane arrows"), designated Bike Routes, and "Share the Road" signs are found along Bismarck's main streets. Bicycle lanes are also present on some streets, and are generally in good condition. *Please see images H and I.*

Some bicycle parking facilities in downtown Bismarck

A bike corral in downtown Bismarck provides high quality short-term bicycle parking to cyclists visiting or working in the area. *Please see image J.*

Availability of under-utilized right-of-way

There is space on many roads to allow for relatively inexpensive re-striping projects to include standard or buffered bicycle lanes without requiring major changes to infrastructure, available parking, or traffic lane configurations.

Sidewalks are a basic component for pedestrian orientation and walkability.

Calm residential streets in Bismarck and Mandan can offer comfortable walking and biking routes.

Shared-use paths provide routes for pedestrians and cyclists throughout Bismarck and Mandan.

Shared-use path along Ash Coulee Drive in North Bismarck.

Median refuge at the intersection of Tyler Parkway and Burnt Boat Drive in Bismarck.

Pedestrian facilities along Collins Avenue in Downtown Mandan.

G

This crossing of Divide Avenue includes a high visibility crosswalk, pedestrian sign and flashing beacon.

H

A well-marked bicycle lane along Divide Avenue provides a separated space for bicyclists.

I

"Share the lane" arrows on Divide Avenue alert motorists to the presence of bicyclists.

J

A "bike corral" in Bismarck provides exclusive parking for bicycles.

K

Residential areas in Bismarck and Mandan have good characteristics for walkability.

L

Bismarck and Mandan have great potential for pedestrian and bicycle circulation.

3.2.2 - Challenges

Several challenges for pedestrian and bicycle movement were observed during site visits. Some of these include:

Gaps in the pedestrian network

Issues observed include utilities blocking the walkway, maintenance issues / degraded condition of facilities, discontinuous / disconnected facilities, and locations where walking facilities are not provided. These conditions impede pedestrian mobility and discourage walking. *Please see Reference Images M, N, O, and P on the next pages.*

Short crossing time for pedestrians, especially across wide roads

Pedestrian crossing times at several busy intersections were too short, and did not allow for a complete crossing in the allotted time, forcing pedestrians to run across the intersection, or wait at a pedestrian refuge to complete crossing.

Inconsistent marking of pedestrian crossings

Many pedestrian crossings (despite being marked with a combination of signs, lights, and pedestrian activated crossing signals) lacked marked crosswalks, a relatively inexpensive and highly visible improvement. *Please see image Q.*

Use of sharrows and "Share the Road" signage in place of bicycle lanes

Many roads currently marked with sharrows in Bismarck and Mandan are wide enough to readily accommodate standard or buffered bicycle lanes, which provide separate, designated facilities for bicycle and automobile traffic and can lead to more comfortable conditions for cyclists and motorists. In addition, some sharrows are difficult to see and in need of repainting, while others are in the door-zone of parked cars. *Please see images R and S.*

Routes and wayfinding between Bismarck and Mandan could be improved

Bismarck and Mandan are relatively close to each other, and protected shared-use paths are provided along the southern side (eastbound lanes) of the Main Avenue/Memorial Highway and I-194/ Bismarck Expressway bridges connecting Bismarck and Mandan. However, navigation to pedestrian and bicycle routes, and to city centers and other destinations supporting travel to and from each city could be improved. Wayfinding additions could help integrate the pedestrian and bicycle networks of each city, and create a more seamless connection between them.

Gaps in the bicycle network

Gaps in the bicycle network include inconsistent application of bicycle lanes, closed trails, and discontinuity through intersections. This may lead to uncomfortable or dangerous conditions for bicyclists. *Please see images T, U, and V.*

Insufficient bike parking

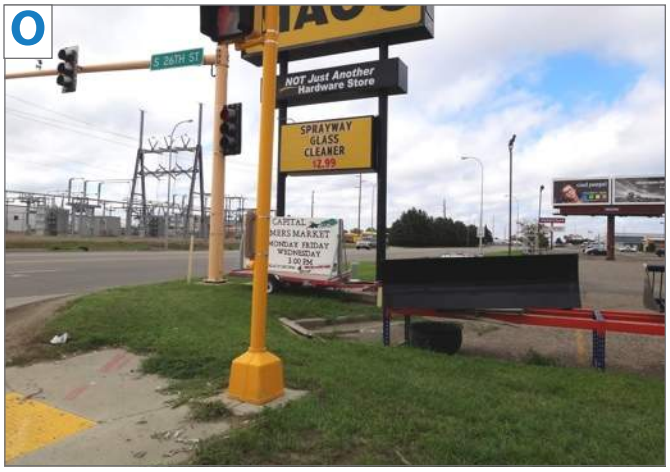
Despite a few exceptions, there is a general lack of bicycle parking, especially in downtown areas. Many people parked their bikes to trees, street signs, railings, or other available sidewalk amenities, which can create barriers for pedestrians. *Please see image W.*

Driver and bicyclist education

There appears to be some confusion among drivers about how to interact with bicyclists in terms of passing distance, trailing, and crossing through or blocking the bicycle lane when making a turn. Several bicyclists were observed riding the wrong way on sidewalks before crossing at intersections.

Obstructed walking area along 7th Street which may be challenging to individuals in wheelchairs or with sight impairments.

Missing sidewalk Along 26th Street in Bismarck near Railroad Avenue. Rut indicates the path is frequently traveled by pedestrians.



This crossing at S. 26th Street and E. Bismarck Expressway does not connect to a sidewalk, creating a difficult situation for pedestrians.

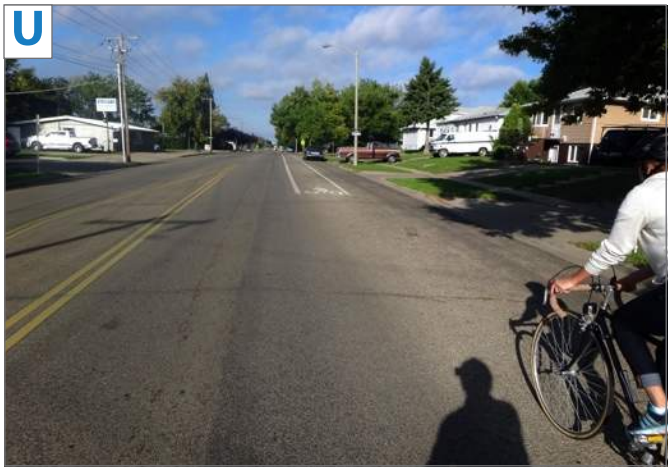
This sidewalk ends on the east side of N. 26th Street in Bismarck. Additional residential areas are located ahead of this point.

At E. Rosser Avenue and N. 10th near several places of employment in Downtown Bismarck.

"Share the Road" sign in Bismarck. Sufficient space is available to provide a bicycle lane.

Faded bicycle sharrow symbol, in the door zone of the parking lane.

Bicycle and pedestrian tunnel at the Riverfront Trail is closed, cutting off an important connection to the south. Narrow tunnel may deter users even if open.



Gap in the bicycle lane along E. Rosser Avenue in Bismarck.

Bike route ends. No information available on access or connection to other routes.

Shortage of bicycle parking causes bicyclists to use sign posts to lock their bikes.

High traffic volumes and large trucks travel down Main Street in Mandan, highlighting the need for safe and comfortable pedestrian and bicycle facilities.

4. Guidance from Community Engagement

4.1 - Introduction

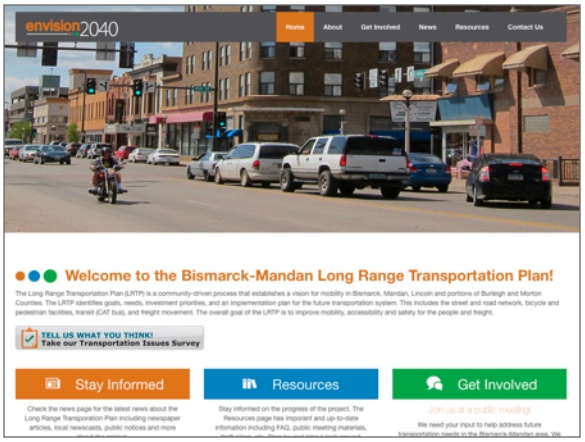
Information and comments gathered from members of the Bismarck-Mandan community are an important source of guidance for the Long-Range Transportation Plan, and for the Pedestrian and Bicycle System recommendations.

Public guidance for this work was obtained through the following tools and approaches:

- Comments received from the project survey
- Comments received from the mapping tool available at the project website
- Comments received through email messages sent to the Project Team
- Comments received at the pedestrian and bicycle system Listening Session held at the Bismarck Public Library on September 16, 2013

A description and summary of information gathered through each of these activities is provided below.

Participants identifying assets, challenges, and destinations for biking and walking in Bismarck and Mandan during the September 2013 Listening Session.



The project website includes many tools for gathering comments from the public.

4.2 - Public Listening Session

4.2.1 - Overview

An in-person listening session was conducted with local residents interested in walking and bicycling issues and safety. The session was held at the Bismarck Public Library and included the following activities:

- A facilitated idea-generation activity, where participants were asked to note their opinions about the Bismarck - Mandan pedestrian and bicycle network:
  - What they think of the current network;
  - What they like about it;
  - What they dislike about it; and
  - Their suggestions for improvement.

- A mapping activity, where participants were asked to use colored stickers and markers to note walking and

bicycling destinations, assets, problem areas/barriers, and routes participants would like to be able to take.

4.2.2 - Summary of Results

A summary of information gathered, as well as sample comments, is provided below.

Idea-Generation Activity

Opinions of the current state of the walking and bicycling network in Bismarck and Mandan included a focus on:

- Connectivity ("Connect Bismarck-Mandan paths to the country for seamless biking out of town," "Provide efficient connectivity to key locations," "Connect homes to schools," "Connect schools to businesses," and "Link seamlessly with established multi-use trails");
- Infrastructure and safety ("Provide modern bicycle infrastructure throughout the community," "Traffic calming in residential areas," "Available on both sides of the street," and "Shoulders on rural roads"); and
- Interaction/relationship with motorists ("Make biking and walking visible to motorists," and "Demand responsible behavior from both bicyclists and motorists").

Items that participants liked about the network included:

- Existing infrastructure ("The facilities we have," "Bike paths are really good," and "Good multi-use trails"); and
- Drivers ("Most drivers are good and courteous with only a few exceptions," and "Most drivers are patient and courteous").

Characteristics that participants did not like about the network included:

- Lack of access and connections in some areas ("Allowing developers to develop islands with no access, even with only poor auto access," "The SE part of Bismarck is lacking (pretty well non existent) as is any decent access from Lincoln area," and "Not enough continuity for bike/ped").

Suggestions for improvement of the pedestrian and bicycle network included:

- Infrastructure/separation from motor vehicles ("[Would be] nice to have paved fairly dedicated trails, but these are expensive, though well worth it in my opinion!" "Separate cars and bikes," "Intersections!");
- Connectivity ("More extensive access to the downtown core and SE Bismarck," and "Should be connected to fully circle Bismarck and Mandan too! Actually Bismarck and Mandan are pretty well connected right now"); and
- Education ("Educate all cyclists, auto drivers, pedestrians and LEO's [Law Enforcement Officer]," and "Educate decision makers").

Other comments focused on maintenance of infrastructure and changing building and development codes.

Map Activity

The map activity prompted numerous comments about the existing pedestrian and bicycle network in Bismarck and Mandan, and helped guide the second day of site visits conducted by the Project Team. This A summarized list of comments and a map of information received are provided below.

Key destinations for walking and bicycling mentioned include:

- Main Avenue businesses and commercial district of Downtown Bismarck;
- Kirkwood Mall and surrounding area; and
- Pinehurst Square commercial area in northwestern Bismarck.

Assets mentioned, especially for bicycling, include:

- Memorial Highway (during off-peak hours), 1st Street NW in Downtown Mandan, and the trail along Mandan Avenue connecting to Old Red Trail in northwest Mandan; and
- North 4th Street in Bismarck.

Barriers and challenges mentioned include:

- Issues with bicycle infrastructure abruptly terminating
  - On either side of the Memorial Highway bridge ("Trail stops; Confusing - where to go?" "Xing light at intersect in middle of ped refuge; No room on refuge for bike");
  - At the junction of River Road and Burnt Boat Drive ("Trail ends and not much room for bicyclists on roadway shoulder"); and
  - At the intersection of Main Avenue and North Washington Street ("Trail ends at busy intersection of Main/Washington - "bike route" continues on SE side of intersection").
- Intersections
  - Barriers were mentioned at intersections along the Bismarck Expressway in Bismarck, at the junction of the east river trail and the Expressway where the pedestrian and bicycle tunnel has been closed, and at several other intersections where there are perceived challenges for pedestrians and bicyclists.

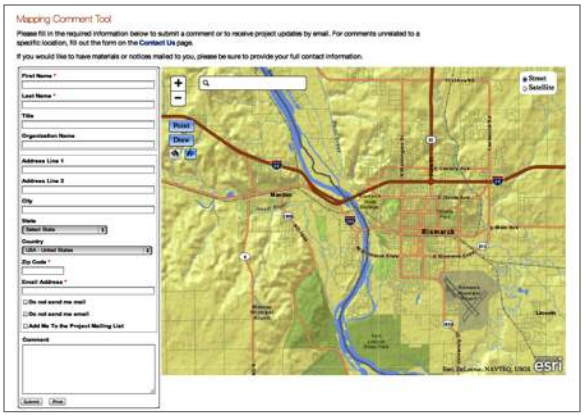
In addition, participants expressed a desire for a bicycle route connecting Bismarck with Lincoln to the southeast, and a bicycle route traveling northwest along River Road from Bismarck.

Bismarck - Mandan Public Workshop: Bicycling and Walking Routes, Destinations, Assets, and Barriers

Please note: *Additional description of points is provided in this report's Appendix.*

4.3 - Envision 2040 Website

The Envision 2040 website (www.envisionbisman2040.com) was launched at the start of the project to keep the public informed of the project's progress and details, and offer a means to collect resident comments and feedback. The website includes tools to receive map-based comments, general or mode-specific comments, and also includes a link to a project survey.



The Mapping Comment Tool available on the Envision 2040 website.

4.3.1 - Map Comment Tool

A GIS-based Mapping Comment Tool is available on the project website and offers residents the chance to submit comments on transportation issues across all modes of travel by drawing points and lines, and adding notes. Pedestrian and bicycle-specific comments received via this GIS-based tool are displayed on the map below.

4.3.2 - Other comments received through the project website

Several text comments were received via the website comment tool, and through direct emails to the Project Team. These comments were aggregated and organized into categories consistent with those used for comments received at the September 2013 listening session:

- What participants /web commenters think of the network;
- What they like about it;
- What they dislike about it; and
- Their suggestions for improvement.

Items that participants liked about the network included:

- Recent and existing efforts to improve bike/ pedestrian network ("On a recent trip to ND to visit family I was so excited to see bicycle lanes [on] streets," "I think Bismarck has made great strides the last couple years to become more bike/pedestrian friendly").

Characteristics that participants did not like about the network included:

- Education and enforcement ("I saw some teenagers riding and not using the correct hand signals and also not using bicycle lights");
- Gaps in the network ("[Need] more bike routes that continue. Some randomly stop - where do bikes go then?" "Washington and 3rd are hazardous on a bike. Pretty much relegated to sidewalks," "the downtown area heading either north or south and crossing Main"); and
- Crossings can be difficult ("We live in a growing subdivision with a number of children and teens across 1804 from the bike path. 1804 is too busy and unsafe to cross on foot or by bike").

Suggestions for improvement of the pedestrian and bicycle network included:

- Infrastructure improvements and expansion ("... [add] more shared use paths," "a little bike path from 4th over the tracks across Front and down to the hill to Bowen would be great," "I would love to see a sidewalk down Lincoln Road from Yegan... to Bismarck Expressway to connect to the trails.... A new school is going to open and children need somewhere to walk that is safe," "continuation of the bike path along Riverwood Drive, [with preference] for some type of distance between the road and the path to act as a buffer between the cars and bikes/ pedestrians," "a bike lane on Schafer St from Divide Avenue to the college"); and
- Education ("I think there should be some education classes for pedestrians and cyclists regarding bicycle safety," "if you want to see more people walking and cycling, it's a good idea to educate as well as promote the idea").

A listing of all comments received is included in this report's Appendix.

4.3.3 - Project survey

A survey covering transportation issues is currently being conducted to receive additional guidance from members of the public. Pedestrian and bicycle-specific comments obtained through the survey will be included in this section in the second draft of this document.

Date: August 15, 2014
To: Steve Saunders
LRTP Steering Committee
Bismarck Parks and Recreation
Mandan Parks and Recreation
From: Antonio M. Rosell, P.E., AICP, Director, Community Design Group
Jason Carbee, AICP, HDR
Subject: 2040 LRTP Pedestrian and Bicycle Network Alternatives List

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This memorandum provides a summary of the alternatives we propose to carry forward as pedestrian and bicycle network improvement options for the Bismarck-Mandan Long Range Transportation Plan. We request that you review the pedestrian and bicycle alternatives included in this memorandum and provide any comment.

1. Principles and approach

Introduction

Walking is the most basic mode of travel, and is accessible to people through the widest range of ages, income levels, and physical abilities. Bicycling is an inexpensive, convenient and enjoyable way of accessing community destinations and assets. Walking and biking are healthful and economical travel options that improve community health, increase access to local destinations, foster community connection, and help sustain healthy and prosperous local economies. Places where walking and biking are comfortable and inviting are places where people want to live, work, and visit. Creating "Complete Streets" that are safer, more comfortable and accessible for pedestrians and bicyclists, also makes for safer, more comfortable and predictable streets for drivers of motor vehicles.

Walking and biking are fun, healthy and enjoyable activities that benefit individuals and communities.

Approach to walking improvements

An effective and useful pedestrian network provides continuous, well-maintained walking facilities that offer convenient and comfortable connections to useful destinations, including commercial districts,

transit stops, schools, libraries and civic institutions, and parks and recreational amenities. Effective facilities orient users, provide safe crossings of roadways, address user needs for comfort by buffering users from fast-moving motor-vehicle traffic, offer reasonably direct paths to destinations, and are located and designed to address needs for visibility and security. Walking facilities in the Bismarck-Mandan region should address the needs of a walking population that ranges from elementary school-age children to senior citizens who may rely on walkers or mobility devices.

Approach to bicycling improvements

Research and experience from successful bicycle cities show that the way to make bicycling a more inviting option for more residents (and thus increase the use of bicycling as a tool for everyday travel) is to develop continuous bicycle networks that provide reasonably direct connections to useful destinations and that are made up of routes that do not exceed the level of tolerance for traffic stress of the mainstream adult population. Comments received as part of this work reflect residents' concerns about discontinuous bicycle networks, difficult intersections, and stressful interactions with motor-vehicle traffic where facilities are not provided. To support the Bismarck-Mandan region's goals of increasing the share of its population that rides a bicycle for transportation and recreation more often, we propose to address the needs of two types of system users:

Comfortable facilities invite use by a broader segment of the population.

- The system should accommodate casual users, recreational riders, and the needs of residents who have the same level of tolerance to traffic stress as the general mainstream adult population. In general, these system users will tend to avoid on-street routes on busy streets, and prefer trails and routes with greater separation from motor-vehicles, or routes on low-volume, low-speed residential streets. It is estimated that approximately 60% of the general population is included in this category.
- The system should accommodate the needs of bicycle riders who have a greater tolerance for traffic stress, and who may already be bicycling for transportation or recreation. In general, these users are comfortable riding on busier roads if bicycle lanes are provided, and can also share lane space with motorized traffic depending on traffic conditions. It is estimated that approximately 7% to 10% of the population is included in this category. Providing on-street routes that allow for

improved connectivity between activity centers and bicycle generators will help achieve the ridership potential of this population.

Thus, the alternatives that we have provided in this memorandum attempt to improve system connectivity for both sets of users.

Integration with other modes, and tradeoffs

Accommodating the needs of pedestrians, bicyclists and motorists is sometimes seen as a challenge that pits the needs of users of one mode against the needs of users of another. This LRTP chooses a different perspective, and instead recognizes that many Bismarck-Mandan residents are walkers, drivers and cyclists (sometimes in the same day, and sometimes even in the same trip), and that addressing user safety is not a zero-sum game. All Bismarck-Mandan residents, regardless of the mode they use to complete their daily needs, have the right to safe accommodations for their travel. To improve safety for all users, it may be necessary to reallocate the existing, limited roadway right-of-way, but doing so should never result in decrease of safety for users of a specific mode. Improvements that enhance safety for pedestrians or bicyclists (for example by implementing a "road diet" that converts a four-lane road to a three-lane road and frees up space for wider sidewalks or bicycle lanes) also improve safety for drivers of motor vehicles by making motor-vehicle speeds and maneuvers more consistent and predictable, and therefore reducing crashes and crash severity. The goal of this LRTP is to provide transportation connections that provide access for all modes of travel safely and effectively, in a manner that is consistent with Bismarck-Mandan region's transportation goals, its resources, and within the context of its surroundings. Where the need for safety improvements for pedestrian and bicycle travel has been identified, alternatives presented in this memorandum outline potential cross-section reallocations or expansion. Where needed, we have provided some planning-level discussion of the cross-section needs for pedestrian or bicycle network improvements to consider with these alternatives as we move forward.

2. Methodology

The recommendations for this project are based on the following:

- Recommendations and comments received from members of the public during the LRTP's public comment period and during public workshops (Please see Figure 1)
- Recommendations from Bismarck-Mandan Metropolitan Planning Organization staff (Figure 2) including routes that supplement the on-street bicycle network and distribute bicycle trips to and from neighborhoods and key generators
- Analysis of crash data and safety issues received by the consultant team (Figure 3)

- Evaluation and analysis of existing conditions and route recommendations based on best current practice, site observations and experience by the consultant team (Conceptual Framework: Figure 5; Regional recommendations: Figure 6; Recommendations for Downtown Bismarck: Figure 7)

3. Overview of Existing Conditions - Assets and Challenges

The project team walked and bicycled along many routes and roadways in Bismarck and Mandan. Numerous assets were noted, including several recent improvements to pedestrian and bicycle networks and facilities. The site visits also provided an opportunity for the project team to familiarize itself with the region's already existing and extensive network of sidewalks, calm neighborhood roads, and network of off-road shared-use paths and trails. However, several challenges for pedestrian and bicycle movement were also observed during site visits. Some of these include:

- Gaps and incomplete/disconnected facilities in the pedestrian network
- Short crossing time for pedestrians, especially across wide roads
- Inconsistent marking of pedestrian crossings
- Gaps and incomplete/disconnected facilities in the bicycle network
- Lack of on-road "bicycle only" facilities (for example, the use of sharrows and "Share the Road" signage in place of bicycle lanes or cycletracks)
- Inconsistent signing of bicycle routes and wayfinding
- Insufficient bike parking
- Opportunities for improving driver and bicyclist education, and interactions between them

4. Concepts to Consider

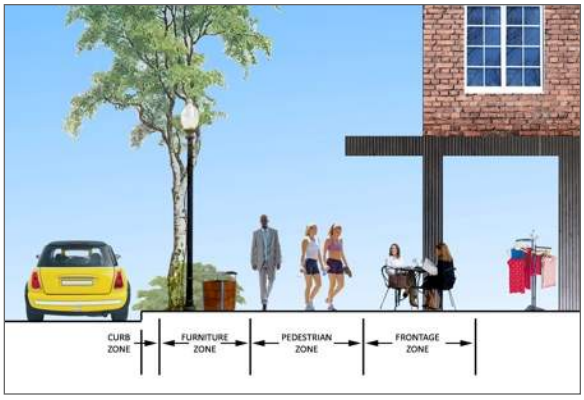
A variety of tools and treatments are recommended to address and improve conditions for pedestrians and bicycle riders in the Bismarck-Mandan region. A brief overview of several options that are recommended for application in the region is provided below. Corridor or route-specific recommendations are provided in Figures 5, 6 and 7 (included with this memo).

4.1 - For Improving Conditions for Pedestrians

Sidewalks

Sidewalks designate space for the exclusive use of pedestrians, and are a foundational element for a system of pedestrian mobility. They are also a vital component of healthy commercial districts, providing access to businesses, space for street furniture and plantings, and for the casual interactions that support community interpersonal connections. Well-designed sidewalks provide four distinct "zones" that allow them to function in different contexts, with dimensions that respond to the the land uses and locations they serve. The four zones are:

- The pedestrian zone: the zone where people walk.
- The frontage zone: the portion of the sidewalk that provides access to businesses or other uses adjacent to the sidewalk.
- The furniture zone: the portion of the sidewalk where trees, newspaper stands, benches, signs and trash receptacles are placed, which helps keep the pedestrian zone free of obstructions for people walking or using wheelchairs. In addition, this zone increases the distance between the pedestrian zone and moving motor-vehicles - increasing comfort and sense of safety for people on foot.
- The curb zone is the outermost edge of the pedestrian realm and is generally raised above the motor-vehicle travelway to create a defined and safe separation between automobiles and pedestrians.



The four sidewalk zones in a commercial district.

Curb ramps

Curb ramps allow wheelchair users, people with sight or mobility impairments, and parents using strollers to easily enter and exit sidewalks and pedestrian crossings. They also make walking generally more comfortable and safer for all pedestrians. They should be used at all locations where pedestrians are expected to cross. The recommended practice is to provide two perpendicular ramps (rather than a single one at a corner) to better accommodate wheelchair users and reduce conflicts with motor-vehicle traffic.

Marked crosswalks and advanced stop bars

Marked crosswalks are a visual indication of locations where pedestrian crossings can legally and safely occur. They help create a continuous network for pedestrians, and improve safety by alerting motorists to the potential presence of a pedestrian at a crossing. They should be used at all traffic-light controlled intersections, and at stop-sign controlled intersections in main street commercial districts. When placed at locations where more than one lane of travel per direction is possible (including turn lanes), they should be combined with Advanced Stop Bars in order to minimize risk of "Hidden Threat" crashes. Advanced Stop Bars are recommended for placement on the roadway at least 10 ft before marked crosswalks.

Curb extensions / Bump-outs

Bump-outs extend the sidewalk and curb into the motor-vehicle parking lanes at intersection locations. These features (also known as "neck-downs") improve safety and convenience by shortening the distance a pedestrian must walk to cross a street; by increasing the visibility of pedestrians to motorists; and by slowing down right-turning motorists. They also decrease the amount of time a pedestrian is in the line of vehicle traffic. Bump-outs work especially well on busy collector streets, on minor arterials where on-street parking is allowed, and in commercial / downtown districts.

Medians / Pedestrian refuge islands

Crossing islands simplify pedestrian crossings and improve safety by dividing the crossing movement into two stages so that pedestrians only cross one direction of traffic at a time. They make crossing high volume roads safer and easier, and allow slower walkers, including children and seniors, to cross wider roads without worrying about getting stranded in the middle of the crossing. This treatment can also provide significant benefits for bicycle riders.

A median crossing island that can improve crossing conditions for pedestrians and cyclists.

Pedestrian Hybrid Beacon / HAWK signal

The Pedestrian Hybrid Beacon (PHB, also know as HAWK or High-Intensity Activated crossWalK) is a pedestrian-activated red-indication signal designed for use at intersection and midblock locations. PHBs, while relatively new to the US, have been in use in Europe for decades and have been successfully deployed in North American cities like Tucson, AZ; Lawrence, KS; and Vancouver, BC.

Pedestrians crossing at a HAWK signal. Courtesy of Mike Cynecki.

The Pedestrian Hybrid Beacon is dark until a pedestrian activates it by pressing the crossing button. It responds immediately, with a flashing yellow pattern that changes to a solid red light providing unequivocal "Stop" guidance to motorists - studies show that they are as effective as traditional stop lights in providing protection for pedestrian crossings. Installed cost for a typical crossing ranges between $75,000 to $150,000. This treatment can also provide significant benefits for bicycle riders.

Rectangular Rapid Flashing Beacon (RRFB)

A Rectangular Rapid Flashing Beacon, or RRFB, is a pedestrian-activated signal that uses an irregular "stutter" flash pattern with very bright amber lights (similar to those on emergency vehicles) to alert drivers to yield to the pedestrians who wish to cross a road. Installed cost for a typical crossing is between $10,000 to $15,000 (for two units, one on either side of a street). This treatment can also provide significant benefits for bicycle riders.

RRFBs can be effective tools for improving pedestrian crossings. Courtesy of Micha Frederic.

Leading Pedestrian Interval (LPI)

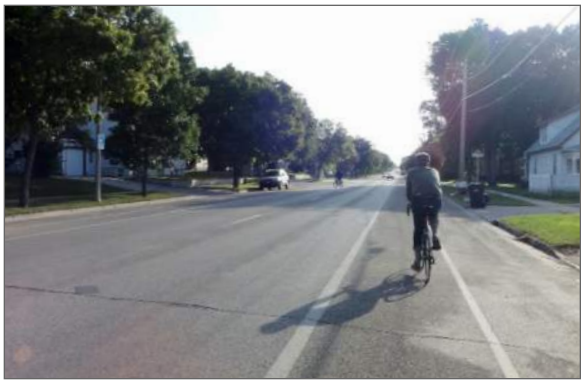
A Leading Pedestrian Interval (LPI) is a traffic signal programming practice that sets the pedestrian walk sign to occur several seconds before the 'green light' at the parallel street. This gives pedestrians a head start into the intersection so that they are more easily seen when cars begin to move forward.

The LPI is typically three to five seconds, and requires only reprogramming of the light sequence and no additional equipment, making it an excellent low-cost solution.

4.2 - For Improving Conditions for Bicycle Riders

Bike Lanes

Bike lanes designate a portion of the roadway for preferential use by bicyclists. Lanes are defined by striping, pavement markings and signage. Bike lanes allow cyclists to travel at their own speed in a space separate from motor vehicle traffic, and increase cyclist comfort and visibility. The minimum recommended width for a bike lane is 5 ft. On some roads, space availability may be a constraint; however, implementing a "road diet" (for example, by converting a four-lane roadway to three-lanes), or decreasing the width of travel lanes (down to 11 ft or 10 ft in urban settings) can free up additional roadway space without reducing motor-vehicle traffic capacity or flow. If bicycle lanes are provided adjacent to a parking lane in busier commercial districts,



A bicycle lane in Bismarck.

concerns about "dooring" crashes (when a driver opens their door onto the path of the cyclist riding on a lane) may arise - a wider, or buffered bicycle lane should be considered in these cases.

Buffered Bike Lanes

Buffered bike lanes are regular bicycle lanes that include additional space between the bike lane and moving traffic, and/or adjacent parking lanes. Buffered bicycle lanes increase rider comfort by increasing their separation from motor-vehicles, and can improve safety by reducing the likelihood of "dooring" crashes (described above). Buffered lanes can provide cyclists with adequate room to pass each other without having to merge into lanes of moving automobile traffic.

Buffered bicycle lanes provide more space for bicyclists. Courtesy of Paul Mogush.

Neighborhood Slow Streets

A Neighborhood Slow Street (also sometimes known as a Neighborhood Greenway or a Bicycle Boulevard) is a neighborhood residential street modified to calm automobile traffic and discourage cut-through traffic to make walking and bicycling on those streets more inviting and comfortable. Certain treatments can be applied at intersections to further calm traffic and offer additional priority to pedestrians and cyclists. A speed of twenty miles per hour should be the target motor-vehicle speed on bike boulevards after traffic-calming treatments are applied.

A bicycle boulevard in Minneapolis. Courtesy of TLC Minnesota.

Neighborhood Slow Streets are appropriate for residential streets with initial Average Daily Traffic volumes of 4,000 or less, and are specially useful if they are used to develop a route network that provides access to the destinations typically located along busier roads carrying high speed or high volume traffic. Neighborhood Slow Streets are an effective way of creating lower stress connections for bicycles in the network and are appropriate for many residential streets in Bismarck and Mandan. A network of Neighborhood Slow Streets can help develop a broad network connecting residential areas with other routes and destinations.

Traffic calming treatment along a Neighborhood Slow Street. Courtesy of Dan Burden.

Shared-Use Paths and Sidepaths

Off-road shared-use paths, also known as multi-use trails, offer completely segregated space away from the street for pedestrians, bicyclists, and other users of non-motorized transportation. These paths often link parks and other recreation destinations, and some serve broader regional connection purposes. Shared-use paths can also exist in the form of shared use "sidepaths" - sidewalk-like facilities paralleling roadways and providing a space for pedestrians and bicyclists to access commercial, residential, and retail destinations. This is common in Bismarck and Mandan. It is important to consider treatment of the sidepath at intersections, as they may bring bicycle riders into the intersection from directions where motorists are not expecting them. Sidepaths are best suited to locations with no or very few intersections or driveways.

A shared-use trail in Bismarck.

Cycletracks

A cycletrack is an exclusive lane for cyclists separated from motor-vehicle traffic by a painted buffer and/or physical barrier (such as a curb, parked cars, or bollards), and separated and distinct from the sidewalk. Different forms of cycletracks include one-way protected cycletracks, raised cycletracks and two-way cycletracks. Cycletracks significantly increase bicycle ridership for people of all ages and experience levels because the significant separation from motorized vehicles greatly increases rider comfort. Cycletracks require more space and infrastructure than conventional bike lanes, and require special design attention at intersections. Cycletracks are the preferred on-street bicycle accommodation where the right-of-way space allows for its installation.

Cycle tracks are separated from the roadway by a physical barrier Courtesy of bikeleague.org.

Extending Bicycle Lanes Through Intersections

Intersections have the greatest risk for conflicts between roadway users. Extending bicycle lane markings at and through intersection conflict points warns bicyclists and motorists where movements may conflict and provides clarity to guide traffic flow.

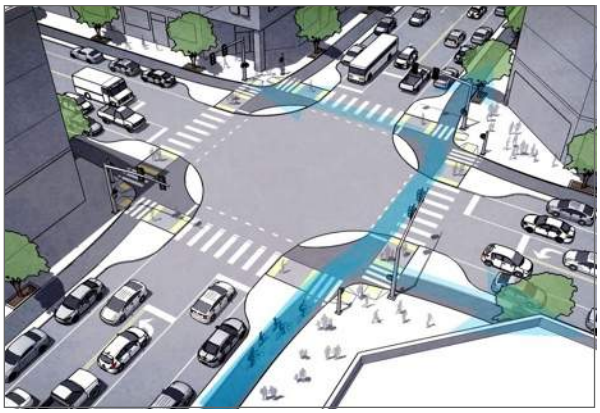
Bicycle lanes lines may be dashed/broken where motorists are allowed to enter the bike lane including locations where drivers may perform a right turn maneuver, as well as at bus stops, and bus pullouts. Bike lane striping should remain solid at minor unsignalized driveways or alleys. At major driveways, bike lane lines may be discontinued, however dotted lines are recommended. Contrasting green paint can be applied to bring further attention to conflict points along bike lanes, and to identify locations where bicycle lanes continue through intersections. Motorists are required to yield to bicyclists at the entrance to right-turn-only lanes. Signage reminding drivers to yield may be used to remind motorists that it is their responsibility to yield to bicyclists continuing forward in the bike lane.

Bicycle lanes should be marked at conflict points and through intersections. Courtesy of HoCo Connect.

Protected intersections

Protected intersections extend the benefits of cycletracks to intersections, where bicyclists face the highest potential for conflicts with motor vehicles. Protected intersections include four main elements:

- A corner refuge island;
- A forward stop bar for bicyclists;
- Separate, set-back bike and pedestrian crossings; and
- Bicycle-friendly signal phasing (a Leading Bike Interval, akin to the Leading Pedestrian Interval).



A protected intersection. Courtesy of protectedintersection.com.

Guidance on protected intersections will be included in the forthcoming third edition of the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. Use of the NACTO guide is recommended by the Federal Highway Administration (FHWA) to supplement materials from the American Association of State Highway and Transportation Officials (AASHTO).

5. Alternatives Provided

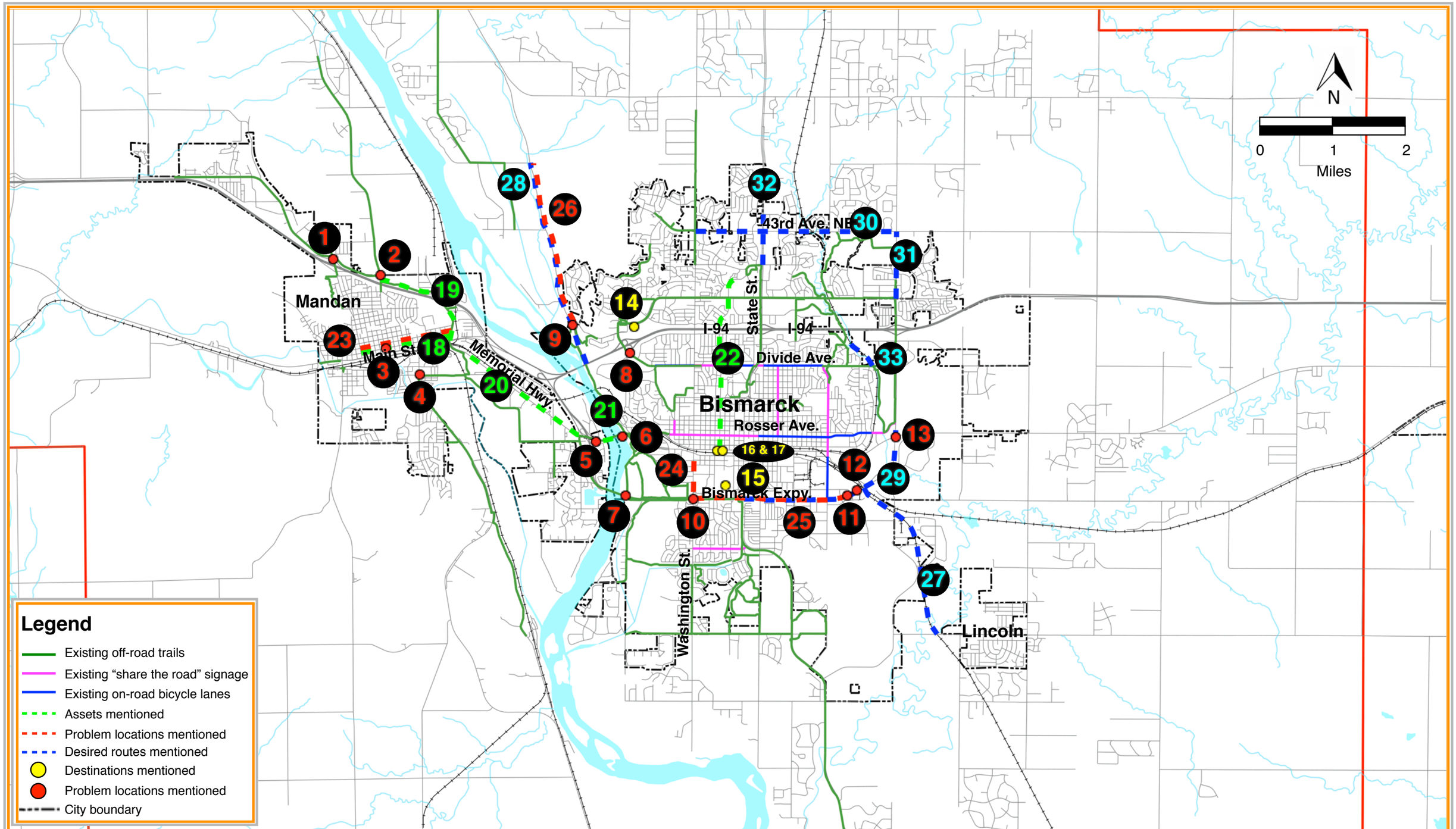
The conceptual framework for connections is illustrated in Figure 6. Table 1 (provides a description of the alternatives shown in Figures 7 and 8. Alternatives provided include:

- Shared-Use Path / Trail Alternatives
- Bike Lane Alternatives
- Neighborhood Slow Street Alternatives
- Intersection Improvements Alternatives

Please note that the improvement alternatives identified also support and enhance other ongoing initiatives, including Safe Routes to Schools (SRTS) programs.

6. Next Steps

Please review the draft bicycle and pedestrian system alternatives list provided in this memorandum. We would like to get your feedback on the concepts and alternatives provided in this memo, so please respond with any comments or questions that you have to Jason Carbee at jason.carbee@hdrinc.com or at 402-399-1370. CDG and HDR will work together to address any additional concepts that should be added, or any questions / concerns you have with the alternatives provided in this memorandum.



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Public Comments Received - Walking and Bicycling Issues - Sep 2013 Listening Session and Online Map

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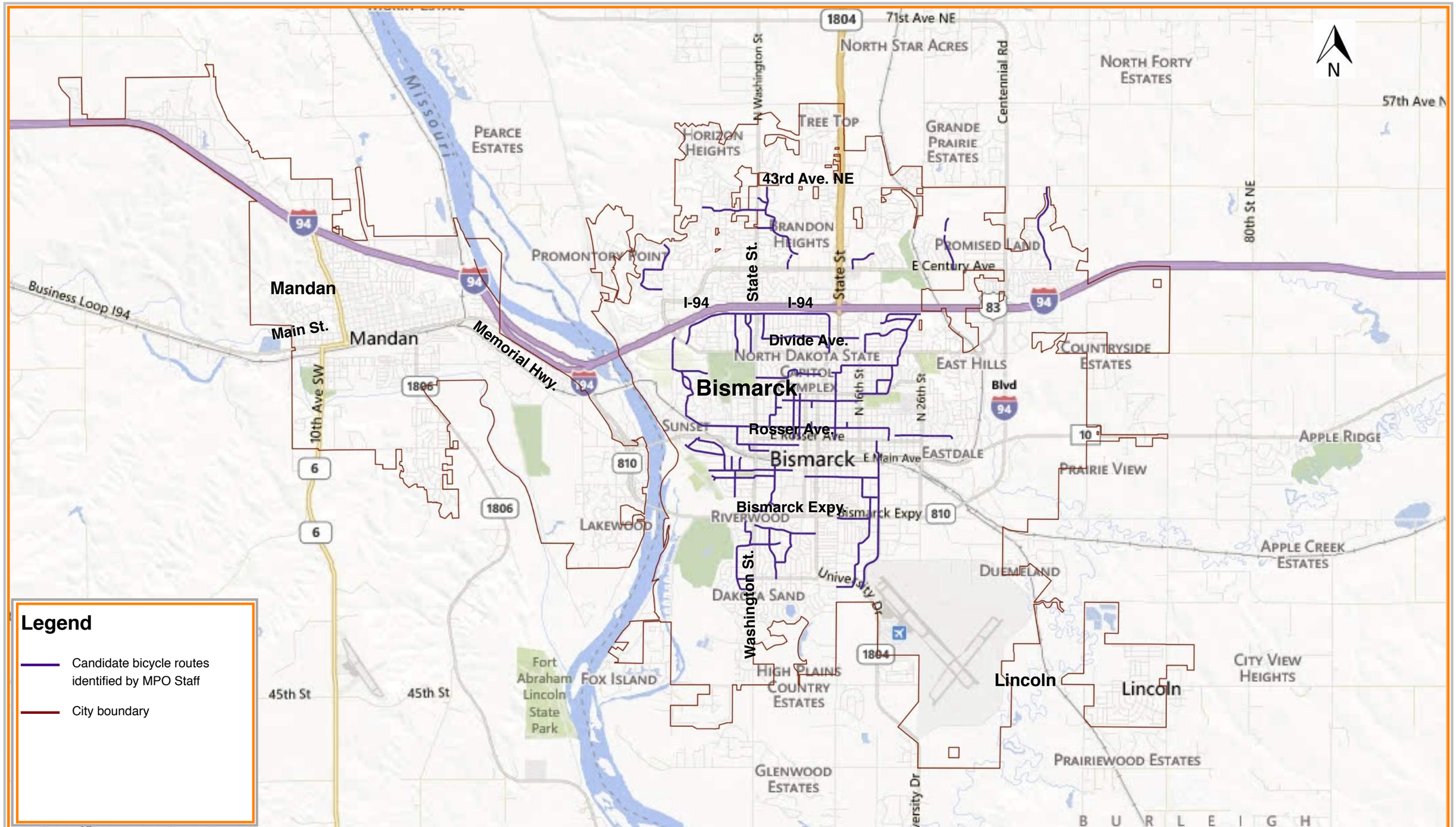
Figure 1

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Candidate bicycle routes identified by MPO Staff

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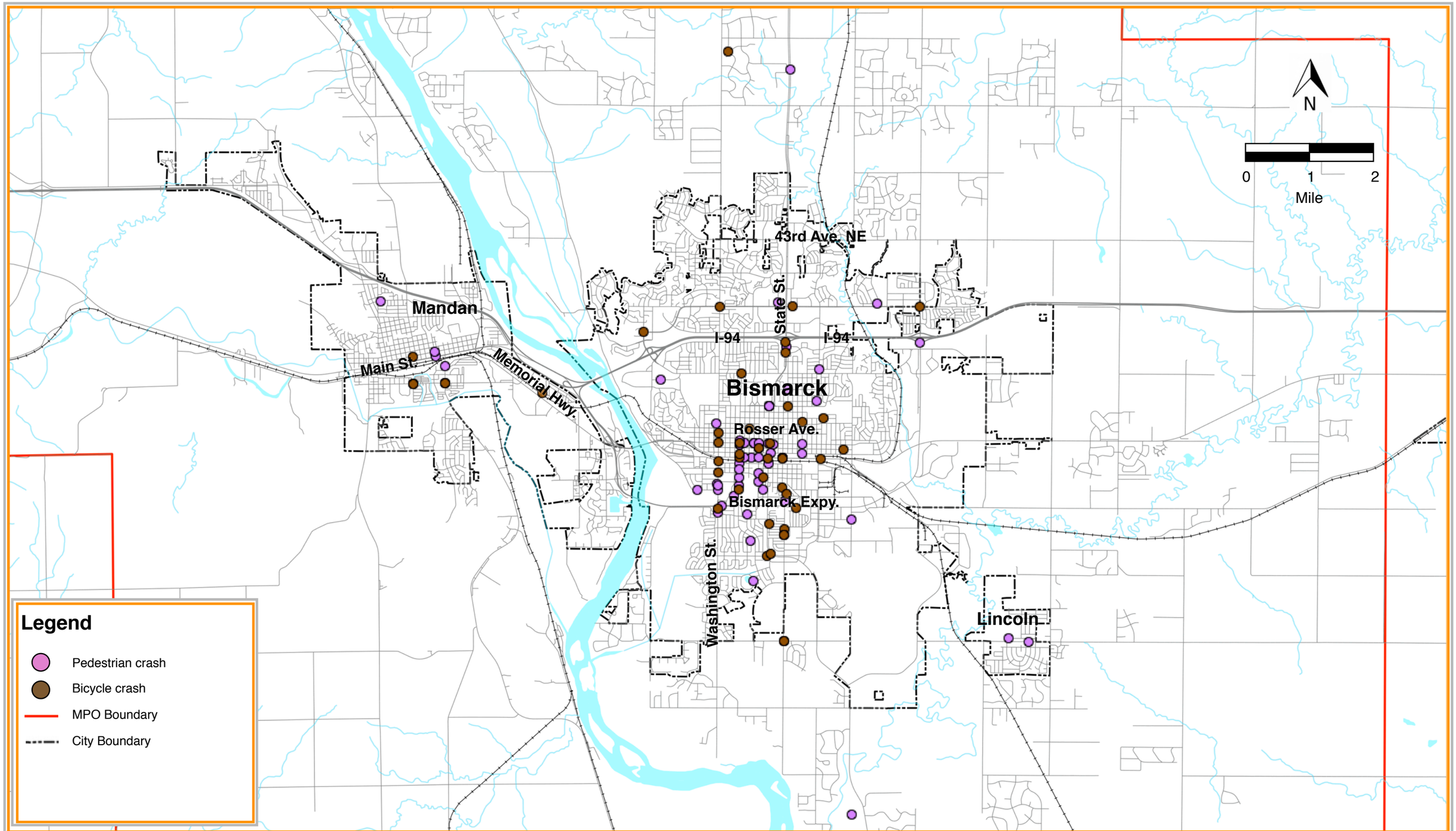
Figure 2

Date: April 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

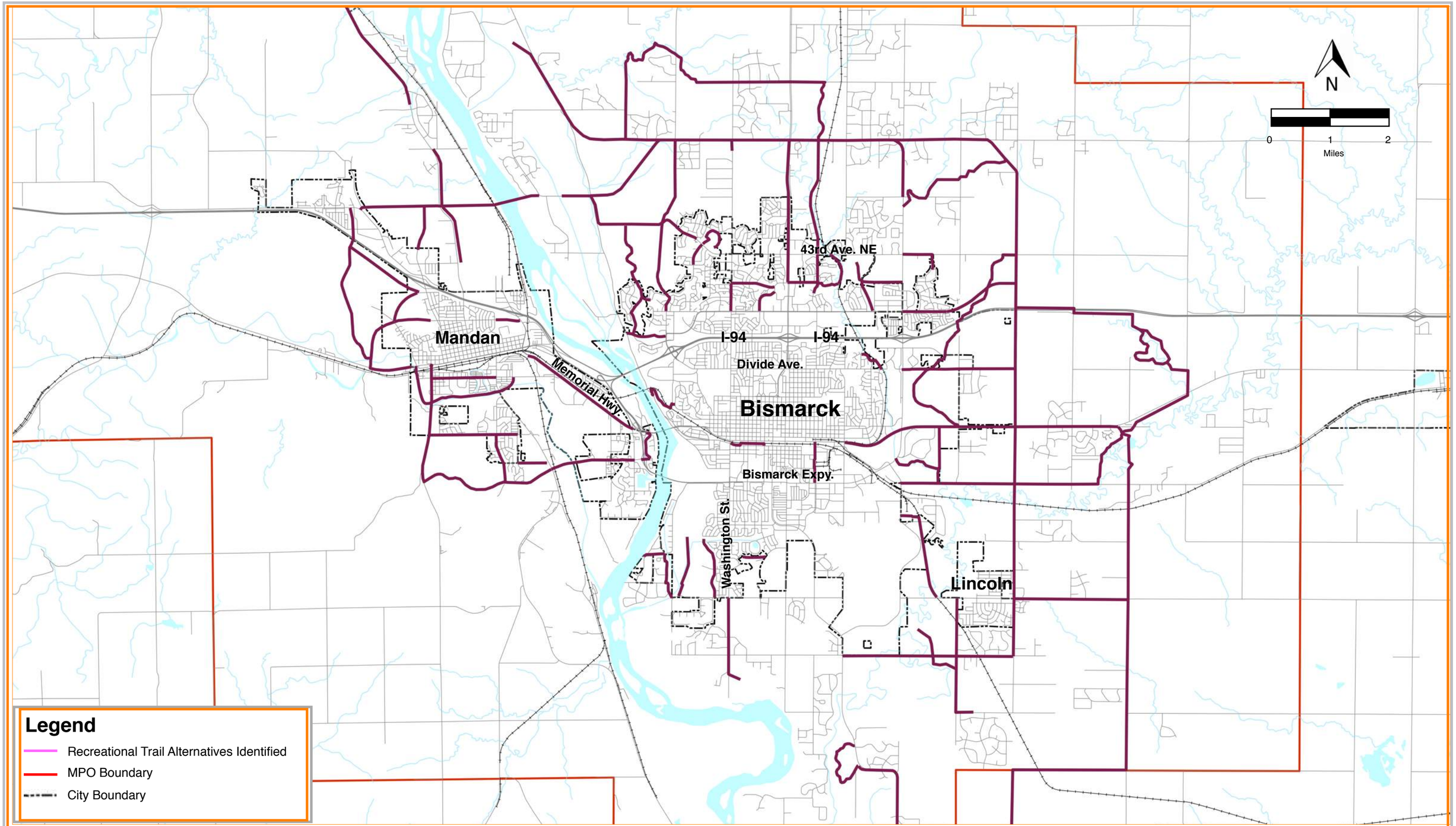
Crashes Involving Pedestrians and Bicyclists, 2010 - 2012

DRAFT

Figure 3

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck;
Bismarck - Mandan MPO; State of ND; HDR

Planned Mandan and Bismarck Parks and Recreation Additional Identified Pedestrian and Bicycle Recreational Trail Alternatives

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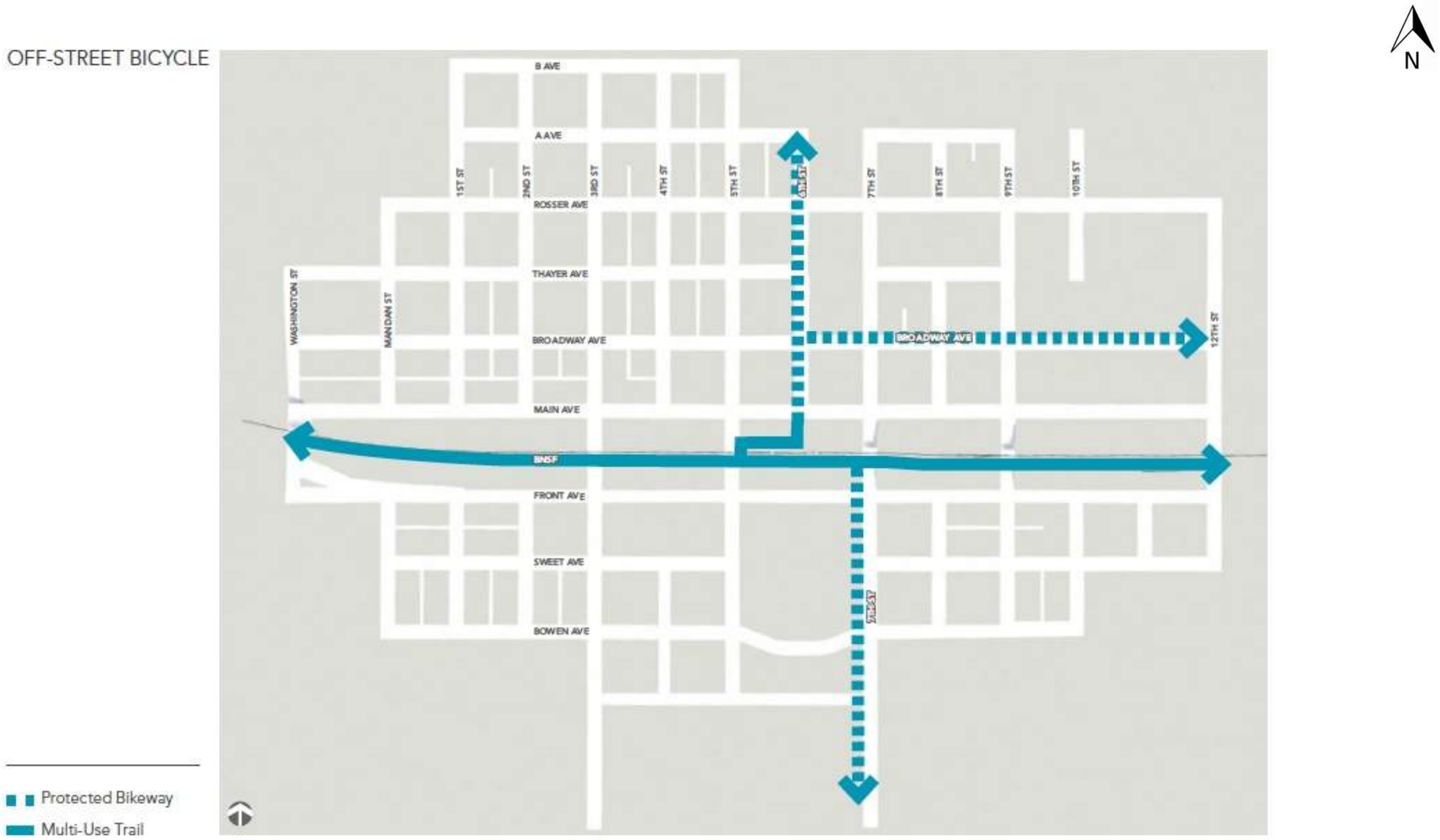
Figure 4

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

From the 2013 Downtown Bismarck Subarea Plan

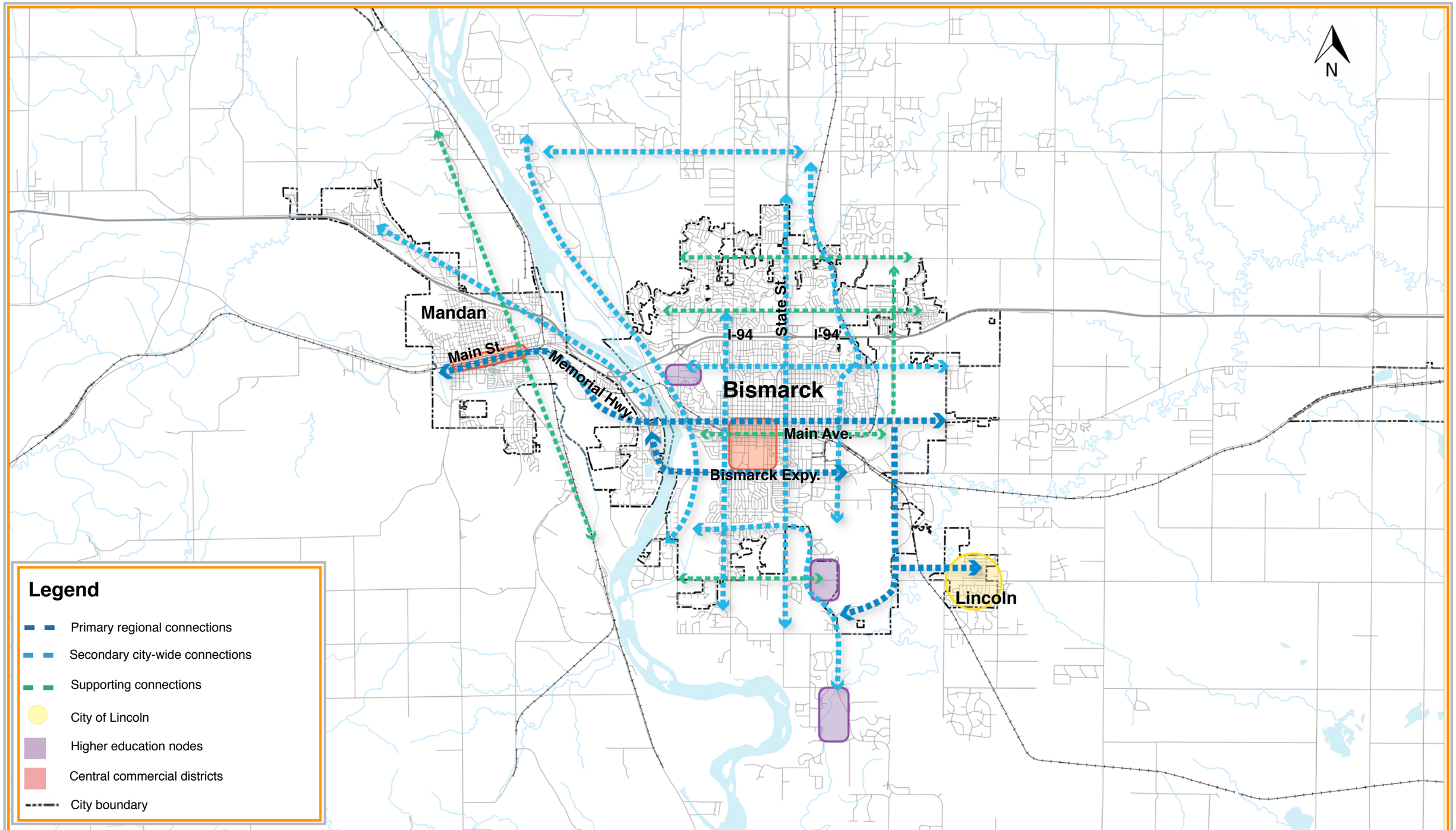


Data Source: 2013 Downtown Bismarck Subarea Plan

Recommended Off-Street Bicycle Improvements in the Downtown Bismarck Subareas Plan

Figure 5

Date: August 2014



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

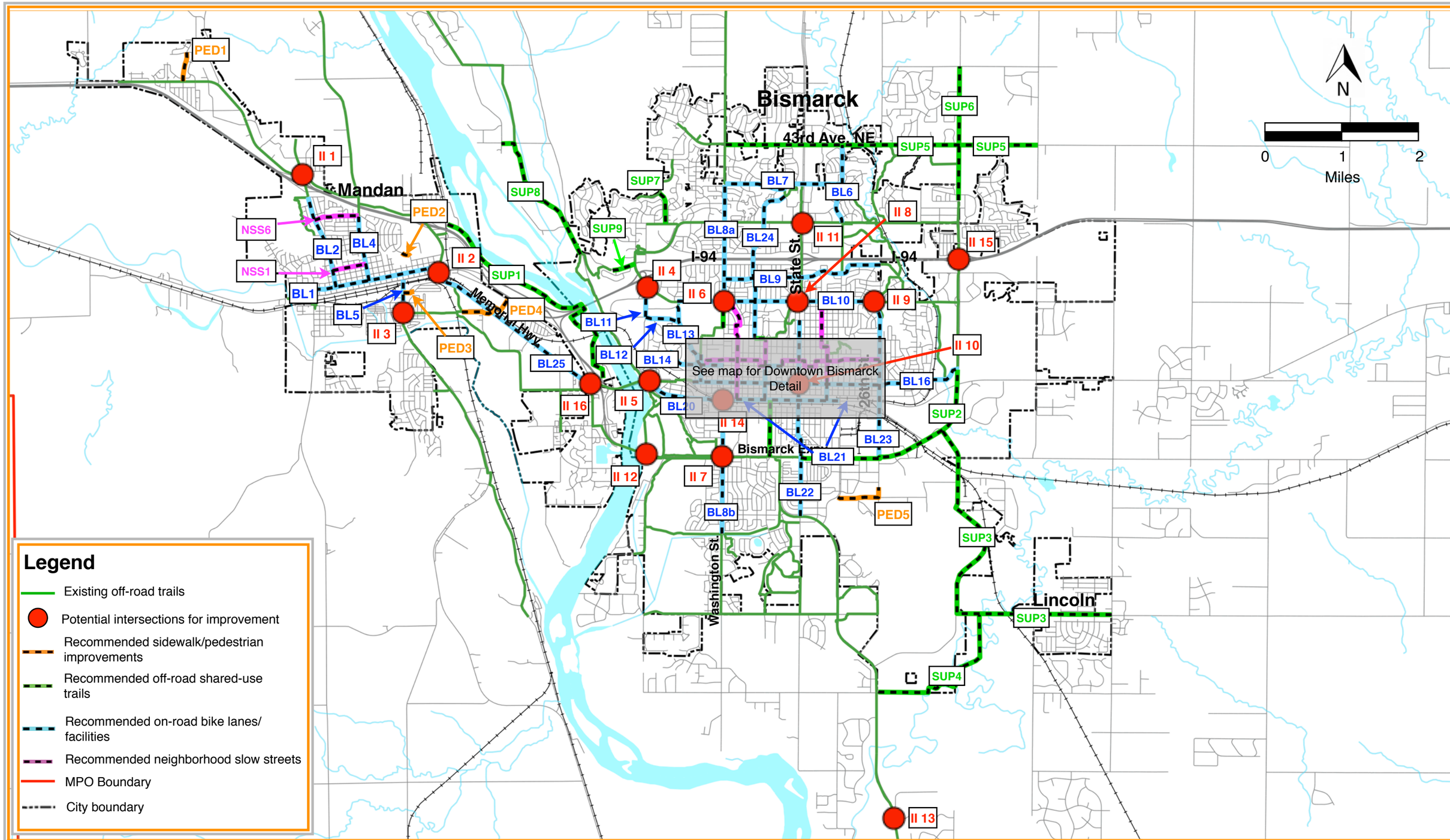
Conceptual Pedestrian and Bicycle Connectivity Framework

DRAFT

Figure 6

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Recommended Pedestrian and Bicycle System Improvements

DRAFT

Note: Potential intersections for improvement are based on site visits, LTS analysis, and public guidance. Highlighted intersections are a subset of locations for improvement.

Removed from previous version:

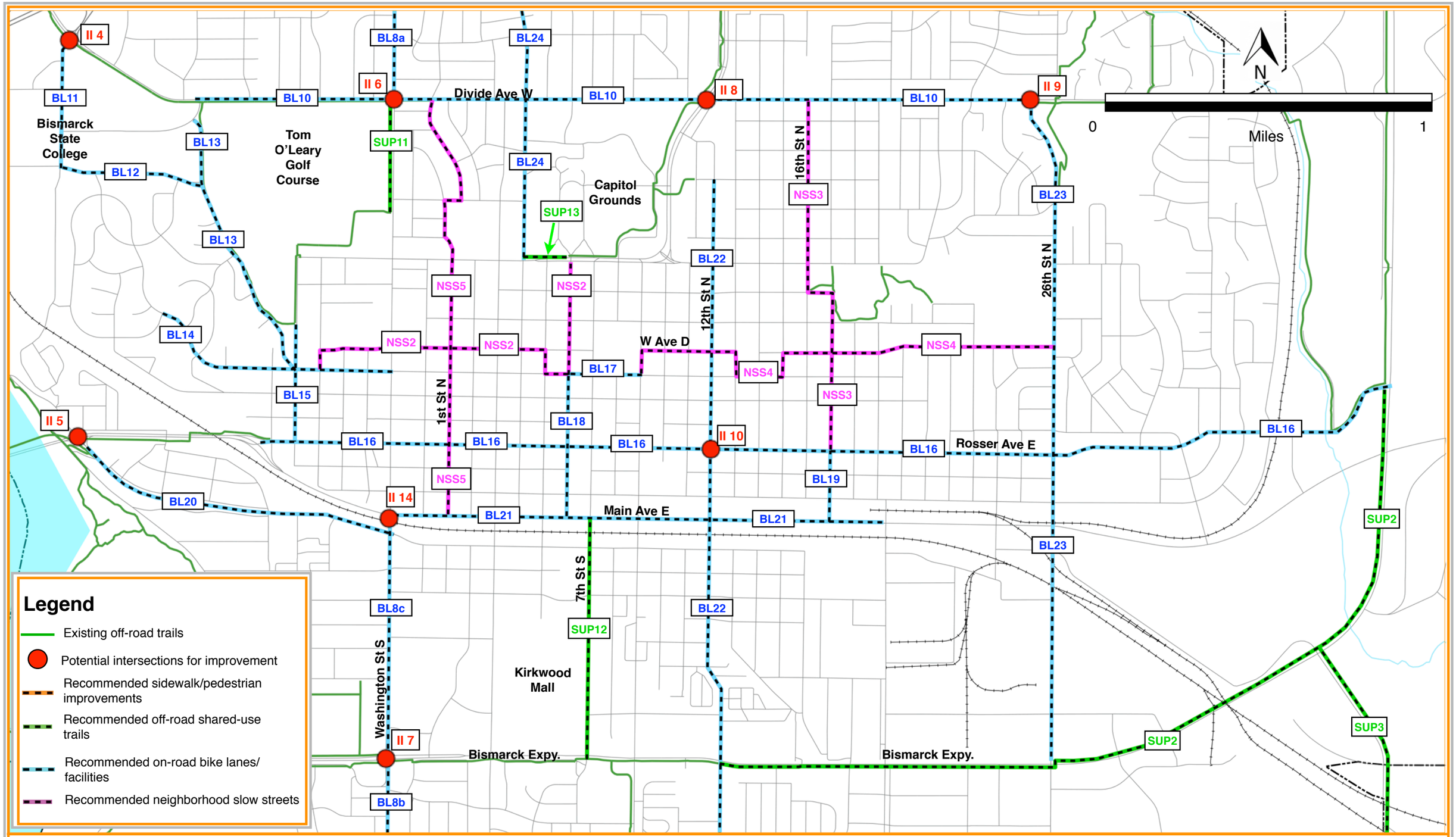
SUP10

BL3

Figure 7

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan



envision2040

Data Source: City of Bismarck; Bismarck - Mandan MPO; State of ND; HDR

Recommended Pedestrian and Bicycle System Improvements in Downtown Bismarck

DRAFT

Note: Potential intersections for improvement are based on site visits, LTS analysis, and public guidance. Highlighted intersections are a subset of locations for improvement.

Removed from previous version: SUP10, BL3

Figure 8

Date: August 2014

2015-2040 BISMARCK-MANDAN Long Range Transportation Plan

Table 1: List of Pedestrian and Bicycle Projects Recommended for Alternatives Analysis

Note: Determinations of existing pavement widths and recommended on-street treatments are given at a representative location identified along the corridor as an example of how to integrate on-street bike facilities within various typical road cross-sections. Widths and conditions may vary along the corridor and proposed configurations may need to be adjusted.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL1 (Bike Lane)	Mandan: On-street bike lane on 1st Street NW/NE from 14th Avenue NW to Mandan Avenue	Sample Location: (Between 4th Ave NW and 3rd Ave NW) - (P + BL + L + L + BL + P) Specifications: • Back-in angled parking lanes (P) = 16' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 66 ft Current width = 66 ft – no pavement impacts, but requires parking reconfiguration – back-in angled parking recommended
BL2	Mandan: On-street bike lane on Sunset Drive NW/ 6th Avenue NW from 1st Street NW to Boundary Road NW	(Between 7th St NW and 6th St NW) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 41 ft – Would require expansion of pavement width and removal of parking on one side of street. Motor-vehicle lanes could be narrowed to 10.5 ft to fit within current width. *Note: For user safety and comfort in this context minimum width of bike lane is 6', based on traffic speeds and volumes. Roadway grade issues exist along this corridor with grades exceeding 5%.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL3	REMOVED FROM PREVIOUS VERSION	REMOVED FROM PREVIOUS VERSION	REMOVED FROM PREVIOUS VERSION
BL4	Mandan: On-street bike lane on Collins Avenue from 1st Street NW to 14th Street NW	(Between 6th St NW and 7th St NW) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Southern portions of this route have higher traffic volumes and a 6' bike lane would be recommended. Roadway grade issues exist along this corridor with grades exceeding 5%.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL5	Mandan: On-street bike lane on 6th Avenue SE from 3rd Street SE to Main Street E	(Between 1st St SE and Burlington St SE) - (BL + L + L + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 56 ft Current width = 51 ft – Requires 5' expansion of pavement width -OR- Upgrade existing sidewalk to a two-way off-road shared-use path along this route. -OR- Reduce to 3 vehicle travel lanes from 4. This would mean a configuration of (BL + L + CTL + L + BL) and be a proposed width of 45', below the current width of 51 feet, allowing for flexibility [Center Turn Lane (CTL) = 11']. FHWA identifies "Road Diet" 4 to 3 lane conversions as a Proven Safety Countermeasure, please see http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm (A Road Diet is currently being evaluated for this corridor). Potential impacts to the railroad overpass may arise from roadway widening or other work. *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL6	Bismarck: On-street bike lane on 19th Street North from Century Avenue E to 43rd Avenue NE	(Between Idaho Dr and E Calgary Ave) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Southern portions of this route have higher traffic speeds and a 6' bike lane would be recommended. Northern portions of 19th Street N have pavement widths of 40 feet and below. An on-street shared lane bicycle accommodation may be appropriate in these locations, since ADT decreases on 19th Street N as it approaches 43rd Ave NE. Potential issues with roadway grades.
BL7	Bismarck: On-street bike lane on Calgary Avenue E from Washington Street N to 19th Street N	(Between Valcartier St and Coleman St) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL8a	Bismarck: On-street bike lane on Washington Street N from Divide Avenue E to Calgary Ave E	(At Ryan Drive) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 7' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – No pavement or parking impacts Reduce width of parking lane to 7' to avoid pavement impacts *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes. Pavement widths along this corridor vary from 44' to 52'. Modification to pavement widths or to the kind of facilities implemented will need to be considered at these locations.. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL8b	Bismarck: On-street bike lane on Washington Street S from existing trail south of Billings Drive to W Bismarck Expressway	(At Wachter Ave E) - (BL + L + L + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 56 ft Current width = 52 ft – Requires 4' expansion of pavement width -OR- Upgrade existing sidewalk to a two-way off-road shared-use path along this route to connect to shared-use path to the south. *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes. Potential issues with roadway grades.
BL8c	Bismarck: On-street bike lane on Washington Street S from W Bismarck Expressway to Main Ave E	(Between W Ingals Ave and W Indiana Ave) - (BL + L + L + CTL + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Center Turn Lane (CTL) = 11' • Through lanes (L) = 11'	Proposed width = 67 ft Current width = 64 ft – Requires 3' expansion of pavement width -OR- Upgrade existing sidewalk to a two-way off-road shared-use path along this route to connect to shared-use path to the south. *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL9	Bismarck: On-street bike lane on Capitol Ave E from Washington Street N (beginning at N Kavaney Dr) to existing trail east of 23rd Street N/at the end of E Capitol Ave (part of the Hay Creek Trail)	(Between N 7th St and N 8th St) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.
BL10	Bismarck: On-street bike lane on Divide Avenue from College Drive to 26th Street N (some of this stretch already contains share the road signage and bicycle lanes)	(Between N 15th St and N 16th St) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts -OR- Remove the parking lane from the south side of Divide Avenue along this route (where it exists) and add an 11' center turn lane (CTL). This would mean a configuration of (P + BL + L + CTL + L + BL) and be a proposed width of 51', requiring a 3' expansion of pavement width. Please note that there is currently no parking along the majority of the route on the south side of Divide Avenue, and a center turn lane is currently being considered for the length of this corridor. *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL11	Bismarck: On-street bike lane on Schafer Street from Divide Avenue W to Edwards Avenue	(Between College Dr and Edwards Avenue) - (BL + L + PM + L + BL) Specifications: • Bike lanes (BL) = 5' • Planted Median (PM) = 8' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 48 ft – no pavement impacts *Note: Due to high pedestrian traffic, prevalence of mid-block crossings, and available pavement, the addition of an 8' planted median is recommended. This yields a proposed configuration of 40', allowing flexibility in configuration. *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. *Note: Current pavement width exceeds proposed by 8', allowing for flexibility in configuration.
BL12	Bismarck: On-street bike lane on Edwards Avenue from Schafer Street to Ward Road	(Between Schafer St and W Coulee Rd) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street (though it appears parking is lightly used in this location). *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL13	Bismarck: On-street bike lane on Ward Road from W Avenue C to College Drive	(Between Edwards Ave and Cottage Dr) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' (or 7') • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 40 ft – Requires 2' expansion of pavement width and removal of parking from one side of the street -OR- Reduce width of parking lane to 7' to avoid pavement impacts -OR- Establish a two-way off-road shared-use path along this route. *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes. Potential issues with roadway grades.
BL14	Bismarck: On-street bike lane on W Avenue C from Highland Acres Road S to Washington Street N	(Between Williams St and N Bell St) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL15	Bismarck: On-street bike lane on Griffin Street N from Rosser Avenue W to existing trail along the Tom O'Leary Golf Club (some of this stretch already contains share the road signage)	(Between W Ave B and W Ave A) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 40 ft – no pavement impacts, but requires removal of parking from one side of the street -OR- Given road speeds and volumes, could be a Neighborhood Slow Street configuration. *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL16	Bismarck: On-street bike lane on Rosser Avenue from Bell Street N to the Bismarck Expressway E (some of this stretch already contains share the road signage and bicycle lanes)	(Between Mandan St N and 1st St N) - <u>Minimum Functional:</u> (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' -OR- <u>More Vehicle Separation for Bikes:</u> (P+ BL + B + L + L + B + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Bike Lane Buffers (B) = 3' • Through lanes (L) = 11'	Proposed width in both scenarios = 48 ft <u>Minimum Functional :</u> 48 ft configuration – no pavement impacts and retains parking on both sides of the street; This scenario would include 5' bike lanes -OR- <u>More Vehicle Separation for Bikes:</u> 48 ft configuration – no pavement impacts, but requires removal of parking from one side of the street. With more comfortable facilities, Rosser Ave could become a principal east-west bicycle route. *Note: The minimum width of a bike lane in this scenario varies between 5'-6', based on traffic speeds and volumes along the route.
BL17	Bismarck: On-street bike lane on E Avenue C from 6th Street N to 9th Street N (to connect with bike boulevard network)	(Between 6th St N and 7th St N) - (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL18	Bismarck: On-street bike lane on 6th Street N from Main Avenue E to E Avenue C (to connect with bike boulevard network)	(Between E Ave A and E Ave B) - (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 40 ft Current width = 44 ft – no pavement impacts, but requires removal of parking from one side of the street *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. *Note: Current pavement width exceeds proposed by 4', allowing for flexibility in configuration. -OR- The Downtown Bismarck Subarea Plan is proposing a 12' bi-directional protected bikeway on 6th Street from Downtown to the Capitol. This configuration would require modification of existing pavement. This configuration would be preferable if expansion of pavement width is possible.
BL19	Bismarck: On-street bike lane on 17th Street N from Main Avenue E to Rosser Avenue E (to connect with bike boulevard network)	(Between Rosser Ave E and Thayer Ave E) – (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL20	Bismarck: On-street bike lane on Memorial Highway from Fraine Barracks Road/Main Avenue W to Washington Street S	(Between Bell St S and Griffin St S) – (P + BL + L + L + BL) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 6' • Through lanes (L) = 11'	Proposed width = 42 ft Current width = 44 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes. *Note: Current pavement width exceeds proposed by 2', allowing for flexibility in configuration.
BL21	Bismarck: On-street bike lane on Main Avenue E from Washington Street S to Airport Road	(East of 6th St N) – (P + BL + L + CTL + L + BL + P) Specifications: • Parallel parking lane (P) = 7' • Bike lanes (BL) = 6' • Center turn lane (CTL) = 10' • Through lanes (L) = 10'	Proposed width = 56 ft Current width = 56 ft – No pavement impacts, no impacts to on-street parking, but would require "Road Diet" 4 to 3 lane conversion (identified by FHWA as a Proven Safety Countermeasure, please see http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm) *Note: The minimum width of a bike lane in this scenario is 6', based on traffic speeds and volumes.
BL22	Bismarck: On-street bike lane on 12th Street from University Drive to Braman Avenue	(Between Virginia Ave and 4th Ave) – (P + BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Potential issues with roadway grades.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL23	Bismarck: On-street bike lane on 26th Street from Bismarck Expressway E to Divide Avenue E (bicycle lanes exist currently between Railroad Avenue and Bismarck Expressway)	(Between Hillview Ave and Valleyview Ave) – (P+ BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes. Southern portions of this route have higher traffic volumes and a 6' bike lane would be recommended. Potential issues with roadway grades.
BL24	Bismarck: On-street bike lane on 4th Street N/ Dominion Street from Boulevard Avenue E to existing shared-use trail at 10th Street N/Gateway Pond	(Between Saturn Dr and Telstar Dr) – (P+ BL + L + L + BL + P) Specifications: • Parallel parking lane (P) = 8' • Bike lanes (BL) = 5' • Through lanes (L) = 11' • Center Turn Lane (CTL) = 11'	Proposed width = 48 ft Current width = 48 ft – no pavement impacts -OR- Remove the parking lane from one side of 4th Street N along this route and add an 11' center turn lane. This would mean a configuration of (P + BL + L + CTL + L + BL) and be a proposed width of 51', requiring a 3' expansion of pavement width. *Note: A center turn lane is currently being considered for the length of this corridor, which may affect on-street parking. *Note: The minimum width of a bike lane in this scenario is 5', based on traffic speeds and volumes.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
BL25	Mandan: On-Street bike lane on Memorial Highway from 46th Avenue SE to Main Street E	(BL + L + L + CTL + L + L + BL) Specifications: • Bike lanes (BL) = 6' • Through lanes (L) = 12' • Center Turn Lane (CTL) = 12'	Proposed width = 72 ft Current width = 70 ft – 2' expansion of existing pavement required *Note: 5' bicycle lanes, 12' driving lanes, and a 12' center turn lane is recommended as the typical cross-section along this corridor in the Memorial Highway Final Corridor Report (in addition to sidewalk improvements outside of the pavement and in the ROW). We recommend a minimum 6' wide bicycle lane based on traffic speeds and volumes.
NSS1 (Neighborhood Slow Street)	Mandan: Neighborhood Slow Street on 4th Street NW Starts: 4th Street NW at 6th Avenue NW Ends: 4th Street NW at Collins Avenue	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	Potential issues with roadway grades.
NSS2 (multi-street route)	Bismarck: Neighborhood Slow Street Starts: Anderson Street N at E Avenue C Route includes: W Avenue D, E Avenue D, 5th Street N, and E Avenue C Ends: 6th Street N at Boulevard Avenue E	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	The Downtown Bismarck Subarea Plan is proposing a 12' bi-directional protected bikeway on 6th Street from Downtown to the Capitol. This configuration calls for modifications of existing pavement. We support this configuration if expansion of pavement width is possible.

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
NSS3 (multi-street route)	Bismarck: Neighborhood Slow Street Starts: 17th Street N at Rosser Avenue E Route includes: E Avenue F Ends: 16th Street N at Divide Avenue N Parts of this stretch already contain share the road signage	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	Potential issues with roadway grades.
NSS4 (multi-street route)	Bismarck: Neighborhood Slow Street Starts: 9th Street N at E Avenue C Route includes: E Avenue D, 13th Street N, E Avenue C, and 15th Street N Ends: E Avenue D at 26th Street N	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	None
NSS5 (multi-street route)	Bismarck: Neighborhood Slow Street Starts: 1st Street N at Main Ave E Route includes: 1st Street N, Arikara Ave E, and Meredith Dr Ends: Meredith Drive at Divide Ave E	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	None

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
NSS6	Mandan: Neighborhood Slow Street Starts: 14th Street NW at Sunset Drive NW Ends: 14th Street NW at Collins Avenue	Shared facility on current roadway. May include traffic calming elements at selected intersections (median diverters, traffic circles) and along roadway segments (speed tables). No impacts on motor-vehicle traffic lanes or parking.	None
SUP1 (Shared-Use Path)	Mandan: Two-way shared-use path – Pave the natural surface trail from the end of Captain Leach Lane northwest along the river to meet up with River Drive NE and Division Street NE		
SUP2	Bismarck: Two-way shared-use path along the Bismarck Expressway from existing trail at 12th Street S to Rosser Avenue E		
SUP3	Bismarck: Two-way shared-use path along Yegen Road, Airway Avenue, and Lincoln Road from the E. Bismarck Expressway to City of Lincoln	Lincoln Rd Corridor Study called for trail on north side of Lincoln Rd	
SUP4	Bismarck: Two-way shared-use path from Lincoln Road to 48th Avenue SE and University Drive	Place along Airport ROW line. Consistent with 2035 LRTP.	
SUP5	Bismarck: Two-way shared-use path along 43rd Avenue NE from North Washington Street to 52nd Street NE		
SUP6	Bismarck: Two-way shared-use path along Centennial Road from existing trail at Jericho Road to 57th Avenue NE		

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
SUP7	Bismarck: Two-way shared-use path connecting Valley Drive (the Valley Drive Greenway Trail) to Country West Road and Century Avenue W through the Country West/Ridge Estates neighborhood		
SUP8	Bismarck: Two-way shared-use path from the terminus of the Riverfront Trail at River Road and Burnt Boat Road northwest to Fernwood Drive and Sandy River Drive		
SUP9	Bismarck: Two-way shared-use path along Grandview Lane from Tyler Parkway to the existing trail west of Broadview Lane		
SUP10	REMOVED FROM PREVIOUS VERSION	REMOVED FROM PREVIOUS VERSION	REMOVED FROM PREVIOUS VERSION
SUP11	Bismarck: Two-way shared-use path along west side of Washington Street N from Divide Avenue E to connect of Tom O'Leary Trail south of Arikara Avenue E		
SUP12	Bismarck: Two-way shared-use path on 7th Street S from Bismarck Expressway (connects to existing shared-use path) to Main Ave E	This is consistent with the Downtown Bismarck Subarea Plan's proposal of a "protected bikeway" on this corridor	
SUP13	Bismarck: Two-way shared-use path along E Boulevard Ave to connect to existing path on Capitol Grounds		
PED1	Mandan: In TIP for 2014: Sidewalk, signage, pavement markings along 37th Avenue NW		

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
PED2	Mandan: Complete identified gap in sidewalk network along 6th Avenue NE		
PED3	Mandan: Complete identified gap in sidewalk network along Frontier Trail S from 6th Ave SE to Gateway Trail W		
PED4	Mandan: Complete identified gap in sidewalk network along 3rd Street SE and Bisman Ave SE from Riverwood Ave SE to Twin City Drive		
PED5	Bismarck: Complete identified sidewalk gap in SE Bismarck near Northern Plains Commerce Center		
II1 (Intersection Improvement)	Mandan: Sunset Drive and Old Red Trail – consider improvements for pedestrians and bicyclists		
II2	Mandan: Main Street and Mandan Avenue – consider improvements for pedestrians and bicyclists		
II3	Mandan: 3rd Street SE and 6th Avenue SE – consider improvements for pedestrians and bicyclists		
II4	Bismarck: Schafer Street and Divide Avenue W – consider improvements for pedestrians and bicyclists		
II5	Bismarck: Memorial Highway, Main Avenue W and Fraine Barracks Road – consider improvements for pedestrians and bicyclists		

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
II6	Bismarck: Divide Avenue W and Washington Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II7	Bismarck: Bismarck Expressway and Washington Street S – consider improvements for pedestrians and bicyclists		
II8	Bismarck: Divide Avenue W and State Street – extend bike lanes through intersection and consider improvements for pedestrians		
II9	Bismarck: Divide Avenue W and 26th Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II10	Bismarck: Rosser Avenue E and 12th Street N – extend bike lanes through intersection and consider improvements for pedestrians		
II11	Bismarck: State Street and Century Avenue E – consider improvements for pedestrians and bicyclists		
II12	Bismarck: Establish consistent tunnel access under the Bismarck Expressway where the Riverfront Trail meets the Bismarck Expressway		
II13	Bismarck: Explore the use of an Pedestrian Hybrid Beacon/HAWK signal from Southridge Lane across University Drive/1804 to access the shared-use path on the west side of University Avenue		

Alternative Project ID	Project Description	Proposed Configuration	Potential ROW, Other Impacts, and Notes
II14	Bismarck: Establish vertical connection to Main Ave W from Memorial Highway at Washington Street		
II15	Bismarck: Establish improvements for pedestrians and bicyclists in shared-use path facility where Centennial Rd/W Bismarck Expressway crosses over I-94		
II16	Mandan: Memorial Highway and 46th Avenue SE – Consider improvements for pedestrians and bicyclists such as high-visibility crosswalks and a flashing indicator beacon where shared-use path crosses Memorial Highway		

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