NDSU | UPPER GREAT PLAINS TRANSPORTATION INSTITUTE
ADVANCED TRAFFIC ANALYSIS CENTER

Near Southside Historical Neighborhood Traffic Study

Final Report

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Prepared for:
Grand Forks-East Grand Forks MPO

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INTRODUCTION

The Grand Forks-East Grand Forks Metropolitan Planning Organization (MPO), working with the City of Grand Forks (City) and the Near Southside Neighborhood Association, requested the Advanced Traffic Analysis Center (ATAC) to explore possible traffic calming and safety countermeasures in the Near Southside Historic Neighborhood. The study area limits under consideration are 1st Ave. S. to the north, 13th Ave. S. to the south, Cherry St. to the west, and the Red River to the east. Figure 1 shows a general map of the area.

Figure 1. Study area

The Near Southside Neighborhood has been organized and has pursued many improvements or betterment projects within its confines. Improvements have included investments in making key intersections and sidewalks more accessible, adding street lighting, and updating intersection traffic control devices.

One chronic issue that has been identified for the neighborhood is the perception of speeding vehicles and the use of the neighborhood streets for cut through traffic, particularly Reeves Drive. This is traffic that is neither originating nor destined within the neighborhood. Rather it is traffic using Reeves Drive as a way to reach the southernmost bridge over the Red River.

Included in this history of issues is the traffic along Belmont and 4th Ave. S. These two streets are designated to carry the through traffic within the neighborhood. Speeding is a perceived issue along these two roads and the close proximity of Phoenix Elementary School is a major concern for pedestrian safety. The intersection of 4th and Belmont also had a recent crash that took out one of the traffic signal masts. As this is an older neighborhood with older signals, replacement parts for the equipment were difficult to purchase. Another crash further hampered the situation by taking out more of the remaining traffic signal. After careful data collection, analysis, and neighborhood involvement, it was decided to not replace the signals. Rather, the intersection would be converted into an all way stop. The neighborhood continues to perceive traffic issues besides the speed and cut through traffic.

The neighborhood has presented concepts of how intersections could be reimagined to include safer crossings for pedestrians, especially for the Phoenix bound students and parents. The concepts were presented to the city and the resulting action was to agree to conduct the Near Southside Historical Neighborhood Study.

OBJECTIVES

The objective of this study is to identify countermeasures to calm traffic, enhance safety, improve overall traffic flow, and optimize intersections, while targeting the perceived speeding issue. This study is comprised of several tasks.

- Speed Study
- Temporary and Permanent Improvements
- Crash Data Analysis
- Intersection Analysis
- Walkability Assessment
- Travel Demand Model Run Scenarios
- Select Link Analysis

The MPO retained the Advanced Traffic Analysis Center (ATAC) to assist in traffic data analysis, public engagement, and recommendations. Also retained was CPS Consultants whose primary task was to help develop concepts of alternative improvements to address the issues that were being identified. A group of stakeholders from the neighborhood have also volunteered to work with the MPO team and City staff.

SPEED STUDY

Speeding in residential neighborhoods with low posted speed limits can greatly increase the fatality rate if a pedestrian is struck. Figure 2 shows the likelihood of a pedestrian surviving vehicle crash. The trend shows that as speed increases, the chance of surviving decreases. As seen in the figure, just by increasing the speed from 20 mph to 30 mph, the fatality rate increases by 40%.

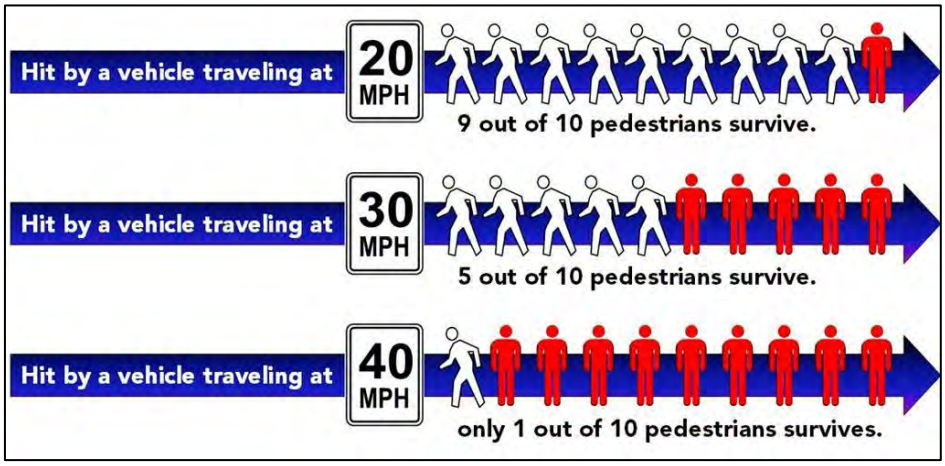

Figure 2. Pedestrian survivability

A driver's ability to stop quickly is also impacted negatively as speed increases. As shown in Figure 3, driver reaction time and the stopping distance both increase with speed. Increasing the speed from just 20 mph to 30 mph creates a ten foot difference in stopping distance.

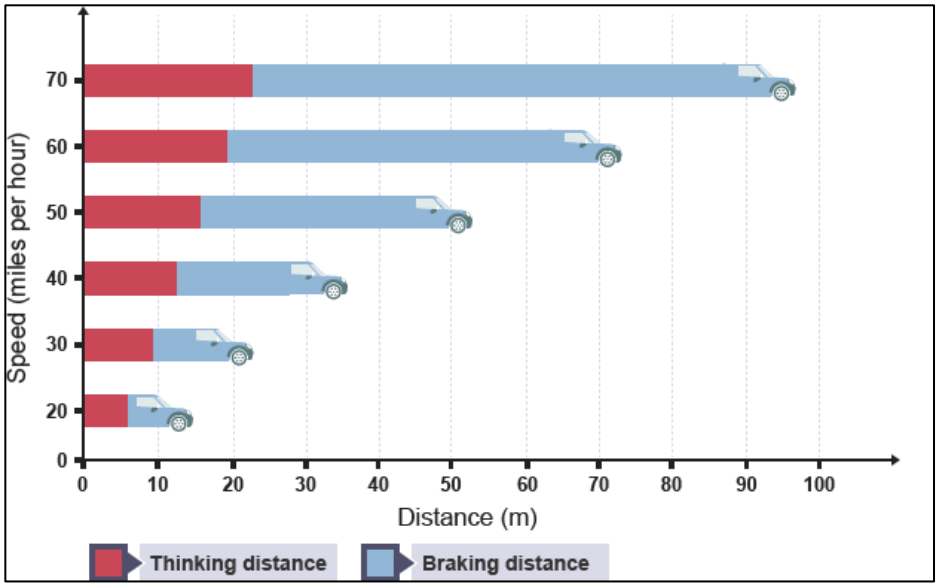

Figure 3. Braking/thinking distance

In July 2016, the City conducted a speed study by using a speed radar trailer operated by the Grand Forks Police Department. One of its main functions is to display individual vehicle speed via a feedback display. It also has the capability to capture speeds without the display (stealth mode). The data gathered by the Police Department did not prove that speeding was an issue even though residents in the neighborhood claimed to still see the speeding. The Police Department speed trailers have "Police" marked very visibly. It is thought that this causes drivers to be more compliant with the speed limit. ATAC was requested to conduct speed studies using other equipment that is more discrete in order to catch more natural driving behavior.

Grand Forks Police Department Speed Trailer Study

Grand Forks Police Department's speed trailers were used to gather speed data for the southbound traffic midblock of Belmont Rd 500 block. For the first day of data collection, the speed trailer had the speed feedback display turned off (stealth mode) in an attempt to capture more natural driving speeds. Tables 1 and 2 show that 85.69% of vehicles are driving below the posted speed limit of 25 mph with a 85th percentile speed of 25 mph, indicating speeding is not an issue.

Table 1. GFPD speed volumes (stealth)

Speed	1 - 19	20-21	22-23	24-25	26-27	28-29	30-31	32 - 33	34 - 35	36 - 37	38 - 39	40+
Volume	1,787	303	311	272	225	143	53	19	8	3	2	3
%of Total	57.1	9.68	9.93	8.69	7.19	4.57	1.69	0.6	0.25	0.09	0.06	0.09
Total Vehicles: 3,129												

Table 2. GFPD speed data (stealth)

Speed Statistics		10 mph Pace		Number Exceeding Limit				
Posted	25	Pace Speed	17 to 26	Speed	25+	35+	45+	Total
#At/Under Limit	2,673	#in Pace	1,474	Number	448	8	0	456
#Over Limit	456	%in Pace	47.1%	Percent	14.31%	0.25%	0%	14.57%
Average Speed	17.82	85% Percentile	25					

On the following day, the feedback speed was set to have the speed feedback display on. Tables 3 and 4 show 88.03% of vehicles traveling under the posted speed limit of 25 mph, an increase of 2.34%. This does prove the stealth mode does capture higher speeds, however the 85th percentile remains at 25 mph and there is no evidence to suggest speeding is an issue.

Table 3. GFPD speed volumes

Speed	1 - 19	20-21	22-23	24 - 25	26 - 27	28-29	30-31	32-33	34-35	36-37	38-39	40+
Volume	1,684	284	282	215	164	103	46	19	4	2	0	4
%of Total	59.9	10.1	10	7.65	5.84	3.66	1.63	0.67	0.14	0.07	0	0.14
											Total Vehicles: 2,807	

Table 4. GFPD speed data

Speed Statistics		10 mph Pace		Number Exceeding Limit				
Posted	25	Pace Speed	13 to 22	Speed	25+	35+	45+	Total
#At/Under Limit	2,465	#in Pace	1,357	Number	336	2	4	342
#Over Limit	342	%in Pace	48.34%	Percent	11.97%	0.07%	0.14%	12.18%

Average Speed	17.39	85% Percentile	25					

ATAC Spot Speed Study

Spot speed studies were conducted in April of 2017 prior to any temporary improvements at four midblock locations along Belmont Road, Reeves Drive, and Cherry Street. The four locations are:

- Site 1
  - Cherry Street between 10th Ave. S. and 13th Ave. S.
  - Posted Speed Limit: 25 mph
- Site 2
  - Belmont Road between 4th Ave. S. and 8th Ave. S.
  - Posted Speed Limit: 25 mph
- Site 3
  - Belmont Road between 13th Ave. S. and 17th Ave. S.
  - Posted Speed Limit: 30 mph
- Site 4
  - Reeves Drive between 4th Ave. S. and 8th Ave. S.
  - Posted Speed Limit: 25 mph

Data was collected during weekdays for a continuous 48-hour period. At each site, both northbound and southbound directions of travel were observed.

Methodology

For the purpose of spot speed studies, Operating Speed Method, generally known as the 85th percentile speed method, was used. The data was collected using JAMAR Black CAT Radar Recorders. In addition to the 85th percentile speed, the following parameters were processed using TRAX Pro:

- Mean Speed: Average speed of vehicles observed
- Mode Speed: Most frequently observed speed
- Median Speed: 50th percentile speed
- Pace: 10 mph range encompassing highest number of observed vehicles
- Vehicles in pace: Percent of observed vehicles driving at speeds within pace
- Over 20 mph: Percent of vehicles traveling over 20 mph
- Over 25 mph: Percent of vehicles speeding over 25 mph
- Over 30 mph: Percent of vehicles speeding over 30 mph
- Over 35 mph: Percent of vehicles speeding over 35 mph

Added benefits of using JAMAR Black CAT Radar Recorder devices were:

1. It was possible to collect data concurrently at multiple sites/directions
2. Reliable traffic volume data were collected at the same time
3. Data statistics could be processed on a per-lane basis
4. Data were collected in an inconspicuous manner

Data were collected between April 19 and April 26 while schools were in session. Note that the JAMAR reports, included in Appendix A, include frequency distribution charts showing the number of vehicles at each observed speed.

Results

As previously mentioned, various parameters were calculated from speed observations. A summary of the results is presented in Table 5. These results were presented to the public during a meeting on May 19. The results showed an increase in the speed data collected, indicating that the police speed trailers were "dampening" vehicle speeds.

Table 5. Spot speed study summary

Location and Date / Parameter	Cherry St. between 10th Ave. S. and 13th Ave. S.		Belmont Rd. between 4th Ave. S. and 8th Ave. S.		Belmont Rd. between 13th Ave. S. and 17th Ave. S.		Reeves Dr. between 4th Ave. S. and 8th Ave. S.	
	April 19 24-hr	April 20 24-hr	April 19 24-hr	April 20 24-hr	April 25 24-hr	April 26 24-hr	April 25 24-hr	April 26 24-hr
Volume	2,853	2,894	4,984	4,986	6,279	6,094	2,306	2,143
Posted Speed Limit (mph)	25		25		30		25	
85th Percentile (mph)	25	24	29	29	32	33	30	30
Mean (mph)	21	21	26	25	28	28	25	26
Mode (mph)	22	21	25	25	25	25	25	27
Median (mph)	22	21	25	25	27	27	25	27
Pace (mph)	16-25	16-25	21-30	21-30	23-32	23-32	21-30	21-30
In pace (%)	84.7	84.3	88.1	87.8	77.4	73.1	77.9	78.2
Over 20mph (%)	63.6	54.0	94.5	93.5	97.8	96.6	87.1	92.3
Over 25mph (%)	11.1	7.5	46.5	45.1	43.8	39.5	49.9	59.5
Over 30mph (%)	0.8	0.8	6.5	5.8	23.4	24.8	9.2	14.2
Over 35mph (%)	0.1	0.1	0.4	0.5	5.0	5.6	1.2	1.8

Site 1 - Cherry Street

At Site 1, average daily traffic (ADT) of 2,874 was observed. Less than 15% of traffic was observed speeding over the posted limit of 25 mph during both days of observation. The 85th percentile speed was found to be in the range of 24-25 mph. Also, less than 1% of traffic was observed speeding over 30 mph.

Site 2- Belmont Road North
At Site 2, ADT of 4,985 was observed. Significantly more than 15% of traffic was observed speeding over the posted limit of 25 mph during both days of observation. The 85th percentile speed was found to be 29 mph. Also, approx. 6% of traffic was observed speeding over 30 mph.

Site 3 – Belmont Road South
At Site 3, ADT of 6,187 was observed. More than 15% of traffic was observed speeding over the posted limit of 30 mph during both days of observation. The 85th percentile speed was found to be in the range of 32-33 mph. Also, approx. 5% of traffic was observed speeding over 35 mph.

Site 4 – Reeves Drive
At Site 4, ADT of 2,225 was observed. Significantly more than 15% of traffic was observed speeding over the posted limit of 25 mph during both days of observation. The 85th percentile speed was found to be 30 mph. Also, between 9%-14% of traffic was observed speeding over 30 mph.

Traffic Analyzer Study
Belmont Rd 700 Block North Lane
Table 6 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 32 - 34 mph range or lower. The average speed for all classified vehicles was 33 mph with 98.03% vehicles exceeding the posted speed of 25 mph. 0.22% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 32mph and the 85th percentile was 37.13 mph.

Table 6. Belmont Rd. 700 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	7	22	21	66	186	354	781	1,087	1,172	1,057	864	210	33	5	13

Belmont Rd 700 Block South Lane
Table 7 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 28 - 30 mph range or lower. The average speed for all classified vehicles was 30 mph with 90.37% vehicles exceeding the posted speed of 25 mph. 2.89% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 28mph and the 85th percentile was 35.22 mph.

Table 7. Belmont Rd. 700 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	37	118	118	287	567	1,055	1,173	895	491	326	281	152	80	65	168

Chestnut St 700 Block North Lane

Table 8 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 24 - 26 mph range or lower. The average speed for all classified vehicles was 25 mph with 56.27% vehicles exceeding the posted speed of 25 mph. 0.38% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 24mph and the 85th percentile was 30.39 mph.

Table 8. Chestnut St. 700 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	38	138	124	164	199	129	96	66	33	17	25	15	8	5	4

Walnut St 700 Block North Lane

Table 9 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 26 - 28 mph range or lower. The average speed for all classified vehicles was 27 mph with 70.88% vehicles exceeding the posted speed of 25 mph. 1.50% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 31.08 mph.

Table 9. Chestnut St. 700 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	25	74	92	159	192	238	187	98	51	24	15	11	12	6	18

4th Ave. between Walnut and Cottonwood West Lane

At least half the vehicles were traveling in the 24 - 26 mph range or lower. The average speed for all classified vehicles was 26 mph with 67.52% vehicles exceeding the posted speed of 25 mph. 0.14% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 24mph and the 85th percentile was 29.75 mph.

Table 10. 4th Ave WB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	21	216	493	855	1,014	929	709	384	167	48	27	9	1	0	7

Minnesota Ave. between 3rd St. and 4th St. West Lane

At least half the vehicles were traveling in the 28 - 30 mph range or lower. The average speed for all classified vehicles was 29 mph with 90.67% vehicles exceeding the posted speed of 25 mph. 0.63% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 28mph and the 85th percentile was 32.61 mph.

TEMPORARY AND PERMANENT IMPROVEMENTS

Preliminary data made it clear that there were issues at a few locations within the study area. The City and MPO were proactive in finding an immediate solution in these areas. Reeves Drive had temporary traffic calming measures in place to tackle the speeding issue. After the trials were completed, the temporary improvements were converted into permanent installations.

Reeves Drive Temporary Improvements

This section includes studies completed by MPO and the City. Note that curb extensions in the form of pinch-points (chokers) were installed midblock on Reeves Dr. by the City. The City of Grand Forks Police Department had temporarily installed dynamic speed feedback signs to collect traffic speed data. Refer to Appendix D for details. Traffic speed and count data was also collected by the MPO before and after the installations. Refer to Appendix E for details.

Near Southside Neighborhood Traffic Study

The Near Southside Neighborhood (NSS) has expressed safety and traffic concerns in their neighborhood stemming from increased vehicle traffic, excessive speeds, and disregard to the stop signs at intersections. The MPO gathered traffic data in early April to establish baseline traffic data. Included in this data were turning movement counts at key intersections and a speed study on the three functionally classified north-south streets: Reeves, Belmont, and Cherry.

For Reeves Dr., the speed study confirmed that traffic was travelling faster than the posted speed limit of 25 mph. The preliminary results revealed that just of 50% of the traffic was moving faster than 25 mph and the 85th percentile speed was 30 mph.

Turning movement counts were done manually and the observers noticed numerous running of the stop signs at the 8th Ave. S. intersection with Reeves Dr. The turning movement counts also confirmed that much of the traffic on Reeves Dr. was through traffic rather than what would be typical for a residential neighborhood. The average daily traffic observed for Reeves is much higher than one would expect for a typical residential neighborhood in Grand Forks. The nearby adjacent streets that are similar in land use type confirm that the traffic on Reeves consists of a large amount of through traffic. Given Reeves Drive proximity to the Point Bridge and the southern and southwestern portion of Grand forks, a lot of traffic is using Reeves Dr. rather than using the functionally classified roadways like Belmont or 4th Ave S.

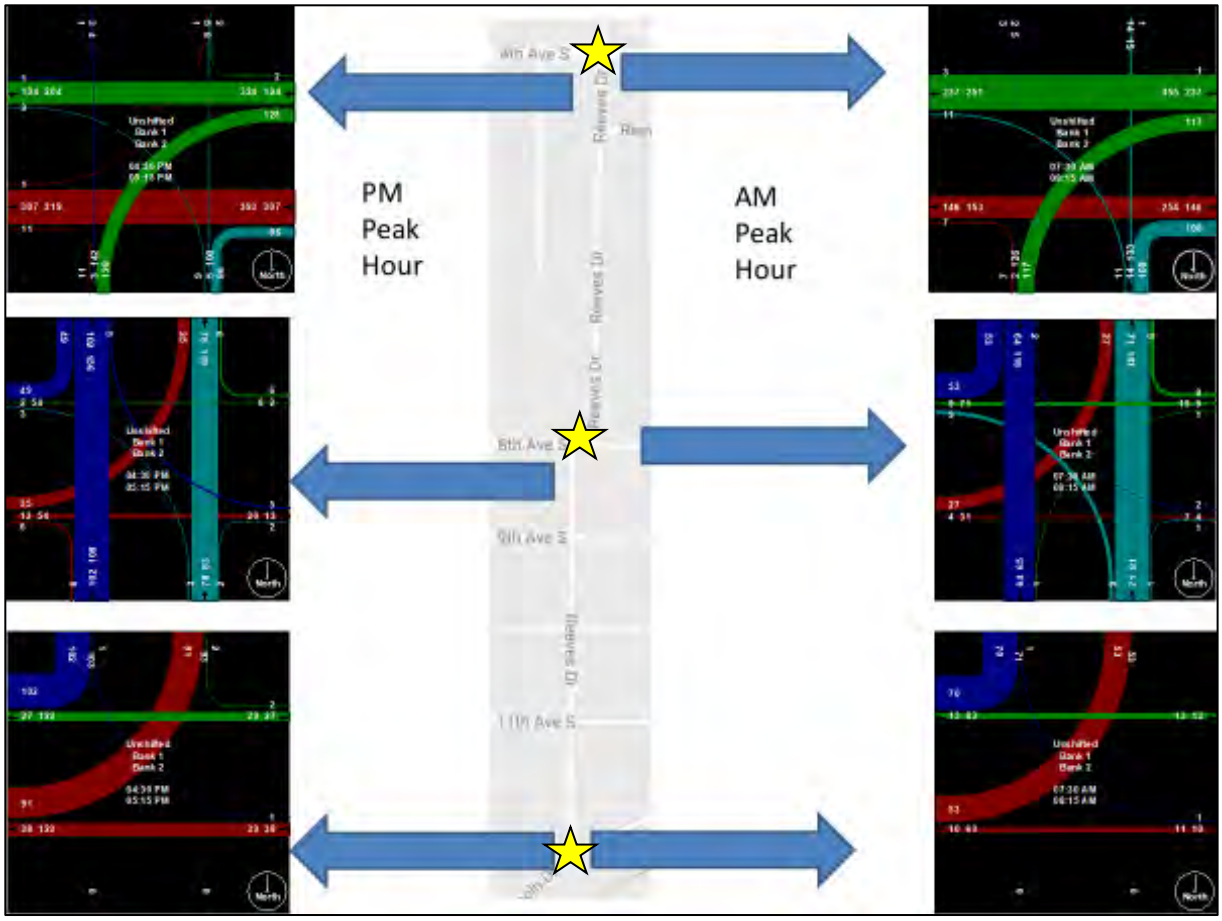

Figure 4. Reeves Dr. turning movements

Figure 4 shows that much of the traffic flow is through the neighborhood. The desire line of flow is to get from the southern portions of Grand Forks to the Point Bridge. Traffic uses the southern end of Reeves to divert from the Belmont Road corridor. That traffic proceeds through the Reeves Drive area and then turns to go to the bridge. The reverse traffic flow is also shown in the figure 4. As the data shows, more traffic is northbound in the morning and then southbound during the evening peak hours.

Some traffic uses the 8th Ave S one block connection between Belmont Road and Reeves Drive. The traffic is trying to find another route to take instead of continuing along Belmont or Reeves. The unusual intersection of Reeves and 8th Ave S compounds this issue of traffic flow.

Working with the neighborhood, the city installed two temporary, or pilot, traffic calming techniques on Reeves Dr. In late April, early May, two techniques were installed to be tested. Figure 5 is a photo of the technique used at the intersection of 8th Ave. S. and Reeves Dr. Traffic cones and barricades were strategically placed to narrow, or choke down, the radius of the intersections curbs. Additionally, a stop sign was position at a new location closer to the stop and turning point of the north-south traffic.

This technique was used to test whether if it would result in improved stopping at the stop signs. It was also installed to test whether it would impact the speeds on Reeves Dr. by forcing vehicles to maneuver through a tighter turning radius at the intersection. Lastly, it was installed to test whether this tighter turning movement and slower travelling through the intersection would divert any traffic to alternate routes.

A second traffic calming technique was temporarily installed at the intersection of Reeves Court and Reeves Drive. The curb was bulbed out on the west side. The distance from the curb was replicating about what a parked vehicle would be into the street space. Figure 6 is a photo of the temporary bulb-out implementation. The thought behind this installation is that restricting the perception of street space available to drive would potentially result in reducing the speed.

Figure 5. Reeves Dr. and 8th Ave. temporary improvement

Figure 6. Reeves Dr. temporary improvement

In early August, the MPO gathered traffic data to gauge the impact these two temporary pilot techniques had. The method was to recount the turning movements at the intersection of Reeves Dr. and 8th Ave. S. The data gathered would be compared to the data collected prior to the test techniques. Speed data would also be collected to compare that data to the speeds recorded in the spring.

The preliminary results of the August observations show that the intersection of Reeves Drive and 8th Ave. S. had some improved adherence to stop signs. Again, the counts were taken manually and the observer noticed that vehicles were more likely to have to come to stops at the stop signs. Traffic during the peak periods being observed usually had other vehicles entering into the intersection. With less space in within the intersection to maneuver, vehicles tended to stop first in order to determine proper right of way and determine what other vehicles were doing as they entered the intersection. However, significant amount of traffic still did not come to complete stops and an alarming number of vehicles traveling north and south were still observed not slowing down much at all.

The turning movement counts themselves showed little difference in actual traffic counts. Figures 7 and 8 show the counts from April compared to the counts in August. The AM Peak and PM Peak periods are used to show representative comparisons. The preliminary analysis would suggest that the technique did not divert any traffic to other routes. It would have been anticipated that there would be actually fewer vehicles than were counted. A typical traffic pattern in Grand Forks is that there are usually fewer vehicles traveling most streets in early August than are traveling in early April. Schools not being in session yet in August are the biggest reason for this. At this intersection, the counts were not that much different, with even a slight increase in some movements.

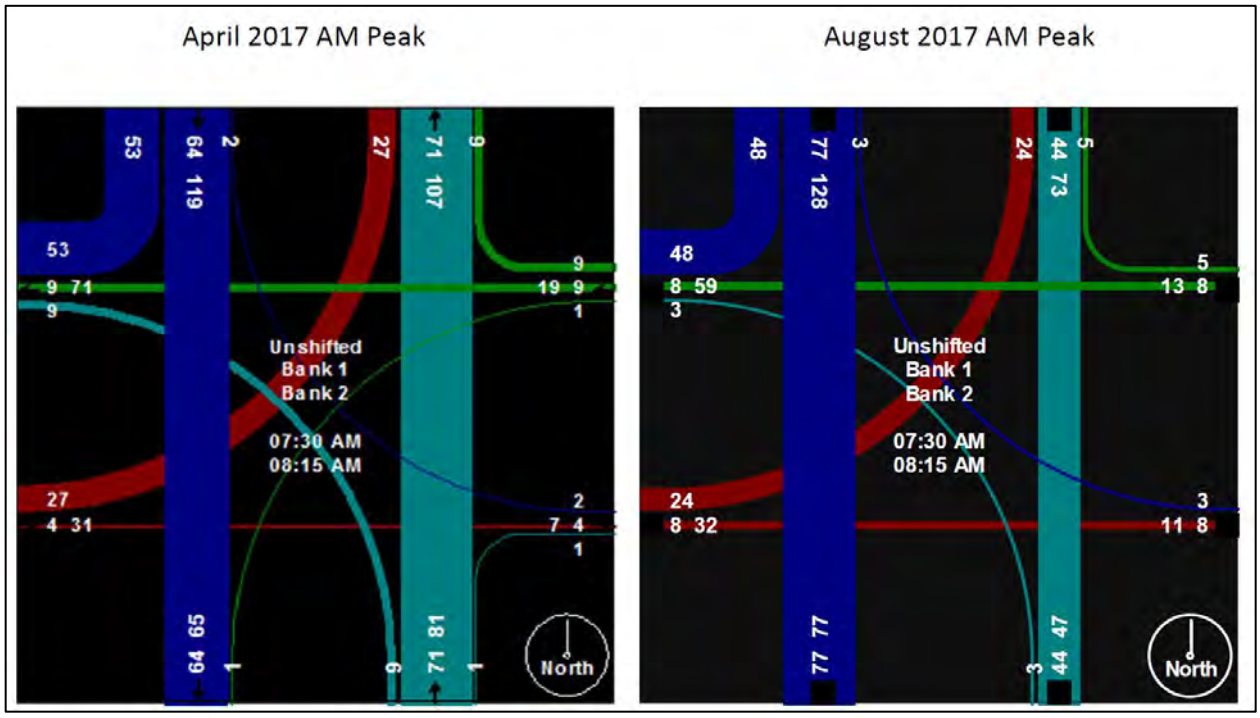

Figure 7. AM peak traffic counts

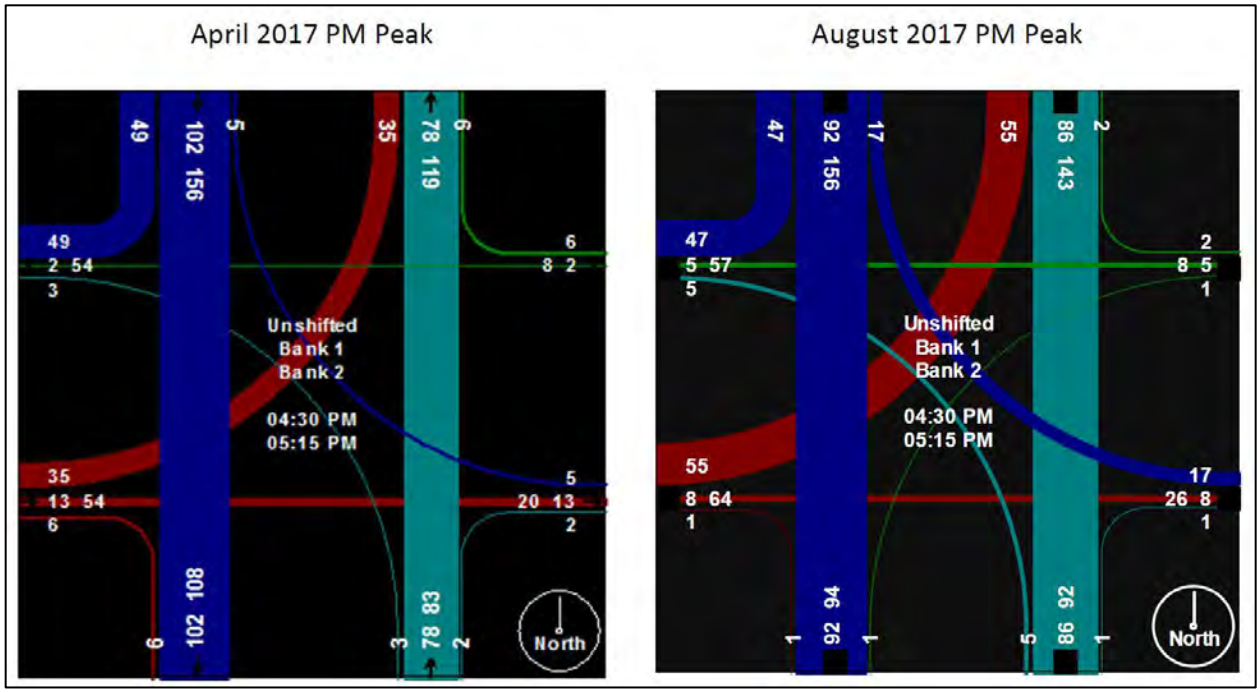

Figure 8. PM peak traffic counts

Temporary Improvements Speed Data

The speed data was collected at the same time the turning movements were collected. A different method of collecting the speed data was utilized. The equipment in April was radar based whereas the equipment in August relied on changes in magnetic fields when a vehicle passes over it. With the newness of the equipment, some anomalies in the data result are being experienced. The following pages contain the results. Traffic speed was collected for both north and south of the Reeve Drive/8th Ave. S. intersection. The north location was very near the same spot the April data was collected. The south location was a new collection point of speed data.

Again, there are some kinks in these preliminary results that will likely adjust the data. However, the bulk of the data can give us reasonable preliminary results that speeds were not impacted by the test techniques.

Reeves Drive 700 block northbound traffic

At least half the vehicles were traveling in the 26 - 28 mph range or lower. The average speed for all classified vehicles was 30 mph with 82.45% vehicles exceeding the posted speed of 25 mph. 3.45% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 35.14 mph. Again, some of the high speed computations are erroneous and further analysis of the collected data will likely adjust these numbers downward.

Table 11. Reeves Dr. 700 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	17	57	77	118	191	165	251	163	103	56	58	28	24	17	50

Reeves Drive 700 block southbound traffic

At least half the vehicles were traveling in the 26 - 28 mph range or lower. The average speed for all classified vehicles was 30 mph with 81.05% vehicles exceeding the posted speed of 25 mph. 5.90% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 37.88 mph. Again, some of the high speed computations are erroneous and further analysis of the collected data will likely adjust these numbers downward.

Table 12. Reeves Dr. 700 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	40	57	65	77	131	132	120	90	79	61	59	35	24	17	75

Reeves Drive 1000 block northbound traffic

At least half the vehicles were traveling in the 28 - 30 mph range or lower. The average speed for all classified vehicles was 32 mph with 86.92% vehicles exceeding the posted speed of 25 mph. 4.66% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 28mph and the 85th percentile was 39.08 mph. Again, some of the high speed computations are erroneous and further analysis of the collected data will likely adjust these numbers downward.

Table 13. Reeves Dr. 1000 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	13	24	26	48	48	76	96	80	83	44	72	31	18	10	32

Reeves Drive 1000 block southbound traffic

At least half the vehicles were traveling in the 26 - 28 mph range or lower. The average speed for all classified vehicles was 29 mph with 80.33% vehicles exceeding the posted speed of 25 mph. 3.67% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 33.20 mph. Again, some of the high speed computations are erroneous and further analysis of the collected data will likely adjust these numbers downward.

Table 14. Reeves Dr. 1000 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	14	43	62	99	139	169	167	115	84	27	30	14	7	7	33

Reeves Drive Permanent Installation

During the months of July and August, the neighborhood and city agreed to make the temporary traffic calming techniques more permanent. Concrete was poured to take the place of the bollards and traffic barricades. Curbs were installed and dirt with grass seed was installed where previous driving pavement existed behind the new curbs.

Figure 9. Reeves/4th curb extension

As seen in figures 9 and 10, the turning radius at the intersection was greatly reduced. Before, a vehicle could make the turning movements at a higher speed due in part to the allowance of a large turning radius. The reduction in radius was done on all sides of the intersection. This resulted in a much tighter space to make the movements necessary to continue through traffic movements. The stop condition was also enhanced by placement of the stop sign closer to the intersection.

Figure 10. Reeves/4th curb extension

With this tighter turning geometry, there was some hope that this would deter cut through traffic from using Reeves Drive. Turning movement counts were taken in early October after the improvements were installed. The comparison of the 3 different turning movement counts are depicted in Figure 11.

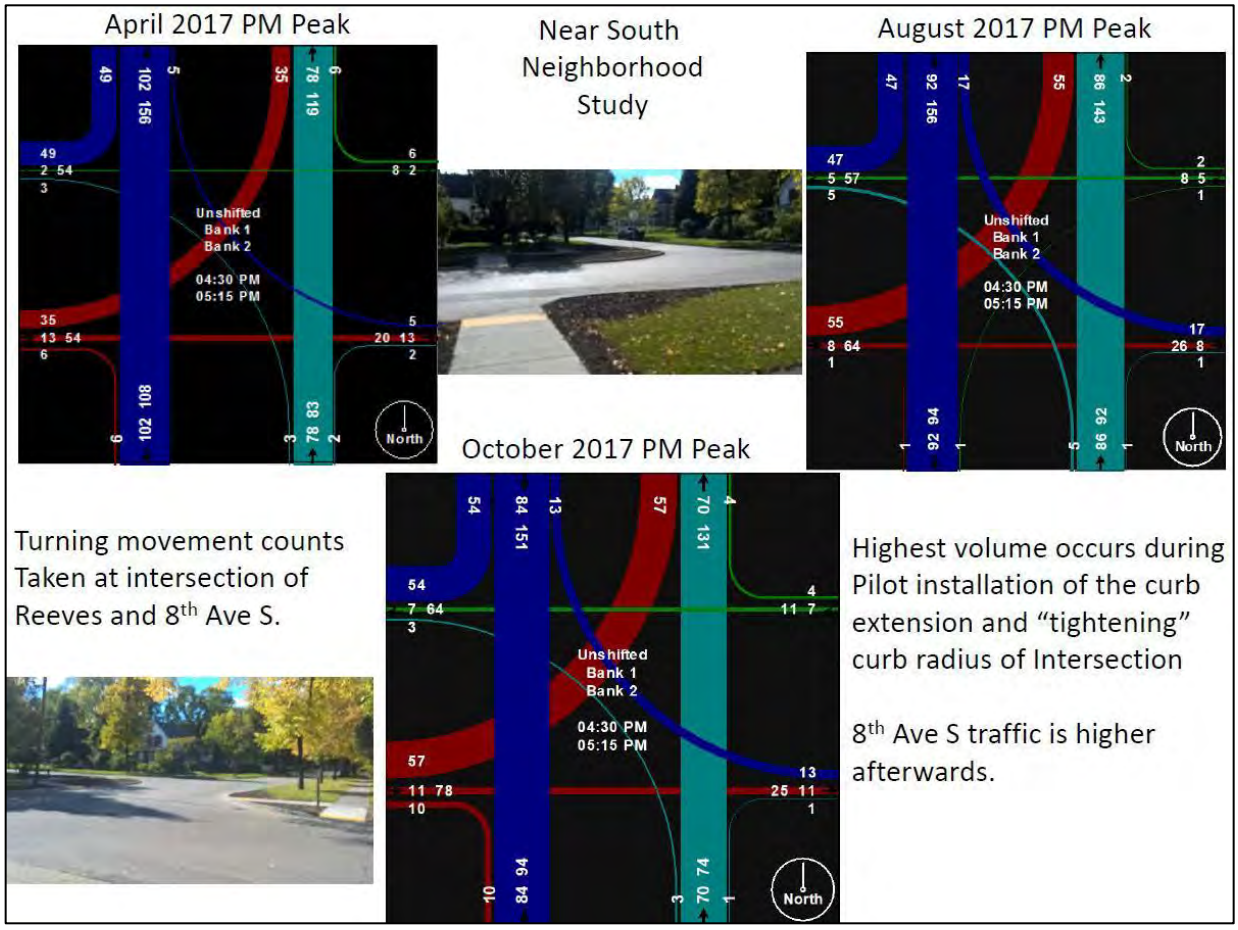

Figure 11. Reeves/4th curb extension data

Little diversion of cut through traffic was detected. The tighter intersection geometry did not cause much, if any, traffic to be persuaded to not use this route. However, the positive impact both the temporary and permanent installations did achieve was much greater compliance with stopping at the stop signs on Reeves Drive. This better stopping behavior followed through with better lane assignment of vehicles as they maneuvered their turns at this intersection.

The curb bulb-out at the intersection of Reeves Drive and Reeves Court was converted from its temporary materials to the concrete installation shown in Figure 12.

Figure 12. Reeves Drive bulb-out

The photo on the left shows the installation partially hidden by a work trailer. The view is looking southbound on Reeves. The trailer makes a more imposing impediment to the traffic than the curb bulb-out. The photo on the right reveals more detail about the curb bulb-out permanent installation.

Permanent Installation Speed Data

Speed data was again collected after the permanent installation was done. The data was collected in early October using the same equipment as in August.

Reeves Drive 700 Block Speed Data Northbound Lane

For Northbound traffic (vehicles heading towards 4th Ave S), at least half the vehicles were traveling in the 26 -28 mph range or lower. The average speed for all classified vehicles was 29 mph with
80.15% vehicles exceeding the posted speed of 25 mph. 3.35% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 34.22 mph.

Table 15. Reeves Dr. 700 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	5	30	45	69	110	124	120	102	44	19	33	13	11	4	22

Reeves Drive 700 Block Speed Data Southbound Lane

For Southbound traffic (vehicles heading towards 8th Ave S) at least half the vehicles were traveling in the 26 -28 mph range or lower. The average speed for all classified vehicles was 28 mph with

81.48% vehicles exceeding the posted speed of 25 mph. 0.60% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 26mph and the 85th percentile was 32.84 mph.

Table 16. Reeves Dr. 700 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	5	16	18	29	54	88	55	48	37	16	5	3	4	3	3

Reeves Drive 1000 block southbound traffic

Table 17 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 28 - 30 mph range or lower. The average speed for all classified vehicles was 28 mph with 80.40% vehicles exceeding the posted speed of 25 mph. 0.81% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 28mph and the 85th percentile was 32.54 mph.

Table 17. Reeves Dr. 1000 block SB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	41	111	120	212	321	409	488	336	215	71	81	23	17	4	20

Reeves Drive 1000 block northbound traffic

Table18 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 30 - 32 mph range or lower. The average speed for all classified vehicles was 32 mph with 91.17% vehicles exceeding the posted speed of 25 mph. 1.90% percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 30mph and the 85th percentile was 37.34 mph.

Table 18. Reeves Dr. 1000 block NB speed/volumes

Speed Class	< to 14	15 to 19	20 to 21	22 to 23	24 to 25	26 to 27	28 to 29	30 to 31	32 to 33	34 to 35	36 to 39	40 to 44	45 to 49	50 to 54	55 to >
Count	16	36	57	82	124	216	337	351	290	259	218	91	31	17	41

Speeding is still an issue despite the new permanent techniques. Generally, northbound traffic is slightly speeding higher than southbound traffic. Most parking takes place along the west side of Reeves Drive which results in southbound drivers perceiving more confined driving conditions when parked vehicles are present.

CRASH DATA ANALYSIS

The purpose of crash analysis is to improve motor vehicle and pedestrian safety by identifying crash patterns, mitigating crash severity, and reducing the number of crashes by adopting suitable countermeasures. The MPO asked ATAC to perform corridor crash analysis within the study area using 2014-2016 NDDOT crash data.

Methodology

Utilizing ArcMap GIS software, crash data provided by the NDDOT was organized and categorized to give visual representation of crash trends within the study area. This method proved useful in analysis when isolating certain roadways or intersections to find trends in selected crashes/crash types. Refer to Appendix B for NDDOT crash summary sheets.

Using the NDDOT crash summaries, which contained a shortened narrative of the crashes and more descriptive conditions, study area crashes were studied to identify any observable trends in crashes. Crashes within the study area for the years 2014-2016 are shown in figure 13.

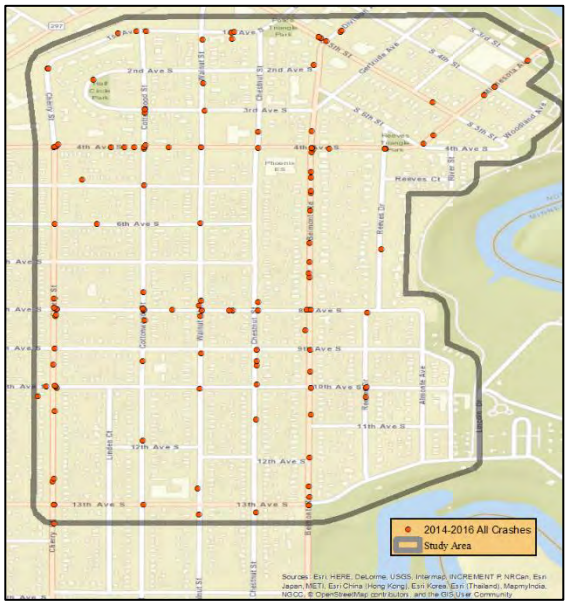

Figure 13. 2014-2016 study area – all crashes

Results

From the crash data, it was observed that there were 155 total crashes within the study area from 2014-2016.

2014 – 52 total crashes
2015 – 56 total crashes
2016 – 47 total crashes

Intersections of Concern

Each intersection was investigated and the number of crashes, crash severity and crash types were noted. Intersections with higher numbers were listed in descending order from most concerning to least concerning as seen below in Table 19.

Table 19. Intersections of concern

Intersection	Total Crashes
Belmont Rd. and 4th Ave. S.	8
Cherry St. and 4th Ave. S.	8
Cherry St. and 8th Ave. S.	6

Reeves Dr. and 4th Ave. S.	6
Cottonwood St. and 4th Ave. S.	5
Cottonwood St. and 8th Ave. S.	4
Cherry St. and 10th Ave. S.	4
Cottonwood St. and 3rd Ave. S.	4
Minnesota Ave. and 4th St.	3

The geometric, traffic control, and other existing conditions for these intersections of concern are listed as follows.

Belmont Rd. and 4th Ave. S.
- 4-way stop controlled intersection
- Parking along southbound lane
- Eastbound and westbound approaches have exclusive left-turn lanes
- Located on northeast corner of Phoenix Elementary

Cherry St. and 4th Ave. S.
- Traffic signal controlled intersection
- Eastbound approach has an exclusive left-turn lane
- All approaches are very wide

Cherry St. and 8th Ave. S.
- 4-way stop controlled intersection

Reeves Dr. and 4th Ave. S.
- North-south traffic is stop controlled
- Driver speed feedback sign currently located west of intersection facing westbound traffic

Cottonwood St. and 4th Ave. S.
- North-south traffic is stop controlled
- Parking along southbound lane
- Cracked and uneven pavement

Cottonwood St. and 8th Ave. S.
- North-south traffic is stop controlled
- Parking along southbound lane

Cherry St. and 10th Ave. S.
- East-west traffic is stop controlled

Cottonwood St. and 3rd Ave. S.
- No traffic control within intersection
- Parking along southbound and westbound lanes
- Cracked and uneven pavement

Minnesota Ave. and 4th St.
- North-south traffic is stop controlled
- Parking along southbound lane
- Exclusive left-turn lane marked on southbound approach

Angle Crashes

It was observed that there were a high number of angle crashes at the intersections of concern. This type of crash is otherwise known as right-angle, broadside, or T-bone type of crash and occurs when either side (driver or passenger) of one vehicle is impacted by the front of another vehicle. Note that 50% - 100% crashes at the intersections of concern are of angle type as shown in table 20. Most injury crashes that occurred within the neighborhood were angle crashes.

Table 20. Angle and injury crashes at intersections of concern

Intersection	Total Crashes	Angle Crashes	Injury Crashes
Belmont Rd. and 4th Ave. S.	8	50%	2
Cherry St. and 4th Ave. S.	8	50%	1
Cherry St. and 8th Ave. S.	6	83.3%	3
Reeves Dr. and 4th Ave. S.	6	66.7%	3
Cottonwood St. and 4th Ave. S.	5	80%	1
Cottonwood St. and 8th Ave. S.	4	50%	2
Cherry St. and 10th Ave. S.	4	100%	1
Cottonwood St. and 3rd Ave. S.	4	75%	1
Minnesota Ave. and 4th St.	3	66.7%	2

Parked Motor Vehicle Crashes

Crashes with parked motor vehicles were observed to be rampant within the study area. From 2014 to 2016, approximately 26 percent of all crashes were with parked motor vehicles. Each street was investigated and the number of parked motor vehicle crashes per street is listed in Table 21. Note that 8 of these crashes were alcohol related while 12 were hit and runs.

Table 21. Parked motor vehicle crashes

Street	Parked Motor Vehicle Crashes
Belmont Rd.	10
Walnut St.	7
Cherry St.	5
Cottonwood St.	4
Chestnut St.	4
1st Ave.	3
4th Ave.	3
Reeves Dr.	2
8th Ave.	2

Figure 14 shows parked motor vehicle crashes plotted by the hour of day. These were compared to number of all study area crashes by the hour of day in figure 15. ATAC looked into the notion that most of the parked motor vehicle crashes occurred during overnight (bar-close) hours. This was found to be not true, as only 7 of the total 40 crashes involving parked motor vehicles occurred between midnight and 4 a.m. However, upon further scrutiny, it was found that majority (7 out of 11) of crashes between midnight and 4 a.m. involved parked motor vehicle crashes as compared to the rest of the day (33 out of 144). The number of people crashing into parked cars is

disproportionately higher between the hours of midnight to 4 a.m. (63.64%) as compared to the rest of the day (22.92%).

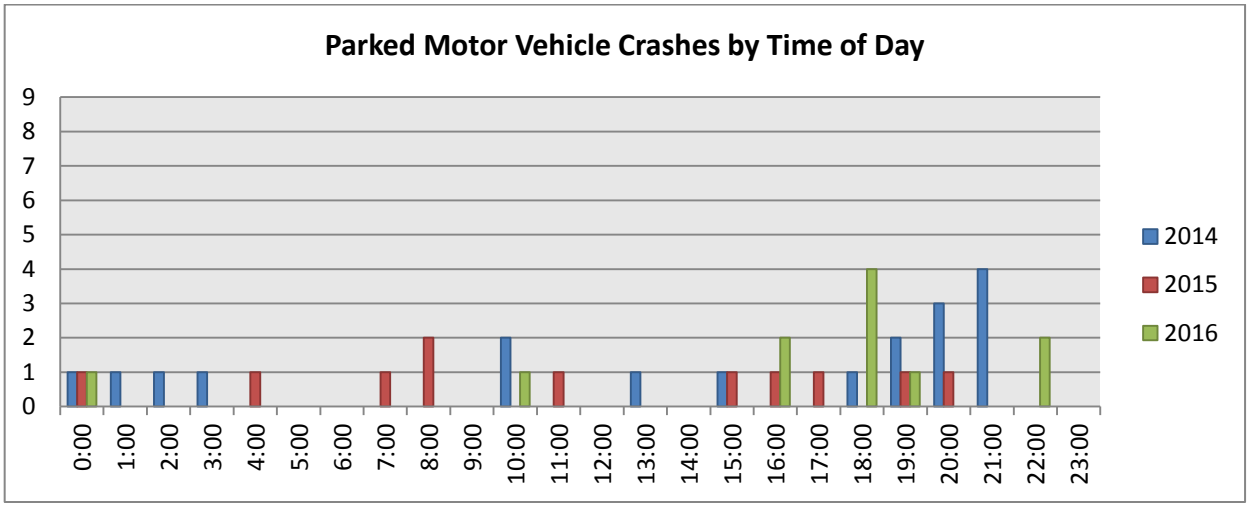

Figure 14. Parked motor vehicle crashes by time of day

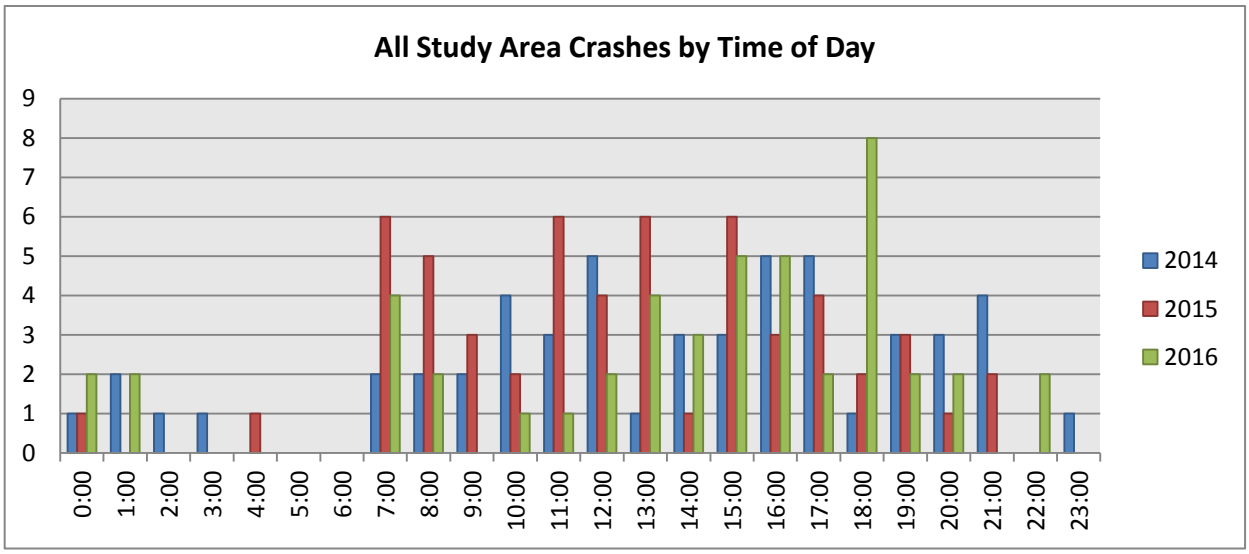

Figure 15. All study area crashes by time of day

Speeding Crashes

Speeding was expressed as a major concern for the local residents. Therefore speeding-related crashes were examined. Findings indicated there was no significant issue with speeding relative to the amount of total crashes in the study area. However, there has been an increase in the number of speeding-related crashes which may indicate a potential issue in the future.

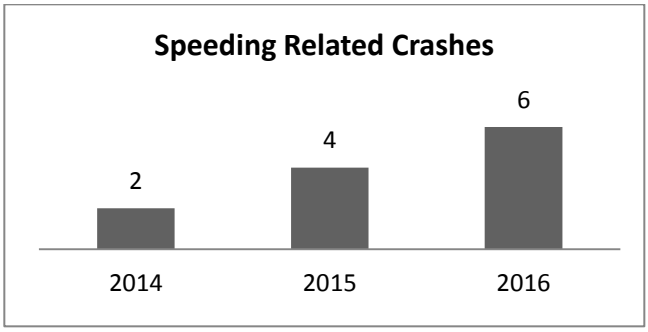

Figure 16. Speeding related crashes

Note that out of the 12 total speed related crashes (2014-2016), there was only one injury crash. This particular injury crash involved alcohol use by a minor driver as well as illicit drug use. As such, speed was not a primary factor in this crash. All of the other 11 crashes were non-injury property damage only type of crashes.

Intersection Analysis

Evidence suggests three problem intersections within the study area. Considerations for the selections include lane geometry, crash data, turning movement counts, and residents' observational concerns. The three intersections addressed are: Belmont Street and 5th/Division, Belmont Street and 4th, and Reeves Drive and 4th. Figures 17 and 18 show the turning movement counts for intersections in the study area.

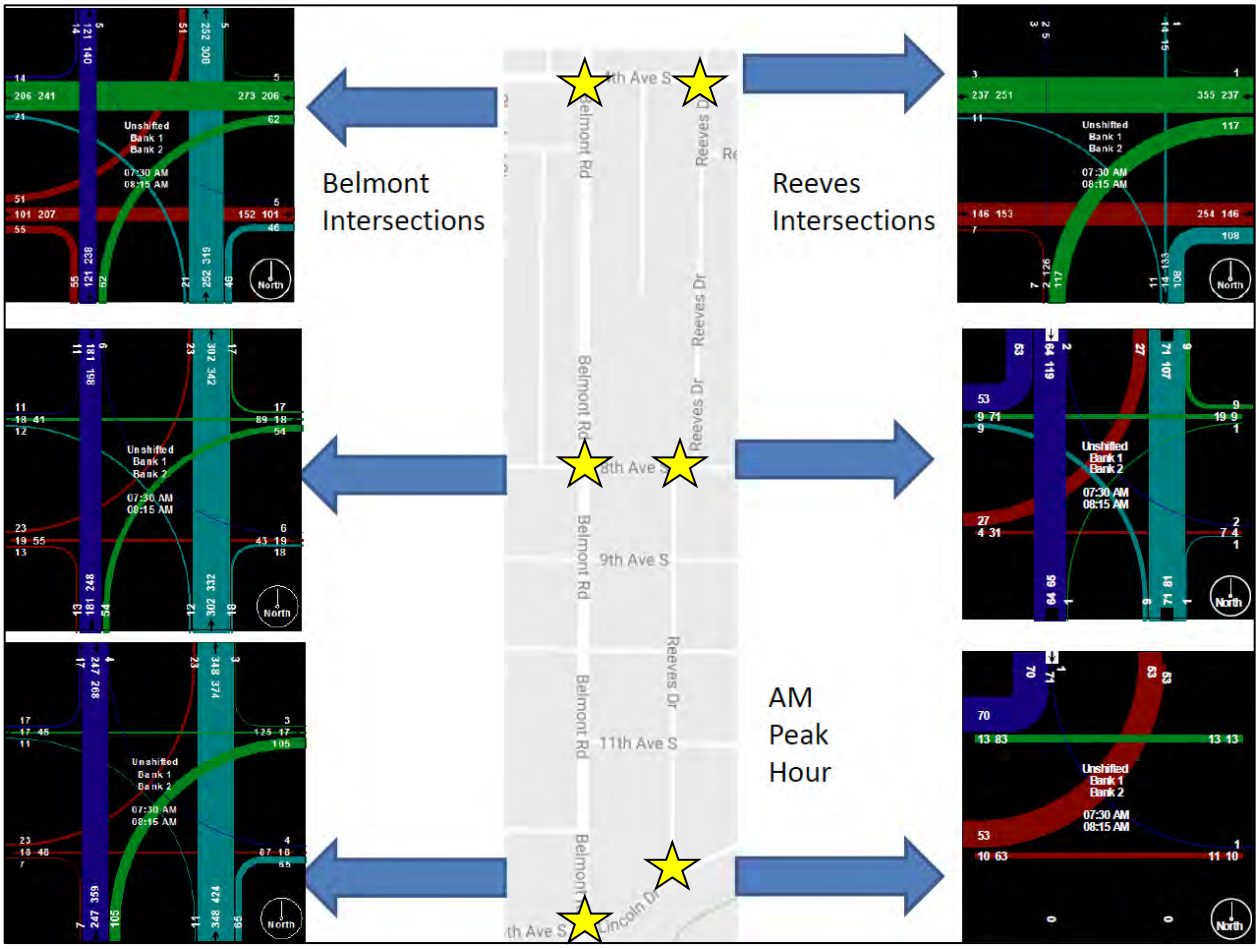

Figure 17. Reeve and Belmont AM turning movements

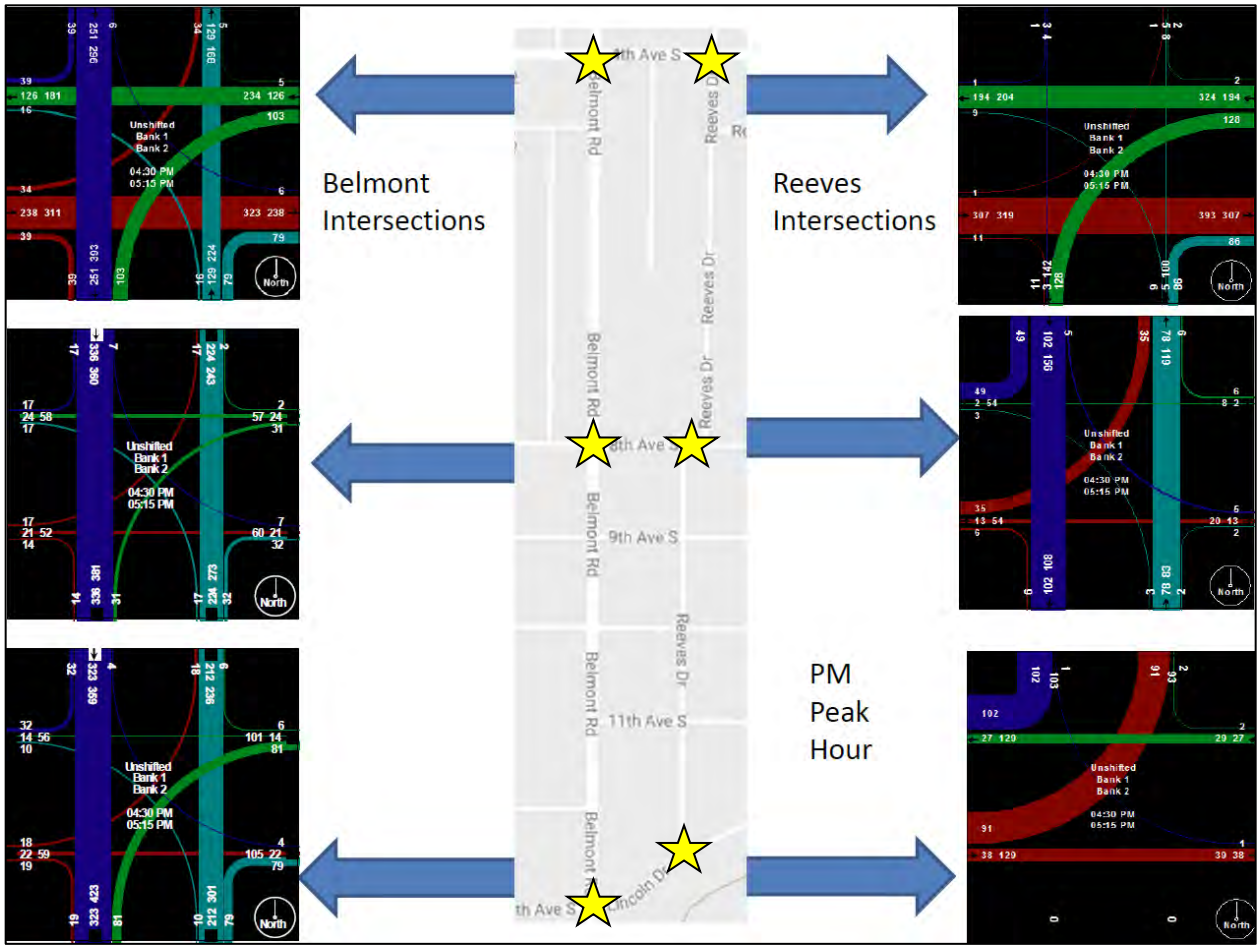

Figure 18. Reeve and Belmont PM turning movements

Traffic flow is heaviest for east/west movement along the Minnesota/4th Ave S corridor. The 8th Ave S corridor and the 13th Ave S corridors also have some traffic flowing east/west for the neighborhood. The traffic controls of these corridors, at the intersections west of Belmont, have stop condition for the north/south movement and give preference to the east/west movement. The turning count data may raise questions whether the east/west movement should be "free flow" traffic.

Belmont Road corridor carries the heaviest north/south movement with Cherry St representing the next highest north/south movement. However, Reeves Drive has more than "its fair share" of traffic. This has been documented earlier in this report.

Belmont Road and 5th/Division

The Belmont/5th/Division intersection has unusual approaches from the adjoining streets intersecting at this location. This intersection is on an edge of how the street network transitions from being orientated with the Red River to being orientated with the geological survey grid system. 5th St. and Division reference the river; whereas, Belmont Road is based upon the grid. Figure 19 shows the unusual intersection.

Figure 19. Belmont/5th/Division intersection

Due in part to its unusual geometry, the intersection has become known locally as "confusion corner". The confusion is said to center on which movement through the intersection has the right of way. Turning movement counts were taken at this intersection in an effort to understand the traffic patterns at the intersection. The predominant movement is traffic using Belmont Road to connect to and from the southern reaches of Grand Forks. These vehicles move through the intersection to continue to travel on 5th St. on the northerly side of the intersection. Technically, this movement is for northbound traffic a left turn from Belmont onto 5th St.; conversely, the southbound movement is a right turn from 5th St. onto Belmont.

Traffic Volumes

The results of the turning movement counts are displayed in Figure 20. As shown, there is over half (870 vehicles from the total 1,568 heading northbound) the northbound traffic during the period the turning counts were taken that turned left to proceed on N. 5th St. The counts reveal that near two-thirds of the southbound traffic on 5th St. turn right to proceed southerly on Belmont Road.

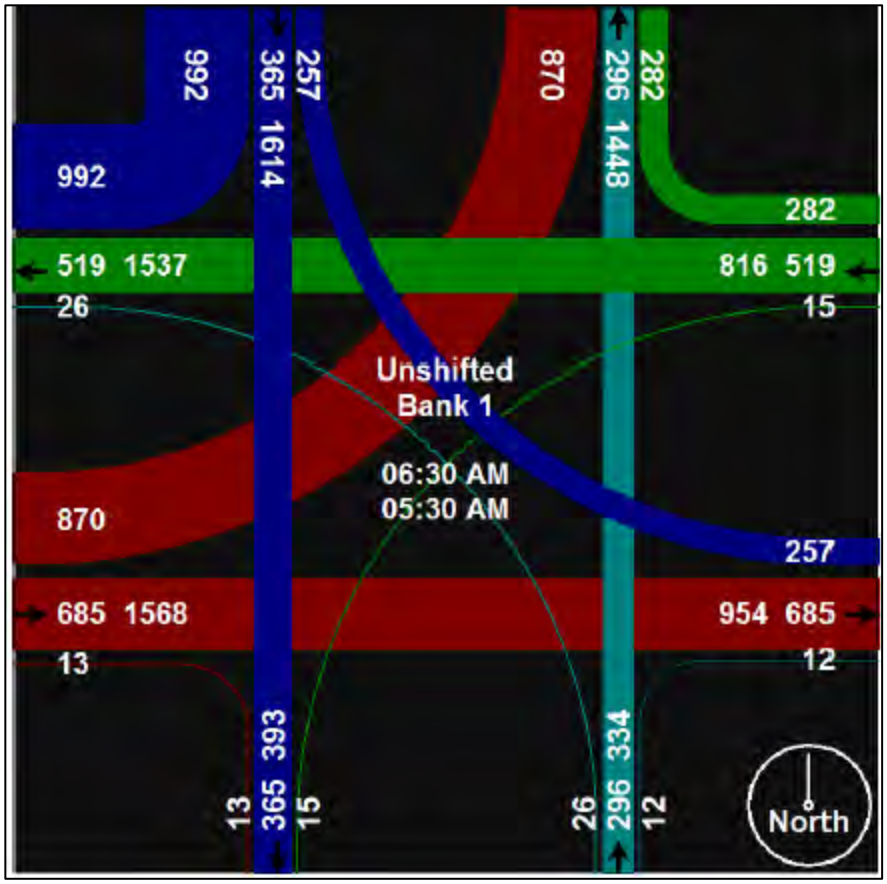

Figure 20. Belmont and 5th/Division AM turning movements

A conflicting movement to the above movement is significant enough to create confusion in the movement of traffic between Division Ave. and Belmont. This traffic could be viewed as the "through" movement at the intersection. There are enough of these through movements that are conflicting with the left turn movements and right turn movements. Thus the creation of bewilderment of which vehicle has the right of way.

The traffic control at this intersection attempts to allow the northbound left turn movement to have "free flow" by not having any northbound traffic regulated by a stop sign. For traffic heading westbound on Division that wishes to proceed "through" the intersection to be heading south on Belmont, the driver expectation is that traffic should be stopping, or at least left turn vehicles yielding. Adding to the atypical expectations are the uncontrolled free flow right turns of southbound right turning vehicles moving from 5th St. onto Belmont Road.

The turning movement data also reveals some unusual turning movement counts. For the vast majority of intersections in Grand Forks, the peak hour occurs during the pm period, typically between 4:30 and 5:30 pm. For this intersection, there is a high concentration of traffic during the am peak period. There is one of two high schools located north of this intersection with school starting at a similar time that most workers begin work downtown which causes the peak in the am. During the afternoon/evening times, the school ends at an earlier time than most employment ends downtown which causes many mini peaks occurring during those hours.

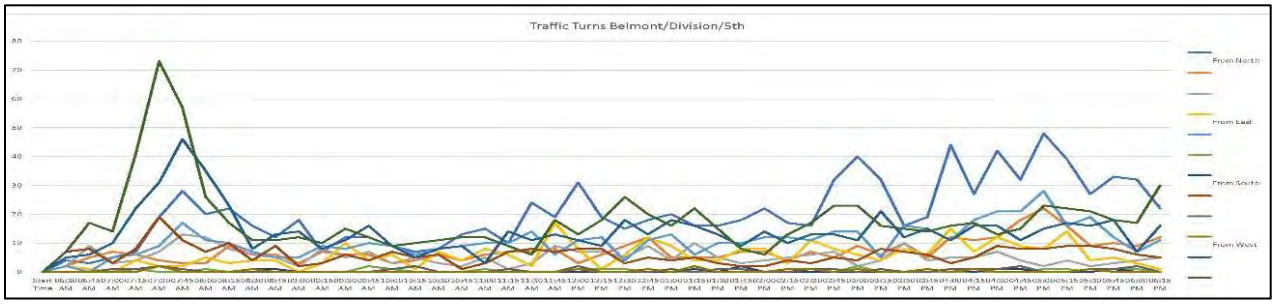

Figure 20. Belmont/5th/Division Traffic Turns

Improvements

The City traffic staff implemented two different strategies during the Study period. The first was to add signage to give further guidance to vehicular movements. As shown in Figure 23, the southbound approach from 5th St. had turning lanes demarked to better align vehicles to provide other drivers at the other approaches to see better what the likely movement the approaching vehicle would be taking. Further, signage was added to clarify that right turning vehicles were free to turn without stopping. Finally, added signage was installed to inform westbound vehicles on Division that left turning vehicles did not have a stop control situation.

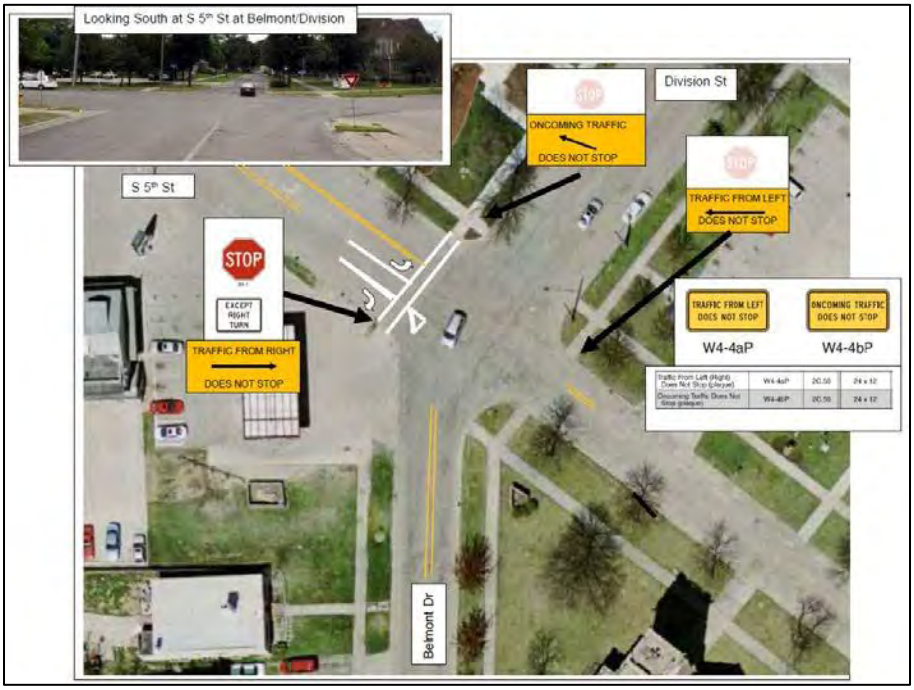

Figure 21. Belmont/5th/Division signage

This strategy was later augmented with the conversion of the southbound approach from 5th St. having the left turn lane and the through lane combined into one lane at the usual location of a left turn lane. The former space that was used for the through lane was striped to shift traffic away from the space so that a stop sign could be installed "in the middle of the street". Hence, the left turn and through movements are controlled by the stop sign. The City installed a yield sign for the right turning movements so that they are directed to yield to traffic from Division Ave passing through the intersection.

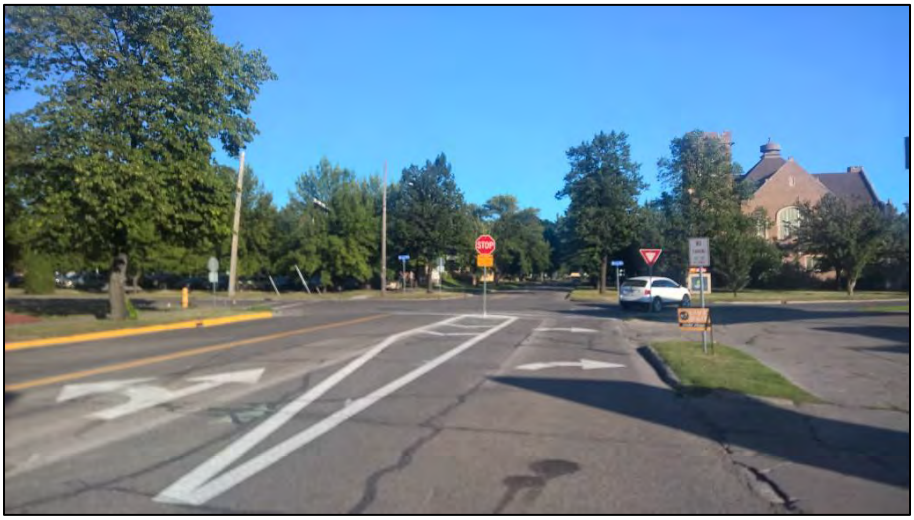

Figure 22. Belmont/5th/Division SB approach

Belmont Road and 4th Avenue

Belmont Rd. is a paved, two-lane, two-way, north/south Minor Arterial Street; posted as 25 mph and 20 mph When Children are Present. It traverses the eastern part of the city between the Downtown Area and 62nd Ave S. The north leg intersects 4th Ave S at an approximate 85° angle, but does not affect sight distance or the operation of the intersection. The pavement width on Belmont at 4th Ave S is 30 feet wide. This area has mature landscaping/trees, there are no sight restrictions noted approaching the intersection or at a stopped position. If exceeding the 25 mph speed limit visibility of the traffic signal poles may be obstructed for both north and southbound approaches by the trees. Belmont Road has an offset centerline stripe, permitting parking on the west side of the street. The loading/unloading zone is posted on the west side at Phoenix Elementary.

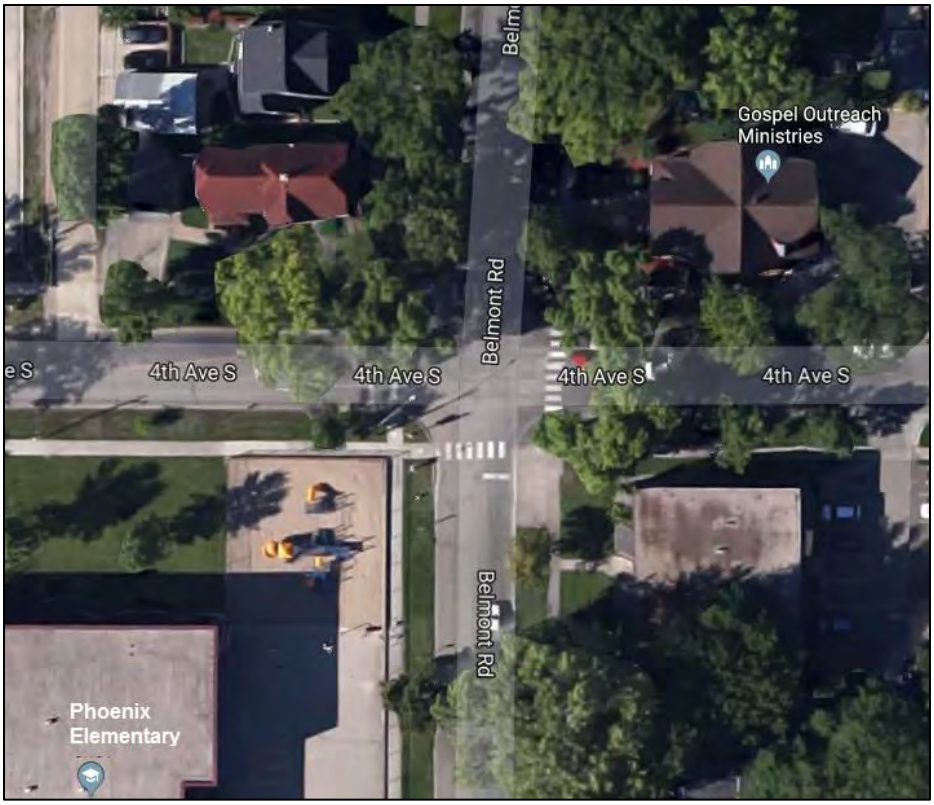

Figure 23. Belmont and 4th

Fourth Ave. S. is a paved, two-lane, two-way, east/west Minor Arterial Street posted as 25 mph and 20 mph When Children are Present. It traverses the northern part of the city between Demers Ave and the state line with Minnesota and serves as primary access to the Point Bridge over the Red River of the North. The pavement width on 4th Ave S near Belmont Rd is 30 feet wide and is striped for one lane in each direction and left turn pockets at the intersection. This area has mature landscaping/trees, there are no sight restrictions noted approaching the intersection or at a stopped position. If exceeding the 25 mph speed limit visibility of the traffic signal poles may be obstructed for both east and westbound approaches by the trees. Parking is not permitted on either side of 4th Ave S.

This intersection has a bus stop on the southeast corner for Routes 1 and 2. This intersection was controlled by a traffic signal up until July 13, 2015 when a traffic crash knocked down the northeast traffic light. Due to the significant cost to repair/upgrade the intersection, a study was conducted to determine if the intersection still warranted the stop lights. It was revealed they were no longer needed and the intersection was converted to a 4-way stop.

Traffic Volumes

Traffic volumes appear to peaking slightly more in the pm than the am.. This may be due to the nearby one-way streets forcing drivers to take different paths in the am vs. pm. As seen in figure 26 the majority of traffic is northbound and westbound in the am peak, and eastbound and southbound and eastbound in the pm peak.

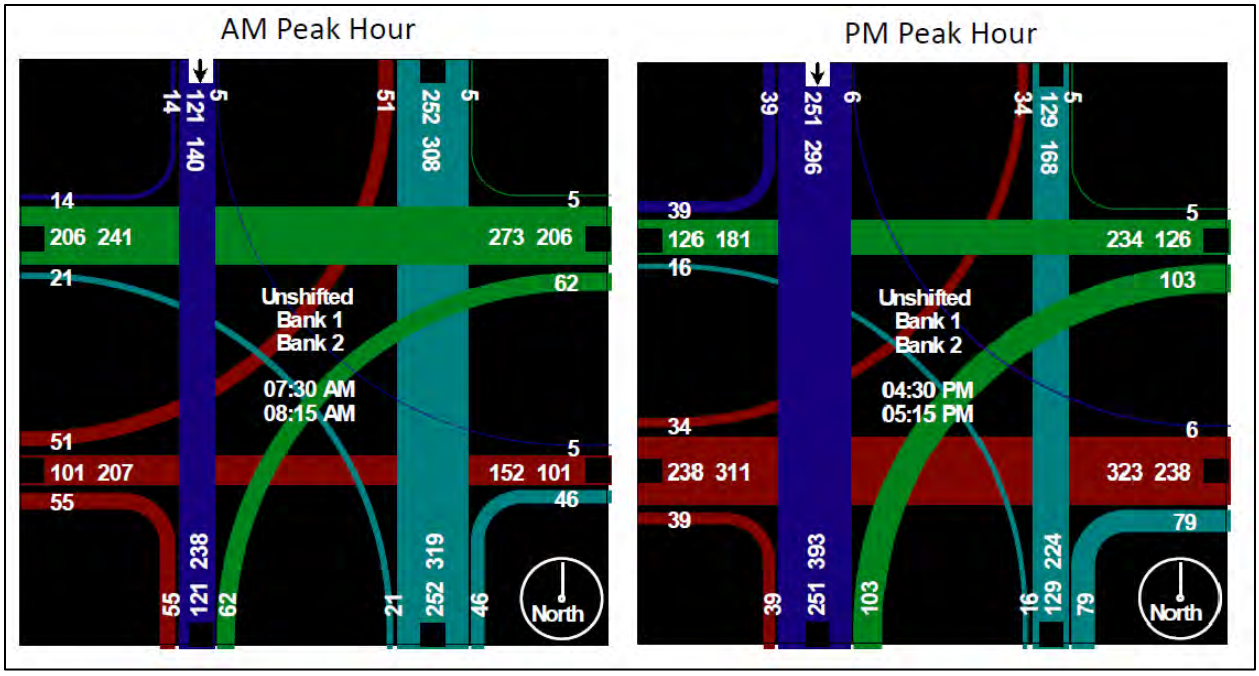

Figure 24. Belmont and 4th turning movements

Crash Analysis

The data collected for the study area includes crashes from years 2014-2016. Within this range there were eight reported crashes at this intersection. Four of these crashes occurred in 2016 after the 4-way stop conversion. Though these four crashes had no reported injuries, four were angle crashes and one was head-on. Statistically, these crash types are highly prone to result in an injury.

With a higher than expected crash rate, and having the highest amount of crashes within the study area, it is clear there is an issue at this intersection. Keeping in mind the proximity of Phoenix Elementary and the number of pedestrians crossing this intersection at the am peak hour, there is significant reason for concern for not only driver safety, but also pedestrian safety.

Reeves Drive and 4th Ave

As stated similarly in the previous intersection, 4th Ave. S. is a paved, two-lane, two-way, east/west Minor Arterial Street posted as 25 mph. It traverses the northern part of the city between Demers Ave and the state line with Minnesota and serves as primary access to the Point Bridge over the Red River of the North. The pavement width on 4th Ave S near Reeves Dr. is 30 feet wide and is striped for one lane in each direction and left turn pockets at the intersection. This area has mature landscaping/trees, there are no sight restrictions noted approaching the intersection or at a stopped position. West of the intersection is a "Your Speed" speed feedback sign facing the westbound lane. There is no traffic control for the east and west bound traffic. Parking is not permitted on either side of 4th Ave S.

Reeves Drive is a paved, two-lane north/south local street, posted as 25 mph. The pavement width is 30 ft. and parking is permitted on the southbound lane and restricted only on Mondays from 8am to 4pm for the northbound lane. At the 4th Ave. intersection, north and south traffic is restricted by two-way stop control signs.

Figure 25. Reeves and 4th

Observations have been reported that westbound vehicles coming from Point Bridge are traveling at a higher rate of speed. This can create hazardous conditions when entering the intersection and school zone.

Traffic Volumes

Local residents have expressed great concern for cut-through traffic along Reeves Drive. Follow-up turning movement counts at Reeves and 4th Ave. and Reeves Dr. and 8th Ave. proved that cut-through traffic is an issue. Similarly to the Belmont and 4th Ave., peak hour traffic volumes appear to peaking slightly more in the pm than the am.. This may be due to the nearby one-way streets forcing drivers to take different paths in the am vs. pm.

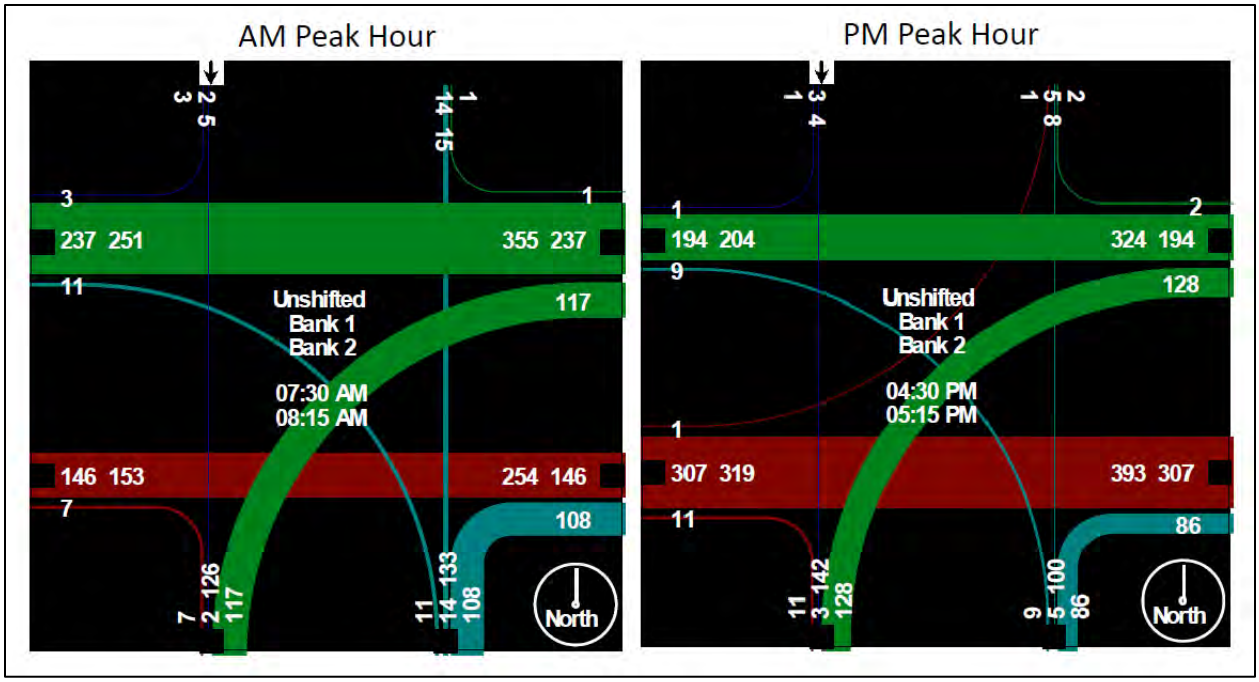

Figure 26. Reeves and 4th turning movements

Crash Analysis

The data collected for the study area includes crashes from years 2014-2016. Within this range there were six reported crashes at this intersection. Four of the crashes were angle crashes and one was a rear end. Two of the angle crashes and the one rear end crash resulted in a possible injury.

WALKABILITY ASSESSMENT

A community may be designated walkable if it is easy, as well as safe, for the pedestrians to walk about (to school, stores, parks, post office etc.) Additionally, a walkable community encourages safe usage of existing infrastructure while expanding transportation options for users with varied ranges of mobility.

The purpose of this assessment was to bring all the stakeholders together to try and identify the problems facing the area residents with regard to walking about in the area.

Site Selection

Three routes were selected for assessment within the Near Southside Historic Neighborhood study area. These routes are listed in Figure 29.

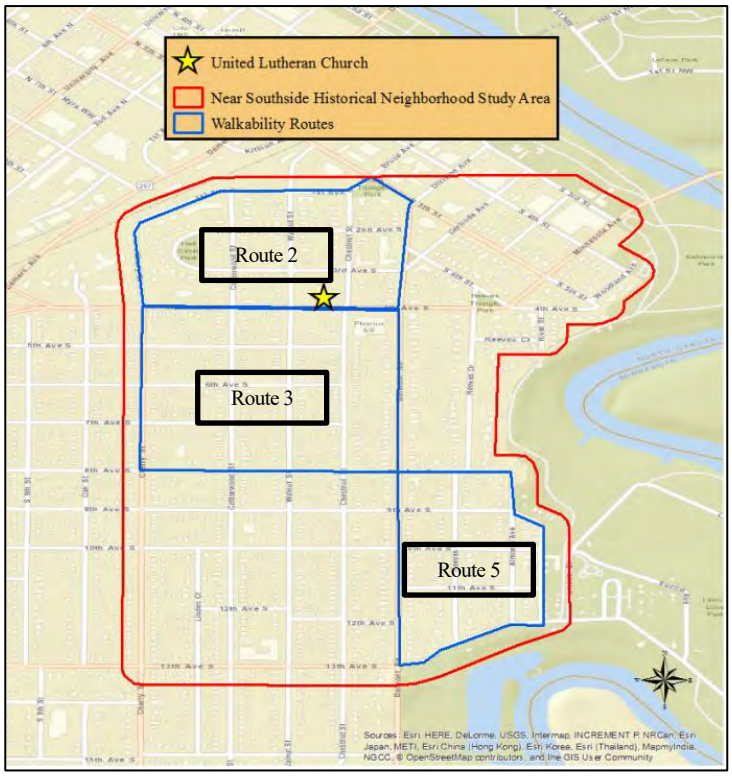

Figure 27. Walkability assessment routes

Assessment Tool

The Walkability Checklist from www.pedbikeinfo.org was used as an assessment tool. A brief training was provided prior to the site visit/assessment. The training included background information regarding the checklist and also detailed information regarding the rating scale used in the assessment.

The checklist includes the following main questions:

1. Did you have room to walk?
2. Was it easy to cross streets?
3. Did drivers behave well?
4. Was it easy to follow safety rules?
5. Was your walk pleasant?

Each of these questions includes a rating from 1 to 6 categorized as:

1. Awful
2. Many Problems
3. Some Problems
4. Good
5. Very Good
6. Excellent

The corresponding total ratings add up to a range of 5-30 as classified:

1. 26 – 30 Celebrate! You have a great neighborhood for walking.

2. 21 – 25 Celebrate a little. Your neighborhood is pretty good.
3. 16 – 20 Okay, but it needs work.
4. 11 – 15 It needs a lot of work. You deserve better than that.
5. 5 – 10 It's a disaster for walking!

Site Visit/Assessment

The training, site visit, and assessment were completed Sept. 7, 2017. The assessment started at United Lutheran Church and consisted of three groups covering three different regions within the Near Southside Historic District. The checklists were completed post assessment. The participants also provided written comments. The comments covered issues included those identified during the assessment and those observed at other times of the year. Refer to Appendix C for completed assessment checklists and comments.

Observations

For the assessment, sidewalk quality had the most negative impact towards the overall score. Throughout the study area there were repeated reports of the sidewalks being broken, cracked, or discontinuous, and being obstructed by objects or shrubbery.

Figure 28. Sidewalk quality

Figure 30 shows images depicting the sidewalk quality issue in the neighborhood. Old/cracked sidewalk can be seen predominately along Cherry St.

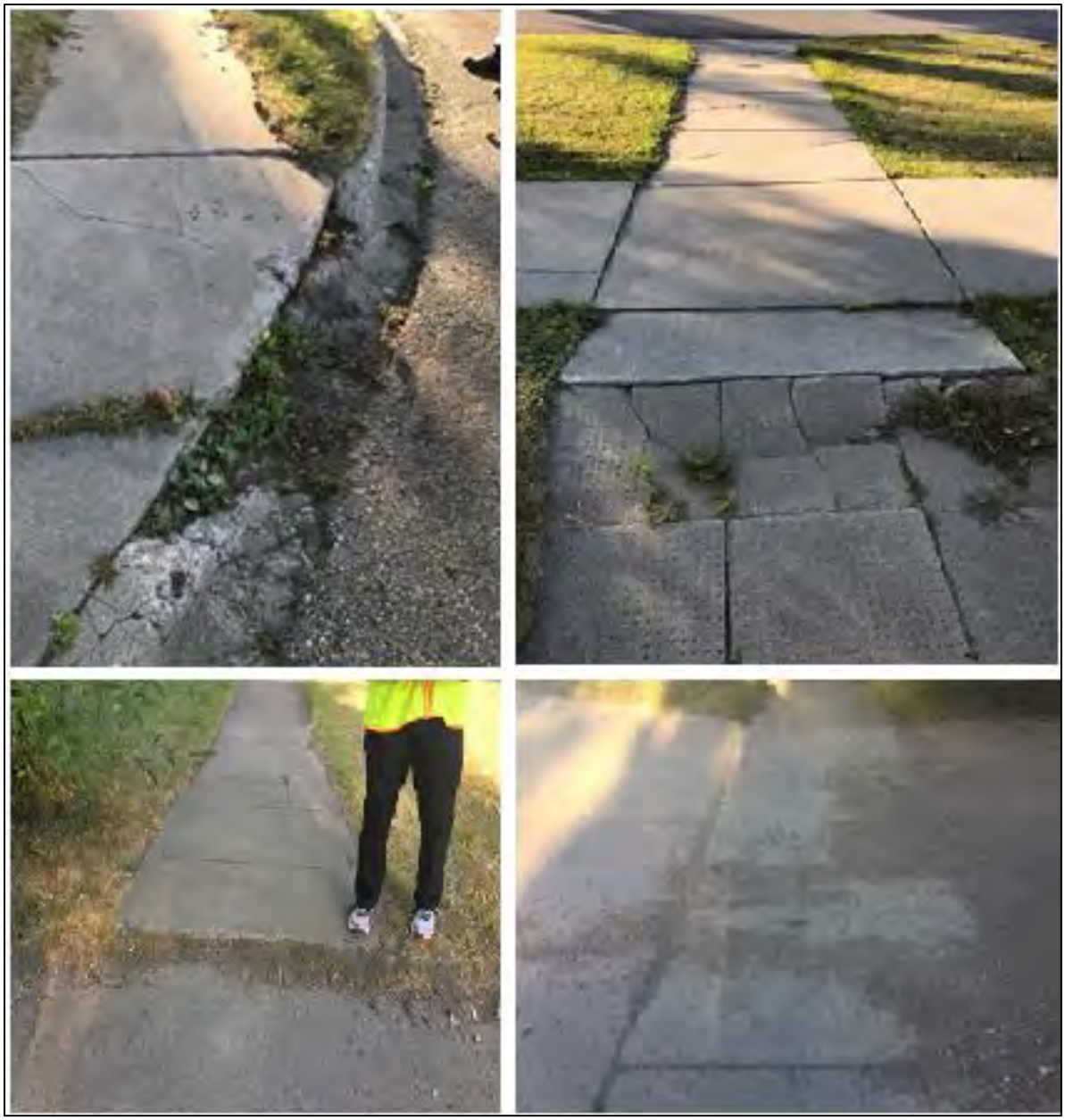

Figure 29. Sidewalk hazards

Figure 31 shows sidewalks in the neighborhood that are unsafe due to tripping or slipping hazards. These areas may be dangerous, especially when walking at night.

Figure 30. Sidewalk obstructions

Figure 32 shows a few images of the sidewalk blockage issue facing the neighborhood. Property owner negligence prohibits pedestrians from walking comfortably without obstructions.

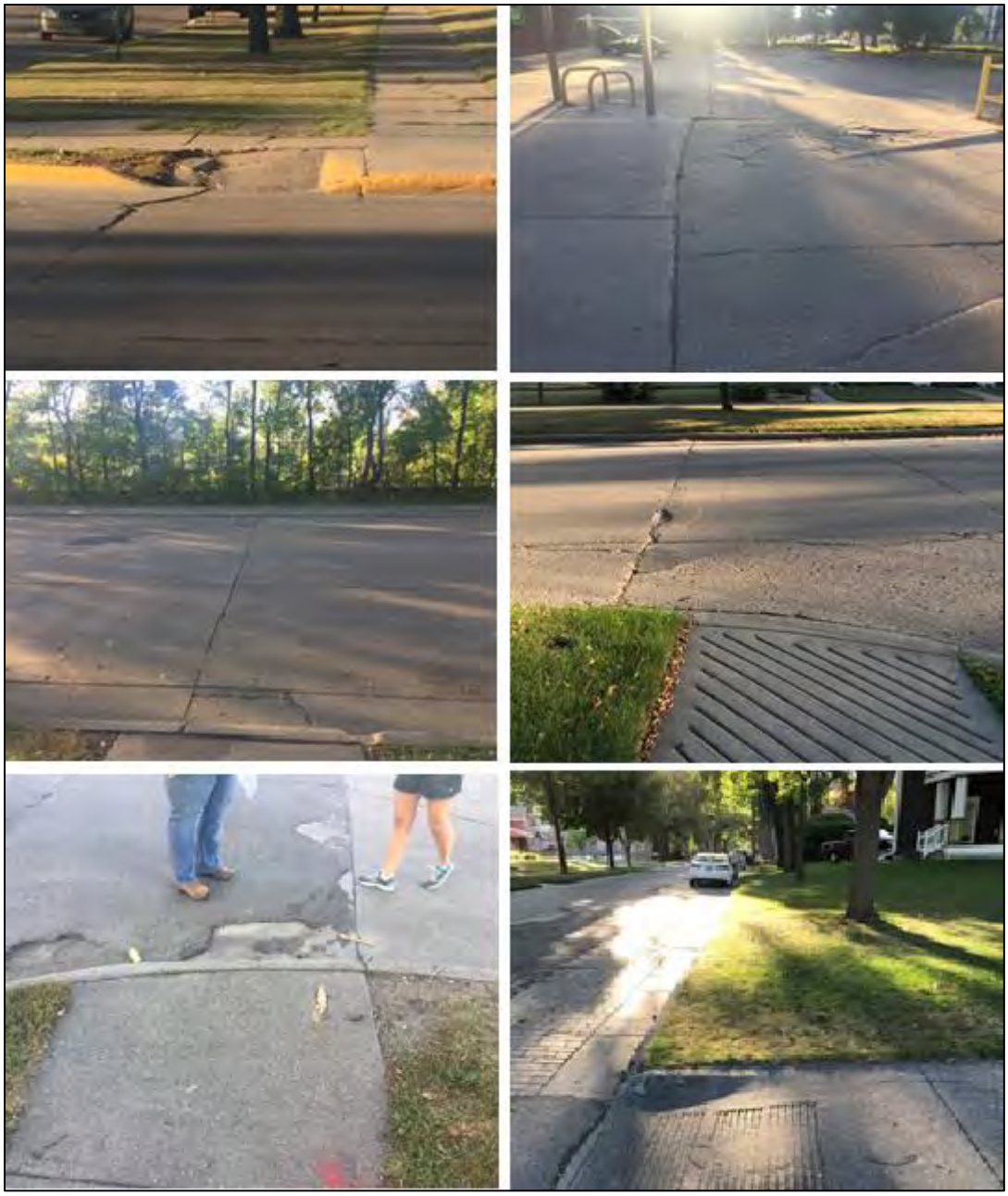

Figure 31. Sidewalk accessibility issues

Figure 33 shows a collection of images showing the accessibility issue in the neighborhood. Some areas provide access to a crosswalk on only one side of the street. Some of the crosswalk accesses do not provide a ramp into the street. In some cases, the sidewalk is not distinct. In others, there is no sidewalk along a section of the street, which forces the pedestrians in the neighborhood to walk unsafely within the vehicle travel lanes.

Figure 32. 1st Ave. bus stop

One serious pedestrian safety issue is at the bus stop on the north side of 1st Ave. S. between Cherry and Cottonwood streets as seen in Figure 34. With all trip origins/destinations on the south side of the street, pedestrians are forced to cross 1st Ave. at this bus stop location. As seen in Figure 34, there are no ramps and the location lacks a marked crosswalk. This presents a potentially dangerous situation as the traffic along 1st Ave. receives no warning that there may be pedestrians crossing the street.

During the course of this study, the local transit authority has looked into making improvements for this bus stop. Details can be found under the recommendation section within this report.

Assessment Results

Most of the attendees rated the area between 24 and 25 as can be seen in Figure 35.

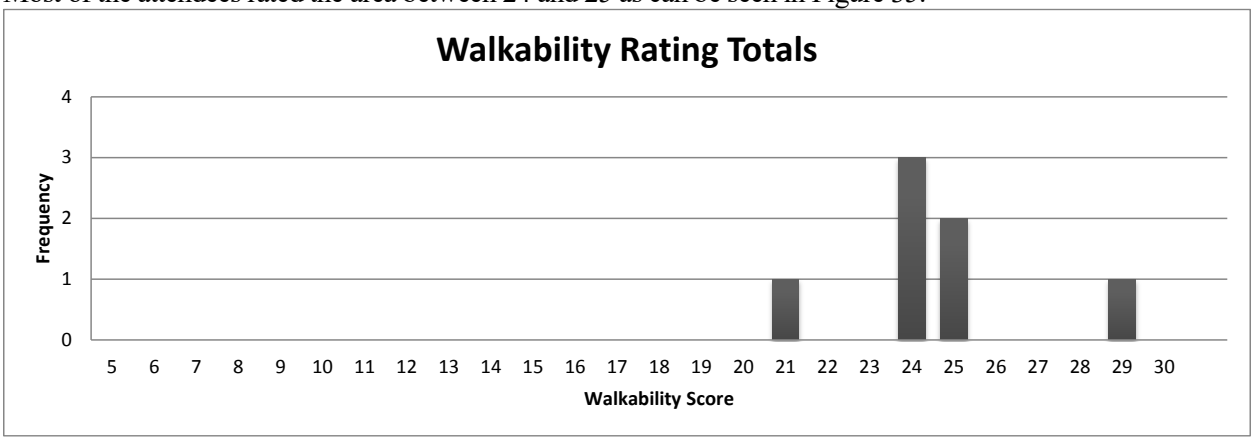

Figure 33. Walkability rating totals

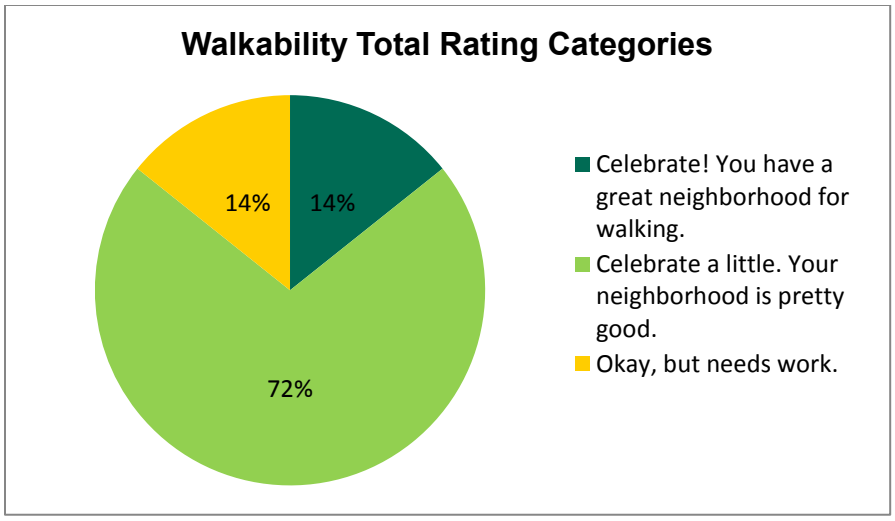

Figure 34. Walkability total rating categories

These ratings led to most of the responses to land in the "Celebrate a little. Your neighborhood is pretty good." category as shown in Figure 36.

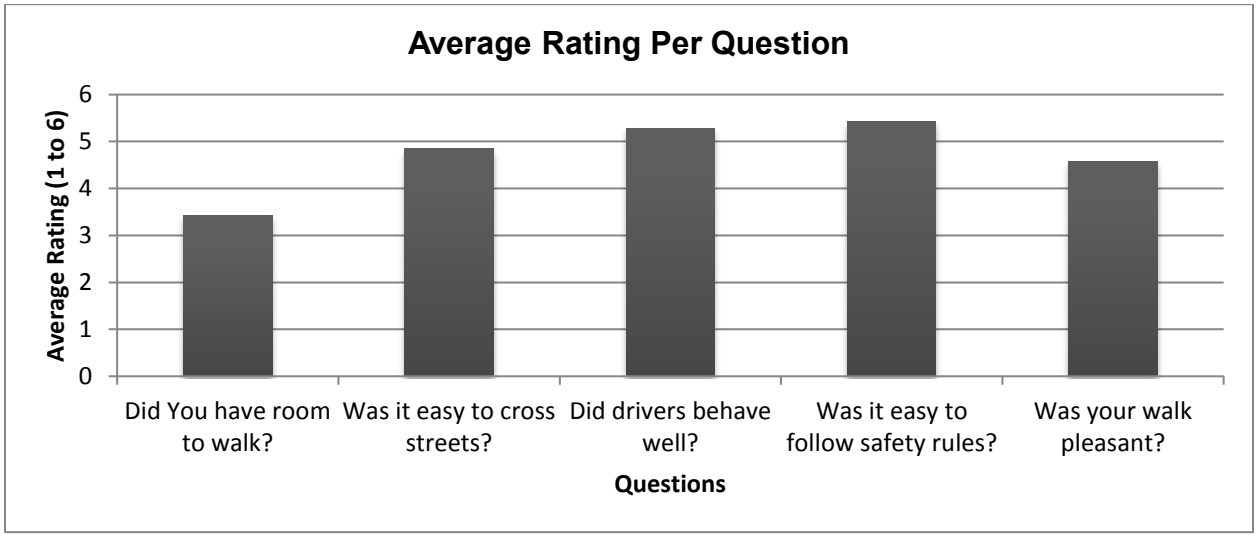

Figure 35. Average walkability rating per question

No aggressive driver behavior was observed and the walk was otherwise pleasant. This is seen in Figure 37 as the corresponding questions are rated between 4 (good) and 6 (excellent). However, as expected, the other questions regarding infrastructure, etc. were rated between 1 (awful) and 4 (good).

The attendees reported problems with existing infrastructure including cracked concrete, absence of sidewalks, blockages etc. The issues that were reported the most are shown in Figure 38.

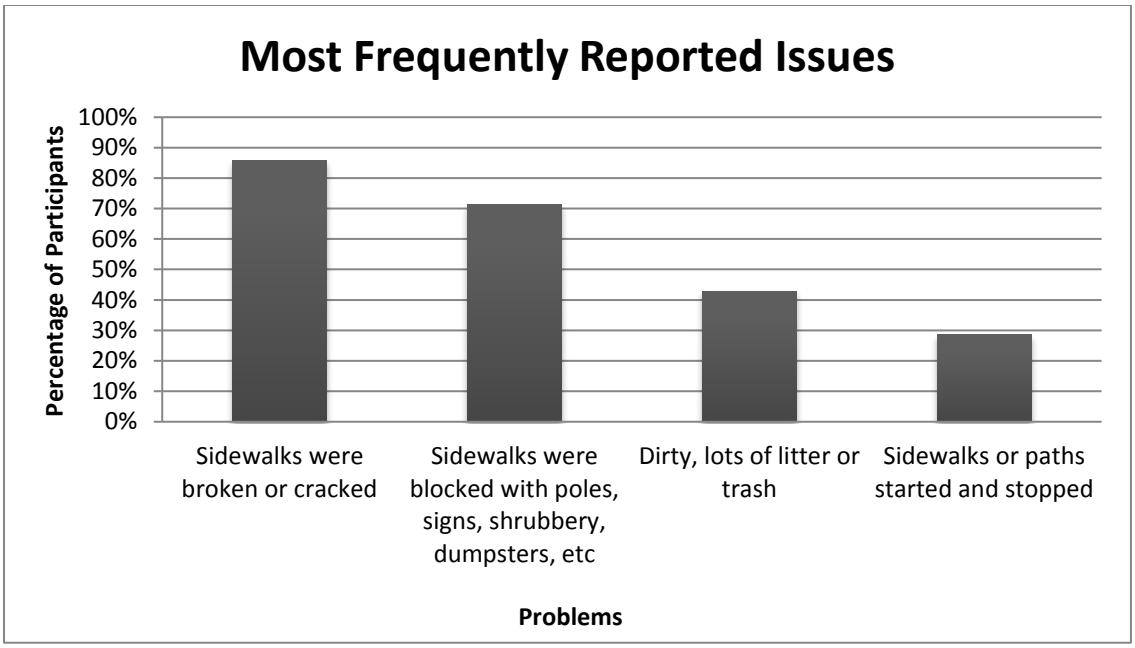

Figure 36. Most frequently reported issues

TRAVEL DEMAND MODEL RUN SCENARIOS

These scenarios are termed Scenarios 1-4 and were developed for both the 2010 base year (using 2010 Data) and the 2025 Forecasted Travel Demand Model. The traffic volumes discussed are daily traffic counts. Base year scenarios were also developed with each to incorporate Reeves Dr. from 13th Ave. S. to 4th Ave. S. (Reeves Dr. was not included in the original model). As part of the study, traffic counts were collected in the spring of 2017 on:

- Cherry St. between 10th Ave. S. and 13th Ave. S.
- Belmont Rd. between 8th Ave. S. and 4th Ave. S.
- Belmont Rd. between 17th Ave. S. and 13th Ave. S.
- Reeves Dr. between 4th Ave. S. and 8th Ave. S.

To validate the model output that included Reeves Dr., the base year modeled ADTs were compared to the traffic counts and deviations between the modeled and counted volumes and found to be reasonable. Each of the scenarios were then compared with the modeled volumes from their respective base year (2010 and 2025) to see how each scenario affected traffic in the Near Southside Historic Neighborhood. Each scenario and the results of each scenario with respect to the four intersections that were counted recently are described. Maps showing the overall modeled volumes for each of the scenarios are also included.

Scenario Descriptions

Scenario 1: Through Movement Restriction of Reeves Dr. and 8th Ave. S.

Restricted movements on the intersection of Reeves Dr. and 8th Ave. S. so that no "through" north-south movements occurred. Northbound movements could only turn right to go west on 8th Ave. S. and southbound on Reeves can only turn left to go west on 8th Ave. S.

Scenario 2: Convert Reeves Dr. and Belmont Rd. into one-way pairs

Reeves Dr. and Belmont Rd. were converted into one-way pairs between 4th Ave. S. and 13th Ave. S.

Scenario 3: Prohibit westbound turns from 4th Ave. S. to Reeves Dr.
Prohibition of left turn movements from 4th Ave. S. to Reeves Dr. (Westbound to Southbound movement).

Scenario 4: No through traffic through the Near Southside Historic Neighborhood
Increased speeds on 4th Ave. S. to 35mph; reduced speeds from 25mph to 10mph on Reeves Dr., Belmont Rd., Chestnut St., Walnut St., Cottonwood St., and Cherry St., between 4th Ave. S. and 13th Ave. S. Other changes were considered like restricting turns off from 4th Ave. S. to the Southside Historic Neighborhood but did not have a big impact with the reduction of speeds to 10mph.

Model Results
Table 22 shows the resulted modeled volumes for the four intersections where traffic counts were recently collected, the base year model traffic for each forecast year and the modeled volumes for each scenario for each forecast model years respectively.

Table 22. Scenario model volume output

Intersection	Cherry St. between 10th Ave. S. and 13th Ave. S.		Belmont Rd. between 8th Ave. S. and 4th Ave. S.		Belmont Rd. between 17th Ave. S. and 13th Ave. S.		Reeves Dr. between 4th Ave. S. and 8th Ave. S.	
Count Date	19-Apr	20-Apr	19-Apr	20-Apr	25-Apr	26-Apr	25-Apr	26-Apr
Traffic Counts	2,853	2,894	4,984	4,986	6,279	6,094	2,306	2,143
2010 Modeled ADTs								
Base 2010	2,865		4,175		5,308		1,982	
2010 Scenario 1	2,903		5,302		5,305		873	
2010 Scenario 2	3,013		3,422		4,754		1,892	
2010 Scenario 3	2,895		4,505		5,366		1,702	
2010 Scenario 4	1,274		797		1,291		1,074	
2025 Modeled ADTs								
Base 2025	3,494		4,935		8,031		3,253	
2025 Scenario 1	3,529		7,091		7,829		958	
2025 Scenario 2	3,603		4,537		7,125		2,801	
2025 Scenario 3	3,503		5,935		7,969		2,148	
2025 Scenario 4	1,381		1,044		1,913		1,187	

Scenario 1 (through movement restriction on Reeves Dr. and 8th Ave. S.) Results
Scenario 1 base 2010 had a reduction of traffic volumes from 1,982 (base year) to 873 for the Reeves Dr. between 4th Ave. S. and 8th Ave. S. count location. The Belmont Rd. count location between 4th Ave. S. and 8th Ave. S. showed increased volumes from 4,175 to 5,302. Similar results were found for 2025 Scenario 1 with the Reeves Dr. count location decreasing from 3,253 to 958 and the Belmont Rd. count location (between 8th Ave. S. and 4th Ave. S.) increasing from 4,935 to 7,091.

The other two count locations had very similar modeled volumes to the base year for both 2010 and 2025. The results indicated that restricting through movements on Reeves Dr. and 8th Ave. S. shifted through traffic from Reeves Dr. to Belmont Rd. but did not have any significant impact on the adjacent streets. Figure 39 shows the comparison of Scenario 1 to the base year models for both 2010 and 2025 results.

Scenario 2 Results (Belmont and Reeves one-way pair conversion)

For the 2010 Scenario 2 results, the Belmont Rd. (between 8th Ave. S. and 4th Ave. S.) count location showed a traffic reduction from 4,175 to 3,422 while the second Belmont Rd. (between 17th Ave. S. and 13th Ave. S.) location showed a reduction in traffic from 5,308 to 4,754.

The Reeves Dr. (Reeves Dr. between 4th Ave. S. and 8th Ave. S.) showed only a slight reduction in traffic from 1,982 to 1,892. The Cherry St. Count location showed a slight increase in traffic of 148. The traffic reduction on Belmont Rd. and Reeves Dr. after converting them to one-way pairs mostly moved to adjacent streets within the neighborhood like Chestnut St. as shown in Figure 40. Thus converting Belmont Rd. and Reeves Dr. into one-way pair shifts traffic to adjacent roadways within the neighborhood.

Scenario 3 Results (Prohibit westbound turns from 4th Ave. S. to Reeves Dr.)

Prohibiting westbound to southbound turns from 4th Ave. S. to Reeves Dr. reduces the traffic on Reeves Dr. for the Reeves Dr. count location (Reeves Dr. between 4th Ave. S. and 8th Ave. S.) slightly by 280 for the 2010 model and by 1,105 for the 2025 models respectively. This reduction in traffic is reflected by an increase in traffic on Belmont Rd. of 330 and 1,000 for the 2010 and 2025 model years for the Belmont Rd. (between 8th Ave. S. and 4th Ave. S.) count location. The other count locations showed insignificant changes in traffic. Figure 41 shows the Scenario 3 modeled output volumes compared to the base year modeled volumes for 2010 and 2025 respectively.

Scenario 4 Results: (No through traffic through the Near Southside Neighborhood)

Scenario 4 discouraged any through traffic through the neighborhood by reducing speeds on the north-south corridors from 25mph to 10mph. The reduction in speed was meant to replicate conditions that will discourage through traffic from using the Southside Neighborhood for their trips.

Scenario 4 base 2010 had a reduction of traffic volumes from 1,982 (base year) to 1,187 for Reeves Dr. between 4th Ave. S. and 8th Ave. S. count location. For the 2025 year, this location showed a reduction in traffic from 3,253 to 1,187. Compared to Scenario 1, Scenario 4 shows slightly higher volumes because it attempts to restrict through traffic in the entire neighborhood but not traffic that originates from the neighborhood on Reeves Dr. Scenario 1, on the other hand, restricts through movement on Reeves Dr. and 8th St. S. regardless of whether the traffic originated from within the Southside Neighborhood.

The Belmont Rd. count location between 4th Ave. S. and 8th Ave. S. showed a significant reduction in volumes from 4,175 to 797 and from 4,935 to 1,044 for 2010 and 2025 scenario 4's respectively.

The Belmont Rd. between 17th Ave. S. and 13th Ave. S. count location also showed a significant reduction in traffic from 5,308 to 1,291, and 8,031 to 1,913 for the 2010 and 2025 model years respectively.

The Cherry St. count location (between 10th Ave. S. and 13th Ave. S.) showed a reduction in traffic volumes from 2,865 to 1,274 and 3,494 to 1,381 for the 2010 and 2025 model years respectively.

Figure 42 shows the respective modeled volumes for Scenario 4 for the 2010 and 2025 modeled scenarios respectively.

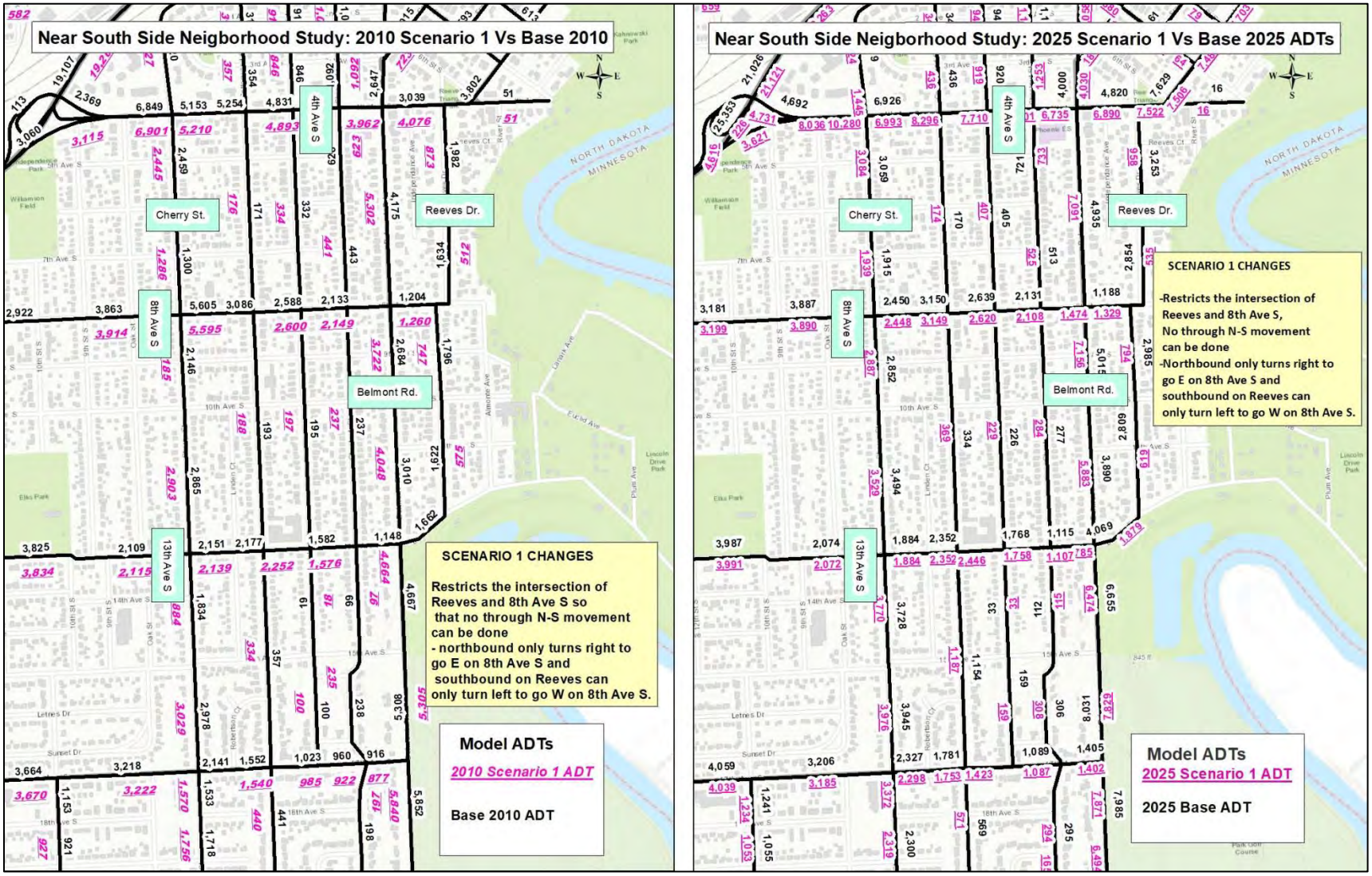

Figure 37. 2010 and 2025 scenario 1 ADT

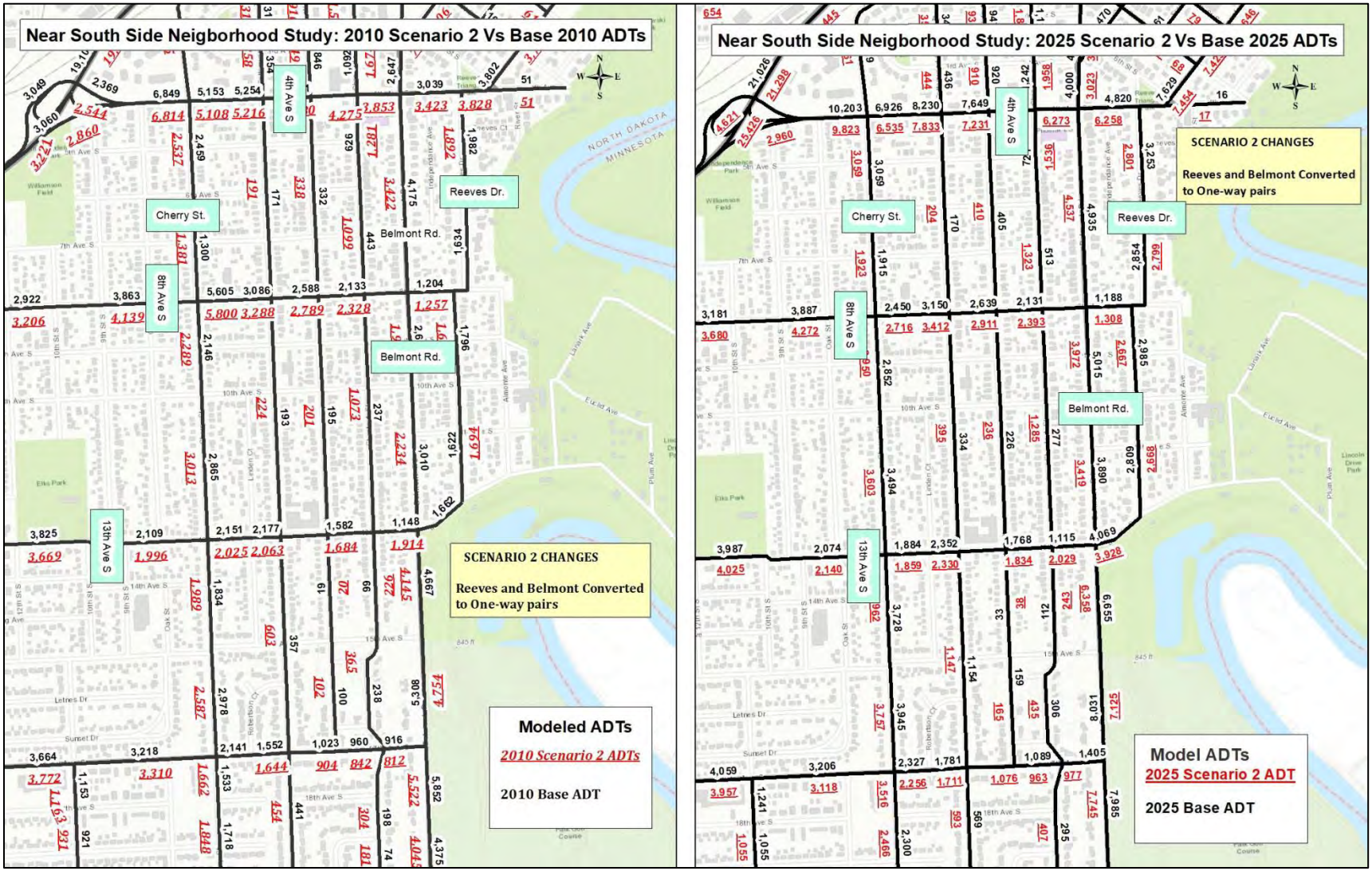

Figure 38. 2010 and 2025 scenario 2 ADT

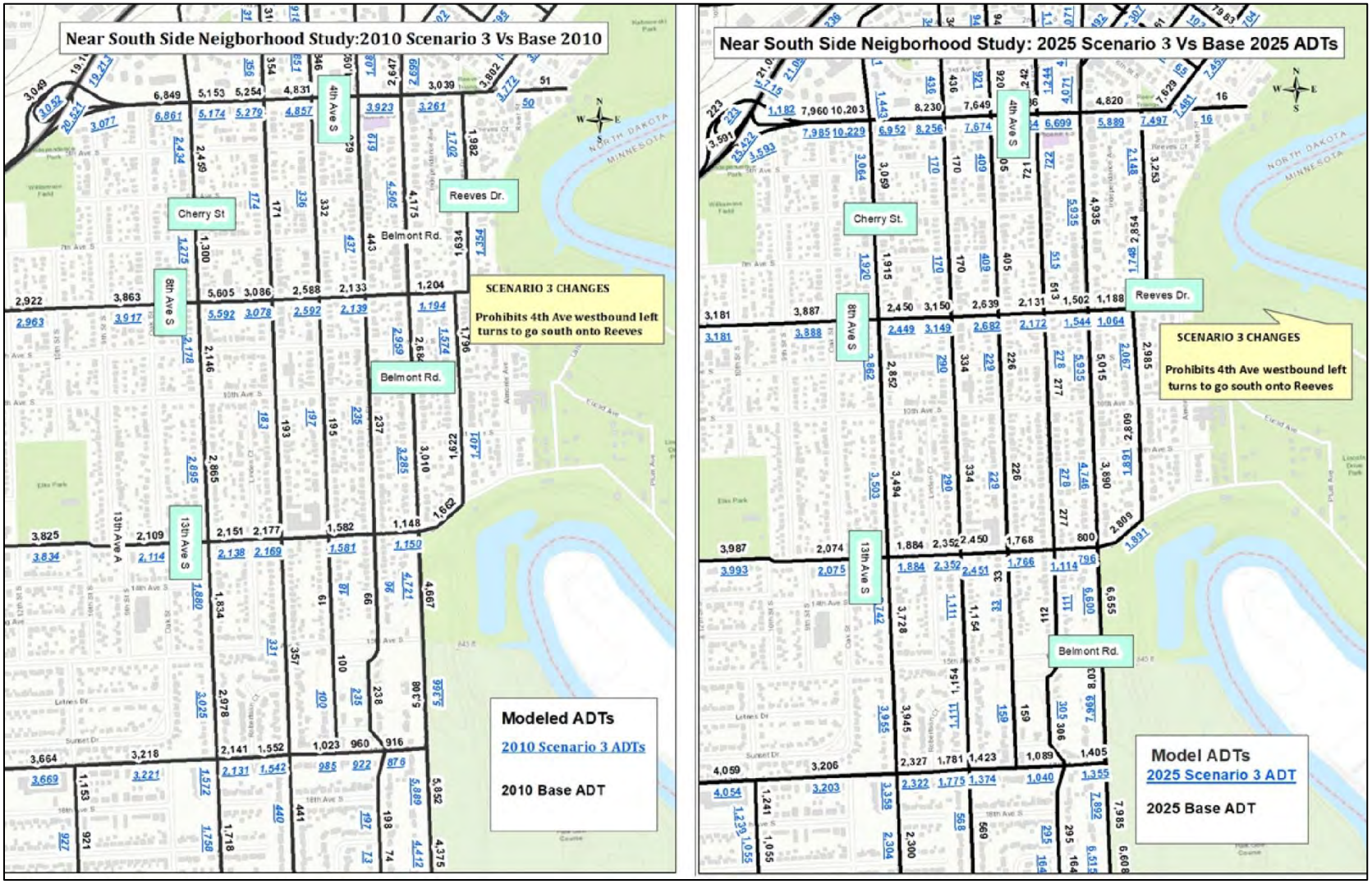

Figure 39. 2010 and 2015 scenario 3 ADT

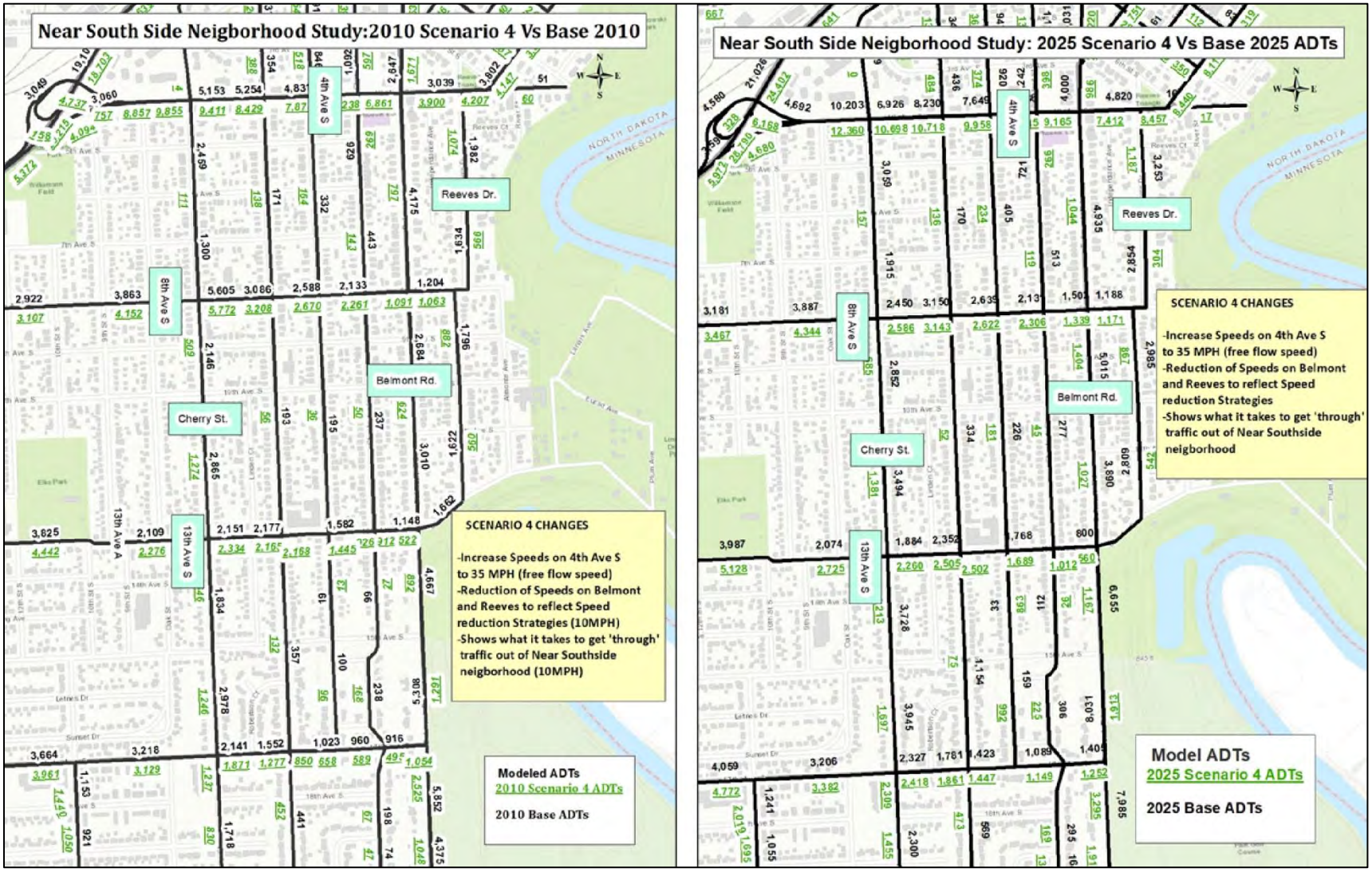

Figure 40. 2010 and 2025 scenario 4 ADT

SELECT LINK ANALYSIS

This section summarizes the travel demand model results for evaluating the amount of through traffic passing through the Near Southside Historic Neighborhood. The analysis was performed using the select link/node tool within the travel demand model. The select link/node analysis allows the model to provide modeled traffic volume output that show traffic using particular links or nodes only. Thus for the Near Southside Historic Neighborhood, it shows the model output volumes that originate or terminate within the neighborhood for all the links in the network. All the TAZs within the Near Southside Historic Neighborhood were used for the select link analysis. The results are reported for a northern location (links between 4th Ave. S. and 8th Ave. S.); and for a southern location (links between 8th Ave. S. and 13th Ave. S.). The results are reported for the north-south corridors including Reeves Dr., Belmont Rd, Chestnut St, Walnut St, Cottonwood St. and Cherry St. The select node model ADT were compared to the total modeled ADTs using these links to develop the percent of through trips.

2010 Through Trip Model Results

Table 23 shows the select link analysis for the zones within the neighborhood for the base 2010. It shows the total trips, the local trips (trips that originate or terminate within the Transportation Analysis Zones in the neighborhood), the through trips indicating the amount of through traffic and the through trip percentage. Overall, 68% of total trips between the neighborhoods were through trips.

Table 23. 2010 through trip model runs

Between 4th Ave. S. and 8th Ave. S.				
	Total	Local	Through	% Through
Reeves Dr.	1,971	1,114	857	43%
Belmont Rd.	4,498	928	3,570	79%
Chestnut St.	627	529	98	16%
Walnut St.	360	322	38	11%
Cottonwood St.	223	191	32	14%
Cherry St.	2,485	716	1,769	71%
Total	10,164	3,800	6,364	63%
Between 13th Ave. S. and 8th Ave. S.				
	Total	Local	Through	% Through
Reeves Dr.	1,638	781	857	52%
Belmont Rd.	2,973	290	2,683	90%
Chestnut St.	225	127	98	44%
Walnut St.	196	158	38	19%
Cottonwood St.	230	129	101	44%
Cherry St.	3,087	679	2,408	78%
Total	8,349	2,164	6,185	74%

Overall, the north location between 4th Ave. S. and 8th Ave. S. showed 63% of the trips were through trips. Belmont Rd. had the highest percent through trips at 79%; followed by Cherry St. and Reeves Dr. with 71% and 43% respectively. Chestnut St., Walnut St., and Cottonwood St. showed through trip percentages ranging from 11% to 16%.

The southern location between 8th Ave. S. and 13th Ave. S. had higher through trips percentages compared to the northern location with and overall through trip percentage of 74%. Belmont Rd. had the highest through trip percentage at 90%. Cherry St. had a 78% through trip rate. Reeves Dr. had a 52% through trip rate. Cottonwood St. and Chestnut St. both had 44% through trip rates. Walnut St. had a through trip percentage of 19%.

2025 Through Trip Model Results

Overall, for the north location between 4th Ave. S. and 8th Ave. S., 67% of trips were through trips for the 2025 model compared to 63% for the base 2010 year. Belmont Rd. had the highest percentage of through trips at 85% compared to 79% for the base 2010 year. Cherry St. had a 74% through trip rate compared to 60% for the base year. On Reeves Dr., 55% of trips were through trips compared to 43% for the 2010 base year. Cottonwood St. showed through trip percentages of 33% compared to 14% for the 2010 base year. Chestnut St. and Walnut St. had through trip percentages of 15% and 11% respectively.

Table 24 shows the through trip analysis for the 2025 base year model output. Overall, through trips increased slightly from 65% to 71% between the 2010 and 2025 base years. This reflects the comparatively higher growth rate in jobs and households to Transportation Analysis Zones to the South of the Near Southside Historic Neighborhood in comparison to the Near Southside Historic Neighborhood.

Table 24. 2025 through trip model runs

Between 4th Ave. S. and 8th Ave. S.				
	Total	Local	Through	% Through
Reeves Dr.	3,486	1,565	1,921	55%
Belmont Rd.	5,008	751	4,257	85%
Chestnut St.	792	673	119	15%
Walnut St.	412	368	44	11%
Cottonwood St.	369	248	121	33%
Cherry St.	3,061	791	2,270	74%
Total	13,128	4,396	8,732	67%
Between 13th Ave. S. and 8th Ave. S.				
	Total	Local	Through	% Through
Reeves Dr.	3,012	1,095	1,917	64%
Belmont Rd.	3,942	357	3,585	91%
Chestnut St.	323	178	145	45%
Walnut St.	231	187	44	19%
Cottonwood St.	488	234	254	52%
Cherry St.	3,412	618	2,794	82%
Total	11,408	2,669	8,739	77%

Overall, for the north location between 4th Ave. S. and 8th Ave. S., 67% of trips were through trips for the 2025 model compared to 63% for the base 2010 year. Belmont Rd. had the highest percent through trips at 85% compared to 79% for the base 2010 year. Cherry St. had a 74% through trip rate compared to 60% for the base year. 55% of trips on Reeves Dr. were through trips compared to 43% for the 2010 base year. Cottonwood St. showed through trip percentages of 33% compared to 14% for the 2010 base year. Chestnut St. and Walnut St. had through trip percentages of 15% and 11% respectively.

The southern location between 8th Ave. S. and 13th Ave. S. showed an overall through trip percentage of 77% compared to the 74% for the base 2010 model output. Belmont Rd. had the highest through trip percentage at 91% compared to 90% for the base year. Cherry St. had an 82% through trip rate compared to 78% for the base 2010 year. Reeves Dr. had a 64 % through trip rate compared to 52% for the 2010 base year. Cottonwood St. had a 52% through trip rate compared to 44% for the base 2010 model. Chestnut St. had 45% through trip compared to 44% for the 2010 base year. Walnut St. had a through trip percentage of 19%, identical to the base 2010 model.

RECOMMENDATIONS

After careful consideration, we recommend the following innovative countermeasures to tackle the problems identified during the course of this project. The comments received during presentation to the public at a meeting Dec. 11 have also been addressed in the following section. Especially note that a before-and-after comparison of speeds with respect to traffic calming devices including midblock bulb-outs (chokers) and dynamic speed feedback signs revealed that such measures did not result in any long-term reduction in travel speeds.

Install Mini Roundabouts

Based on their design, application criteria, traffic calming characteristics, injury mitigation benefits and other considerations, it is recommended that mini roundabouts be installed at the following intersections:

1. Belmont Rd. and 5th St./Division
2. 4th Ave. S. and Belmont Rd.
3. 4th Ave. S. and Reeves Dr.
4. 8th Ave. and Belmont Rd.
5. 8th Ave. and Cherry St.

Mini roundabouts are especially applicable within the neighborhood because they completely eliminate angle-type crashes. Installations of mini roundabouts have proven to be effective in calming traffic and increasing pedestrian and driver safety. Studies have shown that the mini roundabout can reduce all crash types by 20% to 50% while reducing right angle type crashes by 60% to 90%.

There are possible installation methods that allow these concepts to be temporarily installed to gauge how they could work. Examples exist nation-wide of how temporary mini-roundabouts have been installed. There are far ranging methods and materials including just the use of paint to using parking lot stall curbs to using hay bales to demark the inner circle. FHWA has sponsored development of a mat like material that can be laid down. The cost of the mini roundabout is dependent on several factors including features and material. Typically they range between $40,000 and $500,000.

Belmont Road and 5th/Division

To eliminate any confusion at this unusual intersection, a mini roundabout application, as seen in the concept in figure 43, would force all drivers into right turn movements, giving less confusion to who has the right of way. The bulb out and splitter islands will also cause drivers to reduce their speed when entering the intersection. Another added benefit to the bulb out and improved crosswalk is the pedestrian safety. With high pedestrian activity due to the shelter on the north corner, pedestrians should gain more refuge when crossing the street. The new construction of the mini roundabout should also improve the indistinct sidewalk on the west side of the intersection.

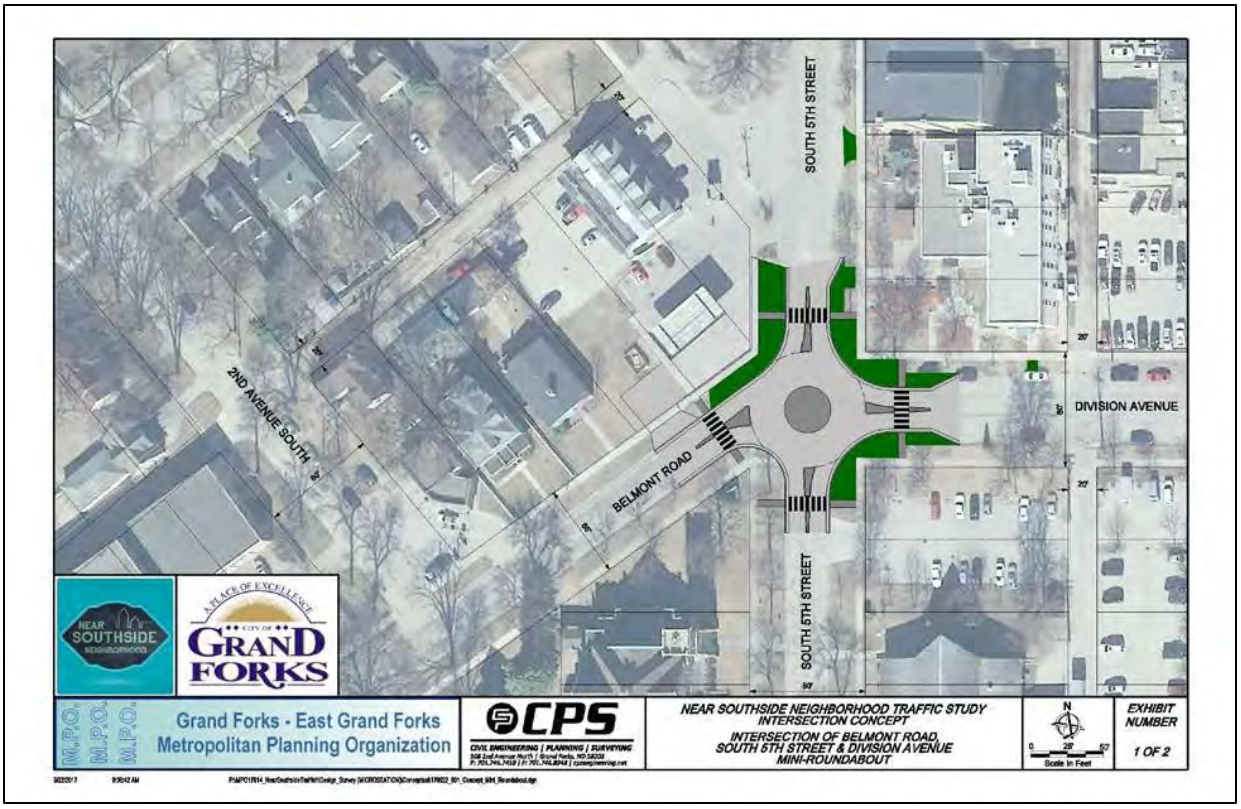

Figure 41. Belmont/5th/Division concept

Belmont Road and 4th Avenue

The NSS residents have proposed painted crosswalks that are vibrant and decorative to make more apparent that children are around. Though this may seem like a good idea, FHWA studies gathered contradictory results. ATAC looked into all possible options and the most apparent solution for this intersection is the mini roundabout.

With proper design, a roundabout could be a focal point where school buses, passenger cars, pedestrians such as school children, and bicycles are able to share the road safely. In the United States, roundabouts near school zones are slowly increasing in number.

Figure 42. Belmont and 4th concept

The application of a mini roundabout at the 4th and Belmont intersection has many potential benefits in safety. As stated previously, studies have shown that the mini roundabout can reduce all crash types by 20% to 50% while reducing right angle type crashes by 60% to 90%. This intersection with the higher than normal crashes, desires these reductions. For pedestrians, the mini roundabout reduces the pedestrian to vehicle conflict point from 16 to 8. The crosswalk becomes pushed farther from the intersection with a splitter island that provides refuge in the center of the roadway. When coupled with pedestrian beacons and/or other signage, these safety features can greatly increase school children safety when crossing the road. The mini roundabout has also been proven to calm traffic speeds while improving traffic flows. These effects provide less delay for critical movements and the improved traffic flows can encourage drivers to avoid cutting through Reeves Drive.

Reeves Drive and 4th Ave

The mini roundabout at this intersection takes on the same benefits and operational impacts as previously stated. For this intersection in particular, a mini roundabout at this location would calm westbound traffic coming from Point Bridge entering both the intersection and school zone. This is beneficial to not only reduce speeds at the intersection, but also optimize school speed zone compliance west of the intersection. A reduction in angle crashes is expected to be nearly eliminated at this intersection where angle crashes is a current problem. East and west traffic would maintain free flow traffic and improve the traffic flow along the arterial corridor. This benefit is expected to reduce cut-through traffic on Reeves Drive.

Figure 43. Reeves and 4th concept

Belmont Road and 8th Ave

Though this intersection does not experience a high number of crashes relative to the other intersections, this section of roadway desires calmer traffic speeds with improved traffic flow. Improving the traffic flow at this intersection encourages traffic along Belmont to not cut through to Reeves Drive. Residents near this intersection also expressed concern of vehicles "drag racing" once stopped at this intersection. The mini roundabout should eliminate this action as well as reduce any noise pollution caused by vehicles stopped and starting at the stop sign. Figure 46 shows the concept for this intersection.

Figure 44. Belmont and 8th concept

Cherry Street and 8th Avenue

This intersection experienced the highest amount of injury and angle crashes within the study area from 2014 to 2016. In order to reduce angle crashes and the injuries that are commonly associated from them, a mini roundabout is recommended. Figure 47 shows a concept of the application at this intersection.

Figure 45. Cherry and 8th concept

Increased Patrol/Targeted Enforcement

It is recommended that increased patrol along with strict & targeted enforcement be carried out during the hours between midnight and 4 a.m. as it is likely that drivers crashing into parked motor vehicles are impaired. An increase in patrol and enforcement will result in significant reduction in property damage only (PDO) type crashes and will potentially prevent injuries/fatalities while acting as a deterrent to impaired driving.

Also, it is recommended that speed limits be strictly enforced along the following stretches within the neighborhood:

1. Belmont Rd. between 4th Ave. S. and 8th Ave. S.
2. Reeves Dr. between 4th Ave. S. and 8th Ave. S.
3. Belmont Rd. between 13th Ave. S. and 17th Ave. S.

Strict speed limit enforcement will result in reduced traffic speeds and it is expected that the upward trend in speed-related crashes within the neighborhood will also be reversed as a consequence.

Bridge Feasibility Study

It is recommended that feasibility of a bridge over Red River, south of the Point Bridge be looked into. Funding opportunities for this bridge need to be identified. It is imperative that such efforts be combined with other major area improvements such as I-29 interchange(s) and US Highway 2 intersection(s).

A bridge, south of Point Bridge, will relieve the neighborhood of cut-through traffic.

Conduct Traffic Control Signal Needs Study

The intersection of 4th Ave. at Cherry St. has a higher than expected number of crashes. A recent study at a nearby intersection (Belmont and 4th Ave) concluded that there was no longer a need for a traffic signal and the intersection was converted to a 4-way stop controlled intersection. It is recommended that a traffic control signal needs study be conducted at 4th Ave. at Cherry St. to see if this intersection no longer warrants traffic signals as well.

If, in the needs study it is concluded that a traffic signal is warranted, it is recommended to revisit the programmed clearance interval timings. Also, the pedestrian heads that are no longer facing the correct direction should be re-aimed.

If a traffic signal is not warranted, it is recommended to retrofit a mini roundabout at this location to eliminate angle crashes and the resulting injuries. A mini roundabout at this location will eliminate angle crashes and significantly improve traffic safety.

Sidewalk Improvements

As concluded in the Walkability Assessment, much of the sidewalk throughout the neighborhood needs updating. It is recommended the sidewalk be replaced at locations where the sidewalk is less than 5 feet wide or if the sidewalk is in a general state of disrepair.

Another observation was that debris from gravel alleyways was scattered onto the sidewalks. It is suggested to improve the maintenance at these areas.

Many sidewalks throughout the neighborhood were obstructed by a private fence. According to city ordinance 16-0310, a person cannot obstruct any sidewalk and may be subject to a penalty for every 48 hours the person fails to remove the obstruction. Education as well as enforcement of this ordinance is encouraged to improve neighborhood walkability.

Near the Belmont Dr. and 5th St./Division intersection, the sidewalks were hard to distinguish from the parking lots and furniture zones. These sidewalks do not represent a clear and safe designated path of travel for pedestrians. The recommendation is to reconstruct the sidewalk to be consistent with the rest of the neighborhood.

Review Access Management

Some driveways were located at or very near intersections. Review of all accesses within the neighborhood to determine those that should be relocated or eliminated.

Regionwide Parked Motor Vehicle Crash Analysis

It is likely that similar to the Near Southside Historic Neighborhood, other parts of the cities of Grand Forks and East Grand Forks are experiencing a disproportionately higher number of drivers crashing into parked motor vehicles. It is recommended that this issue be seriously looked into and that a regionwide study be conducted to locate affected neighborhoods and to identify countermeasures/recommendations.

Such an analysis will help identify problem areas and thus provide basis for funding prioritization with likelihood of high benefit-to-cost ratio for area transportation agencies while significantly reducing road user costs.

Regionwide Bus-stop Pedestrian Safety Analysis

It is possible that, similar to the bus stop located on 1st Ave., other locations lack appropriate pedestrian infrastructure. It is recommended that a regionwide bus-stop pedestrian safety analysis be conducted to identify issues facing transit network users. Such analysis should ideally include walkability and bikeability assessments.

1st Avenue bus stop Improvement

The bus stop along 1st Ave. is one of the CAT's most used for boarding the bus. The recent Transit Development Plan (TDP) includes figure 49 for Route #3. The graphic labels the stop as serving the "Link" housing complex and the Senior Citizens' Center; however, the particular stop serves an apartment complex north of these two facilities.

A new residential building is being built a few blocks to the east of this bus stop; it is at the corner of 1st Ave S and Walnut. This residential building is intended to serve as a housing transition facility in which previously homeless can establish a "residence" and begin to recapture having a home. Given the likelihood of that population using public transit, CAT has considered how to improve the bus stop identified west of Cottonwood to shift eastward to not only improve the bus stop but to serve the new housing facility as well.

CAT will implement a new route system this summer. While significant changes to existing routes are proposed, for this part of the system, no change is being proposed. Therefore, improving this stop and trying to serve two locations with one stop has some merit.

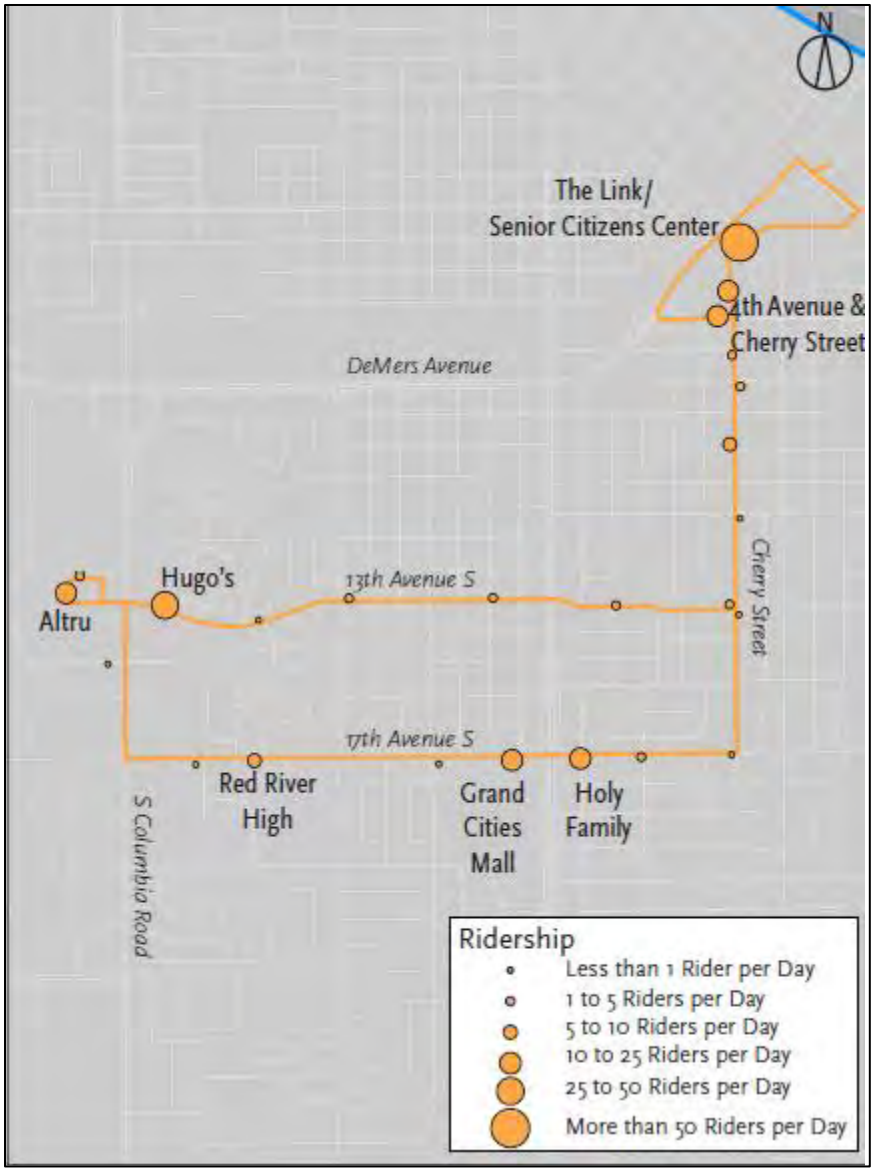

Figure 46. Bus ridership

Some concepts have been developed showing how a new bus stop could be implemented. The intent is to locate it between the two main housing areas and also provide some traffic calming techniques. The concept tries to "land" the bus stop at a location that would allow the construction of a shelter. Given the already large number of passengers boarding, a shelter is needed. The current location of the bus stop does not provide room for a shelter given a multi-use trail exists at the curb.

Particulars are still being considered and further speed studies will be done to determine whether the perception of speed is backed-up by data. As CAT staff met with City Engineering staff, it was mentioned that mid-block crossings between the Link and the Senior Citizens' Center were also an issue. The notion of improving this mid-block crossing will also be examined.

Figure 47. Bus stop concept

APPENDICES

Appendix A: JAMAR reports
Appendix B: NDDOT crash summary sheets
Appendix C: Walkability assessment checklists and comments
Appendix D: Grand Forks police and engineering department studies
Appendix E: MPO turning movement counts

APPENDIX A: JAMAR reports

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Belmont Road between 8th Ave S and 4th Ave S

Report for 4/19/2017 to 4/19/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:30	Time	04:30
4,984	Count	526	Count	553
	PHF	0.832	PHF	0.922

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45+
Count	272	648	928	1205	859	750	213	64	33	8	2	1	1	0
Percent	5.5	13.0	18.6	24.2	17.2	15.0	4.3	1.3	0.7	0.2	0.0	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	45+
Count	4712	4064	3136	1931	1072	322	109	45	12	4	2	1	0	0
Percent	94.5	81.5	62.9	38.7	21.5	6.5	2.2	0.9	0.2	0.1	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	20	21	22	25	25	26	29	30	31

Average (Mean)	26
Pace Speed	21-30
Number in Pace	4390
Percent in Pace	88.1

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Belmont Road between 8th Ave S and 4th Ave S

Speed	Volume
7	4
8	1
9	2
10	1
11	2
12	8
13	1
14	6
15	3
16	14
17	32
18	24
19	96
20	78
21	241
22	407
23	244
24	684
25	818
26	387
27	618
28	241
29	412
30	338
31	93
32	120
33	28
34	36
35	27
36	6
37	8
39	2
42	1
44	1

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Reeves Dr between 4th Ave S and 8th Ave S

Report for 4/26/2017 to 4/26/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:15	Time	04:45
2,143	Count	293	Count	236
	PHF	0.796	PHF	0.819

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45 - 999
Count	164	197	254	392	397	435	164	70	41	18	7	1	0	3
Percent	7.7	9.2	11.9	18.3	18.5	20.3	7.7	3.3	1.9	0.8	0.3	0.0	0.0	0.1

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	999
Count	1979	1782	1528	1136	739	304	140	70	29	11	4	3	3	0
Percent	92.3	83.2	71.3	53.0	34.5	14.2	6.5	3.3	1.4	0.5	0.2	0.1	0.1	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	19	21	22	26	27	27	30	32	34

Average (Mean)	26
Pace Speed	21-30
Number in Pace	1675
Percent in Pace	78.2

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Reeves Dr between 4th Ave S and 8th Ave S

Speed	Volum
7	2
8	1
9	5
10	3
11	5
12	5
13	4
14	12
15	4
16	11
17	25
18	11
19	51
20	25
21	87
22	110
23	63
24	191
25	264
26	128
27	282
28	115
29	224
30	211
31	69
32	95
33	23
34	47
35	32
36	9
37	11
38	7
39	4
40	3
41	1
45	1
48	1
50	1

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Reeves Dr between 4th Ave S and 8th Ave S

Report for 4/25/2017 to 4/25/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:30	Time	05:00
2,306	Count	280	Count	280
	PHF	0.761	PHF	0.805

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45 - 999
Count	297	251	344	454	373	374	113	48	32	9	8	1	1	1
Percent	12.9	10.9	14.9	19.7	16.2	16.2	4.9	2.1	1.4	0.4	0.3	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	999
Count	2009	1758	1414	960	587	213	100	52	20	11	3	2	1	0
Percent	87.1	76.2	61.3	41.6	25.5	9.2	4.3	2.3	0.9	0.5	0.1	0.1	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	17	19	21	25	25	26	30	30	32

Average (Mean)	25
Pace Speed	21-30
Number in Pace	1796
Percent in Pace	77.9

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Reeves Dr between 4th Ave S and 8th Ave S

Speed	Volum
7	7
8	1
9	6
11	12
12	12
13	11
14	23
15	10
16	29
17	34
18	22
19	84
20	46
21	124
22	127
23	108
24	236
25	314
26	140
27	253
28	120
29	207
30	167
31	46
32	67
33	18
34	30
35	25
36	7
37	7
38	2
39	3
40	5
42	1
43	1
45	1

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Cherry Street between 10th Ave S and 13th Ave S

Report for 4/20/2017 to 4/20/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:30	Time	04:45
2,894	Count	283	Count	303
	PHF	0.680	PHF	0.947

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45+
Count	1331	761	407	228	98	46	12	6	2	3	0	0	0	0
Percent	46.0	26.3	14.1	7.9	3.4	1.6	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	45+
Count	1563	802	395	167	69	23	11	5	3	0	0	0	0	0
Percent	54.0	27.7	13.6	5.8	2.4	0.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	14	16	17	20	21	21	24	25	27

Average (Mean)	21
Pace Speed	16-25
Number in Pace	2439
Percent in Pace	84.3

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Cherry Street between 10th Ave S and 13th Ave S

Speed	Volume
7	13
8	4
9	8
10	5
11	17
12	28
13	27
14	83
15	52
16	159
17	221
18	169
19	347
20	198
21	437
22	324
23	146
24	261
25	177
26	51
27	82
28	16
29	33
30	13
31	10
32	2
33	1
34	5
35	2
37	3

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COMBINED

Site Code: 12345678
Station ID: 87654321
This should be the street name
And this is the cross street
Latitude: 0' 0.0000 South

Report for 4/20/2017 to 4/20/2017 11:59:59 PM

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45 - 999
Count	1331	761	407	228	98	46	12	6	2	3	0	0	0	0
Percent	46.0	26.3	14.1	7.9	3.4	1.6	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	999
Count	1563	802	395	167	69	23	11	5	3	0	0	0	0	0
Percent	54.0	27.7	13.6	5.8	2.4	0.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	14	16	17	20	21	21	24	25	27

Average (Mean)	21
Pace Speed	16-25
Number in Pace	2439
Percent in Pace	84.3

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COMBINED

Site Code: 12345678
Station ID: 87654321
This should be the street name
And this is the cross street
Latitude: 0' 0.0000 South

Speed	Volume
7	13
8	4
9	8
10	5
11	17
12	28
13	27
14	83
15	52
16	159
17	221
18	169
19	347
20	198
21	437
22	324
23	146
24	261
25	177
26	51
27	82
28	16
29	33
30	13
31	10
32	2
33	1
34	5
35	2
36	0
37	3

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Cherry Street between 10th Ave S and 13th Ave S

Report for 4/19/2017 to 4/19/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:30	Time	04:45
2,853	Count	282	Count	332
	PHF	0.698	PHF	0.838

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45+
Count	1038	738	553	293	147	61	11	5	5	1	0	0	1	0
Percent	36.4	25.9	19.4	10.3	5.2	2.1	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	45+
Count	1815	1077	524	231	84	23	12	7	2	1	1	1	0	0
Percent	63.6	37.7	18.4	8.1	2.9	0.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	16	17	18	21	22	22	25	26	27

Average (Mean)	21
Pace Speed	16-25
Number in Pace	2417
Percent in Pace	84.7

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Cherry Street between 10th Ave S and 13th Ave S

Speed	Volum
7	9
8	2
9	5
11	4
12	8
13	18
14	35
15	38
16	112
17	156
18	133
19	333
20	185
21	355
22	383
23	225
24	328
25	207
26	86
27	104
28	43
29	39
30	22
31	7
32	4
33	3
34	2
35	4
36	1
37	1
43	1

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Belmont Road between 17th Ave S and 13th Ave S

Report for 4/26/2017 to 4/26/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:15	Time	04:45
6,094	Count	641	Count	632
	PHF	0.793	PHF	0.878

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45 - 999
Count	205	476	778	1096	923	1106	553	422	275	156	64	18	13	9
Percent	3.4	7.8	12.8	18.0	15.1	18.1	9.1	6.9	4.5	2.6	1.1	0.3	0.2	0.1

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	999
Count	5889	5413	4635	3539	2616	1510	957	535	260	104	40	22	9	0
Percent	96.6	88.8	76.1	58.1	42.9	24.8	15.7	8.8	4.3	1.7	0.7	0.4	0.1	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	21	22	24	27	27	28	33	34	36

Average (Mean)	28
Pace Speed	23-32
Number in Pace	4456
Percent in Pace	73.1

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Belmont Road between 17th Ave S and 13th Ave S

Speed	Volum
7	1
8	1
9	1
11	3
12	1
13	2
14	4
15	1
16	17
17	26
18	22
19	80
20	46
21	182
22	294
23	210
24	568
25	760
26	336
27	619
28	304
29	571
30	535
31	224
32	329
33	157
34	265
35	196
36	79
37	116
38	40
39	44
40	20
41	6
42	12
43	13
45	3
46	1
47	3
48	1
52	1

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Belmont Road between 17th Ave S and 13th Ave S

Report for 4/25/2017 to 4/25/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:15	Time	05:00
6,279	Count	701	Count	664
	PHF	0.797	PHF	0.878

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45 - 999
Count	137	397	843	1153	1038	1244	584	406	236	133	57	27	10	14
Percent	2.2	6.3	13.4	18.4	16.5	19.8	9.3	6.5	3.8	2.1	0.9	0.4	0.2	0.2

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	999
Count	6142	5745	4902	3749	2711	1467	883	477	241	108	51	24	14	0
Percent	97.8	91.5	78.1	59.7	43.2	23.4	14.1	7.6	3.8	1.7	0.8	0.4	0.2	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	22	23	24	27	27	28	32	34	35

Average (Mean)	28
Pace Speed	23-32
Number in Pace	4862
Percent in Pace	77.4

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Belmont Road between 17th Ave S and 13th Ave S

Speed	Volum
7	1
10	1
11	3
12	2
14	2
15	3
16	6
17	20
18	10
19	52
20	37
21	156
22	241
23	230
24	613
25	762
26	391
27	685
28	353
29	682
30	562
31	241
32	343
33	148
34	258
35	166
36	70
37	92
38	41
39	39
40	18
41	13
42	14
43	9
44	1
45	5
47	3
48	1
52	1
53	1
55	1
57	2

NDSU | UPPER GREAT PLAINS TRANSPORTATION INSTITUTE
ADVANCED TRAFFIC ANALYSIS CENTER

NDSU Dept. 2880, P.O. Box 6050, Fargo, ND 58108-6050
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Belmont Road between 8th Ave S and 4th Ave S

Report for 4/20/2017 to 4/20/2017 11:59:59 PM

Vehicles	Peak Periods			
	AM		PM	
	Time	07:30	Time	04:45
4,986	Count	484	Count	564
	PHF	0.829	PHF	0.865

SPEED STATISTICS - 20 to 45+ by 2 MPH

Speed in MPH	1 - 20	21 - 22	23 - 24	25 - 26	27 - 28	29 - 30	31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 42	43 - 44	45+
Count	322	639	983	1131	873	751	187	64	24	7	3	1	1	0
Percent	6.5	12.8	19.7	22.7	17.5	15.1	3.8	1.3	0.5	0.1	0.1	0.0	0.0	0.0

Over Speed	20	22	24	26	28	30	32	34	36	38	40	42	44	45+
Count	4664	4025	3042	1911	1038	287	100	36	12	5	2	1	0	0
Percent	93.5	80.7	61.0	38.3	20.8	5.8	2.0	0.7	0.2	0.1	0.0	0.0	0.0	0.0

Percentile	5%	10%	15%	45%	50%	55%	85%	90%	95%
Speed	20	21	22	25	25	26	29	30	31

Average (Mean)	25
Pace Speed	21-30
Number in Pace	4377
Percent in Pace	87.8

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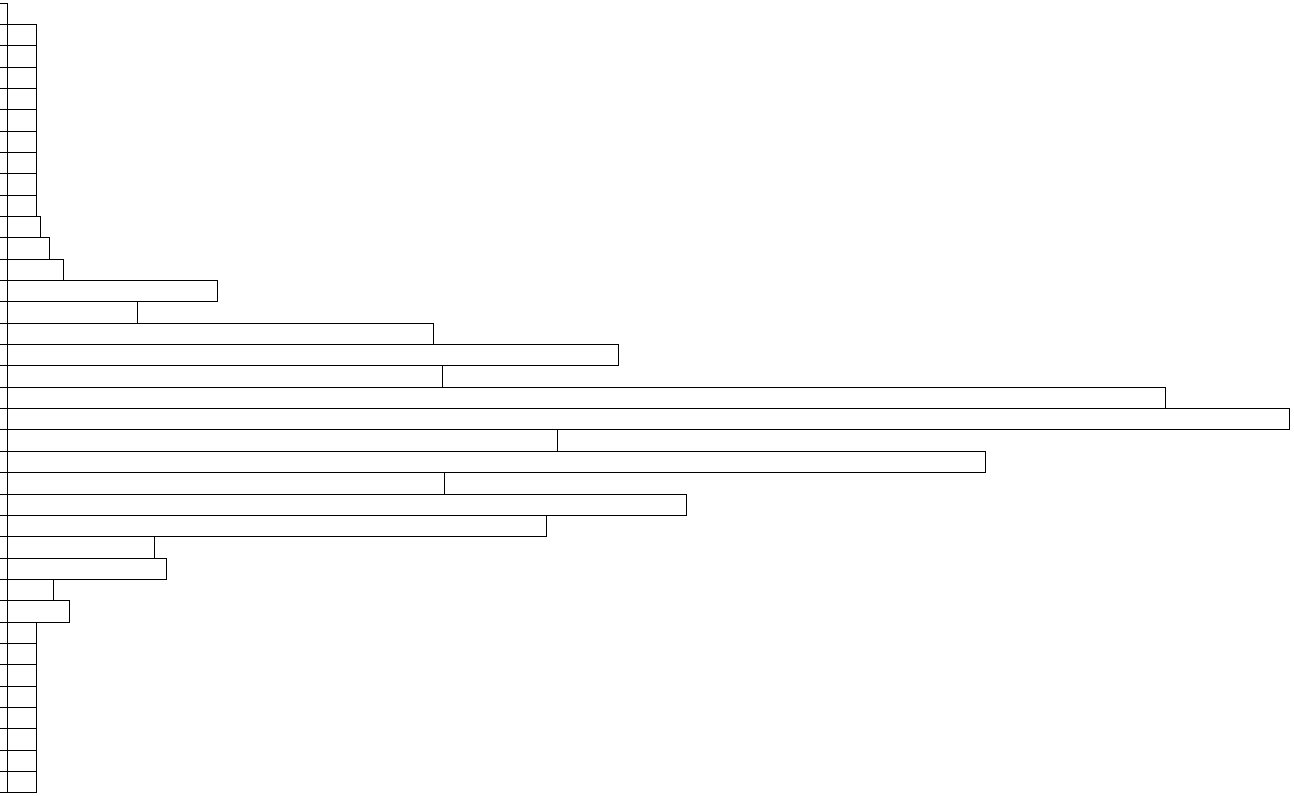
Belmont Road between 8th Ave S and 4th Ave S

Speed	Volum
7	5
8	2
9	4
10	1
11	3
12	6
13	2
14	7
15	7
16	19
17	25
18	33
19	129
20	79
21	262
22	377
23	268
24	715
25	792
26	339
27	604
28	269
29	419
30	332
31	90
32	97
33	27
34	37
35	13
36	11
37	4
38	3
39	2
40	1
41	1
44	1



APPENDIX B: NDDOT crash summary sheets

Crash Summary Sheets

Total Crashes: 179
Sorted by: Date

City: Grand Forks
Location: Near Southside Neighborhood

	M	D	Year
Start Date:	1	1	2014
End Date:	12	31	2016

Number of Years: 3.00

Notes:

23 USC § 409 Documents
NDDOT Reserves All Objections

Statistics

Crash Severity

Fatal =	0	0%
InjA =	0	0%
InjB =	9	5%
InjC =	22	12%
PDO =	148	83%
	179	

Surface Conditions

Dry =	100	56%
Wet =	18	10%
Ice / Snow =	60	34%
Other =	1	1%
	179	

Lighting Conditions

Dawn =	2	1%
Daylight =	128	73%
Dusk =	4	2%
Dark =	16	9%
Dark (lighted) =	26	15%
	176	

Under Construction

Yes =	0	0%

Day of Week

Monday =	32	18%
Tuesday =	25	14%
Wednesday =	26	15%
Thursday =	21	12%
Friday =	41	23%
Saturday =	17	9%
Sunday =	17	9%
	179	

Time of Day

Midnight - 6:59am =	12	7%
7am - 7:59am =	14	8%
8am - 8:59am =	10	6%
9am - 9:59am =	6	3%
10am - 10:59am =	7	4%
11am - 11:59am =	12	7%
Noon - 12:59pm =	12	7%
1pm - 1:59pm =	15	8%
2pm - 2:59pm =	10	6%
3pm - 3:59pm =	15	8%
4pm - 4:59pm =	14	8%
5pm - 5:59pm =	13	7%
6pm - 6:59pm =	12	7%
7pm - 7:59pm =	9	5%
8pm - 8:59pm =	7	4%
9pm - 9:59pm =	3	2%
10pm - 10:59pm =	5	3%
11pm - 11:59pm =	3	2%
	179	

V1 and V2 Configuration*

Passenger Car =	148
PU / Van / Utility =	158
Truck =	2
Bus / Motorhome =	2
Motorcycle + Moped =	0

These are only the most popular choices.

V1 and V2 Directions*

North =	105
South =	101
East =	76
West =	55

D1 and D2 Sex*

Female =	127
Male =	132

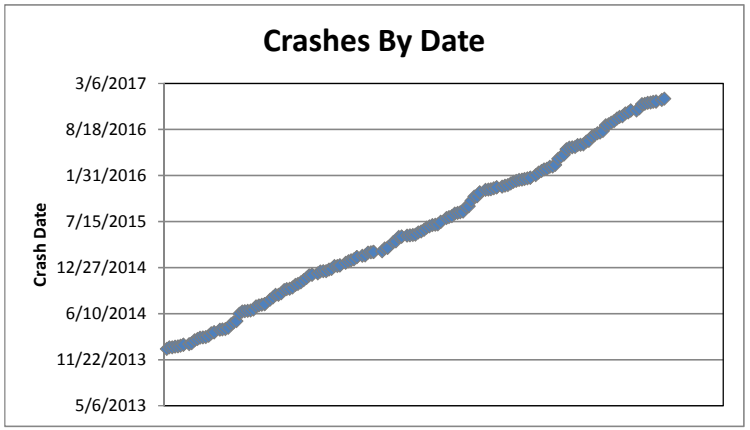
D1 and D2 Age*

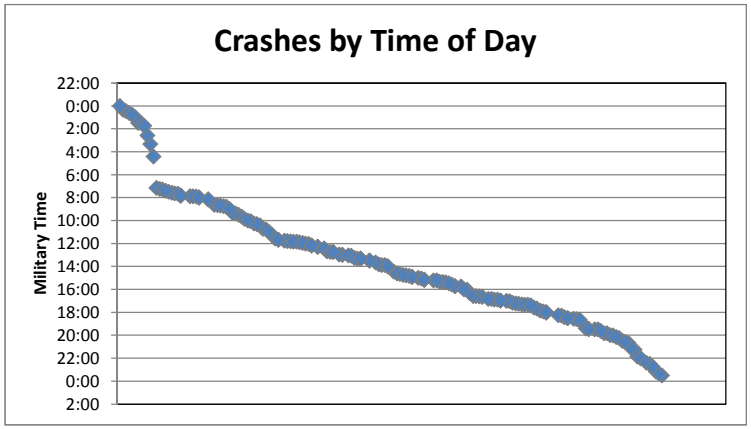
0-17 =	19	45-54 =	30
18-24 =	50	55-64 =	35
25-34 =	38	65-74 =	32
35-44 =	42	75+ =	13

D1 and D2 Alcohol / Drugs*

Yes (alcohol or drugs present) =	10

*This info is not available for all units.





*Within the Manner of Collision table, values equal to zero are not shown in order to reduce clutter.

Manner of Collision

Yr	Start Date	End Date	Angle					Rear End					Left Turn					Sideswipe Same Dir.					Backing	Ped / Bike	Single Veh.	Other	Total
			NB+EB	NB+WB	SB+EB	SB+WB	Sub Tot	NB	SB	EB	WB	Sub Tot	NB to WB	SB to EB	EB to NB	WB to SB	Sub Tot	NB	SB	EB	WB	Sub Tot					
1	1/1/2014	12/31/2014	8	5	3	8	24	3	1			4		1			1	1	2	1		4	5		20	2	**60**
2	1/1/2015	12/31/2015	7	10	4	7	28	1	2	3		6			1		1	1				1	3	1	20	4	**64**
3	1/1/2016	12/31/2016	7	1	9	2	19	3		1	1	5		1	1		2						7	1	18	3	**55**
			22	**16**	**16**	**17**	**71**	**7**	**3**	**4**	**1**	**15**	**0**	**2**	**2**	**0**	**4**	**2**	**2**	**1**	**0**	**5**	**15**	**2**	**58**	**9**	**179**

Crash Summary Sheets

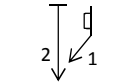
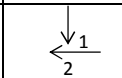
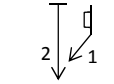
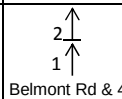
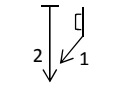
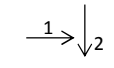
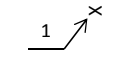
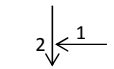
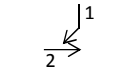
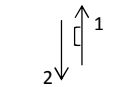
Total Crashes: 179 **City:** Grand Forks
Sorted by: Date **Location:** Near Southside Neighborhood

	M	D	Year
Start Date:	1	1	2014
End Date:	12	31	2016

Number of Years: 3.00

Notes:

23 USC § 409 Documents
NDDOT Reserves All Objections

	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh # / Age / Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
1	295578 PDO No	1/8/2014 Wednesday 9:51 PM	Dark Clear Ice / Snow	V1 56 F V2	GRAND FORKS, ND	No	Weather	Psgr Car Psgr Car	South South	None None	Single Veh.	V1 was SB, lost control of vehicle on ice/snow roadway, and hit V2 (Parked Car).	
2	296383 PDO No	1/14/2014 Tuesday 10:44 AM	Daylight Clear Ice / Snow	V1 54 M V2 39 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	Psgr Car PU/Van/Utility	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 stopped at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Cherry St & 10th Ave S
3	296258 PDO No	1/15/2014 Wednesday 10:25 AM	Daylight Blowing Snow Ice / Snow	V1 19 F V2	GRAND FORKS, ND	No	Left Crash Scene	Psgr Car PU/Van/Utility	South South	None None	Single Veh.	V1 was SB, lost control of vehicle on ice/snow roadway, and sideswiped V2 (Parked Car).	
4	296268 InjC No	1/17/2014 Friday 12:17 PM	Daylight Clear Ice / Snow	V1 36 M V2 64 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Following too Close	PU/Van/Utility PU/Van/Utility	North North	Traf Signal Traf Signal	Rear End	V1 and V2 were NB. V2 was stopped at red light, V1 failed to stop, and rear ended V2.	 Belmont Rd & 4th Ave S
5	296390 PDO No	1/18/2014 Saturday 12:02 PM	Daylight Clear Snow	V1 V2				Hit and Run Psgr Car	South South	None None	Sideswipe (Same Dir.)	V1 was SB and sideswiped V2 (Parked Car)	
6	297303 PDO No	1/22/2014 Wednesday 2:55 PM	Daylight Clear Ice / Snow	V1 28 M V2 21 M	GRAND FORKS, ND CAVALIER, ND	No No	Disregard Traffic Signs	Psgr Car Psgr Car	East South	None Stop Sign	Angle	V1 was EB and V2 was SB. V2 failed to stop at stop sign and V1 hit V2.	 Walnut St & 8th Ave S
7	297290 PDO No	1/26/2014 Sunday 7:15 AM	Daylight Blowing Snow Ice / Snow	V1 37 M	GRAND FORKS, ND	No	Weather	Psgr Car	East	Traf Signal	Single Veh.	V1 was EB, attempted to make a left turn, lost control due to icy roadway, and hit a snowbank.	 Cherry St & 4th Ave S
8	297310 InjC No	1/26/2014 Sunday 10:15 AM	Daylight Blowing Snow Ice / Snow	V1 34 F V2 18 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility Psgr Car	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 failed to stop at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Walnut St & 10th Ave S
9	297288 PDO No	1/28/2014 Tuesday 2:28 PM	Daylight Cloudy Ice / Snow	V1 22 M V2 49 M	OAK GROVE, MN GRAND FORKS, ND	No No	Failed to Yield	Psgr Car PU/Van/Utility	South East	None None	Other	V1 was SB and V2 was EB. V1 attempted to make a right turn from an alley, slid on snow covered roadway, and hit V2.	 Alley & 6th Ave S
10	297439 PDO No	2/1/2014 Saturday 9:30 AM	Daylight Clear Ice / Snow	V1 V2 41 M	GRAND FORKS, ND	No	Driving Left of Center	Hit and Run PU/Van/Utility	North South	None None	Other	V1 was NB and V2 was SB, room on street was close, and both vehicles mirrors hit.	

Crash Summary Sheets

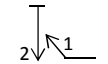
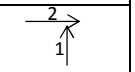
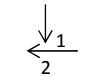
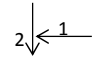
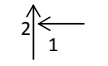
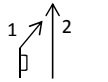
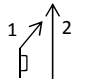
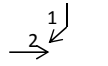
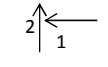
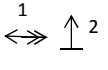
Total Crashes: 179 **City:** Grand Forks
Sorted by: Date **Location:** Near Southside Neighborhood

	M	D	Year
Start Date:	1	1	2014
End Date:	12	31	2016

Number of Years: 3.00

Notes:

23 USC § 409 Documents NDDOT Reserves All Objections

	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh # / Age / Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
11	298480 PDO No	2/14/2014 Friday 8:30 PM	Unknown Unkown Ice / Snow	V1 V2				Hit and Run Psgr Car	East North	None None	Single Veh.	V1 unknown and V2 a parked vehicle in a driveway. Uknown how V1 hit V2 in driveway.	
12	298793 PDO No	2/20/2014 Thursday 5:19 PM	Daylight Clear Dry	V1 39 F V2 20 M	GRAND FORKS, MN GRAND FORKS, MN	No No	 Failed to Yield	PU/Van/Utility Psgr Car	North East	None None	Angle	V1 was NB and V2 was EB. V2 stopped at stop sign, attempted to go thru intersection, failed to yield, and V1 hit V2.	 Belmont Rd & 10th Ave S
13	299503 InjB No	2/25/2014 Tuesday 7:30 AM	Daylight Clear Ice / Snow	V1 16 F V2 61 F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car Psgr Car	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 stopped at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Cottonwood St & 15th Ave S
14	299279 InjC No	2/27/2014 Thursday 5:55 PM	Dusk Clear Dry	V1 45 F V2 55 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield 	PU/Van/Utility Psgr Car	West South	Stop Sign None	Angle	V1 was WB and V2 was SB. V1 stopped at stop sign, attempted to go thru intersections, failed to yield, and V1 hit V2.	 Cherry St & 10th Ave S
15	299518 PDO No	2/28/2014 Friday 11:10 PM	Dark Cloudy Ice / Snow	V1 16 F V2 20 M	GRAND FORKS, ND GRAND FORKS, MN	No No	Vision Obstructed Vision Obstructed	Psgr Car PU/Van/Utility	West North	None Stop Sign	Angle	V1 was WB and V2 was SB. V1 stopped at stop sign, attempted to go thru intersections, failed to yield due to parked vehicle blocking vision, and V1 hit V2.	 Chestnut St & 8th Ave S
16	299699 PDO No	3/5/2014 Wednesday 9:15 PM	Dark (Lighted) Blowing Snow Ice / Snow	V1 V2			Careless/Reckless Driving	Hit and Run PU/Van/Utility	North North	None None	Single Veh.	V1 was NB and sideswiped V2 (Parked Car).	
17	300834 PDO No	3/16/2014 Sunday 10:00 PM	Daylight Clear Dry	V1 V2				Hit and Run PU/Van/Utility	North North	None None	Single Veh.	V1 was NB and sideswiped V2 (Parked Car).	
18	301006 PDO No	3/21/2014 Friday 7:09 AM	Daylight Cloudy Ice / Snow	V1 37 F V2	GRAND FORKS, ND	No	Weather	PU/Van/Utility Hit and Run	South East	Stop Sign Stop Sign	Angle	V1 was SB and V2 was EB. V1 attempted to make a right turn, slid on snow covered roadway, and hit V2.	 Cherry St & 13th Ave S
19	300701 PDO No	3/21/2014 Friday 9:40 AM	Daylight Blowing Snow Ice / Snow	V1 25 F V2 18 M	ALVARADO, MN GRAND FORKS, ND	No No	To Fast for Conditions 	PU/Van/Utility PU/Van/Utility	West North	Stop Sign Stop Sign	Angle	V1 was WB and V2 was NB. V2 stopped at stop sign, attempted to go thru the intersection, V1 failed to stop due to icy roadway, and V1 hit V2.	 Cherry St & 17th Ave S
20	301475 PDO No	4/1/2014 Tuesday 4:39 PM	Daylight Clear Snow	V1 38 M V2 36 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield 	PU/Van/Utility Psgr Car	East North	None None	Backing	V1 was EB and V2 was NB. V1 was backing out of a driveway, failed to see V2, and V1 backed into V2.	 Driveway

Crash Summary Sheets

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23 USC § 409 Documents NDDOT Reserves All Objections

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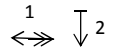
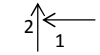
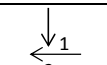
21	301871 PDO No	4/3/2014 Thursday 8:00 AM	Daylight Clear Dry	V1 V2	44 60	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Backing/Turning	Psgr Car Psgr Car	East South	None None	Backing	V1 was EB and V2 was SB. V1 was backing out of a driveway, failed to see V2, and V2 hit V1.	
22	301718 PDO No	4/4/2014 Friday 3:24 PM	Daylight Clear Dry	V1 V2	38 66	M F	GRAND FORKS, ND FISHER, MN	No No	Failed to Yield	PU/Van/Utility Psgr Car	East North	Yield Sign None	Angle	V1 was EB and V2 was NB. V1failed to yield and hit V2.	 Belmont Rd & 5th St S
23	301863 PDO No	4/9/2014 Wednesday 1:00 PM	Daylight Clear Dry	V1 V2	73	F	GRAND FORKS, ND	No	Other	Psgr Car Psgr Car	South South	None None	Single Veh.	V1 was SB and V2 is a parked vehicle SB. V1, unknown distraction, sideswiped V2.	
24	302764 PDO No	4/24/2014 Thursday 12:20 AM	Dark (Lighted) Rain Wet	V1 V2	24	M	GRAND FORKS, ND	Yes (A)	Other	PU/Van/Utility Psgr Car	North North	None None	Single Veh.	V1 was NB, failed to negotiate the curve, and hit V2 a parked vehicle.	
25	303173 InjC No	5/3/2014 Saturday 7:29 PM	Dusk Clear Dry	V1 V2	19 51	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	Disregard Traffic Signs	Psgr Car Psgr Car	West North	Stop Sign None	Angle	V1 was WB and V2 was NB. V1 failed to stop at stop sign and hit V2.	 Cherry St & 6th Ave S
26	303516 PDO No	5/9/2014 Friday 3:20 PM	Daylight Clear Dry	V1 V2	73	M	GRAND FORKS, ND	No	Improper Turn	Motor Home / RV PU/Van/Utility	East East	None None	Single Veh.	V1 was EB, attempted to make a right turn, failed to manuever around a parked vehicle, and V1 sideswiped V2.	 Alley & 1st Ave S
27	305023 PDO No	6/9/2014 Monday 1:30 AM	Dark (Lighted) Clear Dry	V1 V2						Hit and Run Psgr Car	North North	None None	Sideswipe (Same Dir.)	V1 was NB, failed to negotiate the curve, and hit V2 a parked vehicle.	
28	306103 PDO No	6/19/2014 Thursday 12:17 PM	Daylight Rain Wet	V1 V2	51 26	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility Psgr Car	South West	None None	Angle	V1 was SB and V2 was WB. V2 failed to yield to V1, and V1 hit V2.	 Cottonwood St & 3rd Ave S
29	306222 PDO No	6/21/2014 Saturday 3:20 AM	Dark (Lighted) Cloudy Dry	V1 V2	20	M	GRAND FORKS, ND	Yes (A)	Careless/Reckless Driving	Psgr Car Psgr Car	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
30	306498 PDO No	6/22/2014 Sunday 9:51 AM	Daylight Clear Dry	V1 V2	65 35	F M	GRAND FORKS, ND GRAND FORKS, MN	No No	Ran Red Light	Psgr Car PU/Van/Utility	North West	Traf Signal Traf Signal	Angle	V1 was NB and V2 was WB. V1 failed to stop at red light, V2 had a green light, and V1 hit V2.	 Cherry St & 4th Ave S

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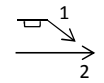
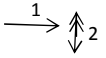
31	306491 PDO No	6/24/2014 Tuesday 10:30 PM	Dark Unkown Dry	V1 26 F V2	GRAND FORKS, ND	No	Other	Psgr Car PU/Van/Utility	East East	None None	Single Veh.	V1 was EB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle)	
32	306507 PDO No	6/27/2014 Friday 2:00 PM	Daylight Clear Dry	V1 61 F V2	GRAND FORKS, ND	No		PU/Van/Utility Psgr Car	East South	None None	Backing	V1 was EB backing out of driveway, failed to see V2 parked on opposite side of street, and V1 backed into V2.	
33	307421 PDO No	7/11/2014 Friday 11:15 AM	Daylight Clear Dry	V1 26 M V2	GRAND FORKS, MN	No	Improper Turn	Bus PU/Van/Utility	West West	Stop Sign None	Single Veh.	V1 was WB, attempted to make a left turn, failed to negotiate the turn, and V1s rear end sideswiped V2 (parked vehicle)	
34	307422 PDO No	7/15/2014 Tuesday 4:39 PM	Daylight Clear Dry	V1 30 M V2 73 M	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	East East	None None	Sideswipe (Same Dir.)	V1 and V2 were EB. V2 was on side of road waiting to make a U-Turn, failed to see V1, attemtp to make the turn, and V1 hit V2.	
35	307417 PDO No	7/18/2014 Friday 4:01 PM	Daylight Clear Dry	V1 17 M V2 26 F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Improper Backing/Turning	Psgr Car Psgr Car	East North	None None	Backing	V1 was EB and V2 was NB. V2 was backing out of driveway, failed to see V1, and V1 hit V2.	
36	307661 PDO No	7/21/2014 Monday 11:45 AM	Daylight Clear Dry	V1 67 F V2 18 M	GRAND FORKS, ND GRAND FORKS, MN	No No		PU/Van/Utility Psgr Car	North East	Stop Sign Stop Sign	Angle	V1 was NB and V2 was EB. V2 stopped at stop sign, attempted to go thru intersection, V1 failed to yield, and V1 hit V2.	 Cherry St & 8th Ave S
37	307664 PDO No	7/21/2014 Monday 8:40 PM	Dark (Lighted) Rain Wet	V1 58 M V2	GRAND FORKS, ND	Yes (A)	Other	Psgr Car Psgr Car	South South	None None	Single Veh.	V1 was SB and rear ended V2 (a parked vehicle).	
38	308776 InjC No	8/10/2014 Sunday 12:40 PM	Daylight Clear Dry	V1 37 F V2 44 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Disregard Road Markings	Psgr Car Psgr Car	South West	Stop Sign Stop Sign	Angle	V1 was SB and V2 was WB. V2 stopped at stop sign, attempted to go thru the intersection, V1 failed to stop at stop sign, and V1 hit V2.	 Cherry St & 8th Ave S
39	309271 PDO No	8/20/2014 Wednesday 12:00 PM	Daylight Clear Dry	V1 62 F V2 68 F	GRAND FORKS, ND GRAND FORKS, ND	No No		Psgr Car Psgr Car	East North	Stop Sign Stop Sign	Angle	V1 was EB and V2 was NB. V2 failed to stop at stop sign and hit V1.	 Cherry St & 13th Ave S
40	309836 PDO No	8/30/2014 Saturday 3:35 PM	Daylight Clear Dry	V1 26 F V2 70 F	GRAND FORKS, MN NIAGARA, ND	No No	 Failed to Yield	PU/Van/Utility PU/Van/Utility	West South	None Stop Sign	Angle	V1 was WB and V2 was SB. V2 stopped at stop sign, failed to see V1, and V1 hit V2.	 Cottonwood St & 17th Ave S

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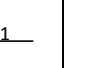
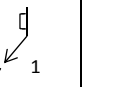
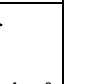
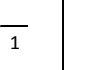
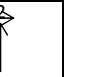
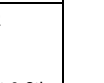
41	309839 PDO No	8/31/2014 Sunday 12:45 PM	Daylight Clear Dry	V1 60 F V2 52 F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	Psgr Car PU/Van/Utility	West South	None None	Angle	V1 was WB and V2 was SB. V2 was going thru the uncontrolled intersection, V1 failed to see V2, and V1 hit V2.	 Revere Dr & 10th Ave S
42	310342 InjC No	9/6/2014 Saturday 11:49 AM	Daylight Clear Dry	V1 25 F V2 65 M	GRAND FORKS, MN GRAND FORKS, ND	No No	Attn Distracted-Outside	Psgr Car PU/Van/Utility	North North	Stop Sign Stop Sign	Rear End	V1 and V2 were NB. V2 came to a stop at the stop sign, V1 failed to stop due to a distraction, and V1 rear ended V2.	Reeves Dr & 4th Ave S
43	311332 PDO No	9/21/2014 Sunday 4:51 PM	Daylight Clear Dry	V1 55 M V2 22 M	GRAND FORKS, ND GRAND FORKS, ND	No No		PU/Van/Utility Psgr Car	North South	None None	Backing	V1 was NB and V2 was SB, both vehicles were backing out of driveways and backed into eachother.	
44	311799 PDO No	9/25/2014 Thursday 7:49 PM	Dark (Lighted) Unkown Dry	V1 V2			Careless/Reckless Driving	Hit and Run PU/Van/Utility	South South	None None	Sideswipe (Same Dir.)	V1 was SB, unknown distraction, and V1 sideswiped a parked V2.	
45	312122 InjC No	9/26/2014 Friday 4:53 PM	Daylight Clear Dry	V1 50 F V2 63 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility Psgr Car	North East	None Stop Sign	Angle	V1 was NB and V2 was EB. V2 failed to stop at stop sign and V1 hit V2.	 Minnesota Ave & 4th St S
46	312128 PDO No	10/1/2014 Wednesday 10:04 AM	Daylight Cloudy Dry	V1 70 M V2	GRAND FORKS, MN	No		Truck Tractor Psgr Car	East South	None None	Single Veh.	V1 was EB, attempted to make a left turn, failed to maintain proper lane, and sideswiped V2 (parked vehicle)	 Walnut St & 2nd Ave S
47	313003 PDO No	10/13/2014 Monday 5:50 PM	Daylight Clear Dry	V1 64 M V2 18 F	GRAND FORKS, MN GRAND FORKS, ND	No No	Following too Close	PU/Van/Utility Psgr Car	North North	Traf Signal Traf Signal	Rear End	V1 and V2 were NB. V2 was stopped waiting for a gap in traffic to make a left turn, V1 failed to slow behind V2, and V1 rear ended V2.	Belmont Rd & 4th Ave S
48	313359 PDO No	10/17/2014 Friday 5:02 PM	Daylight Cloudy Dry	V1 51 F V2 20 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Disregard Traffic Signs	PU/Van/Utility Psgr Car	North East	None Stop Sign	Angle	V1 was NB and V2 was EB. V2 failed to stop at stop sign and V1 hit V2.	 Cherry St & 10th Ave S
49	313552 PDO No	10/24/2014 Friday 4:54 PM	Daylight Clear Dry	V1 57 M V2 61 F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	Psgr Car Psgr Car	North East	None Stop Sign	Angle	V1 was NB and V2 was EB. V2 failed to stop at stop sign and V1 hit V2.	 Belmont Rd & 10th Ave S
50	314580 PDO No	11/3/2014 Monday 5:10 PM	Dark (Lighted) Clear Dry	V1 39 M V2 36 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	Psgr Car PU/Van/Utility	North Southeast	Stop Sign Stop Sign	Left Turn	V1 was NB and V2 was SB. V2 attempted to make a left turn from the stop sign, V1 failed to stop, and V1 hit V2.	 Cherry St & 8th Ave S

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51	315033 PDO No	11/12/2014 Wednesday 7:00 PM	Unknown Clear Snow	V1 V2				Hit and Run PU/Van/Utility	South South	None None	Single Veh.	Hit and Run	N/A
52	316066 PDO No	11/24/2014 Monday 8:00 AM	Daylight Blowing Snow Snow	V1 56 M V2 49 M	GRAND FORKS, ND GRAND FORKS, ND	No No		PU/Van/Utility PU/Van/Utility	East North	Stop Sign Stop Sign	Angle	V1 was EB and V2 was NB. Both vehicles stopped at stop signs and both vehicles attempted to go at same time. V1 hit V2.	 Cherry St & 14th Ave S
53	316071 PDO No	11/26/2014 Wednesday 2:35 AM	Dark (Lighted) Cloudy Snow	V1 18 M V2	GRAND FORKS, ND	No	Attn Distracted-ECD	Psgr Car PU/Van/Utility	East North	None None	Single Veh.	V1 was EB and V2 was NB. V1 made a left turn, failed to maintain proper lane, and hit V2 (parked vehicle).	 Chestnut St & 8th Ave S
54	316057 PDO No	11/26/2014 Wednesday 11:54 AM	Daylight Clear Ice / Snow	V1 19 M V2	GRAND FORKS, ND	No	To Fast for Conditions	Psgr Car	West	None	Single Veh.	V1 was WB, lost control on curve due to icy roadway, and hit a street sign.	
55	316376 PDO No	12/2/2014 Tuesday 2:50 PM	Daylight Clear Snow	V1 42 M V2 73 M	GRAND FORKS, MN GRAND FORKS, ND	No No	Failed to Yield	Psgr Car PU/Van/Utility	East South	Yield Sign Stop Sign	Angle	V1 was EB and V2 was SB. V2 failed to stop at stop sign and V1 hit V2.	 Belmont Rd & 5th St S
56	317178 InjC No	12/10/2014 Wednesday 1:31 AM	Dark Clear Dry	V1 26 M V2	THOMPSON, ND	Yes (A)	D.U.I. (Alcohol)	PU/Van/Utility PU/Van/Utility	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
57	317182 PDO No	12/11/2014 Thursday 6:17 PM	Dark (Lighted) Clear Dry	V1 57 F V2	GRAND FORKS, ND	No	Other	Psgr Car Psgr Car	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
58	317166 PDO No	12/12/2014 Friday 3:00 PM	Daylight Cloudy Wet	V1 31 F V2 27 M	LAKOTA, ND GRAND FORKS, ND	No No	Following	PU/Van/Utility Psgr Car	South South	None None	Rear End	V1 aned V2 were SB. V2 stopped behind traffic, V1 failed to stop, and V1 rear ended V2.	
59	317744 InjC No	12/19/2014 Friday 8:10 AM	Daylight Clear Wet	V1 22 F V2 72 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	Psgr Car Psgr Car	West North	None Stop Sign	Angle	V1 was WB and V2 was NB. V2 stopped at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Chestnut St & 17th Ave S
60	318196 PDO No	12/21/2014 Sunday 10:00 PM	Dark (Lighted) Unkown Slush	V1 V2				Hit and Run Psgr Car	North North	None None	Single Veh.	Hit and Run	N/A

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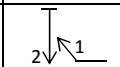
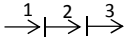
61	318572 PDO No	1/2/2015 Friday 1:04 PM	Daylight Clear Ice / Snow	V1 16 M	GRAND FORKS, ND	No	Improper Evasive Action	PU/Van/Utility	North	None	Single Veh.	V1 was NB, lost control of vehicle on icy roadway, and V1 hit a fire hydrant.	
62	318578 PDO No	1/3/2015 Saturday 1:19 PM	Daylight Clear Ice / Snow	V1 47 M V2 61 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Turn	PU/Van/Utility Psgr Car	West South	Stop Sign Stop Sign	Other	V1 was WB and V2 was SB. V1 attempted to make a right turn, failed to maintain proper lane, and V1 hit V2.	 Cherry St & 13th Ave S
63	318839 PDO No	1/5/2015 Monday 8:48 AM	Daylight Clear Ice / Snow	V1 V2				Hit and Run Psgr Car	North North	None None	Single Veh.	Hit and Run	N/A
64	318834 PDO No	1/5/2015 Monday 3:10 PM	Daylight Clear Ice / Snow	V1 17 F V2 76 F V3 40 F	GRAND FORKS, ND GRAND FORKS, ND GRAND FORKS, MN	No No No	Following too Close	Psgr Car Psgr Car PU/Van/Utility	East East East	None None None	Rear End	V1, V2, and V3 were all EB. V2 was stopped behind V3, V1 failed to stop, and V1 rear ended V2 causing V2 to rear end V3.	
65	319982 PDO No	1/16/2015 Friday 7:50 PM	Dark (Lighted) Rain Ice / Snow	V1 32 M	GRAND FORKS, ND	No	To Fast for Conditions	PU/Van/Utility	South	None	Single Veh.	V1 was SB, lost control due to icy roadway, left roadway, and hit a tree.	
66	320360 InjB No	1/23/2015 Friday 6:00 PM	Dark Cloudy Wet	V1 21 F V2 66 M	GRND FORKS, ND GRAND FORKS, ND	No No	Following too Close	Psgr Car Psgr Car	South South	Stop Sign Stop Sign	Rear End	V1 and V2 were SB. V2 slowed to make a turn into a driveway, V1 failed to see blinker, and V1 rear ended V2.	
67	320736 PDO No	1/27/2015 Tuesday 8:38 AM	Daylight Cloudy Ice / Snow	V1 40 F V2 38 F	GRAND FORKS, MN GRAND FORKS, ND	No No	Attn Distracted-Inside Ran Red Light	PU/Van/Utility PU/Van/Utility	West North	Traf Signal Traf Signal	Angle	V1 was WB and V2 was NB. V2 ran a red light, V1 was distracted, and V1 hit V2.	 Cherry St & 4th Ave S
68	1003162 PDO No	2/1/2015 Sunday 1:00 PM	Daylight Clear Mud Dirt Gravel	V1 U		No		Hit and Run	South	None	Single Veh.	V1 was SB in an alley towing a trailer and the trailer sideswiped a fence.	N/A
69	321453 PDO No	2/11/2015 Wednesday 7:52 AM	Dawn Clear Ice / Snow	V1 38 F V2 25 M	A F ACADEMY, CO GRAND FORKS, ND	No No	Failed to Yield	Psgr Car Psgr Car	South East	None Stop Sign	Angle	V1 was SB and V2 was EB. V2 attempted to make a left turn, failed to see V1 due to another vehicle making a a SB right turn, and V1 hit V2.	 Minnesota Ave & 3rd St S
70	321596 PDO No	2/11/2015 Wednesday 5:35 PM	Daylight Cloudy Ice / Snow	V1 47 F	GRAND FORKS, ND	No	Weather	Psgr Car	North	None	Single Veh.	V1 was NB, lost control of vehicle on icy roadway, and V1 hit a tree.	

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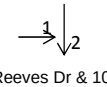
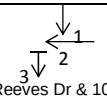
71	321989 PDO No	2/16/2015 Monday 12:57 PM	Daylight Clear Ice / Snow	V1 V2	69 37	F F	LANGDON, ND MINOT, ND	No No	 Failed to Yield	Psgr Car Psgr Car	West North	None None	Angle	V1 was WB and V2 was NB. V2 failed to yield to V1 at an open intersection, and V1 hit V2.	 Cottonwood St & 3rd Ave S
72	322436 InjB No	2/17/2015 Tuesday 2:46 PM	Daylight Cloudy Ice / Snow	V1 V2	24 24	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield No Insurance	PU/Van/Utility PU/Van/Utility	West South	None None	Angle	V1 was WB and V2 was SB. V1 failed to yield to V2 at an open intersection, and V1 hit V2.	 Cottonwood St & 3rd Ave S
73	323081 PDO No	3/2/2015 Monday 3:03 PM	Daylight Cloudy Ice / Snow	V1 V2	60	M	GRAND FORKS, MN	No	Improper Turn	School Bus Psgr Car	East East	None None	Single Veh.	V1 was EB, failed to maintain control of the vehicle around a curve, and V1 sideswiped V2 (parked vehicle)	
74	323082 PDO No	3/4/2015 Wednesday 6:26 PM	Dusk Clear Dry	V1 V2	39 38	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	Following too Close	PU/Van/Utility Psgr Car	East East	None None	Rear End	V1 and V2 were EB. V2 was slowing, V1 failed to see V2 slow, and V1 rear ended V2.	
75	323176 PDO No	3/5/2015 Thursday 4:36 PM	Daylight Clear Ice / Snow	V1 V2	18 66	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	East South	None None	Angle	V1 was EB and V2 was SB. V2 failed to yield at open intersection, and V1 hit V2.	 Reeves Dr & 10th Ave S
76	323078 InjB No	3/5/2015 Thursday 5:21 PM	Daylight Clear Dry	V1	80	M	GRAND FORKS, ND	No	Other	Psgr Car	North	None	Single Veh.	V1 was NB, driver had a medical condition causing the driver to loose consciousness, and hit a tree.	
77	323511 PDO No	3/5/2015 Thursday 7:30 PM	Dark (Lighted) Clear Dry	V1 V2	37	M	FARGO, ND	Yes (A)	Careless/Reckless Driving	PU/Van/Utility PU/Van/Utility	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
78	323180 PDO No	3/7/2015 Saturday 8:45 AM	Unknown Unkown Wet	V1 V2						Hit and Run Psgr Car	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
79	323885 PDO No	3/20/2015 Friday 11:40 AM	Daylight Snow Slush	V1 V2	48 19	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	PU/Van/Utility Psgr Car	North East	None Stop Sign	Angle	V1 was NB and V2 was EB. V2 failed to stop at stop sign and V1 hit V2.	 Chestnut St & 9th Ave S
80	324094 PDO No	3/23/2015 Monday 3:21 PM	Daylight Clear Dry	V1 V2 V3	32 16	F F	GRAND FORKS, ND MANVEL, ND	No No	 Failed to Yield	PU/Van/Utility Psgr Car PU/Van/Utility	South West South	None None None	Angle	V1 was SB, V2 was WB, and V3 was a parked SB vehicle. V2 failed to yield to V1, and V1 hit V2 causing V2 to hit V3.	 Reeves Dr & 10th Ave S

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23 USC § 409 Documents NDDOT Reserves All Objections

	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh #	Age	Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
81	324096 PDO No	3/23/2015 Monday 6:15 PM	Daylight Cloudy Dry	V1	29	F	GRAND FORKS, ND	No	Careless/Reckless Driving	PU/Van/Utility	North	Stop Sign	Single Veh.	V1 was NB, failed to maintain control of vehicle, and hit a tree.	
82	325350 PDO No	4/17/2015 Friday 8:40 AM	Daylight Clear Dry	V1 V2	27 85	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Other	Psgr Car Psgr Car	East South	Stop Sign Stop Sign	Angle	V1 was EB and V2 was SB. Both vehicles stopped at stop sign, attempted to go thru the intersection, unknown who's at fault, V1 hit V2.	 Cherry St & 8th Ave S
83	325699 PDO No	4/20/2015 Monday 12:25 PM	Daylight Clear Dry	V1 V2	38 32	M F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield Ran Red Light	Psgr Car PU/Van/Utility	South East	Traf Signal Traf Signal	Angle	V1 was SB and V2 was EB. V2 ran a red light and V1 hit V2.	 Cherry St & 4th Ave S
84	326619 InjC No	5/9/2015 Saturday 10:47 AM	Daylight Cloudy Dry	V1 V2	36 15	M M	GRAND FORKS, MN GRAND FORKS, ND	No No	 Failed to Yield	PU/Van/Utility Psgr Car	West North	None Stop Sign	Angle	V1 was WB and V2 was NB. V2 failed to stop at the stop sign, and V1 hit V2.	 Cottonwood St & 8th Ave S
85	326625 PDO No	5/11/2015 Monday 7:55 AM	Daylight Rain Wet	V1 V2	26 38	M F	GRAND FORKS, ND GRAND FORKS, MN	No No	Disregard Traffic Signs 	PU/Van/Utility Psgr Car	South West	Stop Sign None	Angle	V1 was SB and V2 was WB. V1 failed to stop at stop sign, and V1 hit V2.	 Walnut St & 4th Ave S
86	326697 PDO No	5/11/2015 Monday 3:43 PM	Daylight Rain Wet	V1 V2	49 20	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car Psgr Car	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 failed to yield to V1, and V1 hit V2.	 Cherry St & 10th Ave S
87	327188 PDO No	5/15/2015 Friday 8:01 PM	Daylight Clear Dry	V1 V2	27	M	GRAND FORKS, ND	Yes (A)	D.U.I. (Alcohol)	PU/Van/Utility PU/Van/Utility	South South	None None	Single Veh.	V1 was NB, failed to maintain control of vehicle, and hit V2 (parked vehicle).	
88	327199 InjC No	5/16/2015 Saturday 9:24 AM	Daylight Cloudy Dry	V1 V2	24 48	F F	BUXTON, ND GRAND FORKS, MN	No No	Failed to Yield 	PU/Van/Utility Psgr Car	East West	None None	Left Turn	V1 was EB and V2 was WB. V1 attempted to make a left turn, failed to yield, and V2 hit V1.	 Cottonwood St & 8th Ave S
89	327175 InjC No	5/18/2015 Monday 7:53 AM	Daylight Snow Wet	V1 V2	66 24	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 stopped at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Cherry St & 9th Ave S
90	327189 PDO No	5/19/2015 Tuesday 5:15 PM	Daylight Clear Dry	V1 V2	57 49	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Backing/Turning 	PU/Van/Utility PU/Van/Utility	East North	None None	Backing	V1 was EB and V2 was NB. V1 was backing out of a driveway, failed to see V2, and V1 backed into V2.	

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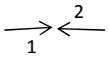
91	327587 InjC No	5/28/2015 Thursday 11:47 AM	Daylight Cloudy Dry	V1 V2	15 40	F F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	Psgr Car Psgr Car	North West	Stop Sign None	Angle	V1 was NB and V2 was WB. V1 stopped at stop sign, attempted to go thru the intersection, failed to yield to V2, and V1 hit V2.	 Reeves Dr & 4th Ave S
92	327902 PDO No	6/2/2015 Tuesday 1:03 PM	Daylight Cloudy Dry	V1 V2	22 68	F F	EMERADO, ND GRAND FORKS, MN	No No	Attn Distracted-Inside	PU/Van/Utility PU/Van/Utility	North North	None None	Sideswipe (Same Dir.)	V1 and V2 were NB, V1 attempted to pass V2 at a high rate of speed, and V1 then sideswiped V2.	
93	328300 PDO No	6/9/2015 Tuesday 11:51 AM	Daylight Clear Dry	V1 V2	41 70	M M	GRAND FORKS, MN GRAND FORKS, MN	No No	Disregard Traffic Signs	PU/Van/Utility PU/Van/Utility	North East	Stop Sign None	Angle	V1 was NB and V2 was EB. V1 failed to stop at stop sign and V1 hit V2 causeing V2 to hit a tree.	 Reeves Dr & 4th Ave S
94	329030 PDO No	6/19/2015 Friday 3:45 PM	Daylight Clear Dry	V1 V2	67 90	F F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	Psgr Car Psgr Car	West North	Stop Sign Stop Sign	Angle	V1 was WB and V2 was NB. V2 stopped at stop sign, attempted to go thru the intersection, failed to see V1, and V1 hit V2.	 Cottonwood St & 4th Ave S
95	329332 InjC No	6/24/2015 Wednesday 5:13 PM	Daylight Clear Dry	V1 V2	55 58	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	Driving Left of Center	Psgr Car PU/Van/Utility	East West	None None	Other	V1 was EB and V2 was WB. V1 had a medical condition, lost control, and hit V2.	
96	329692 InjC No	6/29/2015 Monday 1:52 PM	Daylight Cloudy Dry	V1 V2	89 22	M F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	Psgr Car Psgr Car	North West	Stop Sign None	Angle	V1 was NB and V2 was WB. V1 stopped at stop sign, attempted to go thru the intersection, failed to see V2, and V1 hit V2.	 Cottonwood St & 13th Ave S
97	329684 PDO No	7/1/2015 Wednesday 10:18 AM	Daylight Clear Dry	V1 V2	23 78	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	Disregard Traffic Signs	PU/Van/Utility PU/Van/Utility	West North	Stop Sign Stop Sign	Angle	V1 was WB and V2 was NB. V1 was distracted on phone, failed to stop at stop sign, and hit V2.	 Belmont Rd & 8th Ave S
98	329696 PDO No	7/3/2015 Friday 7:37 AM	Dark (Lighted) Clear Dry	V1 V2					Failed to Yield	Hit and Run Psgr Car	Northeast West	None None	Backing	Hit and Run.	N/A
99	330338 InjC No	7/13/2015 Monday 9:20 AM	Daylight Clear Dry	V1 V2	37 30	F F	GRAND FORKS, MN GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	East North	Traf Signal Traf Signal	Angle	V1 was EB and V2 was NB. V1 failed to stop at a red light and V1 hit V2.	 Belmont Rd & 4th Ave S
100	330337 PDO No	7/13/2015 Monday 11:30 PM	Dark Clear Dry	V1	53	M	GRAND FORKS, ND	No	Careless/Reckless Driving	PU/Van/Utility	South	None	Single Veh.	V1 was SB in an alley and sideswiped V2 (parked vehicle).	

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101	331133 PDO No	7/30/2015 Thursday 4:37 PM	Daylight Clear Dry	V1 V2	74	F	GRAND FORKS, ND	No	No Insurance	PU/Van/Utility Psgr Car	North North	None None	Single Veh.	V1 was NB, failed to maintain control of vehicle, and sideswiped V2 (parked vehicle).	
102	331348 PDO No	8/4/2015 Tuesday 12:44 PM	Daylight Clear Dry	V1 V2	65 82	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	 Disregard Traffic Signs	PU/Van/Utility Psgr Car	West North	None Stop Sign	Angle	V1 was WB and V2 was NB. V2 failed to stop at stop sign, and V1 hit V2.	 Cottonwood St & 17th Ave S
103	331548 InjB No	8/8/2015 Saturday 4:59 PM	Daylight Clear Dry	V1 V2	30 69	F M	GRAND FORKS, ND GRAND FORKS, ND	Yes (A) No		Pedestrian 2-Axle	North West	None None	Ped / Bike	V2 was WB. Ped1 ran across the road on purpose to hit V2. Alcohol was a factor for Ped1.	
104	332089 PDO No	8/19/2015 Wednesday 11:00 AM	Daylight Clear Dry	V1 V2	23	M	GRAND FORKS, ND	No	Attn Distracted-Inside	PU/Van/Utility Psgr Car	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
105	332312 PDO No	8/21/2015 Friday 2:40 PM	Daylight Clear Dry	V1 V2	21 20	M M	GRAND FORKS, ND LAKEVILLE, MN	No No	Following too Close	Psgr Car PU/Van/Utility	East East	Traf Signal Traf Signal	Rear End	V1 and V2 were EB. V2 slowed for traffic, V1 failed to slow, and V1 rear ended V2.	 Cherry St & 4th Ave S
106	333273 PDO No	8/24/2015 Monday 8:41 AM	Daylight Clear Dry	V1 V2	22 21	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Backing/Turning	PU/Van/Utility Psgr Car	South North	None None	Backing	V1 was NB, stopped to park infront of a trailer on the shoulder, began to back up, V2 pulled up behind V1, failed to see V1 backing, and V1 backed into V2.	
107	332320 PDO No	8/27/2015 Thursday 1:16 PM	Daylight Clear Dry	V1 V2	15 39	F M	GRAND FORKS, ND HILLSBORO, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	South West	None Stop Sign	Angle	V1 was SB and V2 was WB. V2 stopped at stop sign, failed to see V1, attempted to go thru the intersection, and V1 hit V2.	 Belmont Rd & 9th Ave S
108	333407 PDO No	9/16/2015 Wednesday 4:25 AM	Dark Clear Dry	V1 V2	30	M	GRAND FORKS, ND	Yes (A)	D.U.I. (Alcohol)	PU/Van/Utility PU/Van/Utility	South Southeast	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
109	333526 InjC No	9/20/2015 Sunday 1:30 PM	Daylight Clear Dry	V1	77	F	GRAND FORKS, ND	No	Attn Distracted-Outside	Psgr Car	North	Traf Signal	Single Veh.	V1 was NB, attempted to make a left turn, attention was distracted inside the vehicle, and V1 hit the traffic signal.	 Cherry St & 4th Ave S
110	1002958 PDO No	10/14/2015 Wednesday 1:20 PM	Daylight Clear Dry	V1 V2	61 71	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	Ran Red Light	PU/Van/Utility PU/Van/Utility	North West	Stop Sign None	Angle	V1 was NB and V2 was WB. V1 ran a red light and hit V2.	 Chestnut St & 17th Ave S

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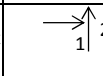
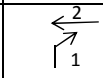
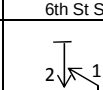
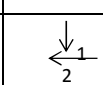
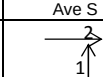
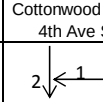
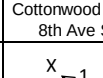
111	1003339 PDO No	10/31/2015 Saturday 11:50 AM	Daylight Cloudy Wet	V1 V2	39 18	F F	GRAND FORKS, ND BOTTINEAU, ND	No No	Failed to Yield	PU/Van/Utility Psgr Car	North East	Stop Sign Stop Sign	Angle	V1 was NB and V2 was EB. Both vehicles stopped at stop signs, both attempted to go at same time, and V1 hit V2.	 Belmont Rd & 8th Ave S
112	1003473 PDO No	11/2/2015 Monday 1:50 PM	Daylight Clear Dry	V1 V2	68 21	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	Psgr Car PU/Van/Utility	East North	None Stop Sign	Angle	V1 was EB and V2 was NB. V2 stopped at stop sign, failed to yield to V1, and V1 hit V2.	 Cottonwood St & 4th Ave S
113	1003848 PDO No	11/19/2015 Thursday 7:35 AM	Daylight Snow Snow	V1 V2	16 43	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	To Fast for Conditions Weather	PU/Van/Utility PU/Van/Utility	North North	Stop Sign Stop Sign	Rear End	V1 and V2 were NB. V2 stopped at stop sign, V1 failed to stop due to icy roadway, and V1 rear ended V2.	 Chestnut St & 8th Ave S
114	1003835 PDO No	11/19/2015 Thursday 7:50 AM	Daylight Snow Snow	V1 V2	21	F U	GRAND FORKS, ND	No No	To Fast for Conditions Weather	Psgr Car Hit and Run	North West	Stop Sign None	Other	V1 was NB and V2 was WB. V1 attempted to make a right turn, lost control mid turn, and V1s rear end slid into V2.	 Minnesota Ave & 6th St S
115	1004210 PDO No	11/30/2015 Monday 5:20 PM	Dark (Lighted) Clear Dry	V1 V2	68	F	GRAND FORKS, ND	No	Careless/Reckless Driving	PU/Van/Utility PU/Van/Utility	North South	None None	Single Veh.	V1 was NB, failed to maintain control of vehicle, and V1 hit V2 (SB parked vehicle)	
116	1004252 PDO No	12/1/2015 Tuesday 9:00 AM	Daylight Snow Snow	V1 V2	33 45	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	Ran Red Light	PU/Van/Utility PU/Van/Utility	South West	Traf Signal Traf Signal	Angle	V1 was SB and V2 was WB. V1 ran a red light due to icy roadway and hit V2.	 Cherry St & 4th Ave S
117	1004659 PDO No	12/2/2015 Wednesday 7:27 PM	Dark (Lighted) Clear Ice / Snow	V1 V2	30 55	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	To Fast for Conditions	PU/Van/Utility PU/Van/Utility	North East	Stop Sign None	Angle	V1 was NB and V2 was EB. V1 failed to stop at stop sign due to icy roadway and V1 hit V2.	 Cottonwood St & 4th Ave S
118	1004490 PDO No	12/6/2015 Sunday 11:34 AM	Daylight Clear Dry	V1 V2	23 85	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility Psgr Car	West South	None Stop Sign	Other	V1 was WB and V2 was SB. V2 stopped at stop sign, failed to see V1, attempted to go thru the intersection, and V1 hit V2.	 Walnut St & 8th Ave S
119	1004792 PDO No	12/11/2015 Friday 3:13 PM	Daylight Clear Dry	V1 V2	60 57	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	North East	Stop Sign None	Angle	V1 was NB and V2 was EB. V1 stopped at stop sign, failed to see V2, attempted to go thru the intersection, and V1 hit V2.	 Cottonwood St & 8th Ave S
120	1004762 PDO No	12/11/2015 Friday 8:15 PM	Dark Snow Snow	V1	17	M	GRAND FORKS, ND	No	To Fast for Conditions	PU/Van/Utility	North	None	Single Veh.	V1 was NB, failed to maintain control of vehicle, left roadway, and hit a tree.	

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121	1004895 PDO No	12/14/2015 Monday 12:10 PM	Daylight Cloudy Ice / Snow	V1 V2	33 25	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car Psgr Car	North West	None None	Angle	V1 was NB and V2 was WB. V2 attempted to make a left turn from the alley, failed to yield to V1, and V1 hit V2.	 Alley & Belmont Rd
122	1005178 PDO No	12/18/2015 Friday 9:08 PM	Dark Clear Snow	V1 V2	56	M	GRAND FORKS, ND	Yes (A)	D.U.I. (Alcohol)	PU/Van/Utility PU/Van/Utility	South South	None None	Rear End	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
123	1005245 PDO No	12/21/2015 Monday 12:28 AM	Dark (Lighted) Clear Dry	V1 V2	27	M	GRAND FORKS, MN	No	Care Required	PU/Van/Utility Psgr Car	South South	None None	Single Veh.	V1 was SB, failed to maintain control of the vehicle, and V1 sideswiped V2 (parked vehicle).	
124	1005831 PDO No	12/27/2015 Sunday 12:00 AM	Dark Snow Ice / Snow	V1		U		No	Weather	PU/Van/Utility	South	Stop Sign	Single Veh.	V1 was SB, attempted to make a right turn, lost control, and hit a tree.	 Belmont Rd & 10th Ave S
125	1005774 PDO No	1/3/2016 Sunday 2:55 PM	Daylight Clear Ice / Snow	V1	40	M	GRAND FORKS, ND	No	Fail Keep in Proper Lane	PU/Van/Utility	North	None	Single Veh.	V1 was NB, failed to maintain control of the vehicle, left roadway, and hit a tree.	
126	1005962 PDO No	1/8/2016 Friday 7:17 AM	Dark (Lighted) Cloudy Ice / Snow	V1		U		No		Hit and Run	North	trol Not Visible/	Single Veh.	Hit and Run, vehicle hit traffic signal. Cherry St & 4th Ave S	N/A Cherry St & 4th Ave S
127	1006084 PDO No	1/11/2016 Monday 7:40 AM	Daylight Clear Dry	V1 V2	33 30	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	Following too Close	PU/Van/Utility PU/Van/Utility	North North	None None	Rear End	V1 and V2 were NB. V2 slowed for traffic, V1 failed to slow, and V1 rear ended V2.	
128	1006227 PDO No	1/13/2016 Wednesday 11:58 AM	Daylight Cloudy Snow	V1 V2	41 63	M F	GRAND FORKS, ND GRAND FORKS, ND	No No	To Fast for Conditions To Fast for Conditions	PU/Van/Utility Psgr Car	East North	None None	Angle	V1 was EB and V2 was NB. Due to icy roadway both vehicles couldn't slow and V1 hit V2.	 Reeves Dr & 10th Ave S
129	1006495 InjC No	1/16/2016 Saturday 1:53 PM	Daylight Clear Ice / Snow	V1 V2	18 66	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	Ran Red Light	Psgr Car PU/Van/Utility	South East	Stop Sign Stop Sign	Angle	V1 was SB and V2 was EB. V1 failed to yield to V2, and V1 hit V2.	 Cherry St & 8th Ave S
130	1006646 PDO No	1/18/2016 Monday 6:35 PM	Dark Clear Ice / Snow	V1 V2	50	M	GRAND FORKS, ND	No	Defective Equipment	Psgr Car Psgr Car	South South	None None	Single Veh.	D1 (SB) was temporarily blinded by headlights from a NB vehicle, drifted right, and sideswiped V2 (parked facing SB next to curb).	

Crash Summary Sheets

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	M	D	Year
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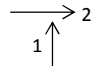
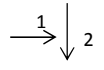
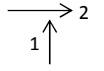
Number of Years: 3.00

Notes:

23 USC § 409 Documents NDDOT Reserves All Objections

	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh #	Age	Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
131	1006811 PDO No	1/21/2016 Thursday 7:50 AM	Dawn Clear Ice / Snow	V1 V2	23 23	F F	GRAND FORKS, MN FISHER, MN	No No	Following too Close	Psgr Car PU/Van/Utility	West West	None None	Rear End	D2 lost control on icy road, spun sideways, and was hit by V1 (which had been behind V2).	
132	1006923 PDO No	1/21/2016 Thursday 6:30 PM	Dark Clear Dry	V1 V2	51	M	GRAND FORKS, ND	No	Other	PU/Van/Utility Psgr Car	East East	None None	Single Veh.	D1 (EB) was temporarily blinded by headlights from a WB vehicle, drifted right, and sideswiped V2 (parked facing EB next to curb).	
133	1007586 PDO No	2/1/2016 Monday 3:43 PM	Daylight Clear Ice / Snow	V1 V2	66 32	F F	EAST GRAND, MN GRAND FORKS, ND	No No	Careless/Reckless Driving	Psgr Car PU/Van/Utility	North East	None None	Angle	D1 (NB) was unable to stop on icy road, slid into the intersection, and hit V2 (EB).	 Minnesota Ave & 4th St S
134	1007816 PDO No	2/13/2016 Saturday 11:20 PM	Dark (Lighted) Snow Ice / Snow	V1		U		No	Weather	Hit and Run	South	None	Single Veh.	D1 intended to make a SB to WB right turn, slid on ice while turning, slid into SW corner of intersection, and hit a stop sign.	 14th Ave S & Cherry St
135	1008323 PDO No	2/19/2016 Friday 8:00 AM	Daylight Cloudy Ice / Snow	V1 V2	15	F	GRAND FORKS, ND	No	Improper Turn	PU/Van/Utility Psgr Car	West South	None None	Other	D1 attempted to make a WB to NB right turn out of a driveway, slid on ice while turning, and slid into V2 (parked facing SB next to curb).	
136	1008603 PDO No	2/26/2016 Friday 8:00 PM	Dark (Lighted) Clear Dry	V1 V2	42 41	F M	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	East South	Stop Sign Stop Sign	Angle	D2 (SB) was first vehicle to stop at all-way stop, entered intersection, and was hit by V1 (EB).	 Belmont Rd & 4th Ave S
137	1008586 PDO No	3/1/2016 Tuesday 1:00 AM	Dark (Lighted) Clear Dry	V1 V2	53	M	GRAND FORKS, ND	No		PU/Van/Utility PU/Van/Utility	East West	None None	Backing	D1 attempted to back into a parking spot (facing WB, backing EB) and hit V2 (parked facing WB next to curb).	
138	1009158 PDO No	3/9/2016 Wednesday 7:25 PM	Dark Cloudy Dry	V1 V2		U		No		PU/Van/Utility PU/Van/Utility	South South	None None	Single Veh.	D1 (SB) sideswiped V2 (parked facing SB next to curb).	
139	1009058 PDO No	3/10/2016 Thursday 1:40 PM	Daylight Clear Dry	V1 V2	67 58	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Backing/Turning	Psgr Car PU/Van/Utility	West North	None None	Angle	D1 (facing EB, backing WB) backed out of driveway and hit V2 (travelling NB on street).	
140	1009288 InjC No	3/17/2016 Thursday 11:40 AM	Daylight Cloudy Wet	V1 V2	75 77	F F	GRAND FORKS, ND GRAND FORKS, MN	No No	Ran Red Light	PU/Van/Utility Psgr Car	North East	Stop Sign Stop Sign	Angle	D1 (NB) did not come to complete stop at all-way stop, entered intersection, and hit V2 (EB).	 Cherry St & 17th Ave S

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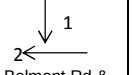
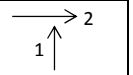
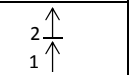
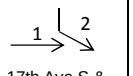
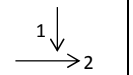
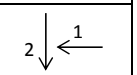
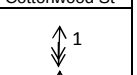
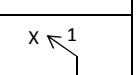
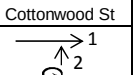
141	1010385 PDO No	4/13/2016 Wednesday 3:14 PM	Daylight Clear Dry	V1 74 F V2 16 F	GRAND FORKS, ND GRAND FORKS, ND	No No		Psgr Car Psgr Car	South West	Stop Sign Stop Sign	Angle	Both vehicles stopped at all-way stop at approximately the same time, both entered at same time, and hit each other.	 Belmont Rd & 13th Ave S
142	1010949 PDO No	4/22/2016 Friday 2:00 PM	Daylight Clear Dry	V1 U V2 16 M	GRAND FORKS, ND	No No		Hit and Run PU/Van/Utility	North East	Stop Sign Stop Sign	Angle	All-way stop. V1 (NB) hit V2 (EB).	 Belmont Rd & 4th Ave S
143	1011222 InjB No	4/30/2016 Saturday 12:10 PM	Daylight Clear Dry	V1 29 F V2 58 F	GRAND FORKS, ND GRAND FORKS, MN	No No	Careless/Reckless Driving	PU/Van/Utility Psgr Car	North North	Stop Sign Stop Sign	Rear End	V1 (NB) rear-ended V2, which was stopped at an all-way stop.	 Cherry St & 8th Ave S
144	1012292 PDO No	5/24/2016 Tuesday 8:10 PM	Daylight Clear Dry	V1 45 F V2 58 M	GRAND FORKS, ND ARDOCH, ND	No No	 Failed to Yield	PU/Van/Utility PU/Van/Utility	East South	None None	Angle	D2 was SB (wrong-way on one-way), did not see a stop sign, attempted to make a SB to EB left turn, and was hit by V1 (EB).	 17th Ave S & Chestnut St
145	1012355 InjC No	5/31/2016 Tuesday 12:45 PM	Daylight Clear Dry	V1 69 M V2 62 M	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	South East	Stop Sign Stop Sign	Angle	D1 (SB) stopped at all-way stop, but entered intersection when it was not his turn, and hit V2 (EB).	 Belmont Rd & 13th Ave S
146	1012415 PDO No	6/1/2016 Wednesday 5:40 PM	Daylight Cloudy Wet	V1 42 M V2 19 M	GRAND FORKS, ND LARIMORE, ND	No No	 Failed to Yield	PU/Van/Utility PU/Van/Utility	West South	None Traf Signal	Angle	D2 (SB) stopped at stop sign, mistakenly thought intersection was all-way stop, entered intersection, and was hit by V1 (WB, no stop sign).	 17th Ave S & Cottonwood St
147	1012796 PDO No	6/3/2016 Friday 4:35 PM	Daylight Rain Wet	V1 54 F V2 V3	GRAND FORKS, ND	No	Careless/Reckless Driving	PU/Van/Utility Psgr Car PU/Van/Utility	South North North	None None None	Backing	V1 was parked facing NB next to curb, D1 mistakenly thought she shifted into drive but actually shifted into reverse, and V1 backed into V2 (parked facing NB behind V1).	
148	1013056 PDO No	6/11/2016 Saturday 6:34 PM	Daylight Clear Dry	V1 25 F	GRAND FORKS, ND	No	Other	PU/Van/Utility	North	None	Single Veh.	D1 (DUI) hit a utility pole in the NW corner of the intersection.	 Belmont Rd & 2nd Ave S
149	1012844 InjC No	6/12/2016 Sunday 1:45 AM	Dark Cloudy Dry	V1 49 M V2 38 M	MCINTOSH, MN GRAND FORKS, MN	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	North East	Stop Sign None	Angle	D1 (NB) did not see stop sign, entered intersection without stopping, and hit V2 (EB).	 4th Ave S & Cottonwood St
150	1013331 InjB No	6/14/2016 Tuesday 4:20 PM	Daylight Rain Wet	V1 48 M V2	GRAND FORKS, ND GRAND FORKS, ND	No		Psgr Car Pedalcycle	East North	None None	Ped / Bike	V2 (NB bicyclist) rode out of an alley and hit V1 (EB on street).	 1st Ave S & Alley East of Walnut St

Crash Summary Sheets

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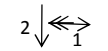
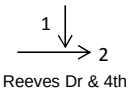
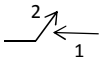
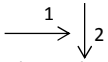
	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh # / Age / Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
151	1014241 PDO No	6/27/2016 Monday 2:37 PM	Daylight Clear Dry	V1 17 M V2	GRAND FORKS, ND	No	Improper Backing/Turning	Psgr Car Hit and Run	West South	None None	Backing	D1 (facing EB, backing WB) backed out of driveway and hit V2 (parked facing SB on west side of street).	
152	1013715 PDO No	6/29/2016 Wednesday 6:00 PM	Daylight Clear Dry	V1 28 F V2 55 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Improper Backing/Turning	PU/Van/Utility PU/Van/Utility	North East	None None	Backing	V1 (facing SB, backing NB) backed out of driveway and hit V2 (EB on street).	
153	1014812 PDO No	7/18/2016 Monday 8:35 PM	Daylight Clear Dry	V1 38 M	GRAND FORKS, ND	No	Speed	Psgr Car	South	None	Single Veh.	D1 (SB) was arguing with passenger, noticed parked vehicle at last minute, swerved left around parked vehicle, overcorrected to right, and hit street sign on right (west) side of street.	
154	1014962 PDO No	7/24/2016 Sunday 4:50 PM	Daylight Clear Dry	V1 29 F V2	GRAND FORKS, ND	No		PU/Van/Utility PU/Van/Utility	West East	None None	Backing	D1 (facing EB, backing WB) backed out of driveway and hit V2 (parked in driveway across street).	
155	1015457 PDO No	8/2/2016 Tuesday 5:00 PM	Daylight Clear Dry	V1 16 F V2 62 F	GRAND FORKS, ND GRAND FORKS, MN	No No	Failed to Yield	PU/Van/Utility Psgr Car	South East	Stop Sign None	Angle	V1 (SB) failed to yield and hit V2 (EB).	 Reeves Dr & 4th Ave S
156	1015538 InjB No	8/5/2016 Friday 8:10 AM	Daylight Clear Dry	V1 35 F V2 82 F	GRAND FORKS, MN GRAND FORKS, ND	No No	Improper Turn	PU/Van/Utility Psgr Car	West East	None None	Left Turn	D2 attempted to make an EB to NB left turn and was hit by V1 (WB).	 Chestnut St & 4th Ave S
157	1016007 PDO No	8/12/2016 Friday 1:30 PM	Daylight Clear Dry	V1 48 F	GRAND FORKS, ND	No	Over Correct/Steering	Psgr Car	West	None	Single Veh.	D1 intended to make a SB to WB right turn out of the alley, was wearing a boot brace, the boot got stuck on the pedals, and V1 hit a house garage in the SW corner of the alley intersection.	 6th Ave S & Alley East of Oak St
158	1017251 PDO No	9/5/2016 Monday 12:37 AM	Dark (Lighted) Clear Wet	V1 U V2		No		Hit and Run PU/Van/Utility	North North	None None	Single Veh.	V2 was parked facing NB next to curb and had been hit by a hit-and-run vehicle.	None Available
159	1017475 PDO No	9/9/2016 Friday 3:28 PM	Daylight Cloudy Dry	V1 15 M V2 41 F	GRAND FORKS, ND GRAND FORKS, ND	No No	Ran Red Light	Psgr Car PU/Van/Utility	West North	None Stop Sign	Other	V2 (NB) did not stop at stop sign and was hit by V1 (WB).	 Cottonwood St & 8th Ave S
160	1017944 PDO No	9/16/2016 Friday 6:40 PM	Daylight Cloudy Dry	V1 44 M V2 22 F	GRAND FORKS, MN NECHE, ND	No No	Vision Obstructed	Psgr Car Psgr Car	East South	Stop Sign None	Angle	D1 was EB, stopped at stop sign, entered intersection, and hit V2 (SB). D1's vision was obstructed by SB parked vehicles.	 Walnut & 6th Ave S

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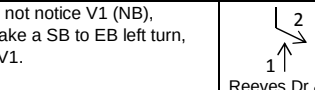
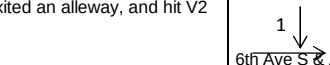
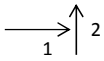
161	1018330 InjC No	9/23/2016 Friday 4:59 PM	Daylight Clear Wet	V1 27 M V2 19 F	GRAND FORKS, MN NIAGARA, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	North South	None None	Left Turn	D2 was SB, did not notice V1 (NB), attempted to make a SB to EB left turn, and was hit by V1.	 Reeves Dr & 4th Ave S
162	1018945 PDO No	10/4/2016 Tuesday 7:27 PM	Dusk Rain Wet	V1 U V2 50 M	GRAND FORKS, ND	No No		Psgr Car PU/Van/Utility	South East	None None	Angle	V1 was SB, exited an alleway, and hit V2 (EB).	 6th Ave S & Alley b/w Oak and Chery
163	1019336 PDO No	10/11/2016 Tuesday 3:10 PM	Daylight Clear Dry	V1 U V2		No		Hit and Run Psgr Car	South North	None None	Backing	V1 (facing NB, backing SB) backed into V2 (parked facing NB next to curb).	
164	1019509 PDO No	10/14/2016 Friday 12:45 AM	Dark Clear Dry	V1 21 M	GRAND FORKS, ND	Yes (A)	To Fast for Conditions	Psgr Car	North	None	Single Veh.	D1 (DUI) was NB, lost control due to high speed, and hit tree on left (west) side of the road.	
165	1020226 PDO No	10/27/2016 Thursday 7:50 AM	Daylight Cloudy Dry	V1 22 M V2 45 M	GRAND FORKS, ND RIVER FALLS, MN	No No	Following too Close	Psgr Car PU/Van/Utility	North North	None None	Rear End	South of Belmont Rd & 13th Ave S intersection. V2 (NB) stopped behind backed-up traffic and was rear-ended by V1.	
166	1020652 InjB No	10/31/2016 Monday 10:25 PM	Dark (Lighted) Clear Dry	V1 19 M V2	GRAND FORKS, ND	No	Speed	Psgr Car PU/Van/Utility	South South	None None	Single Veh.	D1 was SB, intended to make a SB to WB right turn, claimed steering went out, and hit V2 (parked south of intersection). D1 admitted to drinking and smoking marijuana earlier.	
167	1020851 PDO No	11/8/2016 Tuesday 7:25 AM	Daylight Clear Dry	V1 U V2		No		PU/Van/Utility	North	None	Single Veh.	D1 was NB, went off the road, hit an electrical pole, and fled the scene.	
168	1020835 PDO No	11/8/2016 Tuesday 6:30 PM	Dark Clear Dry	V1 U V2		No		Hit and Run Psgr Car	East West	None None	Backing	V1 (facing WB, backing EB) backed into V2 (parked facing WB next to curb).	
169	1020871 PDO No	11/9/2016 Wednesday 1:20 PM	Daylight Clear Dry	V1 64 M V2 47 F	MOORHEAD, MN GRAND FORKS, ND	No No		PU/Van/Utility PU/Van/Utility	East North	Stop Sign Stop Sign	Angle	D1 (EB) stopped at all-way stop first with right blinker on, proceeded straight into intersection, and hit V2 (NB). D2 thought V1 would turn right rather than go straight.	 Belmont Rd & 4th Ave S
170	1021868 PDO No	11/18/2016 Friday 6:00 PM	Dark (Lighted) Unkown Dry	V1 U V2		No		Hit and Run Psgr Car	North North	None None	Single Veh.	V2 was parked facing NB next to curb and had been hit at an unknown time by a hit and run vehicle.	None Available

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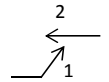
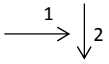
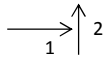
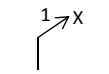
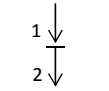
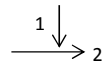
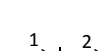
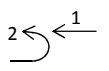
	Number / Severity / Constr.	Date / Day / Time	Lighting / Weather / Surface Cond	Veh #	Age	Sex	Address	Alcohol or Drugs	Contributing Factors	Unit Configuration	Dir. of Travel	Traffic Control	Manner of Collision	Shortened Narrative	Diagram
171	1022684 PDO No	12/6/2016 Tuesday 6:00 PM	Daylight Blowing Snow Snow	V1 V2		U		No	Weather Weather	Hit and Run Psgr Car	North North	Stop Sign Stop Sign	Single Veh.	V2 was parked facing NB next to curb and had been hit at an unknown time by a hit and run vehicle.	None Available
172	1022967 PDO No	12/8/2016 Thursday 10:45 PM	Dark (Lighted) Clear Ice / Snow	V1 V2	22	M	GRAND FORKS, ND	No	To Fast for Conditions	Psgr Car Psgr Car	East West	None None	Single Veh.	D1 was EB, lost control on icy curve, slid to the left (north) side of the street, and hit V2 (parked facing WB next to the curb).	
173	1028971 PDO No	12/12/2016 Monday 3:10 PM	Daylight Clear Dry	V1 V2	21 16	F M	GRAND FORKS, ND GRAND FORKS, ND	No No	 Failed to Yield	Psgr Car PU/Van/Utility	East South	None Stop Sign	Angle	D2 (SB) stopped at stop sign, did not notice V1 (EB), entered intersection, and was hit by V1.	 Walnut St & 4th Ave S
174	1023608 PDO No	12/13/2016 Tuesday 4:00 PM	Daylight Clear Snow	V1 V2	22 68	F F	GRAND FORKS, ND GRAND FORKS, ND	No No	Failed to Yield	PU/Van/Utility PU/Van/Utility	East North	Yield Sign None	Angle	V1 (EB) hit V2 (NB). D1 said she did not see the yield sign.	 5th St & Division Ave
175	1023853 PDO No	12/16/2016 Friday 2:45 PM	Daylight Clear Snow	V1	46	M	GRAND FORKS, ND	No	Other	PU/Van/Utility	North	None	Single Veh.	D1 was NB, saw a vehicle stopped at the intersection, was unable to stop on icy road, swerved right to avoid a rear-end crash, went into the right (east) ditch, and hit a lift station.	 Belmont Rd & 15th Ave S
176	1024073 PDO No	12/18/2016 Sunday 10:00 AM	Daylight Clear Ice / Snow	V1 V2	78	M	GRAND FORKS, ND	No		PU/Van/Utility Psgr Car	South South	None None	Single Veh.	D1 was SB, his foot slipped off the brake, and V1 rear-ended V2 (SB parked next to curb).	
177	1024078 PDO No	12/18/2016 Sunday 1:20 PM	Daylight Clear Ice / Snow	V1 V2	65 16	M M	GRAND FORKS, ND HORACE, ND	No No	 Other	Psgr Car Psgr Car	South East	Stop Sign Stop Sign	Angle	D2 (EB) was unable to stop on icy road, slid into the intersection without stopping at stop sign, and was hit by V1 (SB, was entering intersection after behing stopped at stop sign).	 Belmont Rd & 4th Ave S
178	1024644 PDO No	12/24/2016 Saturday 5:23 PM	Dark (Lighted) Cloudy Dry	V1 V2	59 50	F M	GRAND FORKS, ND MINNEAPOLIS, MN	No No	To Fast for Conditions	PU/Van/Utility PU/Van/Utility	East East	None None	Rear End	D1 (EB) was distracted, looked away from the road, and rear-ended V2 (EB and slowed to turn into a parking lot).	
179	1025137 PDO No	12/30/2016 Friday 7:37 PM	Dark (Lighted) Clear Ice / Snow	V1 V2	21 26	M M	GRAND FORKS, ND GRAND FORKS, ND	No No	 Improper Turn	PU/Van/Utility PU/Van/Utility	West East	None None	Other	D2 attempted to make an EB to WB U-turn in the intersection and was rear-ended by V1 (WB).	 Cottonwood St & Cherry St
180															

Appendix C: Walkability assessment checklists and comments

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk Phoenix Safe Routes

Rating Scale: 1 awful · 2 many problems · 3 some problems · 4 good · 5 · 6 excellent

1. Did you have room to walk?

- ☐ Yes
- ☒ Some problems:
  - ☐ Sidewalks or paths started and stopped
  - ☒ Sidewalks were broken or cracked
  - ☒ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc. (shrubbery overgrowth)
  - ☐ No sidewalks, paths, or shoulders
  - ☐ Too much traffic
  - ☐ Something else cars parked crossing sidewalk

Rating: (circle one) 1 2 3 4 5 6

Locations of problems: 402 cottonwood, 4-500 cherry, chestnut & 8th

2. Was it easy to cross streets?

- ☒ Yes
- ☐ Some problems:
  - ☐ Road was too wide
  - ☐ Traffic signals made us wait too long or did not give us enough time to cross
  - ☐ Needed striped crosswalks or traffic signals
  - ☐ Parked cars blocked our view of traffic
  - ☐ Trees or plants blocked our view of traffic
  - ☐ Needed curb ramps or ramps needed repair
  - Something else _____

Rating: (circle one) 1 2 3 4 5 6

Locations of problems: _____

3. Did drivers behave well?

- ☒ Yes
- ☐ Some problems: Drivers ...
  - ☐ Backed out of driveways without looking
  - ☐ Did not yield to people crossing the street
  - ☐ Turned into people crossing the street
  - ☐ Drove too fastp
  - ☐ Sped up to make it through traffic lights or drove through traffic lights?
  - ☐ Something else _____

Rating: (circle one) 1 2 3 4 5 6

Locations of problems: _____

4. Was it easy to follow safety rules? Could you and your child...

☒ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☒ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
☒ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks? (apartment sidewalks jut into main)
☒ Yes	☐ No	Cross with the light?

Rating: (circle one) 1 2 3 4 5 6

Locations of problems: _____

5. Was your walk pleasant?

- ☒ Yes
- ☒ Some problems:
  - ☐ Needed more grass, flowers, or trees
  - ☐ Scary dogs
  - ☐ Scary people
  - ☐ Not well lighted
  - ☒ Dirty, lots of litter or trash
  - ☐ Dirty air due to automobile exhaust
  - ☐ Something else _____

Rating: (circle one) 1 2 3 4 5 6

Locations of problems: 4th & cottonwood

How does your neighborhood stack up? Add up your ratings and decide.

1. 2
2. 6
3. 6
4. 6
5. 3

Total: 23

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk Phaney Staff Route Area 3 **Rating Scale:** 1 awful 2 many problems 3 some problems 4 good 5 very good 6 excellent

1. Did you have room to walk?

- ☐ Yes
- ☒ Some problems:
  - ☐ Sidewalks or paths started and stopped
  - ☒ Sidewalks were broken or cracked
  - ☒ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
  - ☐ No sidewalks, paths, or shoulders
  - ☐ Too much traffic
  - ☐ Something else _____

Rating: (circle one) 1 2 (3) 4 5 6

Locations of problems: 4-6th Hosley/Cherry Cherry Cracked Sidewalk

2. Was it easy to cross streets?

- ☒ Yes
- ☐ Some problems:
  - ☐ Road was too wide
  - ☐ Traffic signals made us wait too long or did not give us enough time to cross
  - ☐ Needed striped crosswalks or traffic signals
  - ☐ Parked cars blocked our view of traffic
  - ☐ Trees or plants blocked our view of traffic
  - ☐ Needed curb ramps or ramps needed repair
  - Something else _____

Belmont Friends Church Sidewalk

Rating: (circle one) 1 2 3 4 5 (6)

Locations of problems: _____

3. Did drivers behave well?

- ☒ Yes
- ☐ Some problems: Drivers ...
  - ☐ Backed out of driveways without looking
  - ☐ Did not yield to people crossing the street
  - ☐ Turned into people crossing the street
  - ☐ Drove too fastp
  - ☐ Sped up to make it through traffic lights or drove through traffic lights?
  - ☐ Something else _____

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

4. Was it easy to follow safety rules? Could you and your child...

☒ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☐ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
☒ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☐ Yes	☐ No	Cross with the light? No 18th

Rating: (circle one) 1 2 3 4 5 (6)

Locations of problems: _____

5. Was your walk pleasant?

- ☐ Yes
- ☐ Some problems:
  - ☐ Needed more grass, flowers, or trees
  - ☐ Scary dogs
  - ☐ Scary people
  - ☐ Not well lighted
  - ☒ Dirty, lots of litter or trash Some
  - ☐ Dirty air due to automobile exhaust
  - ☐ Something else _____

Rating: (circle one) 1 (2) 3 4 5 6

Locations of problems: _____

How does your neighborhood stack up? Add up your ratings and decide.

1.	3
2.	6
3.	6
4.	6
5.	3
Total:	24

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

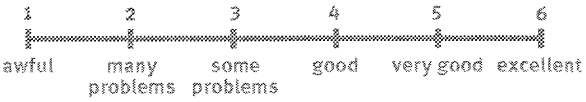
Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk Cherry @ 4th & 8th @ Belmont

Rating Scale:



1. Did you have room to walk?

☐ Yes ☑ Some problems:

- ☐ Sidewalks or paths started and stopped
- ☑ Sidewalks were broken or cracked
- ☑ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Rating: (circle one)
1 2 3 (4) 5 6

Locations of problems:
- various locations along Cherry St from 4th to 8th with poor concrete.
- 8th Ave by chestnut, shrubbery and raised sidewalk

2. Was it easy to cross streets?

☑ Yes ☐ Some problems:

- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair
- Something else _____

Rating: (circle one)
1 2 3 4 5 (6)

Locations of problems: _____

3. Did drivers behave well?

☑ Yes ☐ Some problems: Drivers ...

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fastp
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Rating: (circle one)
1 2 3 4 5 (6)

Locations of problems: _____

4. Was it easy to follow safety rules? Could you and your child...

☑ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☑ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
N/A ☐ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
N/A ☐ Yes	☐ No	Cross with the light?

Rating: (circle one)
1 2 3 4 5 (6)

Locations of problems: _____

5. Was your walk pleasant?

☑ Yes ☐ Some problems:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Rating: (circle one)
1 2 3 4 5 (6)

Locations of problems: _____

How does your neighborhood stack up? Add up your ratings and decide.

1. 26
2. _____
3. _____
4. _____
5. _____

Total: _____

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

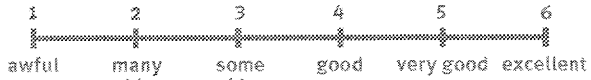
Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk

Rating Scale:



1. Did you have room to walk?

☑ Yes ☐ Some problems:

- ☑ Sidewalks or paths started and stopped
- ☐ Sidewalks were broken or cracked
- ☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Rating: (circle one)
1 2 3 (4) 5 6

Locations of problems:
Some areas run out of sidewalk.

2. Was it easy to cross streets?

☑ Yes ☐ Some problems:

- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair
- Something else _____

Rating: (circle one)
1 2 3 (4) 5 6

Locations of problems:
Minnesota Ave v. difficult

3. Did drivers behave well?

☑ Yes ☐ Some problems: Drivers ...

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fastp
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Rating: (circle one)
1 2 3 4 (5) 6

Locations of problems:
_____

4. Was it easy to follow safety rules? Could you and your child...

☑ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☑ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
☑ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☑ Yes	☐ No	Cross with the light?

Rating: (circle one)
1 2 3 4 (5) 6

Locations of problems:
_____

5. Was your walk pleasant?

☑ Yes ☐ Some problems:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Rating: (circle one)
1 2 3 4 (5) 6

Locations of problems:
Some lighting could be improved.

How does your neighborhood stack up? Add up your ratings and decide.

1. 4
2. 4
3. 5
4. 5
5. 5

Total: 23

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk

Rating Scale: 1 awful · 2 many problems · 3 some problems · 4 good · 5 very good · 6 excellent

1. Did you have room to walk?

☐ Yes ☑ Some problems:

- ☑ Sidewalks or paths started and stopped
- ☑ Sidewalks were broken or cracked
- ☑ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Rating: (circle one) 1 2 (3) 4 5 6

Locations of problems: see map - Lincoln Dr. between Belmont/Reeves

2. Was it easy to cross streets?

☐ Yes ☑ Some problems:

- ☑ Road was too wide alley @ Lincoln Dr.
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☑ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair

Something else _____

Rating: (circle one) 1 2 (3) 4 5 6

Locations of problems: see map - Belmont/8th Belmont/13th

3. Did drivers behave well?

☐ Yes ☑ Some problems: Drivers ...

had uniformed officer!

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fastp
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☑ Something else rolled through stopsigns

Rating: (circle one) 1 2 3 (4) 5 6

Locations of problems: _____

4. Was it easy to follow safety rules? Could you and your child...

☑ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☑ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
☐ Yes	☑ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☑ Yes	☐ No	Cross with the light?

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: Lincoln Drive

5. Was your walk pleasant?

☑ Yes ☐ Some problems:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

How does your neighborhood stack up? Add up your ratings and decide.

1. _____
2. _____
3. _____
4. _____
5. _____

Total: _____

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk

Rating Scale: 1 awful · 2 many problems · 3 some problems · 4 good · 5 very good · 6 excellent

1. Did you have room to walk?

☐ Yes ☒ Some problems:

- ☐ Sidewalks or paths started and stopped
- ☒ Sidewalks were broken or cracked
- ☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☒ Something else minimal crowding

Rating: (circle one) 1 2 3 4 **5** 6

Locations of problems: _____

2. Was it easy to cross streets?

☐ Yes ☒ Some problems:

- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☒ Needed curb ramps or ramps needed repair (identified a couple)
- Something else _____

Rating: (circle one) 1 2 3 **4** 5 6

Locations of problems: * also Valley Dairy issue

3. Did drivers behave well?

☐ Yes ☒ Some problems: Drivers ...

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☒ Drove too fastp
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Rating: (circle one) 1 2 3 4 **5** 6

Locations of problems: * neighbor on 1st Ave commented about speed

4. Was it easy to follow safety rules? Could you and your child...

☒ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☒ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
N/A ☐ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☒ Yes	☐ No	Cross with the light?

Rating: (circle one) 1 2 3 4 **5** 6

Locations of problems: * again Valley Dairy parking lot issue - safety concern

5. Was your walk pleasant?

☒ Yes ☐ Some problems:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people - possible night concerns
- ☒ Not well lighted - especially @ night - 1st Avenue -
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Rating: (circle one) 1 2 3 4 **5** 6

Locations of problems: _____

How does your neighborhood stack up? Add up your ratings and decide.

1. _____
2. _____
3. _____
4. _____
5. _____

Total: 24

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk Phoenix Safe Routes to School 2015 - Area 3

Rating Scale: 1 awful · 2 many problems · 3 some problems · 4 good · 5 very good · 6 excellent

1. Did you have room to walk?

☐ Yes ☒ Some problems:

- ☐ Sidewalks or paths started and stopped
- ☒ Sidewalks were broken or cracked
- ☒ Sidewalks were blocked with poles, signs, ~~shrubbery~~, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Rating: (circle one) 1 2 (3) 4 5 6

Locations of problems: 400-700 Cherry, 300 8th Ave S.

2. Was it easy to cross streets?

☒ Yes ☐ Some problems:

- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair
- Something else _____

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

3. Did drivers behave well?

☒ Yes ☐ Some problems: Drivers ...

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fastp
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

4. Was it easy to follow safety rules? Could you and your child...

- ☒ Yes ☐ No Cross at crosswalks or where you could see and be seen by drivers?
- ☒ Yes ☐ No Stop and look left, right and then left again before crossing streets?
- ☒ Yes ☐ No Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
- ☐ Yes ☐ No N/A Cross with the light?

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

5. Was your walk pleasant?

☐ Yes ☒ Some problems:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☒ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Rating: (circle one) 1 2 3 4 (5) 6

Locations of problems: _____

How does your neighborhood stack up? Add up your ratings and decide.

1. 3
2. 5
3. 5
4. 5
5. 5

Total: 23

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Appendix D: Grand Forks police and engineering department studies

BELMONT ROAD
Speed Profile

500 Block of Belmont Road

85.14% Driving 25 MPH or Less “Your Speed” Not Displayed

Grand Forks Police Department
Traffic Survey Summary

Location: 500 Belmont Rd Stealth
Start Date: 7/12/2016
End Date: 7/12/2016

Zone: Residential
Start Time: 07:48:20
End Time: 16:36:10
Travel Direction: S

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	1787	303	311	272	225	143	53	19	8	3	2	3
% of Total	57.11%	9.68%	9.93%	8.69%	7.19%	4.57%	1.69%	0.6%	0.25%	0.09%	0.06%	0.09%
									Total Vehicles: 3129			

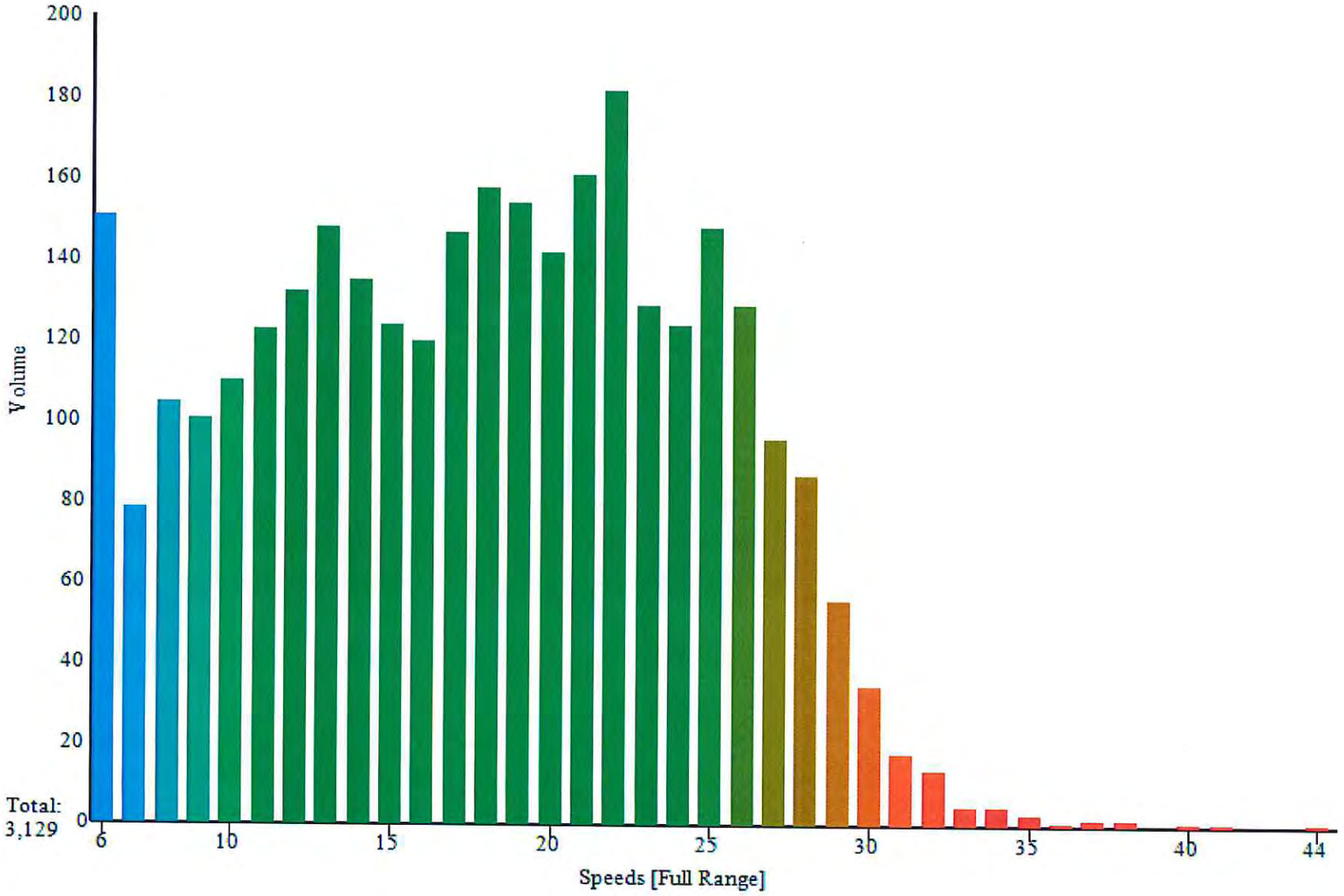
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	25	Pace Speed	17 to 26	Speed	25+	35+	45+	Total
#At/Under Limit	2673	# in Pace	1474	Number	448	8	0	456
# Over Limit	456	% in Pace	47.1%	Percent	14.31%	0.25%	0%	14.57%
Average Speed	17.82	85% Percentile	25					

Grand Forks Police Department
Speed/Volume Graph

Location: 500 Belmont Rd
Date: 7/12/2016

Zone: Residential
Speed Limit: 25 MPH

Travel Direction: S



7/14/2016, 08:13:04

87.79% Driving 25 MPH or Less “Your Speed” Displayed

Grand Forks Police Department
Traffic Survey Summary

Location: 500 Belmont Rd
Start Date: 7/13/2016
End Date: 7/13/2016

Zone: Residential
Start Time: 07:49:14
End Time: 16:29:35
Travel Direction: S

Speed	1 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	30 - 31	32 - 33	34 - 35	36 - 37	38 - 39	40 - 999
Volume	1684	284	282	215	164	103	46	19	4	2	0	4
% of Total	59.99%	10.11%	10.04%	7.65%	5.84%	3.66%	1.63%	0.67%	0.14%	0.07%	0%	0.14%
									Total Vehicles: 2807			

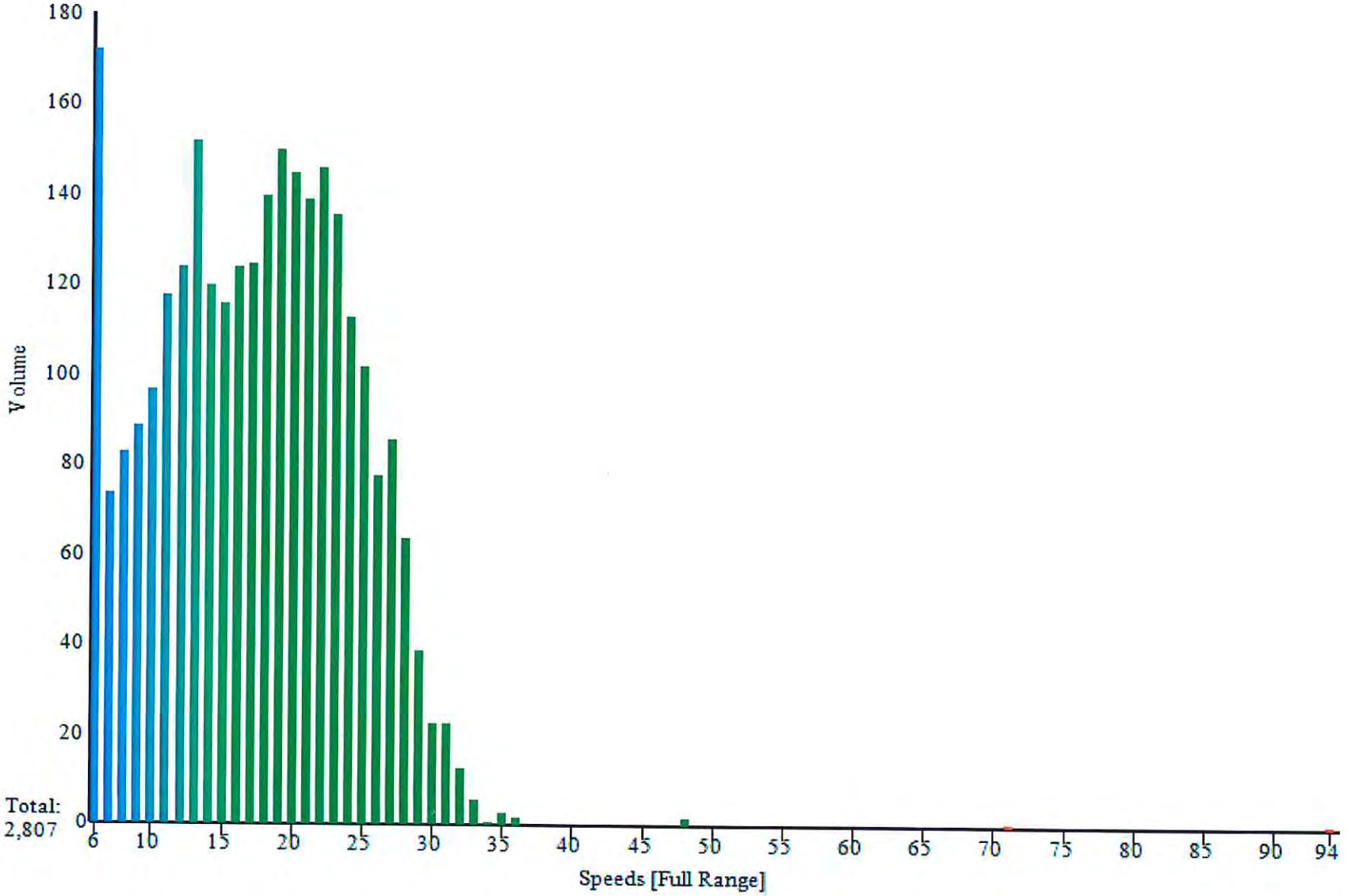
Speed Statistics		10 MPH Pace		Number Exceeding Limit				
Posted	25	Pace Speed	13 to 22	Speed	25+	35+	45+	Total
#At/Under Limit	2465	# in Pace	1357	Number	336	2	4	342
# Over Limit	342	% in Pace	48.34%	Percent	11.97%	0.07%	0.14%	12.18%
Average Speed	17.39	85% Percentile	25					

Grand Forks Police Department
Speed/Volume Graph

Location: 500 Belmont Rd
Date: 7/13/2016

Zone: Residential
Speed Limit: 25 MPH

Travel Direction: S

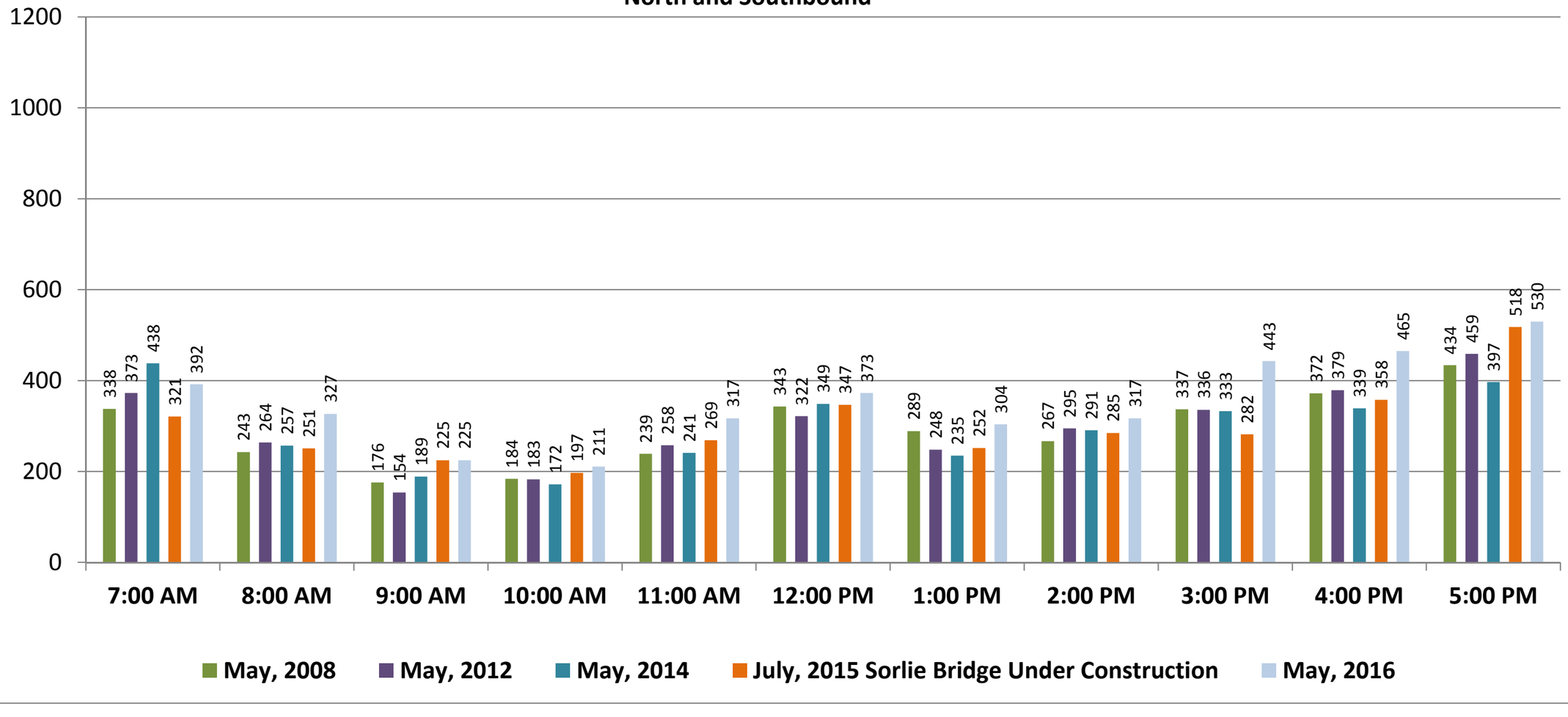


7/14/2016, 08:13:35

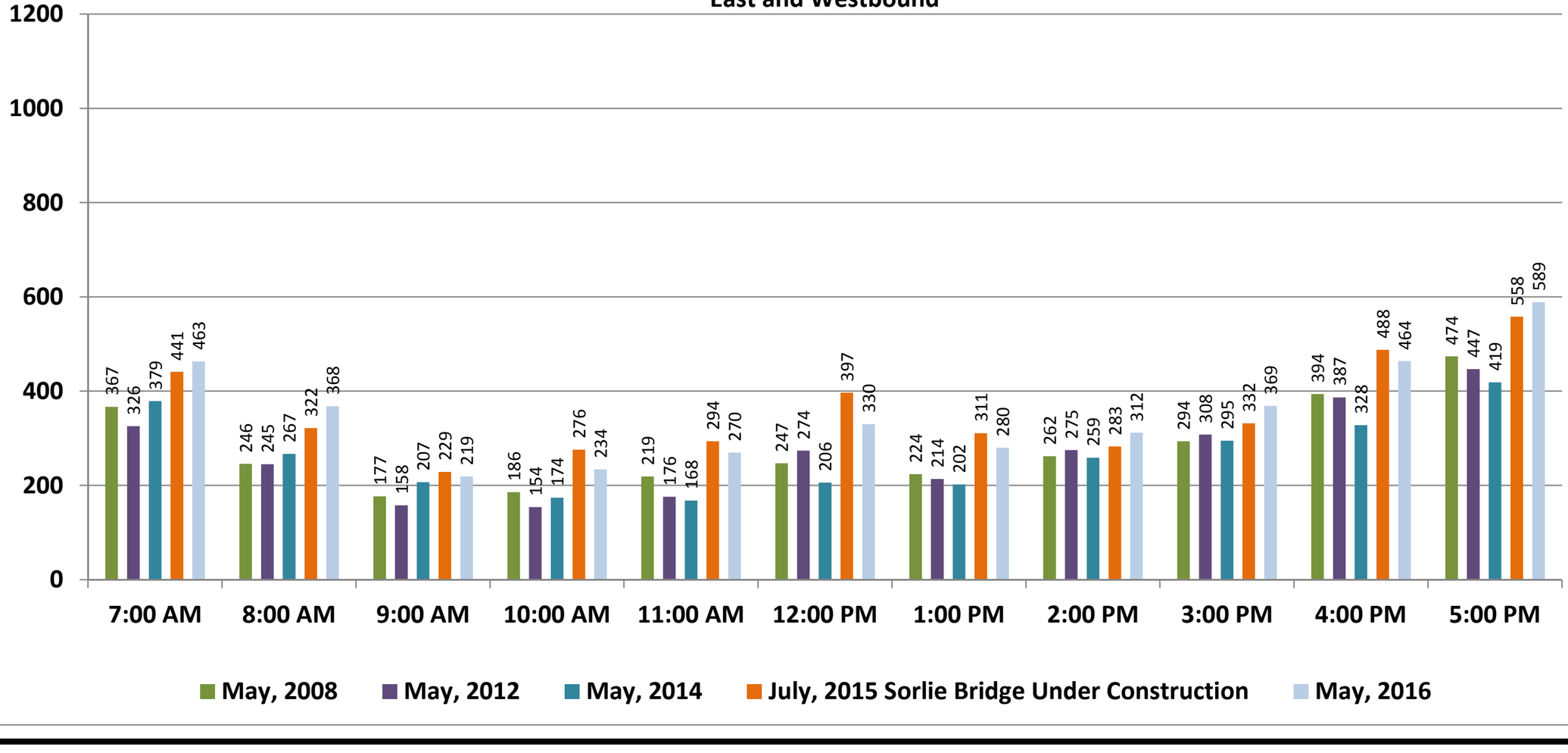
TRAFFIC COUNTS

MAUNALCOUNT
MAY, 2016

Belmont Rd at 4th Ave S
Hourly Manual Count - Two-Way Traffic
North and Southbound

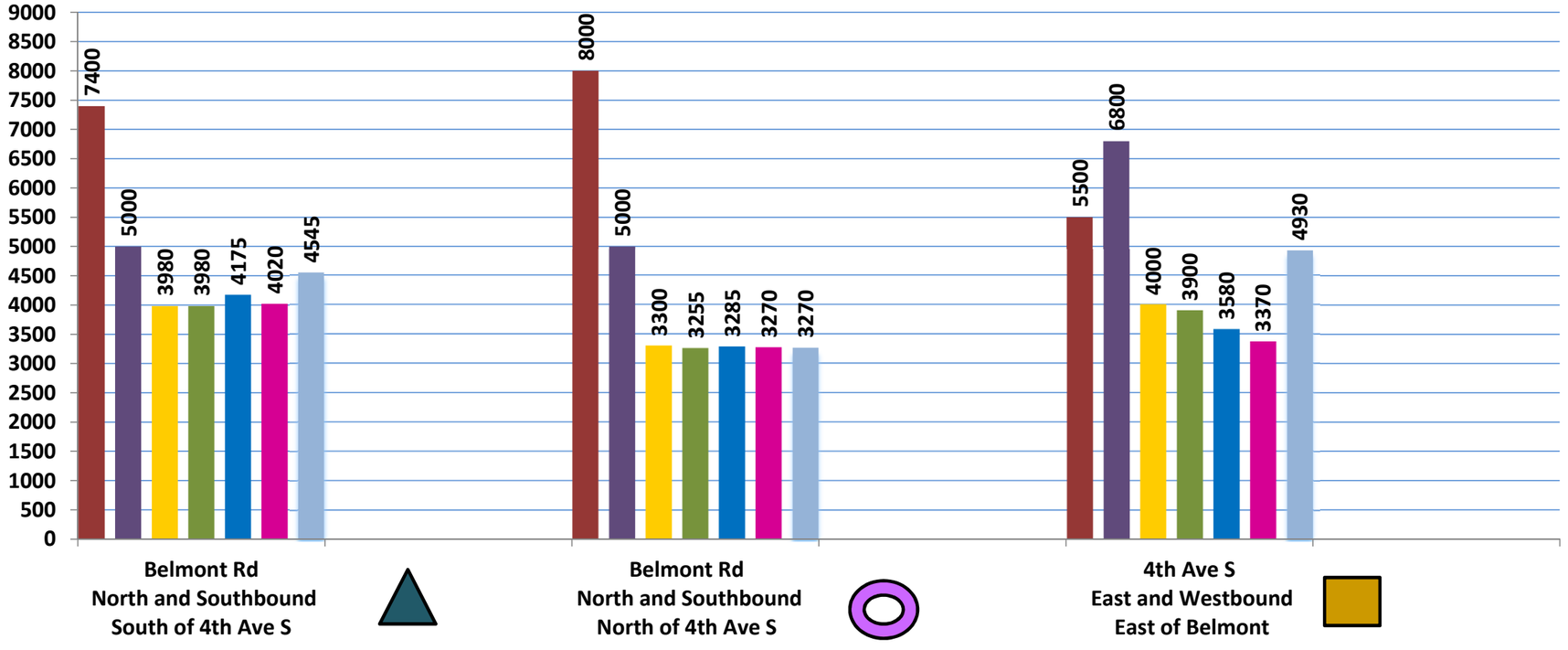


Belmont Rd at 4th Ave S
Hourly Manual Count - Two-Way Traffic
East and Westbound



HISTORICAL MACHINE COUNTS

Annual Average Two-Way Daily Traffic
On Belmont Rd and 4th Ave S
1978 to 2015

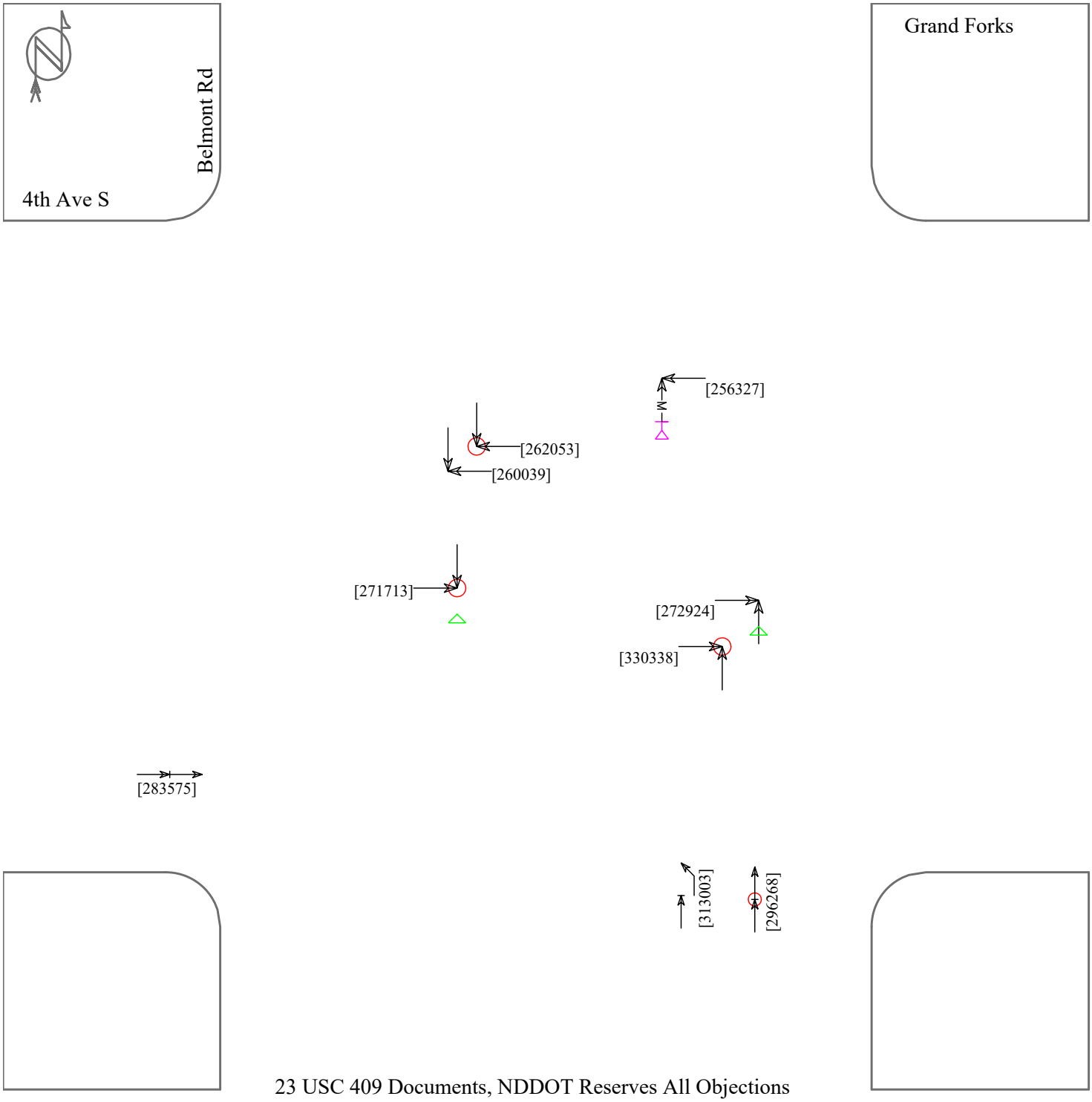


CRASH DATA

With Traffic Signal

Grand Forks Belmont Rd & 4th Ave S
7-15-12 to 7-14-15

9 Crashes



(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

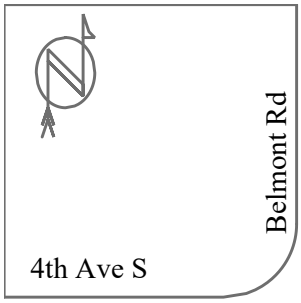
- 3rd vehicle
- Extra data

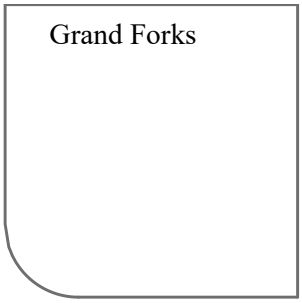
Pd' Programming, Inc. 7/14/2016

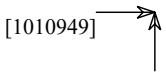
With 4- Way Stop

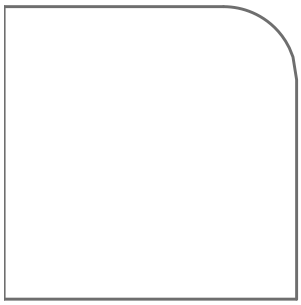
Grand Forks Belmont Rd & 4th Ave S
7-15-15 to 7-13-16

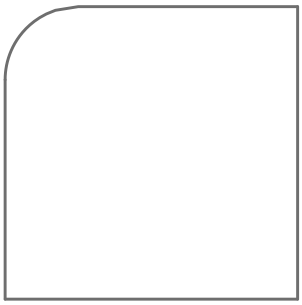
2 Crashes











(0) crashes could not be placed in this schematic

- Straight
- Stopped
- Unknown
- Backing
- Overtaking
- Sideswipe
- Parked
- Erratic
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data

Pd' Programming, Inc. 7/14/2016

4-WAY STOP WARRANT

City of Grand Forks
Engineering Department
Volume Analysis and Stop Control Warrant

Major Street	Belmont Dr			Minor Street	4th Ave S						
Urban/Rural:	U	Coll:	0								

	Belmont Dr			4th Ave S					
Dir	NB	SB		WB	EB		NB& SB	EB & WB	Total
Time									
0000									
0100									
0200									
0300									
0400									
0500									
0600									
0700	255	96		307	156		**351**	**463**	**814**
0800	176	88		237	131		**264**	**368**	**632**
0900	109	76		138	81		**185**	**219**	**404**
1000	99	77		125	109		**176**	**234**	**410**
1100	134	141		152	118		**275**	**270**	**545**
1200	182	164		156	174		**346**	**330**	**676**
1300	171	120		122	158		**291**	**280**	**571**
1400	127	155		141	171		**282**	**312**	**594**
1500	157	239		188	181		**396**	**369**	**765**
1600	188	220		188	276		**408**	**464**	**872**
1700	191	266		254	335		**457**	**589**	**1046**
1800									
1900									
2000									
2100									
2200									
2300									
Total	**1789**	**1642**		**2008**	**1890**		**3431**	**3898**	**7329**

Volume Summary

Required:	Major	Minor	AM Peak Hour	PM Peak Hour
Urban	300	200	814 0700	1046 1700

TIME	WARRANT MET
0000	No
0100	No
0200	No
0300	No
0400	No
0500	No
0600	No
0700	Yes
0800	Yes
0900	Yes
1000	Yes
1100	Yes

TIME	WARRANT MET
1200	Yes
1300	Yes
1400	Yes
1500	Yes
1600	Yes
1700	Yes
1800	No
1900	No
2000	No
2100	No
2200	No
2300	No

Warrant Summary

Stop Warranted for	11 hours
Number Collisions	5
Waiting for Traffic Signal	No
Volume Met	Yes
Collisions Met	Yes
Warranted	Yes
Approach Speed exceeds 40 MPH	No
and 70% Volume Warrant	No
and 70% Crash Warrant	No
Warranted	Yes
80% Volume Warrant	Yes
80% Crash Warrant	Yes
Warranted	Yes

Volume Split

Major	3431	47%
Minor	3898	53%
Total	7329	100%

1 Vehicle stopped on Major for each vehicle stopped on Minor.

TRAFFIC SIGNAL WARRANTS

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**

County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**

Minor Street: **4th Ave S** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☐ Yes ☒ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☐ 70% ☒ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No

Satisfied: ☐ Yes ☒ No

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied.

Condition A - Minimum Vehicular Volume

100% Satisfied: ☐ Yes ☒ No

80% Satisfied: ☐ Yes ☒ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours							
Approach Lanes	1		2 or more		7:15 AM -	4:45 PM -	12:30 PM -	3:45 PM -	11:30 AM -	2:45 PM -	8:15 AM -	1:30 PM -
Volume Level	100%	70%	100%	70%								
Both Approaches	500	350	600	420	571	410	367	346	309	299	283	278
on Major Street	(400)		(480)		571	410	0	0	0	0	0	0
Highest Approach	150	105	200	140	135	242	165	242	197	252	90	128
on Minor Street	(120)		(160)		135	242	165	242	197	252	0	128

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours . Condition is 80% satisfied if parenthetical volumes are met for eight hours.

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where the traffic volume is so heavy that traffic on the minor street suffers excessive delay.

Applicable: ☒ Yes ☐ No

Excessive Delay: ☐ Yes ☒ No

100% Satisfied: ☐ Yes ☒ No

80% Satisfied: ☐ Yes ☒ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours							
Approach Lanes	1		2 or more		7:15 AM -	4:45 PM -	12:30 PM -	3:45 PM -	11:30 AM -	2:45 PM -	8:15 AM -	1:30 PM -
Volume Level	100%	70%	100%	70%								
Both Approaches	750	525	900	630	571	410	367	346	309	299	283	278
on Major Street	(600)		(720)		571	410	0	0	0	0	0	0
Highest Approach	75	53	100	70	135	242	165	242	197	252	90	128
on Minor Street	(60)		(80)		135	242	165	242	197	252	90	128

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours . Condition is 80% satisfied if parenthetical volumes are met for eight hours.

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**
County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**
Minor Street: **4th Ave S** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☐ Yes ☒ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☐ 70% ☒ 100%

WARRANT 1 - EIGHT-HOUR VEHICULAR VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Warrant 1 is satisfied if Condition A or Condition B is "100%" satisfied.
Warrant is also satisfied if both Condition A and Condition B are "80%" satisfied.

Condition A - Minimum Vehicular Volume

100% Satisfied: ☐ Yes ☒ No
80% Satisfied: ☐ Yes ☒ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours							
Approach Lanes	1		2 or more		7:15 AM -	4:45 PM -	12:30 PM -	3:45 PM -	11:30 AM -	2:45 PM -	8:15 AM -	1:30 PM -
Volume Level	100%	70%	100%	70%								
Both Approaches on Major Street	500 (400)	350	**600 (480)**	420	571	410	367	346	309	299	283	278
					571	410	0	0	0	0	0	0
Highest Approach on Minor Street	**150 (120)**	105	200 (160)	140	135	242	165	242	197	252	90	128
					135	242	165	242	197	252	0	128

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is 80% satisfied if parenthetical volumes are met for eight hours.

Condition B - Interruption of Continuous Traffic

Condition B is intended for application where the traffic volume is so heavy that traffic on the minor street suffers excessive delay.

Applicable: ☒ Yes ☐ No
Excessive Delay: ☐ Yes ☒ No
100% Satisfied: ☐ Yes ☒ No
80% Satisfied: ☐ Yes ☒ No

(volumes in veh/hr)	Minimum Requirements (80% Shown in Brackets)				Eight Highest Hours							
Approach Lanes	1		2 or more		7:15 AM -	4:45 PM -	12:30 PM -	3:45 PM -	11:30 AM -	2:45 PM -	8:15 AM -	1:30 PM -
Volume Level	100%	70%	100%	70%								
Both Approaches on Major Street	750 (600)	525	**900** (720)	630	571	410	367	346	309	299	283	278
					571	410	0	0	0	0	0	0
Highest Approach on Minor Street	**75** (60)	53	100 (80)	70	135	242	165	242	197	252	90	128
					135	242	165	242	197	252	0	128

Record 8 highest hours and the corresponding volumes in boxes provided. Condition is 100% satisfied if the minimum volumes are met for eight hours. Condition is 80% satisfied if parenthetical volumes are met for eight hours.

CONCLUSIONS

Warrants Satisfied: ☐☐☐☐☐☐☐☐

Remarks: _____

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**
County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**
Minor Street: **4th Ave S** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☐ Yes ☒ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☐ 70% ☒ 100%

WARRANT 2 - FOUR-HOUR VEHICULAR VOLUME

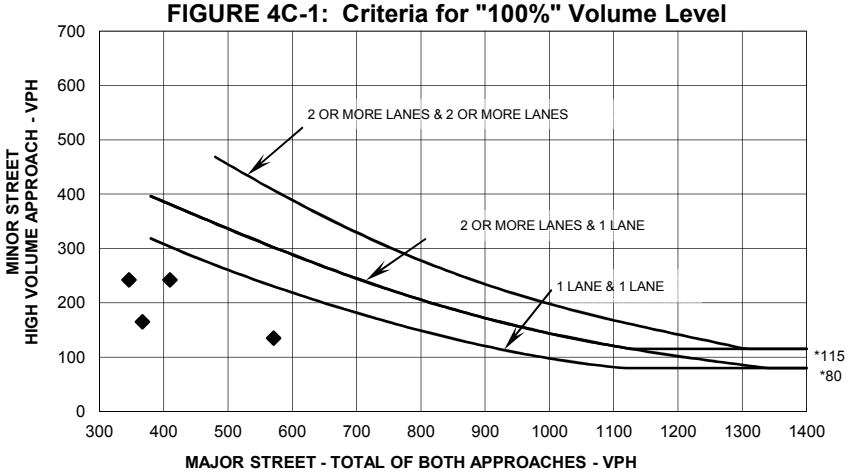
If all four points lie above the appropriate line, then the warrant is satisfied.

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Plot four volume combinations on the applicable figure below.

Four Highest Hours	Volumes	
	Major Street	Minor Street
7:15 AM	571	135
4:45 PM	410	242
12:30 PM	367	165
3:45 PM	346	242

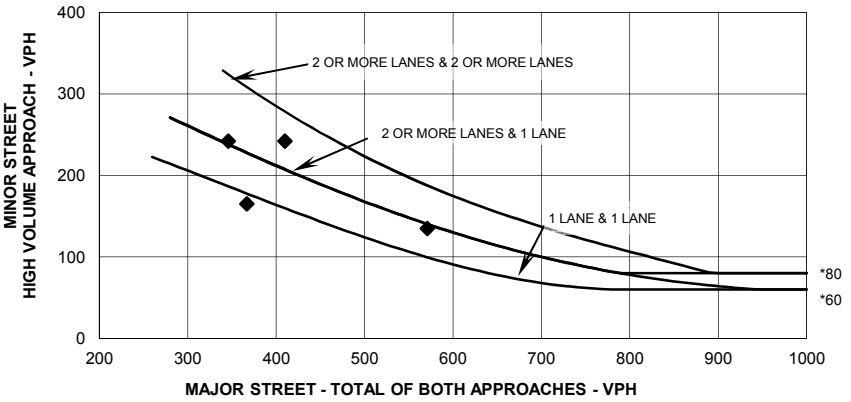
FIGURE 4C-1: Criteria for "100%" Volume Level



** Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-2: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**
County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**
Minor Street: **4th Ave S** Lanes: **1**

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? ☐ Yes ☒ No
2. Is the intersection in a built-up area of isolated community of <10,000 population? ☐ Yes ☒ No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level ☐ 70% ☒ 100%

WARRANT 3 - PEAK HOUR

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

If all three criteria are fullfilled or the plotted point lies above the appropriate line, then the warrant is satisfed.

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		
7:15 AM	571	135

Criteria

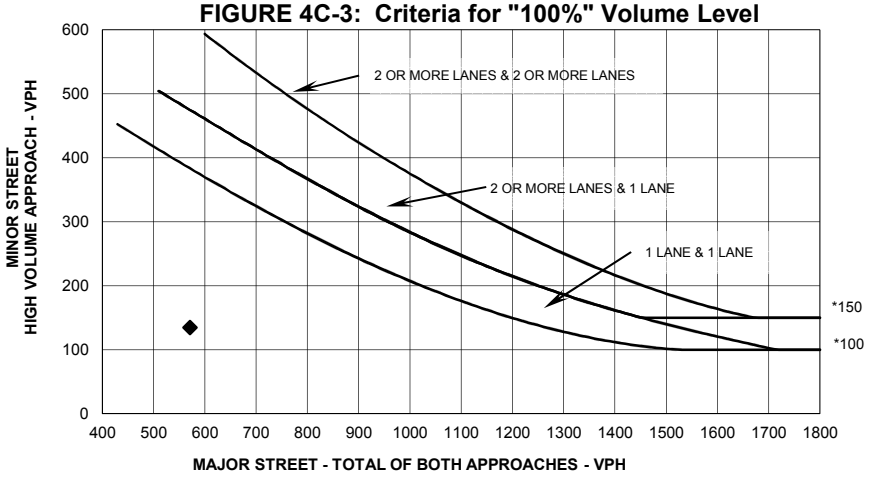
1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*	4.0	5.0
Delay*		
Fulfilled?: ☐ Yes	☒ No	

2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	150
Volume*	135	
Fulfilled?: ☒ Yes	☐ No	

3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	650	800
Volume*		1,308
Fulfilled?: ☒ Yes	☐ No	

Plot volume combination on the applicable figure below.

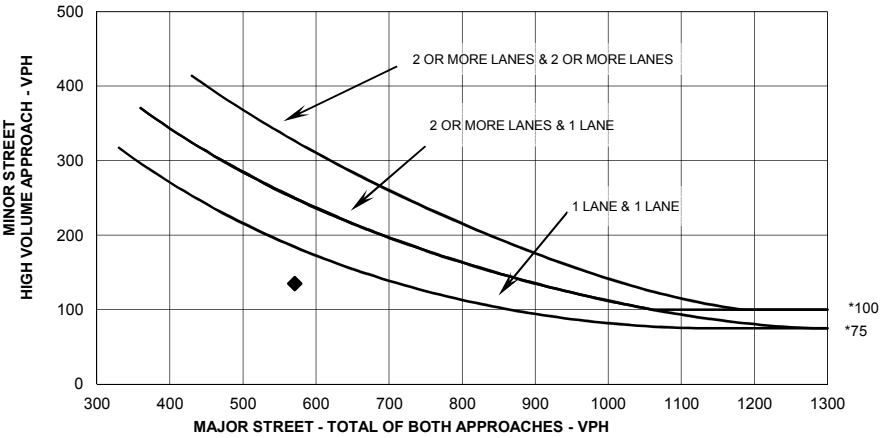
FIGURE 4C-3: Criteria for "100%" Volume Level



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.*

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**
County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**
Minor Street: **4th Ave S** Lanes: **1**

WARRANT 4 - PEDESTRIAN VOLUME

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if condition 1 or 2 is fulfilled and condition 3 is fulfilled.

Criteria	Hour	Pedestrian Volume	Pedestrian Gaps	Fulfilled? Yes	Fulfilled? No
1. Pedestrian volume crossing the major street is 100 ped/hr or more for each of any four hours and there are less than 60 gaps per hour in the major street traffic stream of adequate length.	12:15 PM - 1:15 PM	26	Yes		☒
	9:45 AM - 10:45 AM	18	Yes		
	8:00 AM - 9:00 AM	16	Yes		
	2:45 PM - 3:45 PM	16	Yes		
2. Pedestrian volume crossing the major street is 190 ped/hr or more for any one hour and there are less than 60 gaps per hour in the major street traffic stream of adequate length.	Less than 100				☒
3. The nearest traffic signal along the major street is located more than 90 m (300 ft) away, or the nearest signal is within 90 m (300 ft) but the proposed traffic signal will not restrict the progressive movement of traffic.					☒

WARRANT 5 - SCHOOL CROSSING

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled and the corresponding volume or gap frequency in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria			Fulfilled? Yes	Fulfilled? No
1. There are a minimum of 20 students crossing the major street during the highest crossing hour.	Students: 26	Hour: 12:15 PM - 1:15 PM	x	
2. There are fewer adequate gaps in the major street traffic stream during the period when the children are using the crossing than the number of minutes in the same period.	Minutes:	Gaps: 4 - way stop		☒
3. The nearest traffic signal along the major street is located more than 90 m (300 ft) away, or the nearest signal is within 90 m (300 ft) but the proposed traffic signal will not restrict the progressive movement of traffic.			X	

WARRANT 6 - COORDINATED SIGNAL SYSTEM

Applicable: ☐ Yes ☒ No
Satisfied: ☐ Yes ☐ No

Indicate if the criteria are fulfilled in the boxes provided. The warrant is satisfied if either criterion is fulfilled. This warrant should not be applied when the resulting signal spacing would be less than 300 m (1,000 ft).

Criteria	Fulfilled? Yes	Fulfilled? No
1. On a one-way street or a street that has traffic predominately in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.		
2. On a two-way street, adjacent signals do not provide the necessary degree of platooning, and the proposed and adjacent signals will collectively provide a progressive operation.		

Source: Revised from NCHRP Report 457

TRAFFIC SIGNAL WARRANT SUMMARY

City: **Grand Forks** Engineer: **J Williams**
County: **Grand Forks** Date: **May 17, 2016**

Major Street: **Belmont Rd** Lanes: **1** Critical Approach Speed: **25**
Minor Street: **4th Ave S** Lanes: **1**

WARRANT 7 - CRASH EXPERIENCE

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, the corresponding volume, and other information in the boxes provided. The warrant is satisfied if all three of the criteria are fulfilled.

Criteria		Hour	Volume	Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. One of the warrants to the right is met.	Warrant 1, Condition A (80% satisfied)	20% Satisfied (2 hours)			☒		☒
	Warrant 1, Condition B (80% satisfied)	0% Satisfied			☒		
	Warrant 4, Pedestrian Volume at 80% of volume requirements: 80 ped/hr for four (4) hours or 152 ped/hr for one (1) hour	12:15 PM - 1:15 PM	26		☒		
		9:45 AM - 10:45 AM	28				
		8:00 AM - 9:00 AM	16				
		2:45 PM - 3:45 PM	16				
2. Adequate trial of other remedial measure has failed to reduce crash frequency.		Measure tried: 4- Way Stop					☒
3. Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12-mo. period.		Number of crashes per 12 months: 5 with 2 correctable					☒

WARRANT 8 - ROADWAY NETWORK

Applicable: ☒ Yes ☐ No
Satisfied: ☐ Yes ☒ No

Record hours where criteria are fulfilled, and the corresponding volume or other information in the boxes provided. The warrant is satisfied if at least one of the criteria is fulfilled and if all intersecting routes have one or more of the characteristics listed.

Criteria							Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Both of the criteria to the right are met.	a. Total entering volume of at least 1,000 veh/hr during a typical weekday peak hour.		Entering Volume: 1,086				☒			☒
	b. Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.	Warrant:	1	2	3			☒		
		Satisfied?:								
2. Total entering volume at least 1,000 veh/hr for each of any 5 hrs of a non-normal business day (Sat. or Sun.)	4:30 PM - 5:30 PM					← Hour				☒
	1,086					← Volume				

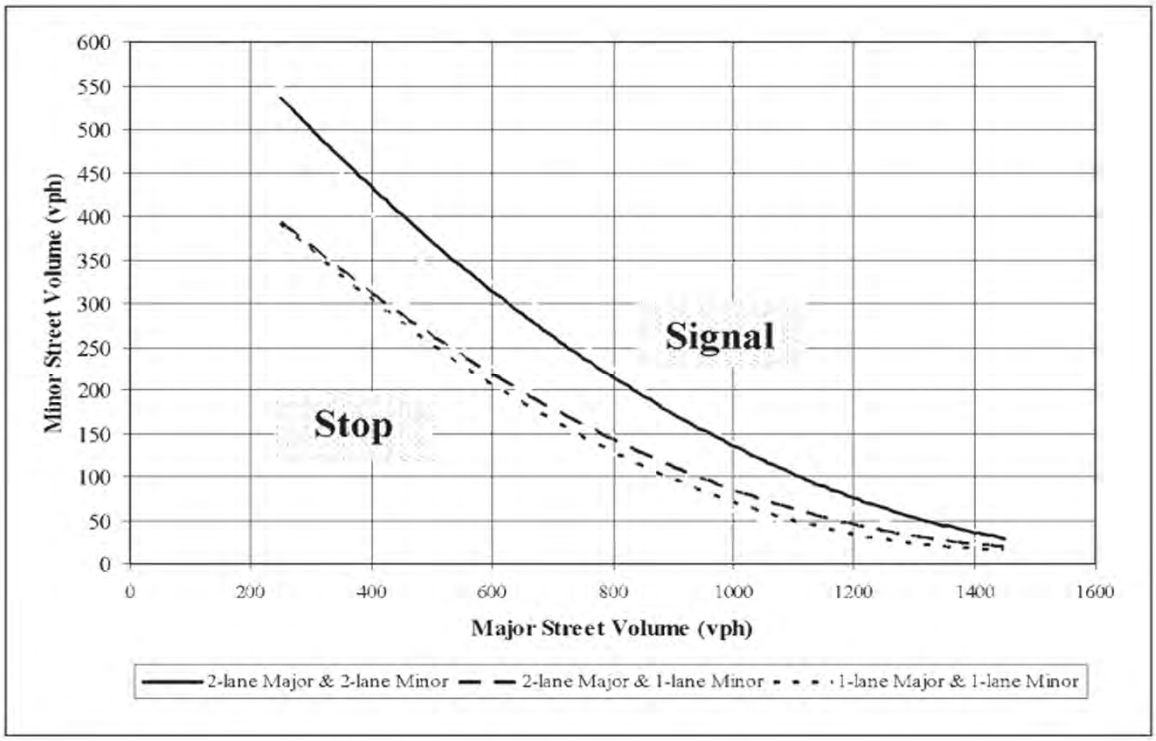
Characteristics of Major Routes		Met? Yes	Met? No	Fulfilled? Yes	Fulfilled? No
1. Part of the street or highway system that serves as the principal roadway network for through traffic flow.	Major Street:	☒		☒	
	Minor Street:	☒			
2. Rural or suburban highway outside of, entering, or traversing a city.	Major Street:	☒			
	Minor Street:	☒			
3. Appears as a major route on an official plan.	Major Street:	☒			
	Minor Street:	☒			

CONCLUSIONS

Warrants Satisfied: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Remarks: _____

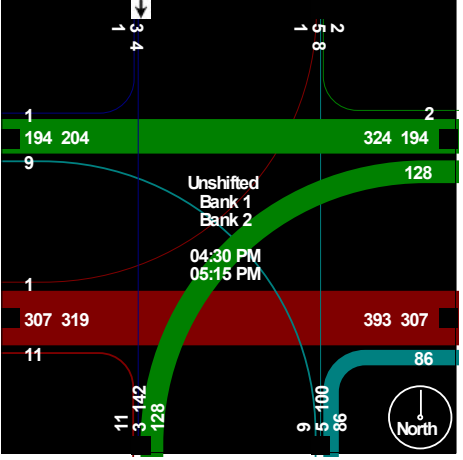
Source: Revised from NCHRP Report 457


600
550
500
450
400
350
300
250
200
150
100
50
0
Minor Street Volume (vph)
Signal
Stop
0
200
400
600
800
1000
1200
1400
1600
Major Street Volume (vph)
2-lane Major & 2-lane Minor
2-lane Major & 1-lane Minor
1-lane Major & 1-lane Minor

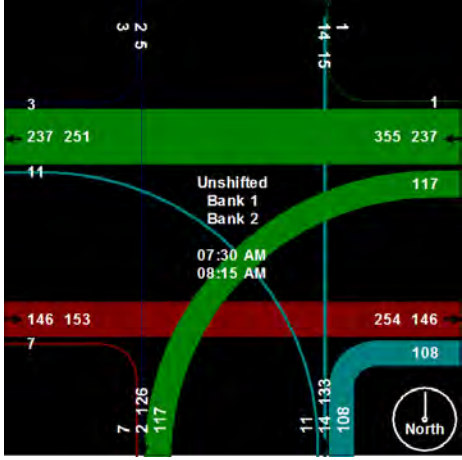
Appendix E: MPO turning movement counts

Turning Counts

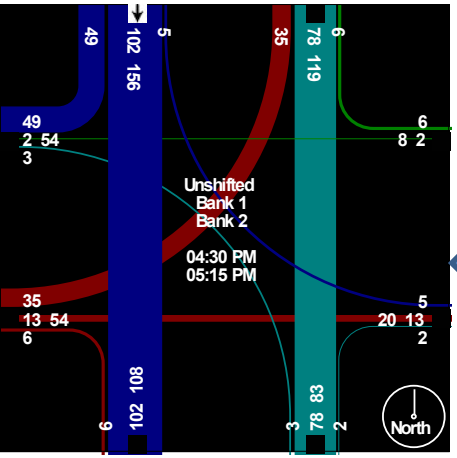
Reeves/4th Ave S

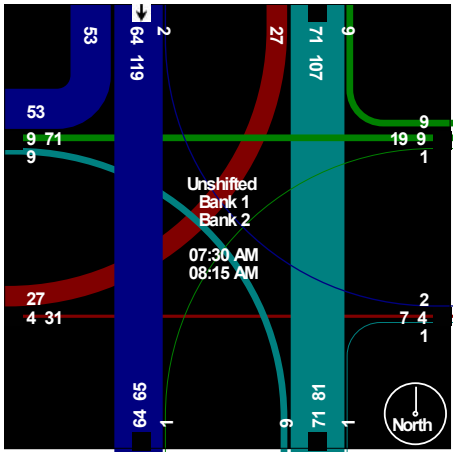


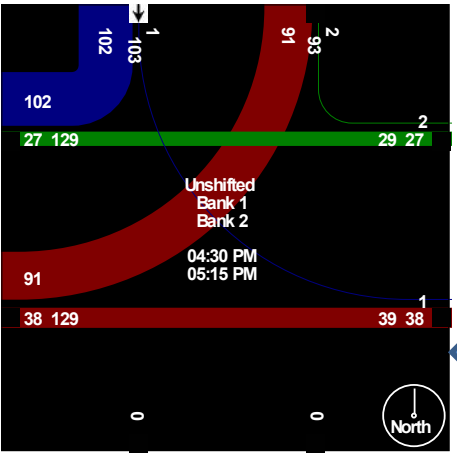
PM Peak Hour

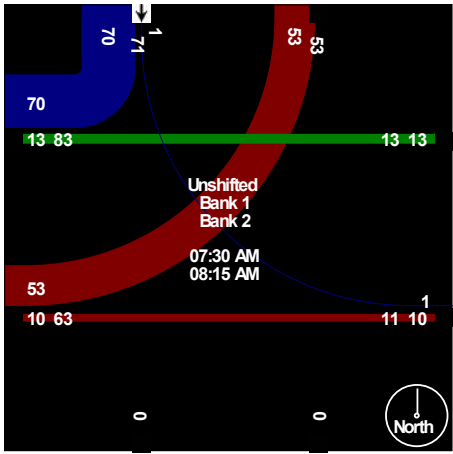


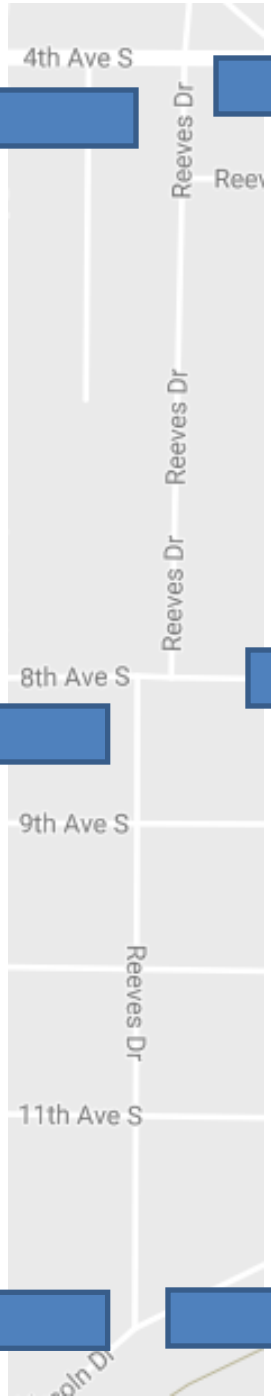
AM Peak Hour





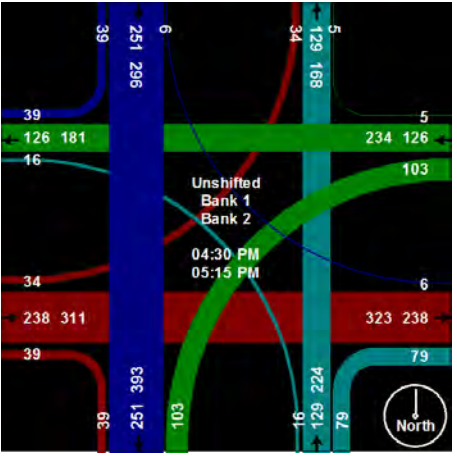




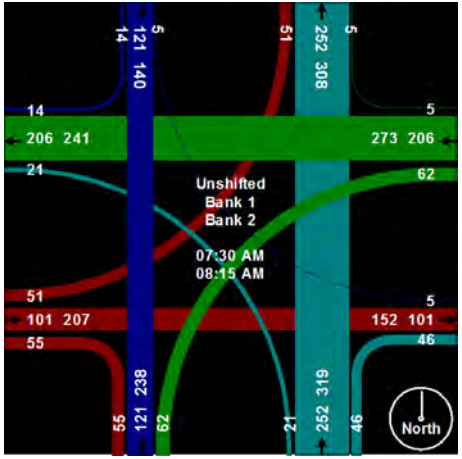


Turning Counts

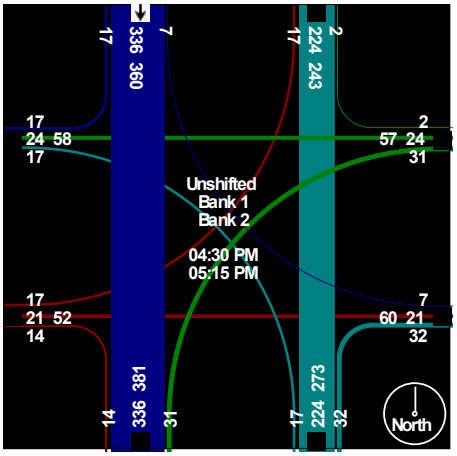
Belmont/4th Ave S

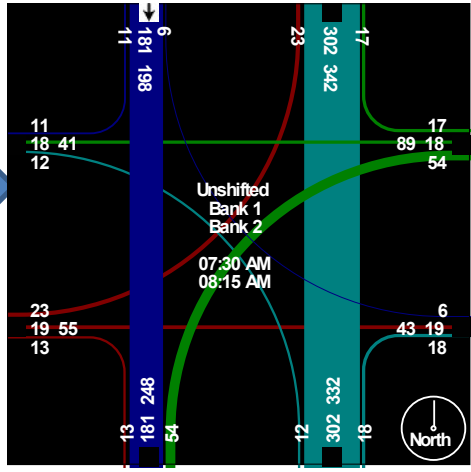


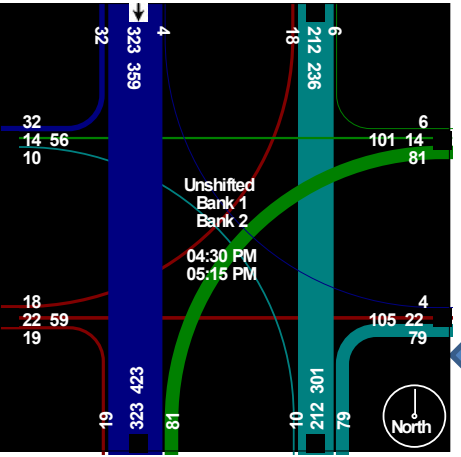
PM
Peak
Hour

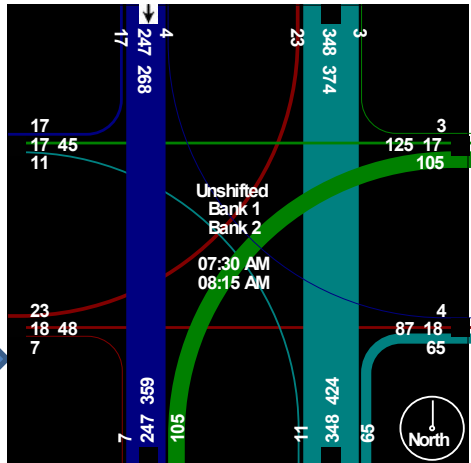


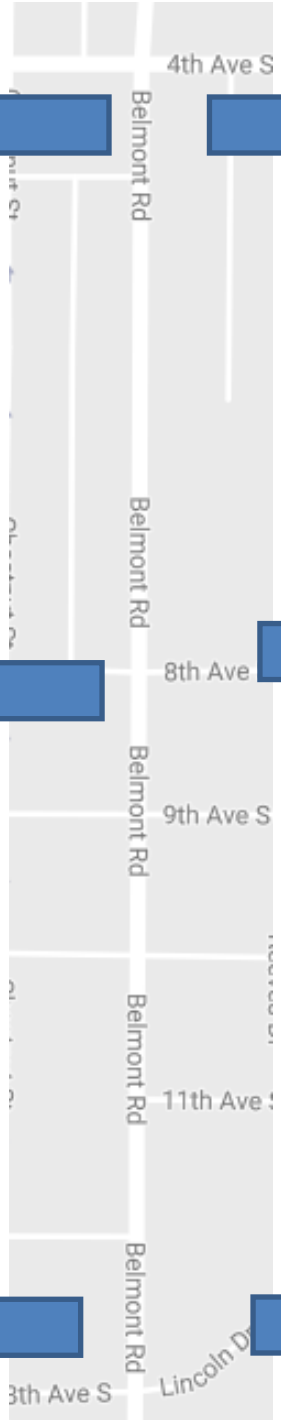
AM
Peak
Hour









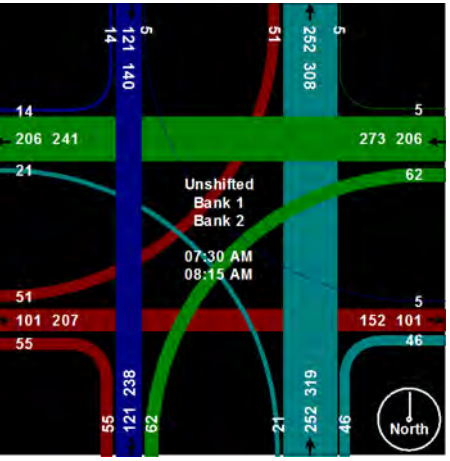


Turning Counts

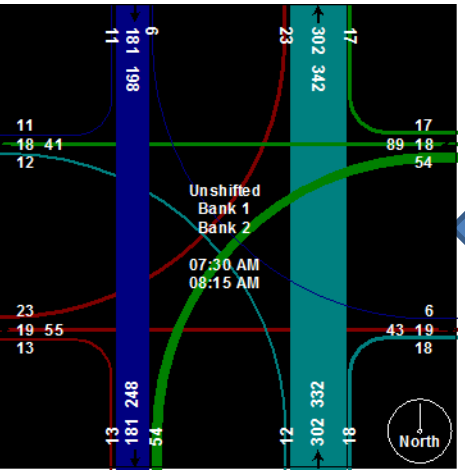
Belmont/4th Ave S

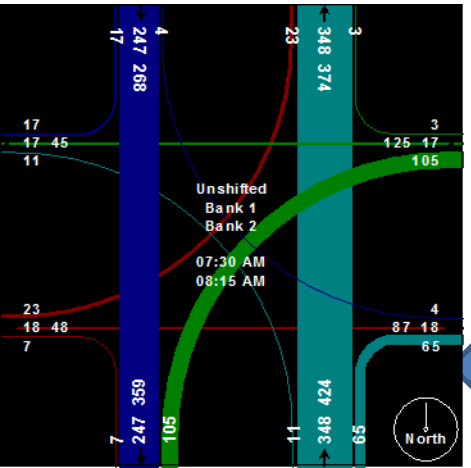
v.

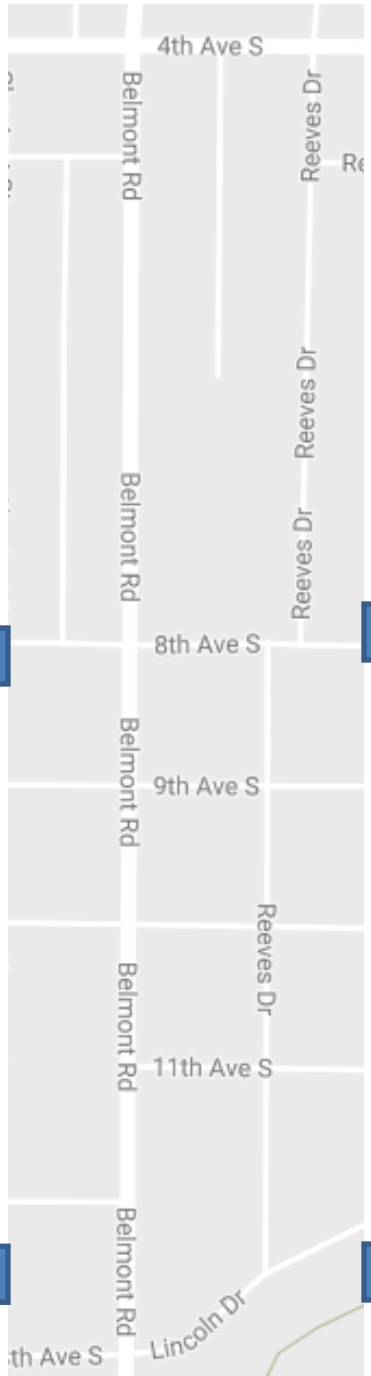
Reeves/4th Ave S



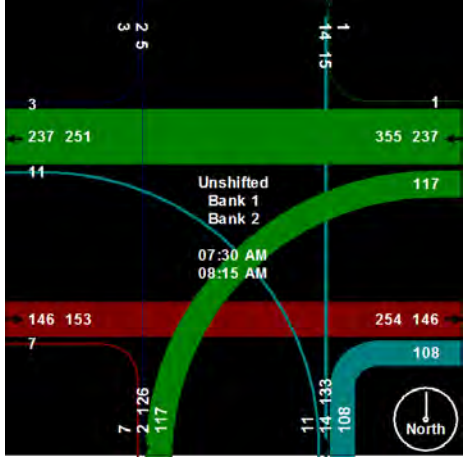
Belmont Intersections

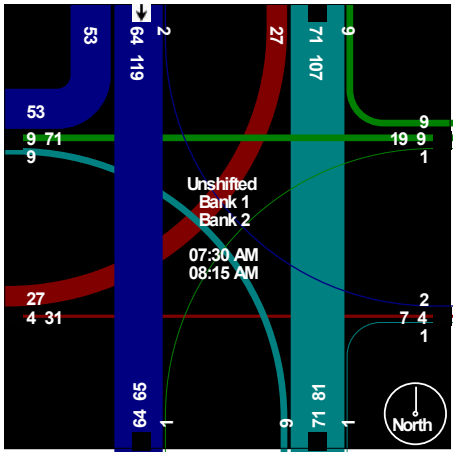




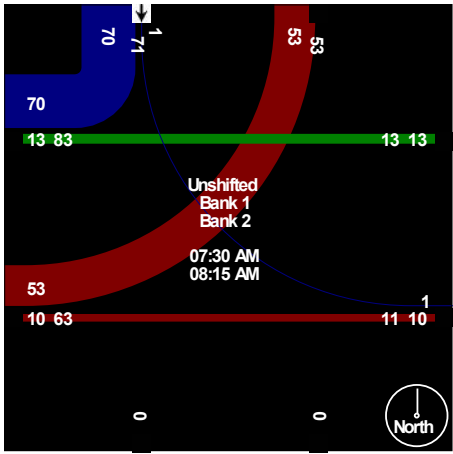


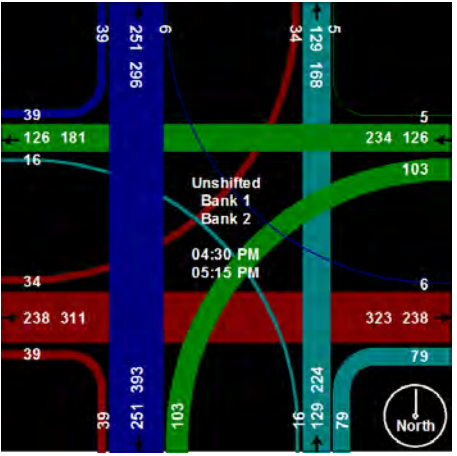
Reeves Intersections



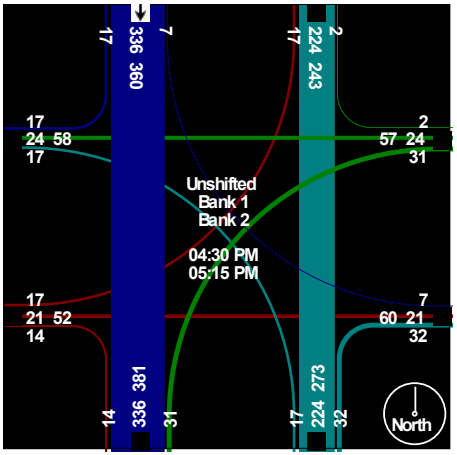


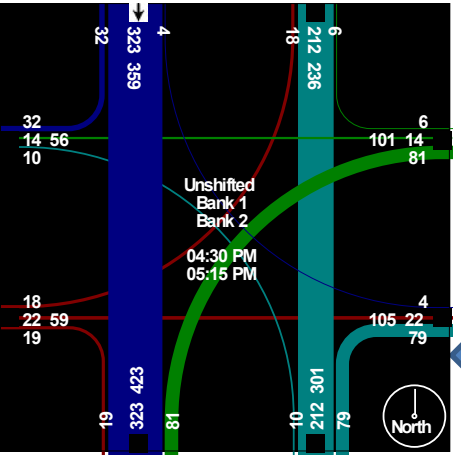
AM Peak Hour

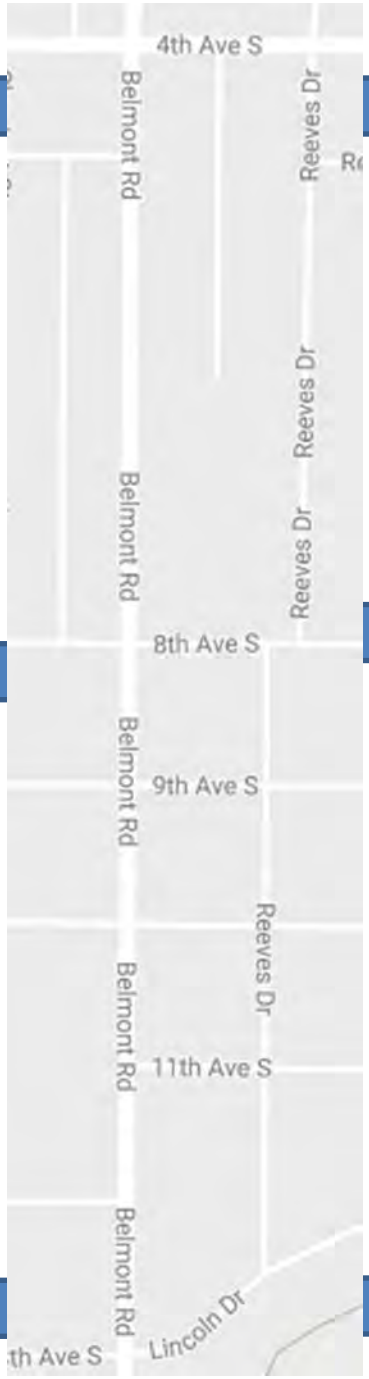




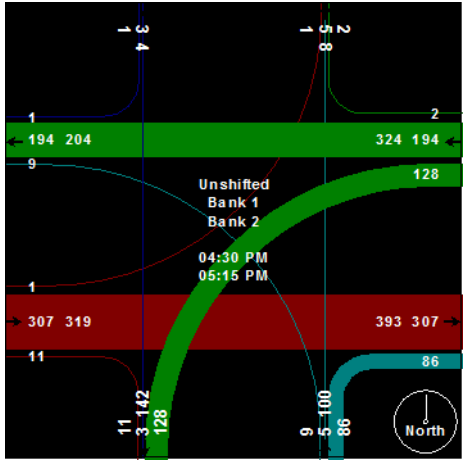
Belmont Intersections

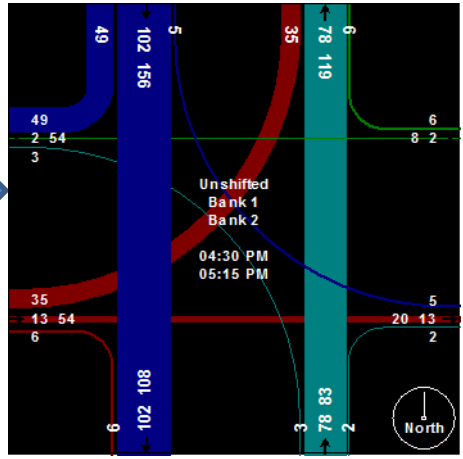




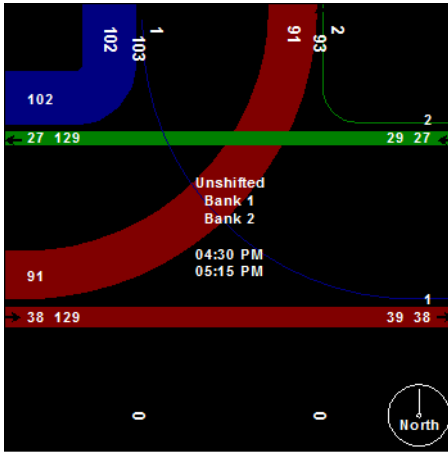


Reeves Intersections





PM Peak Hour



Turning Counts

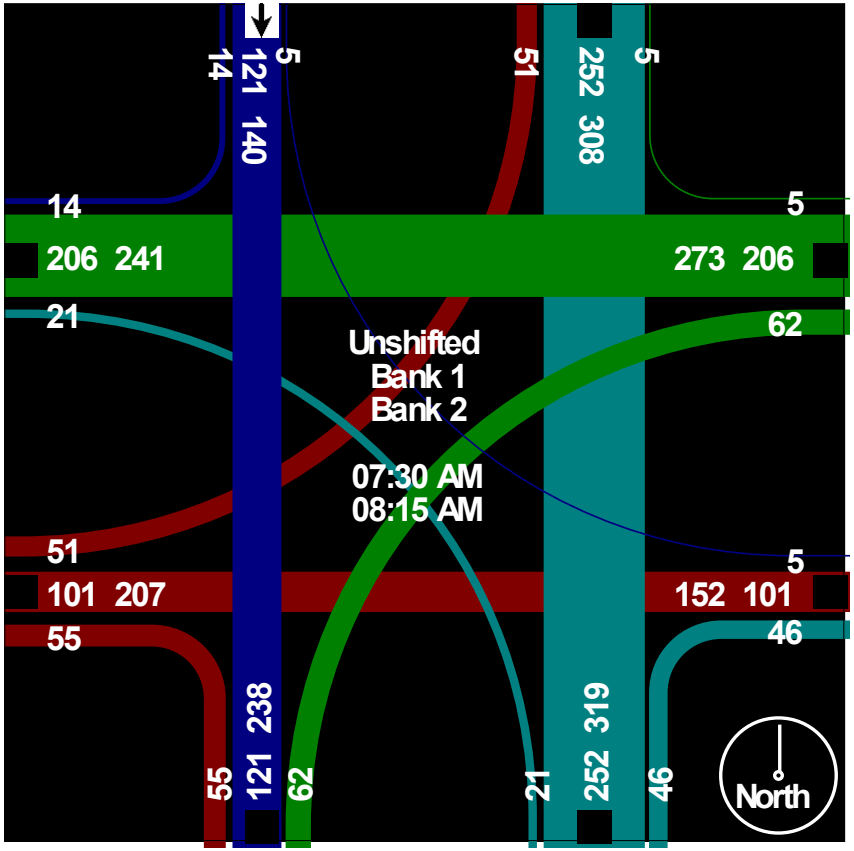
Belmont/4th Ave S

2017 v. 2014

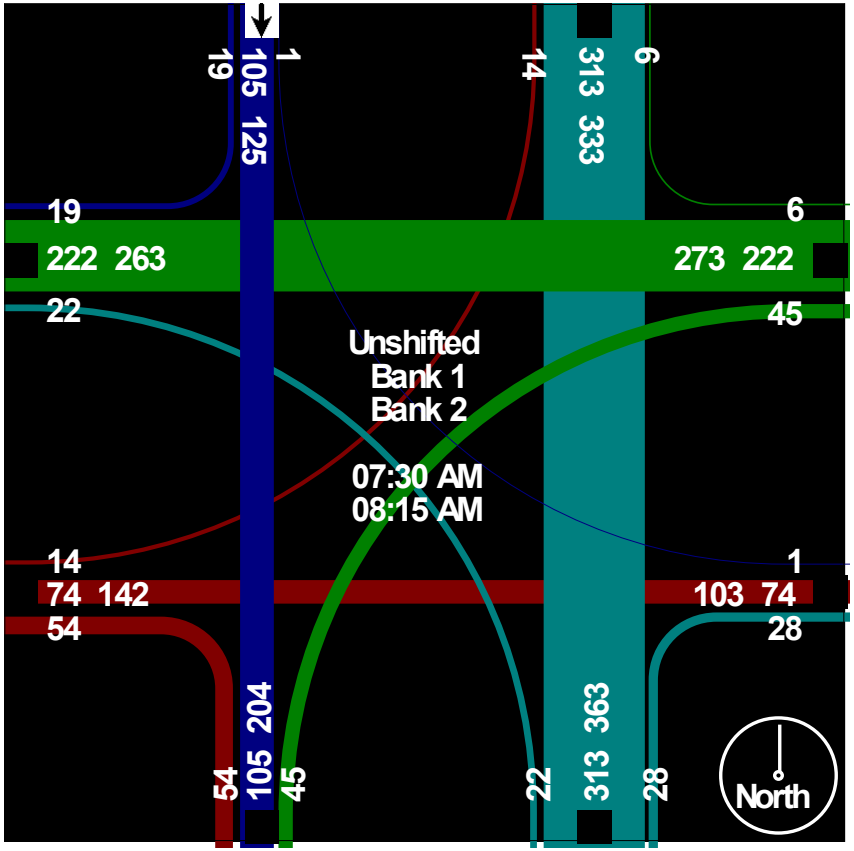
Grand Forks - East Grand Forks
Metropolitan Planning Organization

AM Peak Hour

Belmont/4th Ave 2017

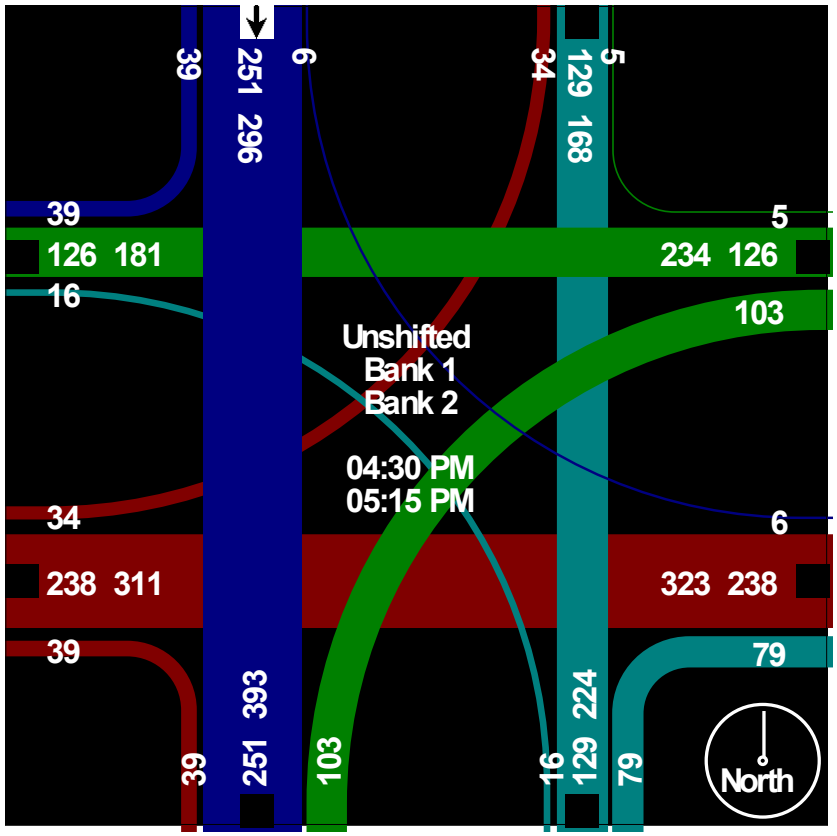


Belmont/4th Ave 2014

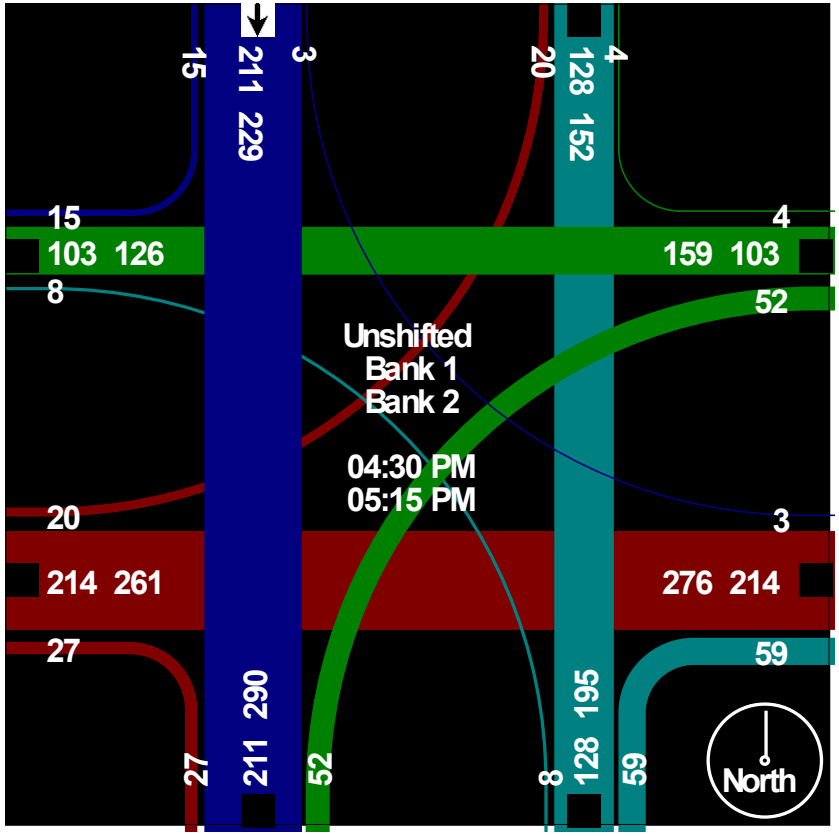


PM Peak Hour

Belmont/4th Ave 2017



Belmont/4th Ave 2014



Turning Counts

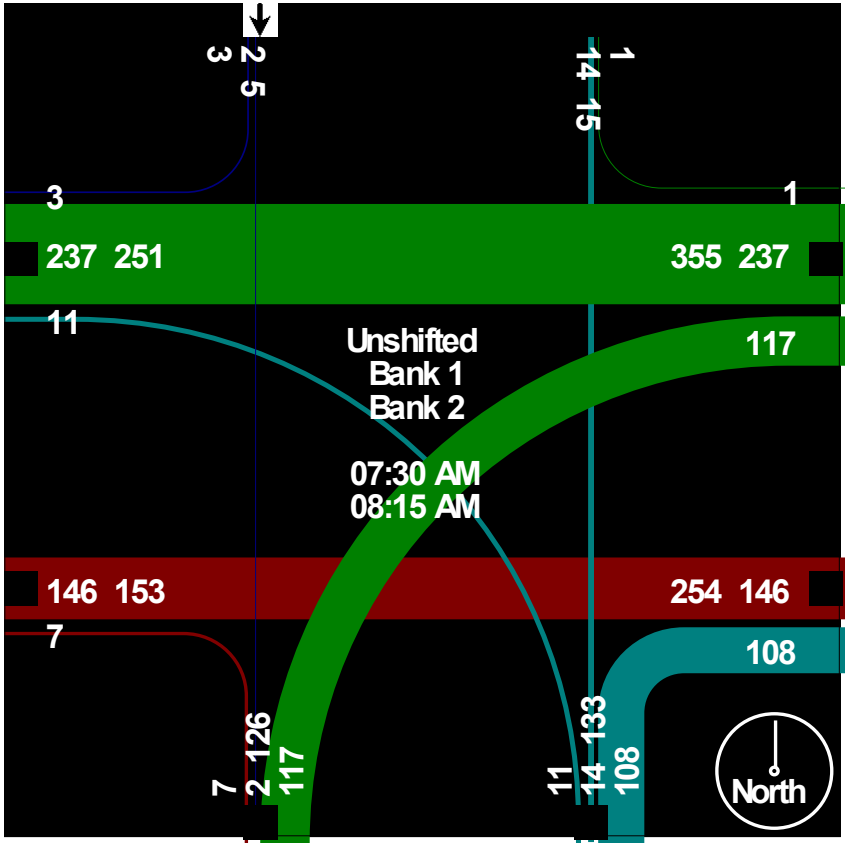
Reeves/4th Ave S

2017 v. 2014

Grand Forks - East Grand Forks
Metropolitan Planning Organization

AM Peak Hour

Reeves/4th Ave 2017



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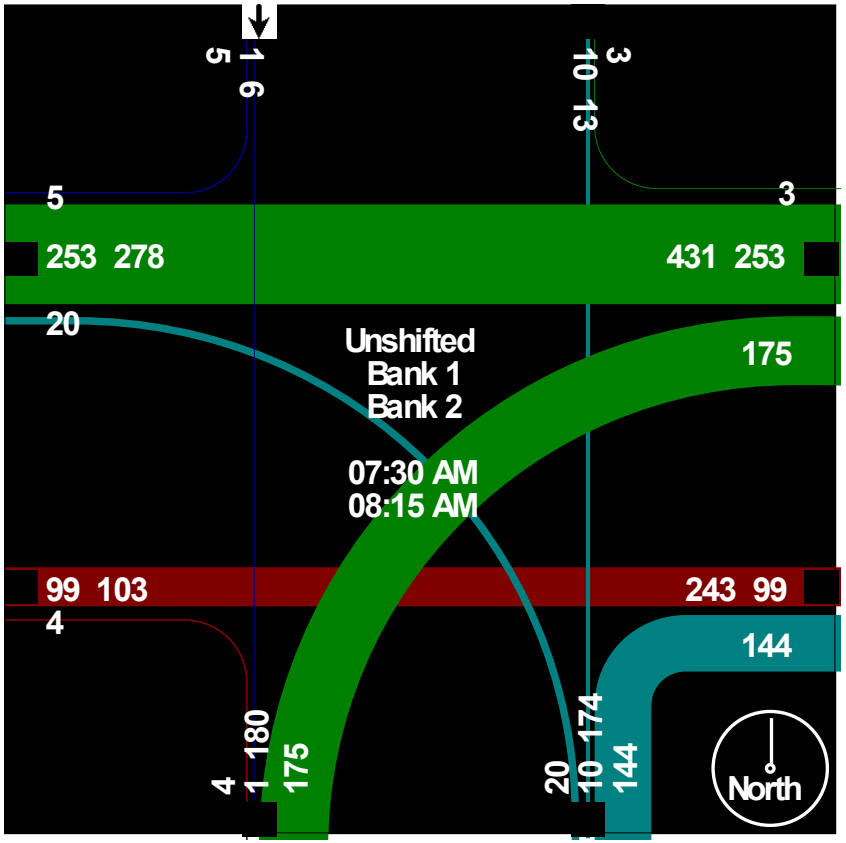
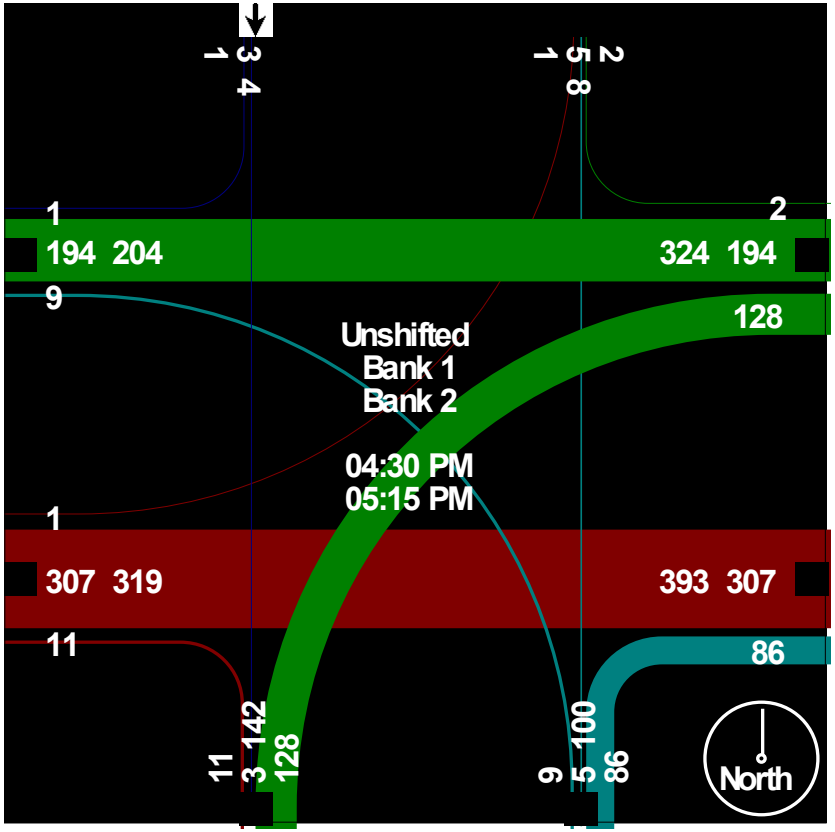


PM Peak Hour

Reeves/4th Ave 2017



Reeves/4th Ave 2014