April 18, 2019 | FINAL

TECHNICAL MEMO #5
(HIGHEST RANKED IMPROVEMENT ALTERNATIVES)

Mn 220 N Corridor Study

Prepared for: Grand Forks - East Grand Forks Metropolitan Planning Organization

ALLIANT

1. Introduction

This memo is the fifth in a series of technical memos for the Mn 220 N (Mn 220) Corridor Study project.

2. Existing and Future Conditions

Refer to Technical Memorandum 1 for documentation of the existing and future conditions assessment.

3. Roadway Safety and Traffic Operation Analysis

Refer to Technical Memorandum 2 for documentation of the roadway safety and traffic operation characteristics.

4. Purpose and Need

Refer to Technical Memorandum 3 for documentation of the corridor study purpose and needs.

5. Alternatives Analysis and Evaluation

Refer to Technical Memorandum 4 for documentation of the preliminary alternatives development and evaluation.

6. Highest Ranked Improvement Alternatives

The alternatives outlined in the preceding Technical Memorandum 4 identifies transportation ideas and concepts based upon input from stakeholders and a review of the purpose and needs. From this range of alternatives, a screening evaluation was completed to evaluate each idea against key objectives. This process identifies the alternatives that best meet the project goals. The goal is to arrive at a set of feasible alternatives that best balance and meet the primary objectives of the stakeholders and community. Improvement alternatives were identified to address four primary objectives of the study:

- Improve access control
- Improve safety
- Improve mobility/capacity; and
- Improve pedestrian crossings of Mn 220

The evaluation of the identified alternatives consists of a layered approach that included:

- Assessing and comparing high level considerations such as key pros/cons, trade-offs and design considerations or fatal flaws;
- Technical analysis of intersection capacity, safety benefits, right of way needs, construction costs and economic viability as applicable (benefit/cost ratio); and
- Qualitative evaluation scoring of key metrics identified in the planning process that are consistent with the Purpose and Need statement and 2045 Metropolitan Transportation Plan (MTP) objectives and performance goals.

The highest ranked alternatives considered all the factors and were identified based on input from the SRC, public participation process, requirements of the purpose and need, the results of the technical analysis and evaluation matrices completed herein. In some cases (e.g., US 2) the alternatives with the best benefit/cost or highest performance metric measurements were determined infeasible or not viable. The highest ranked alternatives are anticipated to be feasible, consistent with the MTP, and met the stated purposed and need. The following sections present the alternative concept layouts, the traffic operation and safety analysis, and a cost/benefit analysis. **Figure 6-1** illustrates the highest ranked alternatives, and the associated concept layouts are illustrated in **Figure 6-2** through **Figure 6-7**. The highest ranked alternatives are summarized below, along with correlating technically feasible alternatives to be carried forward through the environmental process:

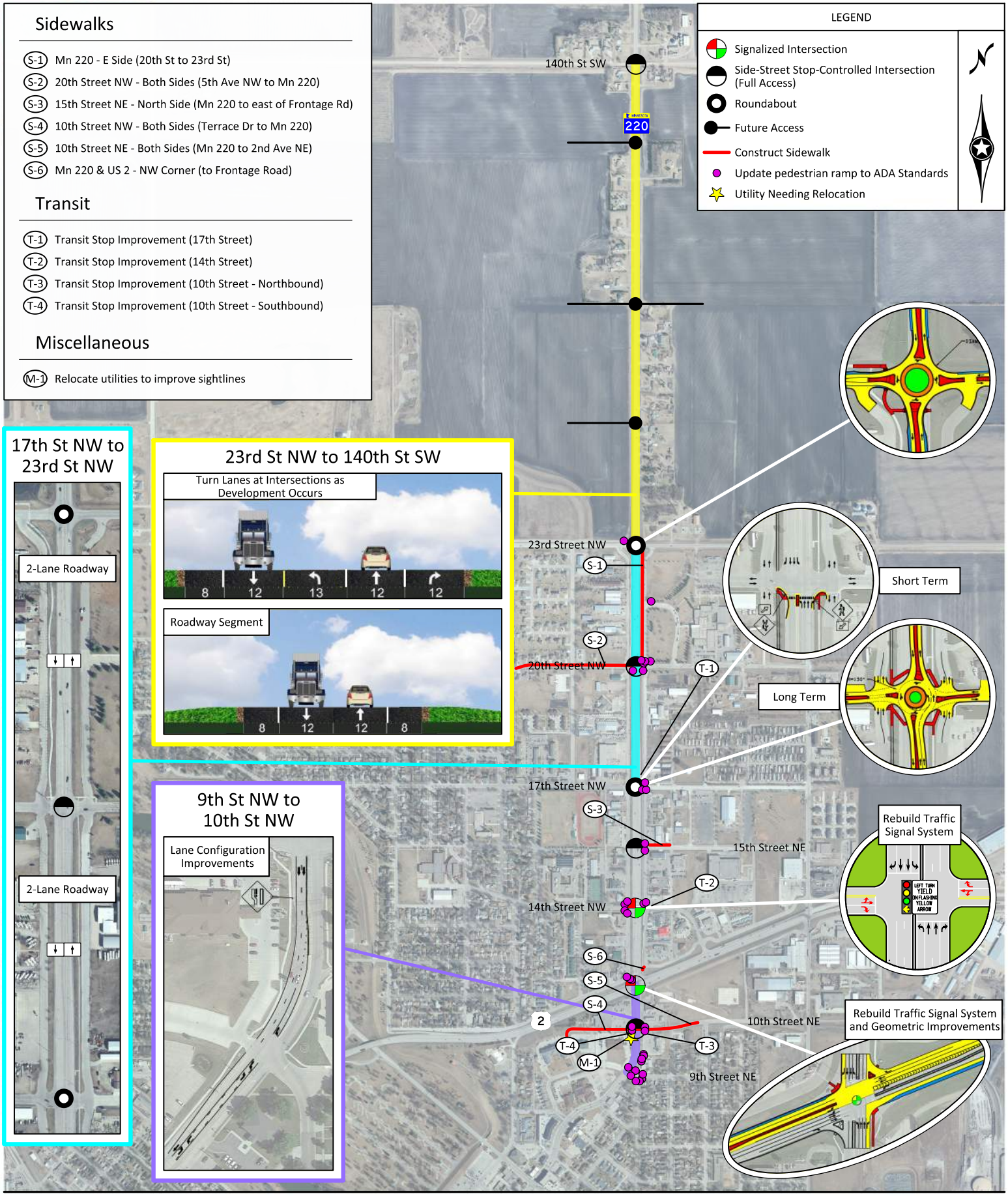
Intersection Control, Safety and Mobility

- 23rd Street NW:
  - Highest ranked: roundabout (refer to Section 6.6 for further discussion on design)
- 20th Street NW:
  - Highest ranked: maintain existing maintain existing intersection control, traffic lanes and access configuration with roundabouts at 17th Street NW and 23rd Street NW
  - Feasible alternative: convert to ¾ Access configuration if a traffic signal system were to ultimately be installed at 17th Street NW following detailed evaluation during preliminary design.
- 17th Street NW:
  - Highest ranked: roundabout (refer to Section 6.6 for further discussion on design)
  - Feasible alternative: traffic signal system
- 15th Street NE:
  - Highest ranked: maintain existing intersection control, traffic lanes and access configuration
  - No other feasible alternatives. Alternatives identified did not meet the purpose and need.
- 14th Street NW:
  - Highest ranked: replace traffic signal system
  - No other feasible alternatives. The roundabout alternative was determined to be infeasible due to footprint size requirement and spacing of frontage roads.
- US 2:
  - Highest ranked: replace traffic signal system and improve intersection lane geometrics
  - Feasible alternatives: roundabout and eastbound displaced left turn. The interchange alternatives were discarded due to fiscal constraint.
- 10th Street NE:
  - Highest ranked: maintain existing intersection control and access configuration and relocate utility boxes on the southwest corner to improve visibility
  - Feasible alternative: convert to ¾ access configuration. Further evaluation of business and property impact would be required.

- 9th Street NE:
  - Highest ranked: maintain existing intersection control, traffic lanes and access configuration and relocate the lane drop to the south and improve the left turn lane alignment and definition.
  - No other feasible alternatives
- 17th Street NW to 23rd Street NW segment:
  - Highest ranked: two lane divided roadway cross-section with roundabout alternatives
  - Feasible alternative: 2-lane segment between 20th Street and 23rd Street and four-lane segment between 17th Street and 20th Street with traffic signal system at 17th Street
- 23rd Street NW to 140th Street SW segment:
  - Highest ranked alternative: two lane rural roadway cross-section with turn lanes added at future development access intersections.

Pedestrian Accessibility and Transit

- 17th Street NW: improve crosswalk on south leg and ADA accessibility
- Neighborhood connections: establish sidewalk connections at the six locations where connection gaps exist
- Transit accessibility:
  - Provide transit stop signing, concrete pad and bench at four existing transit stops
  - Coordinate with Cities Area Transit (CAT) to reevaluate transit routes and service as future development occurs north of 23rd Street NW.



Mn 220 N Corridor Study

Figure 6-1
Highest Ranked Alternatives

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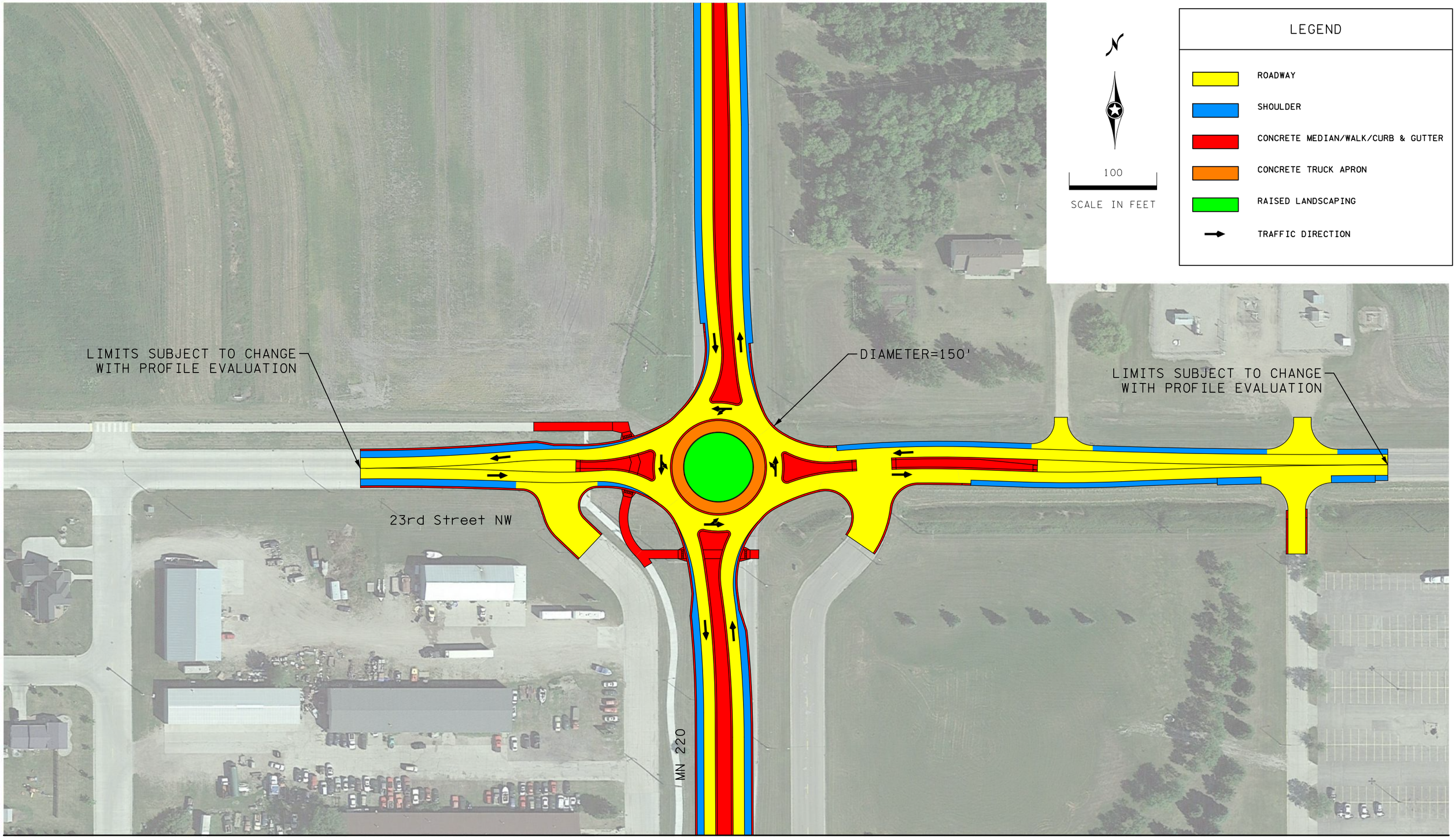
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WITH PROFILE EVALUATION
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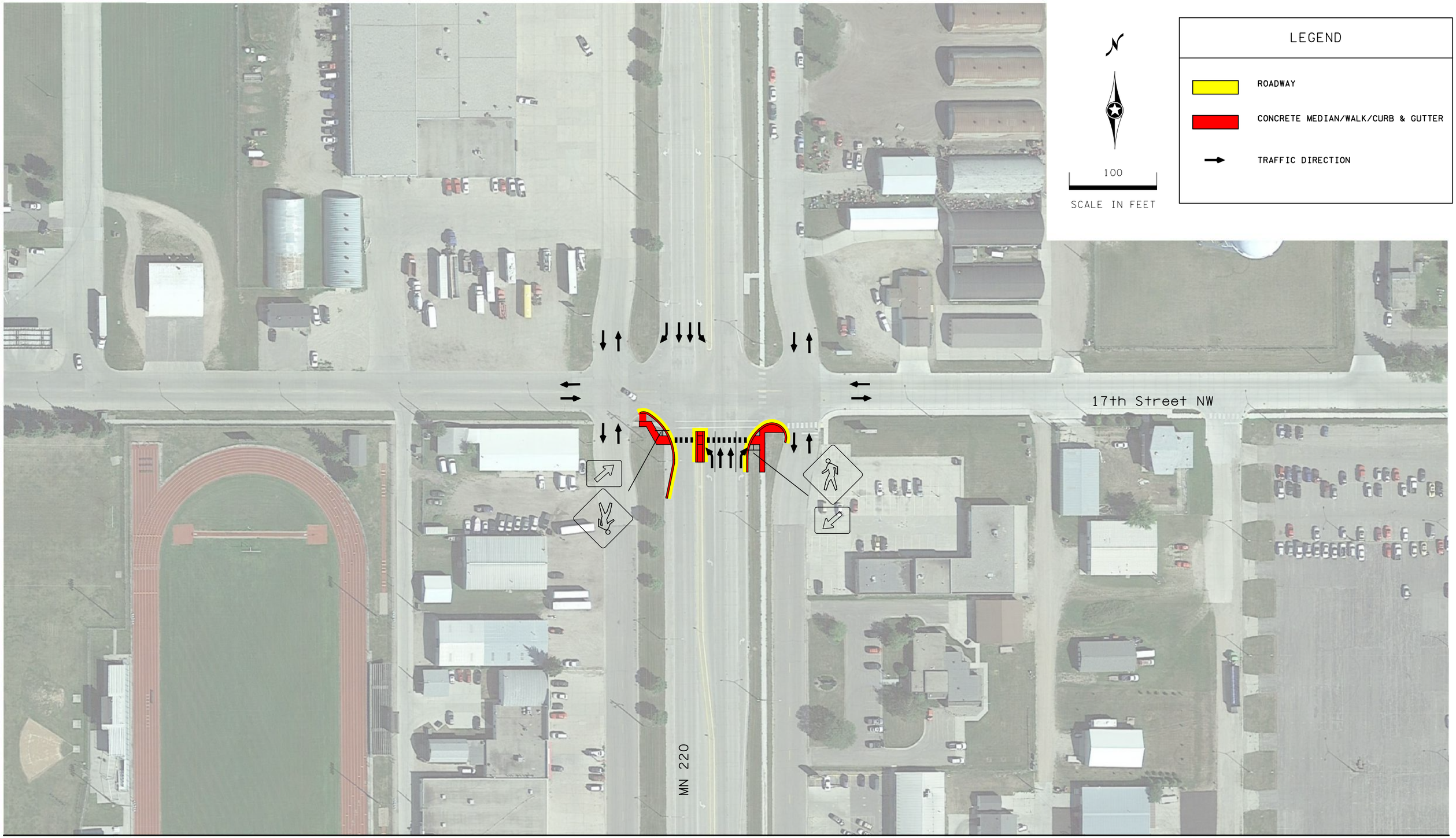
WITH PROFILE EVALUATION
23rd Street NW
MN 220
N
100
SCALE IN FEET
LEGEND
ROADWAY
SHOULDER
CONCRETE MEDIAN/WALK/CURB & GUTTER
CONCRETE TRUCK APRON
RAISED LANDSCAPING
TRAFFIC DIRECTION



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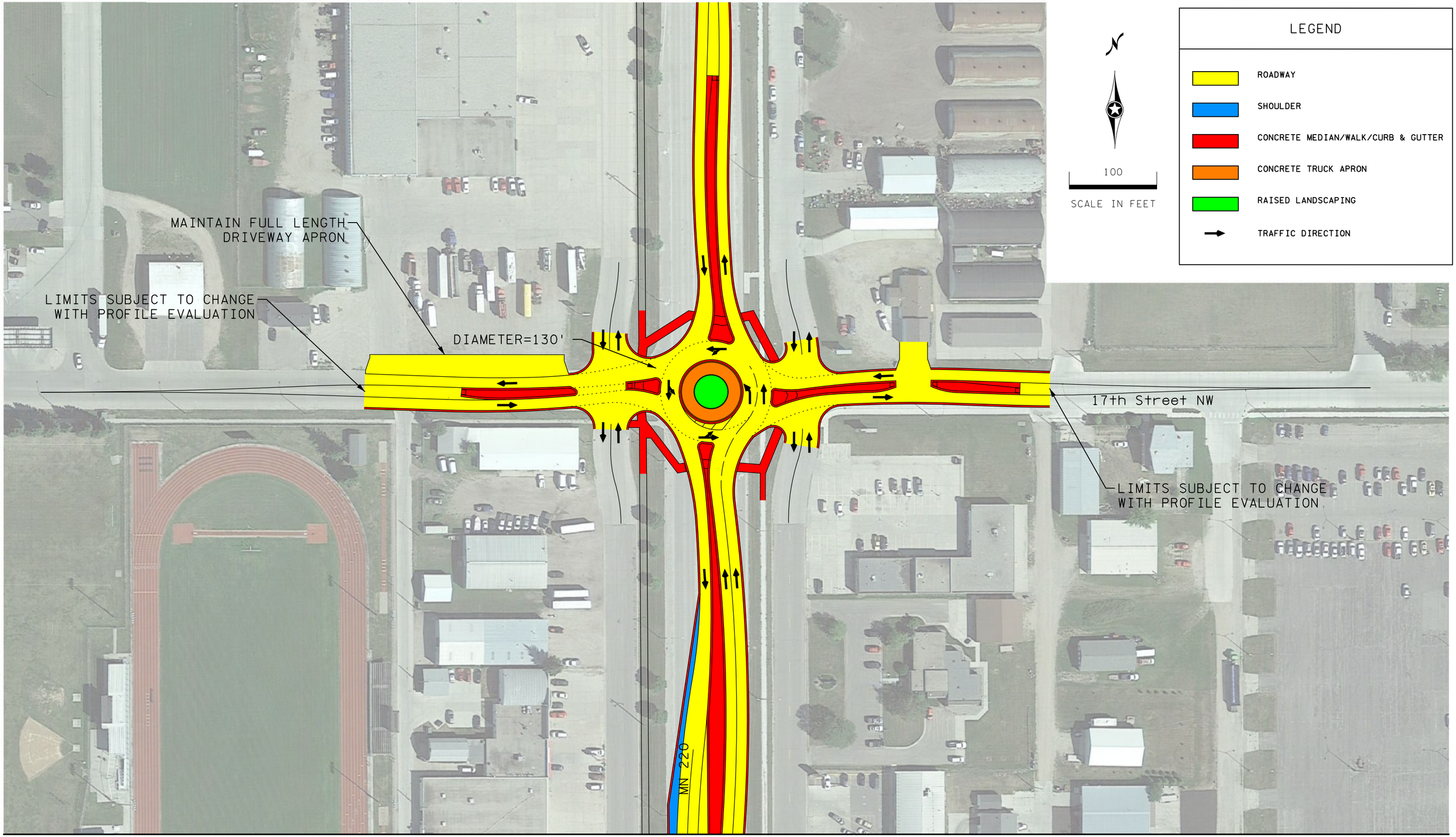
MN 220/17th Street NW

Figure 6-3. 17th Street NW Short Term Improvement - Improve Crosswalk



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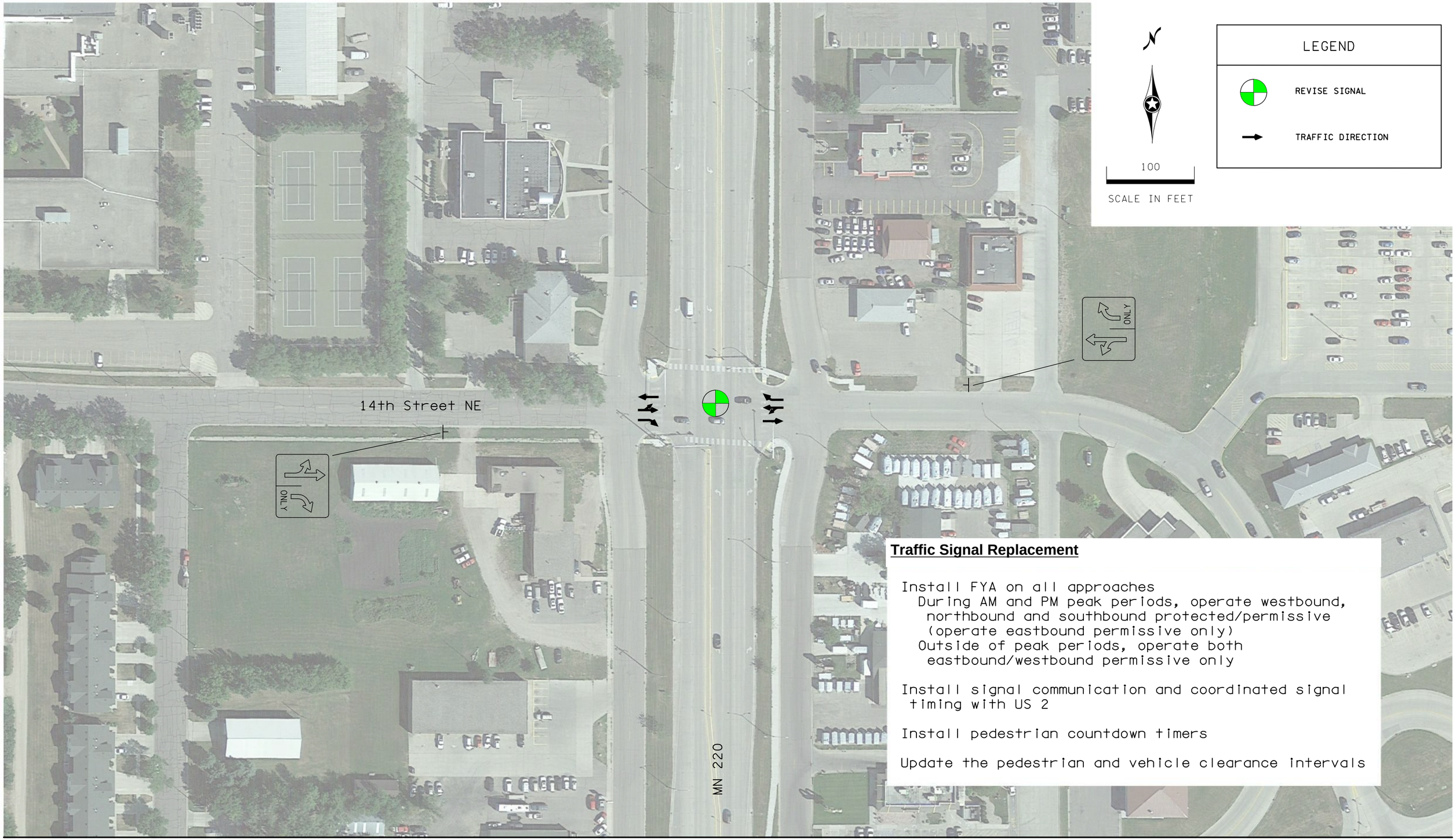
MN 220/17th Street NW

Figure 6-4. 17th Street NW Long Term Improvement - Roundabout



Traffic Signal Replacement

Install FYA on all approaches
- During AM and PM peak periods, operate westbound, northbound and southbound protected/permissive (operate eastbound permissive only)
- Outside of peak periods, operate both eastbound/westbound permissive only

Install signal communication and coordinated signal timing with US 2

Install pedestrian countdown timers

Update the pedestrian and vehicle clearance intervals

MN 220/14th Street NE

Figure 6-5. 14th Street NW - Traffic Signal Replacement

LEGEND

- ROADWAY
- SHOULDER
- CONCRETE MEDIAN/WALK/CURB & GUTTER
- REVISE SIGNAL
- TRAFFIC DIRECTION

N

100

SCALE IN FEET

MN 220

US HWY 2

LIMITS SUBJECT TO CHANGE
WITH PROFILE EVALUATION

LIMITS SUBJECT TO CHANGE
WITH PROFILE EVALUATION

Traffic Signal Replacement

Install FYA on all approaches
Operate eastbound/westbound protected only 6 am to 10 pm and northbound prot/perm all day
Implement FYA Omit logic for pedestrian actuations

Install communication and coordinate signal timing with 14th Street NW and 5th Avenue NE

Implement a southbound right turn overlap (concurrent with the eastbound left turn)

Install pedestrian countdown timers

Update the pedestrian and vehicle clearance intervals to current standards

Add an additional overhead signal indication for each approach to improve visibility and provide yellow back plate for FYA left turn indications

Figure 6-6. US 2 - Traffic Signal Replacement and Geometric Improvements

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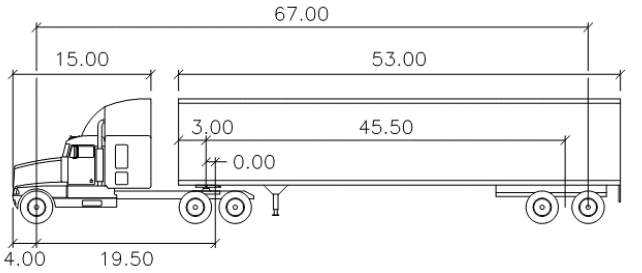
9th Street NE/10th Street NE

Figure 6-7. 9th Street NE - Lane Configuration Improvement

6.1 Consistency with Study Goals

The previous chapter detailed a range of alternatives to address the study goals and issues raised through the technical and public participation process. The following provides a brief discussion of the highest ranked alternatives for the Mn 220 corridor as it relates to the primary study goals.

- **Goal 1: Examine traffic operations at key intersections and develop potential options to improve mobility, access, and safety. Evaluate the current locations of lane drops (at 20th Street and north of 17th Street) and evaluate current plans to extend the four-lane to 23rd Street and to expand to a three-lane segment north of 23rd Street to 140th Street.**
    - The alternatives analysis evaluated traffic signals, access management strategies, and roundabout intersection designs to improve mobility, access, and safety. Based on the evaluation, traffic signal replacement and associated design/operation improvements were found highest ranked at existing signals (14th Street and US 2), and roundabouts are highest ranked at two key study intersections (17th Street and 23rd Street).
    - At US 2 and at 14th Street NW, traffic signal replacement and design/operation improvements—which include Flashing Yellow Arrow (FYA) installation, phasing improvements, signal head placement, visibility, pedestrian accommodations and signal coordination—are expected to improve intersection operation and motorist safety. Construction of a second eastbound left turn lane and removal of channelized northbound and southbound right turns at US 2 are expected to further improve intersection operation and motorist safety.
    - At 17th Street NW and at 20th Street NW, a roundabout provides the most efficient long-term traffic control device (least overall delay when considering a 24-hour day); and are expected to have the greatest safety improvement. The intersections can be designed for continuous flow at a low operating speed, which may result in the opportunity to for reduced motorist speeds north of 17th Street. Improved pedestrian access and safety is accomplished by providing wide median refuge islands and marked crosswalks.
    - The roundabouts at 17th Street and 23rd Street will allow for conversion to 2-lane divided roadway along this segment greatly improving the boulevard space, greening potential and separation to the frontage roads. The 17th Street roundabout (with two northbound lanes) will allow for a smooth 4-lane to 2-lane transition. The roundabouts are expected to be feasible in accommodating large truck traffic, including common agricultural equipment and WB-67 (or 75 length) vehicle turning radius for key travel routes. Truck turning movement exhibits are provided in **Appendix A**. However, further design evaluation, preliminary engineering and public outreach will need to be completed before project development occurs at a future date. See further discussion later in this document. A WB 67 vehicle is illustrated below.



WB−67 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Source: AASHTO

- North of 23rd Street NW, the two-lane roadway is expected to provide acceptable capacity into the future and accommodate long term land use changes. Three future intersection accesses compatible with MnDOT Access Management Guidelines have been identified. Due to the unknown phasing of redevelopment, the most effective and economical design for this segment is to maintain the existing two-lane rural roadway design and construct right and left turn lanes (with turn lane pockets and transition tapers) at accesses as development occurs.

- **Goal 2: Review past study recommendations and develop potential improvements to access management strategies.**
  - Previous studies recommended changes to the frontage roads as access management strategies. The consideration of a backage road was suggested to improve intersection spacing and reduce conflicts a the current closely spaced configuration. Although the City may consider this long term, the highest ranked alternatives are compatible with the existing frontage road system and street widths.
  - Intersection-level access management strategies were also considered but are not recommended. Three-Quarter Access alternatives were considered at 20th Street, 15th Street, and 10th Street, but are recommended to be maintained as full access intersections with through-stop control, provided roundabouts are to be implemented at 17th Street and 23rd Street.

- **Goal 3: Improve pedestrian crossing opportunities, accessibility, and safety at key locations along the corridor.**
  - A sidewalk is proposed on the east side of Mn 220 N between 20th Street and 23rd Street. This will eliminate the need for pedestrians using the trail to cross at 20th Street to continue along Mn 220 N.
  - Sidewalks are proposed to be constructed along some cross streets to provide better connection between Mn 220 N and adjacent land uses.
  - Updated pedestrian ramps are recommended to be constructed at numerous locations along the corridor, or concurrent with associated intersection improvements to meet current ADA standards.

- A concept alternative at 17th Street includes a short-term plan to improve the pedestrian crossing. This crossing is used by several students at the nearby school on a daily basis. Installing a refuge island, curb bump-outs, and high-visibility markings and signage will be low cost strategy to improve pedestrian crossing comfort, safety, and visibility in advance of the long-term intersection improvement.
- In the short term, improving existing bus stops through stop identification (signs) along with concrete pads (if applicable) and associated access to sidewalks. If applicable bus benches should be considered. The four existing bus stop locations have been identified for proposed potential improvement. In the long-term, coordination with Cities Area Transit (CAT) is needed to identify potential transit route and bus stop options to connect future land use growth north of 23rd Street.

6.2 Traffic Operation Analysis

A traffic operation analysis of the recommended intersection alternatives was conducted to consider any design modifications from the preliminary alternatives developed originally and to evaluate the interaction between intersection alternatives. Results of the traffic operations analysis are summarized in **Table 6-1** and **Table 6-2**. As shown, all intersections are expected to operate at a LOS C or better through forecast year 2045 with the implementation of the recommended improvements.

Table 6- 1. Recommended Alternatives Intersection Delay and LOS Summary – AM Peak Hour

	Alternatives	US 2		14th Street		17th Street		23rd Street	
		Short-term: FYA + Signal Improvement Long-term: Dual Left + Right Turn Geometrics		FYA + Signal Improvement		Roundabout		Roundabout	
Year	Scenario	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Year 2018	No Build	B / C	19.3 / 25.4	B / B	10.3 / 15.5	A / B	2.6 / 12.2	A / A	2.6 / 5.6
	Short-Term Alternative	C / D	24.7 / 41.5	--	--	--	--	--	--
	Long-Term Alternative	C / D	24.3 / 40.3	A / C	9.7 / 32.8	A / A	1.6 / 3.4	A / A	1.4 / 1.9
Year 2045	No Build	D / D	37.9 / 48.4	A / B	9.2 / 17.3	A / D	4.2 / 34.8	A / C	5.8 / 15.0
	Short-Term Alternative	D / D	38.6 / 54.3	--	--	--	--	--	--
	Long-Term Alternative	C / D	29.2 / 44.9	A / C	8.3 / 32.4	A / A	3.2 / 6.6	A / A	3.6 / 4.8

Overall Intersection LOS / Worst Approach LOS
Overall Intersection Delay / Worst Movement Delay

Table 6- 2. Recommended Alternatives Intersection Delay and LOS Summary – PM Peak Hour

	Alternatives	US 2		14th Street		17th Street		23rd Street	
		Short-term: FYA + Signal Improvement Long-term: Dual Left + Right Turn Geometrics		FYA + Signal Improvement		Roundabout		Roundabout	
Year	Scenario	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Year 2018	No Build	C / C	20.2 / 23.6	B / B	11.3 / 15.4	A / B	2.8 / 13.6	A / A	2.6 / 6.7
	Short-Term Alternative	C / D	25.9 / 40.9	--	--	--	--	--	--
	Long-Term Alternative	C / D	25.9 / 40.7	B / C	11.6 / 33.6	A / A	1.9 / 4.5	A / A	1.6 / 2.0
Year 2045	No Build	D / E	44.8 / 66.2	B / B	11.6 / 19.5	B / F	11.7 / 127.8	A / C	7.0 / 22.8
	Short-Term Alternative	D / E	39.7 / 58.2	--	--	--	--	--	--
	Long-Term Alternative	C / D	31.2 / 43.8	B / C	10.9 / 34.9	A / A	4.0 / 6.8	A / A	3.8 / 4.7

Overall Intersection LOS / Worst Approach LOS
Overall Intersection Delay / Worst Movement Delay

6.3 Safety Analysis

A safety analysis was completed for each of the recommended alternatives to investigate the anticipated change in crash type, severity and frequency. **Table 6-3** summarizes the estimated safety improvements.

Table 6- 3. Recommended Alternatives Intersection Safety Analysis

	US 2			14th Street		17th Street		23rd Street	
	No Build	Short-term: FYA + Signal Improvement	Long-term: Dual Left + Right Turn Geometrics	No Build	FYA + Signal Improvement	No Build	Roundabout (1)	No Build	Roundabout (1)
Observed/Estimated Crash Rate (Crashes/MEV)	1.27	0.95	0.92	0.70	0.50	0.71	0.32	0.54	0.32
Observed/Estimated Crash Severity Rate (Crashes/MEV)	1.90	1.47	1.42	0.94	0.63	0.81	0.37	0.80	0.42
Estimated Safety Improvement	--	**25% decrease in crash rate 23% decrease in crash severity**	**28% decrease in crash rate 25% decrease in crash severity**	--	**28% decrease in crash rate 33% decrease in crash severity**	--	**55% decrease in crash rate 55% decrease in crash severity**	--	**40% decrease in crash rate 47% decrease in crash severity**

(1) Minnesota Statewide Average for single lane roundabouts (MnDOT Study of Traffic Safety at Roundabouts, October 2017)

6.4 Construction Cost

Estimated construction costs were developed for the recommended intersection alternatives based upon the conceptual layouts. **Table 6-4** summarizes the construction cost estimates, project design and administration costs. It should be noted that the cost estimates included a 30 percent contingency to account for risk or any unknowns that may not be identified without more detailed engineering. The cost estimates are also based on a high-level conceptual layout, without supporting base mapping engineering detail to accurately account for actual construction limits, grading, drainage or other design considerations. Further preliminary engineering is necessary to refine the construction cost estimates suitable for project development.

Table 6- 4. Recommended Alternatives Cost Estimate

Intersection	Improvement Description	Construction Cost	Engineering, Admin, Utilities and Inspection	Total Cost
Mn 220 at 23rd Street NW	Roundabout	$2,932,850	$733,000	$3,665,850
Mn 220 at 17th Street NW	Short-Term: Crosswalk Improvements	$52,440	$13,000	$65,440
	Long-Term: Roundabout	$2,726,400	$682,000	$3,408,400
Mn 220 at 14th Street NW	Traffic Signal Replacement and Design Improvements	$300,000	$75,000	$375,000
Mn 220 at US 2	Short-Term: FYA Retrofit and Operation Im	$100,000	$25,000	$125,000
	Long-Term: Traffic Signal Replacement and Geometric Improvements	$2,999,576	$750,000	$3,749,576
Mn 220 at 9th to 10th Street NE	Lane Configuration Improvement	$18,540	$4,000	$22,540

(1) Construction costs are estimated year of estimate 2018

(2) Engineering, Administration, Utilities and Inspection are assumed to be 25% of the construction cost.

6.5 Benefit / Cost Analysis

An economic benefit/cost analysis was completed in accordance with the MnDOT Office of Investment Management, Benefit/Cost Analysis for Transportation Projects procedures, and assumes a 20-year analysis period. The monetary benefit of the project is quantified in terms of reduced (or increased) vehicle hours traveled (VHT) or less delay (or added delay) at the intersection and the reduced number and/or severity of estimated crashes over the analysis period between the no build conditions and the proposed alternatives. The estimated 20-year monetary cost includes construction costs, expected operational and maintenance cost over this period (e.g., lighting, street signs), and contingency. Remaining capital values of the infrastructure features at the end of the 20-year analysis period are subtracted from the total cost of the alternative. A summary of economic analysis for the recommended alternatives are presented in **Table 6-5**.

Table 6-5. Benefit/Cost Analysis

	US 2		14th Street	17th Street		23rd Street
	Short-term: FYA + Signal Improvement	Long-term: Dual Left + Right Turn Geometrics	FYA + Signal Improvement	Short Term: Pedestrian Crosswalk Improvement	Long Term: Roundabout	Roundabout
Total Traffic Operation Benefit	$ (1,922,257)	$ 5,067,945	$ 371,482	$ -	$ 2,314,202	$ 1,026,765
Total Safety Benefit	$ 2,111,426	$ 2,385,018	$ 1,955,479	$ -	$ 647,421	$ 990,747
Total Cost [(1)]	$ 81,664	$ 2,172,444	$ 244,993	$ 61,000	$ 1,906,927	$ 2,050,835
Benefit to Cost Ratio	**2.3**	**3.4**	**9.5**	**<0**	**1.6**	**1.0**

(1) Total cost is a 20 year estimate (2020-2040) that includes the discounted construction cost minus the remaining capital value at the end of the analysis period.

6.6 Further Design and Evaluation Need

The SRC, technical analysis and public engagement process has identified the importance of accommodating large truck traffic, motor coach vehicles and agricultural equipment that utilize the corridor. It is also recognized that future intersection design, safety, and multimodal considerations of an urbanizing corridor are of equal importance to Mn 220 and a balance must be met. Roundabouts were identified as the highest ranked intersection control at both 17th Street NW and 23rd Street NW as these designs best meet the purpose and need, improve intersections safety, provide the most efficient overall intersection mobility (considering 24-hour day and full calendar year), improve boulevard spacing between frontage roads, improve pedestrian accommodations and result in the best benefit to cost ratios. However, accommodating large trucks and agricultural equipment is necessary and key challenge for the roundabout design. Expected large trucks WB-67 (or 75-foot combination) and common agricultural equipment were evaluated within the roundabout concepts for key travel routes as shown in Appendix A. The evaluation is completed at a conceptual level for known vehicles and routes at the time of this study. Based on this evaluation the roundabouts are expected to be feasible intersection designs to program for; however, further preliminary engineering is needed to fully vet the final design, utilities, and vehicle type accommodations that otherwise cannot be fully evaluated at the conceptual planning level. Recommended future steps and anticipated design refinements for the roundabout alternatives are recommended:

- Undertake an intersection preliminary engineering design study in advance of the programmed construction year for both the 17th Street and 23rd Street intersection improvements to develop a staff approved design layout and final intersection control recommendations.
- Conduct further property and stakeholder outreach to ensure all the key truck vehicle types, agricultural equipment and primary travel routes are evaluated and designed for.

23rd Street NW

Expected design considerations that will be better evaluated during preliminary and final design may include:

- Curb to curb widths for approach and exiting lanes of sufficient width to fit the largest expected wheel bases.
- Refine curb radii, splitter islands, entry and exit angles.
- Based on available right of way and frontage road separation, it is anticipated that the roundabout diameter could be increased at this location as necessary to accommodate the expected vehicle types.
- Right size the truck apron and central island for tractor tracking and vehicle mounting as appropriate.
- Maintain vertical clearance and roadway set-backs of roadway signing, lighting or other boulevard items to accommodate oversized agricultural equipment. Keep signing and other vertical elements out of splitter islands to the extent feasible.
- Consider mountable curb on splitter islands or corners as necessary to accommodate the design vehicles.

17th Street NW

Expected design considerations that will be better evaluated during preliminary and final design may include:

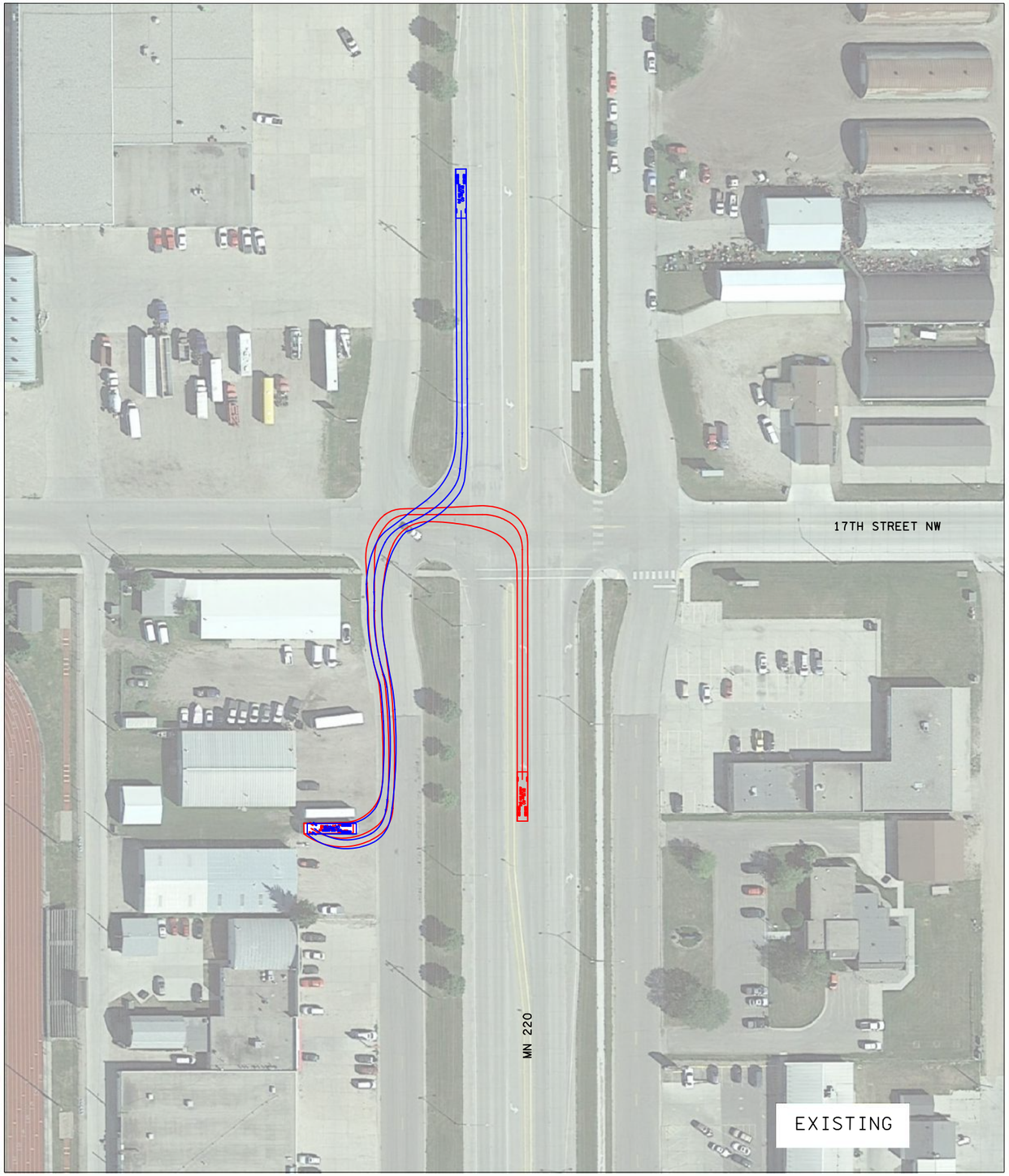
- Continue the engagement with area property owners to fully address and develop options and vehicle circulation routes for the southbound west frontage road to southbound Mn 220 right turn movement (only movement that cannot accommodate large trucks) and the through movement restriction on the east frontage road with the splitter island. This may include identifying alternative circulation routes, utilization of other street access, or consideration of constructing alternative right turn access to/from Mn 220
- Curb to curb widths for approach and exiting lanes of sufficient width to fit the largest expected wheel bases.
- Explore additional options to maximize the roundabout diameter as necessary to accommodate the expected vehicle types.
- Right size the truck apron and central island for tractor tracking and vehicle mounting as appropriate.
- Maintain vertical clearance and roadway set-backs of roadway signing, lighting or other boulevard items to accommodate oversized agricultural equipment. Keep signing and other vertical elements out of splitter islands to the extent feasible.

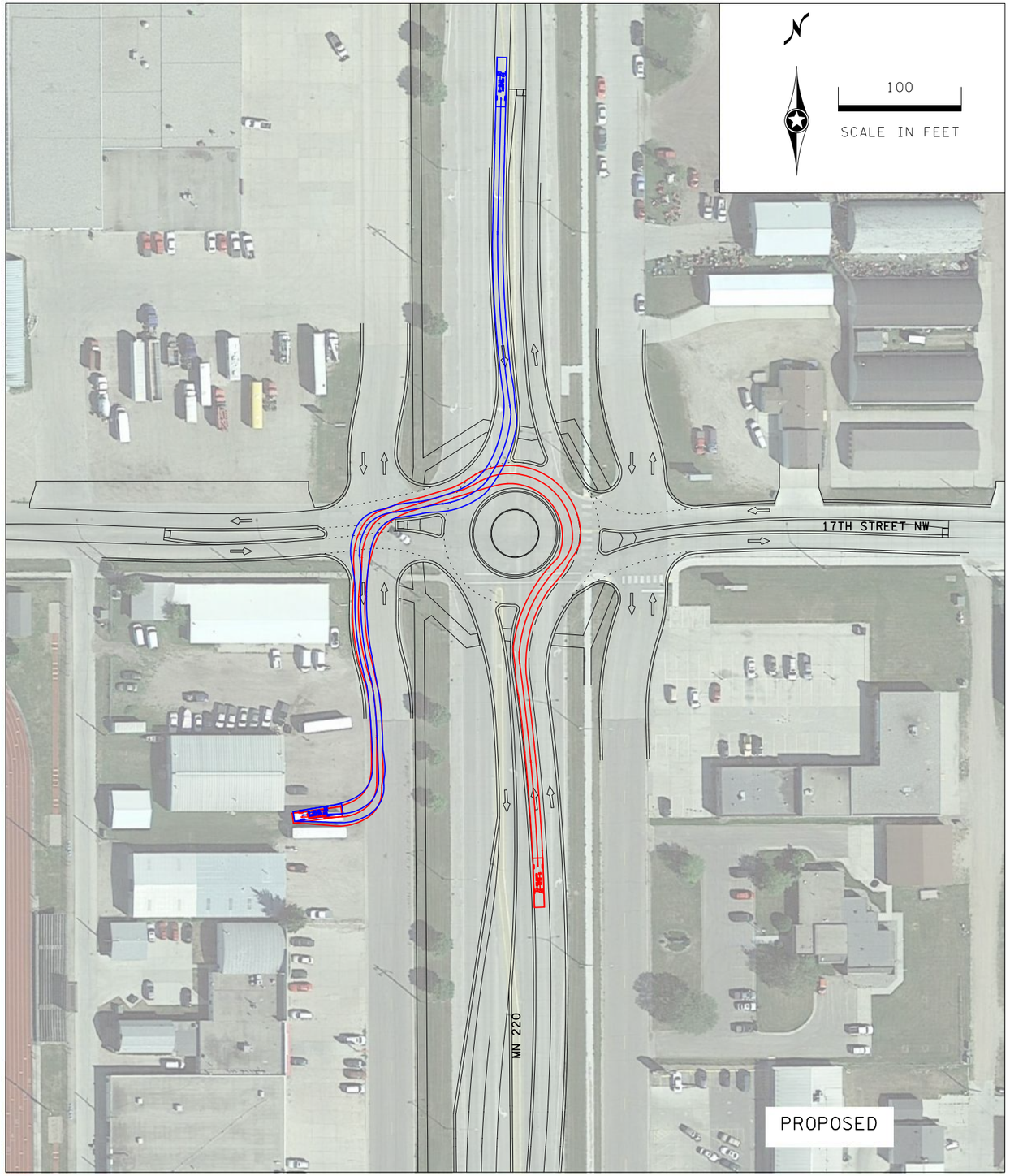
- Consider mountable curb on splitter islands or corners as necessary to accommodate the design vehicles.

Although lower ranked, a traffic signal system to a lesser degree meets the project purpose and need and may be a feasible long-term alternative solution should preliminary engineering and further stakeholder/community engagement determine that to ultimately be the best control.

Appendix A:

Truck Turning Movements





MN 220 Corridor Study

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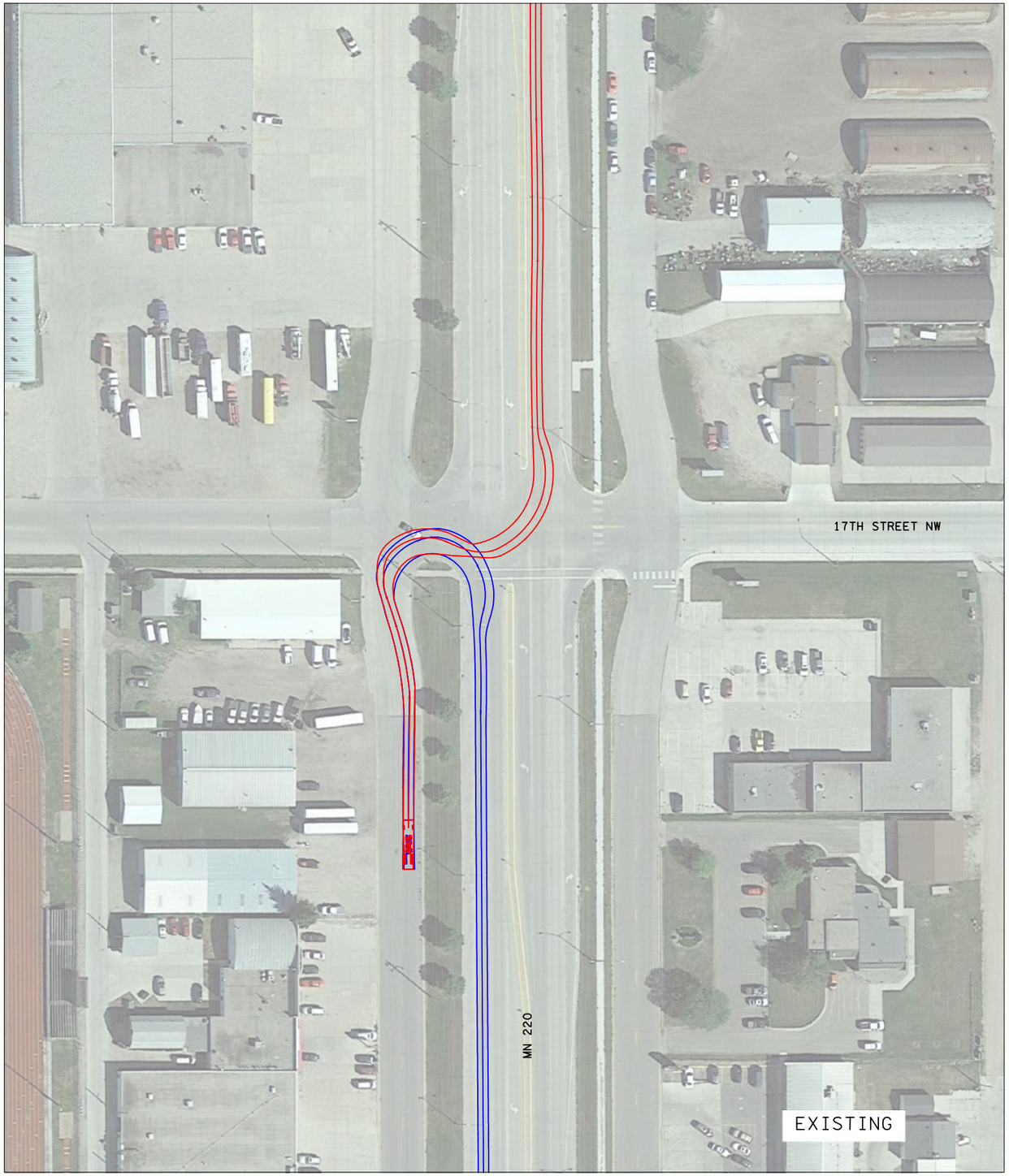
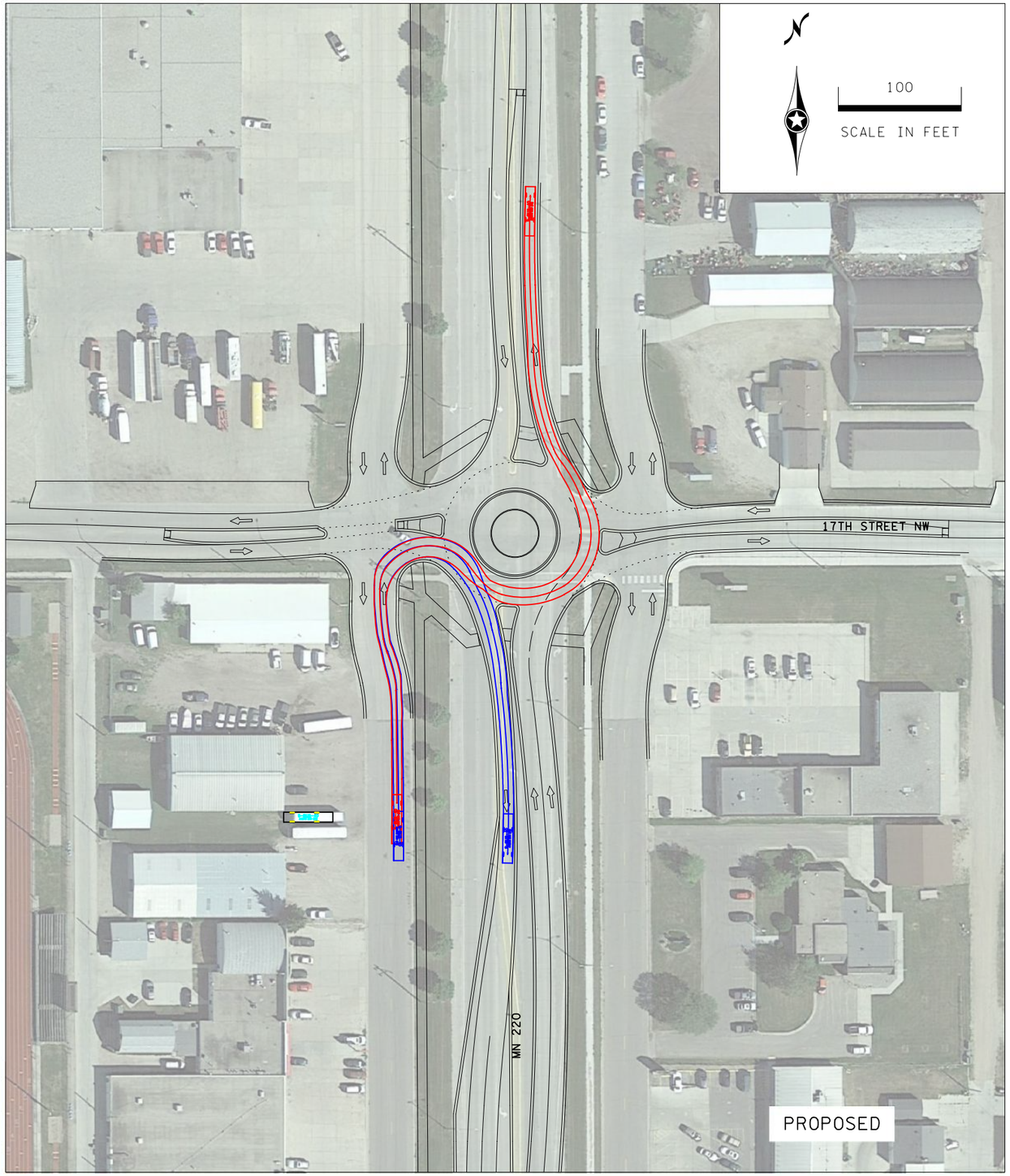
MN 220/17th Street NW
40' Bus Turn Movements Into Triangle Bus





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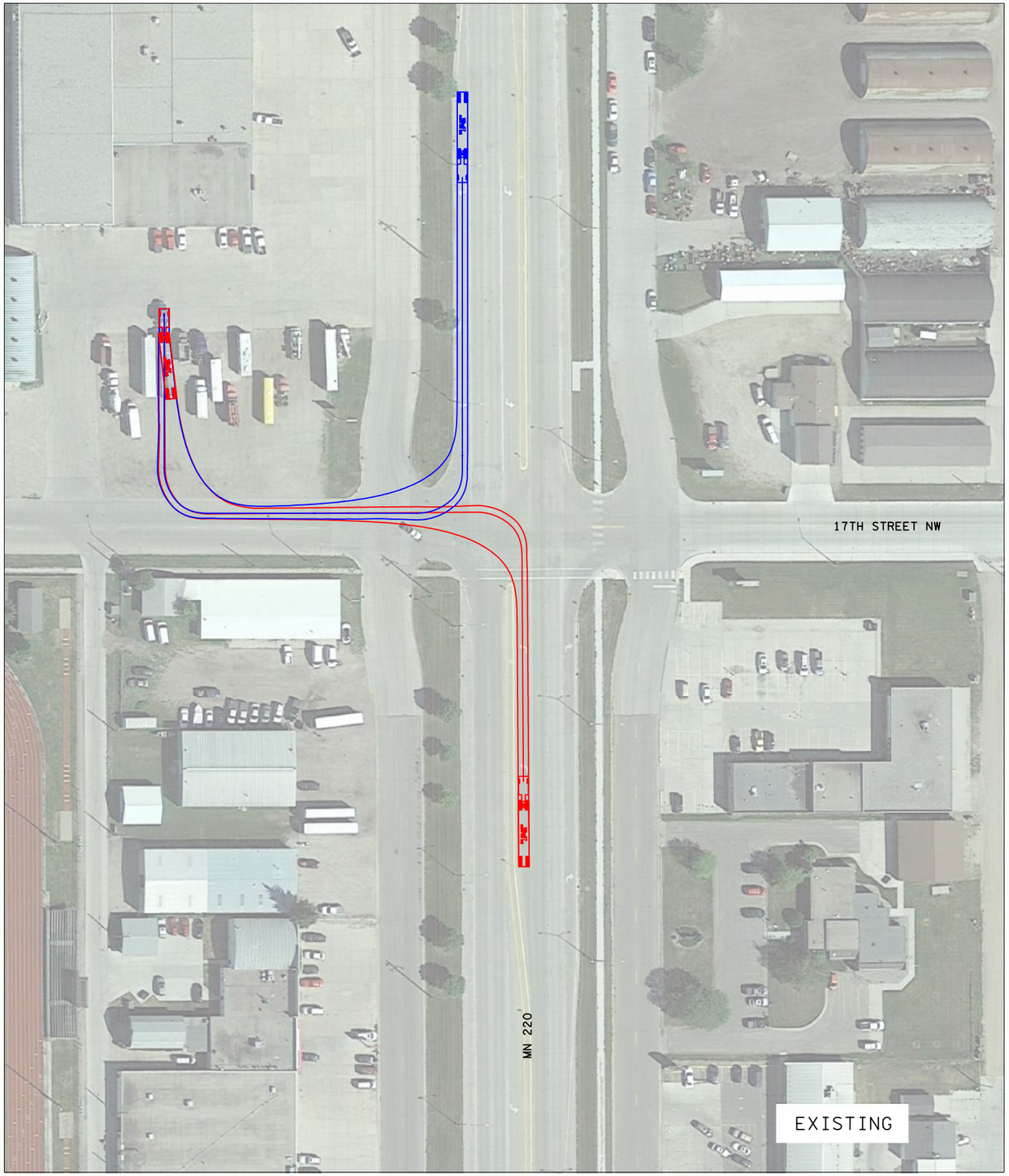
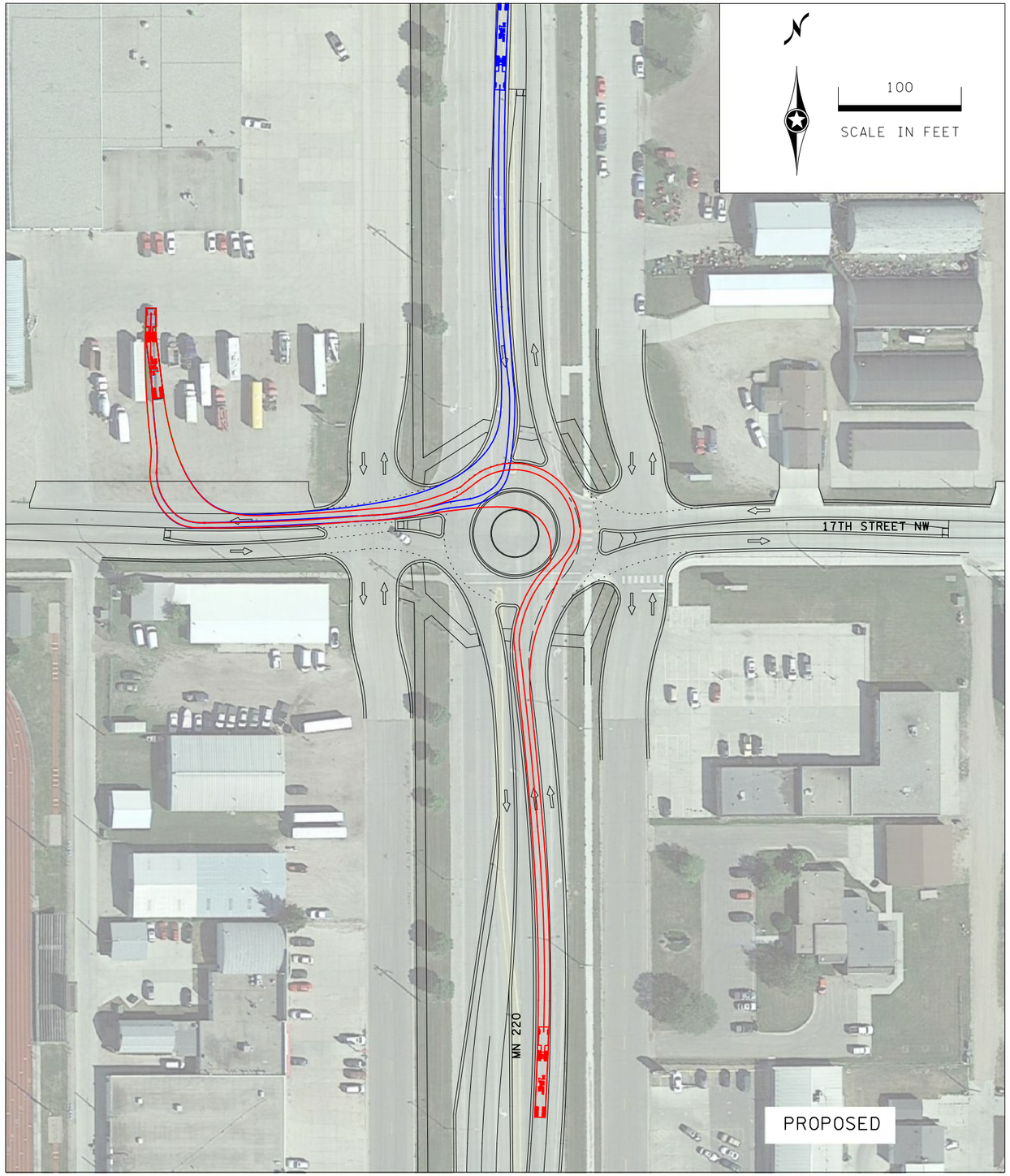
MN 220/17th Street NW
40' Bus Turn Movements Out of Triangle Bus





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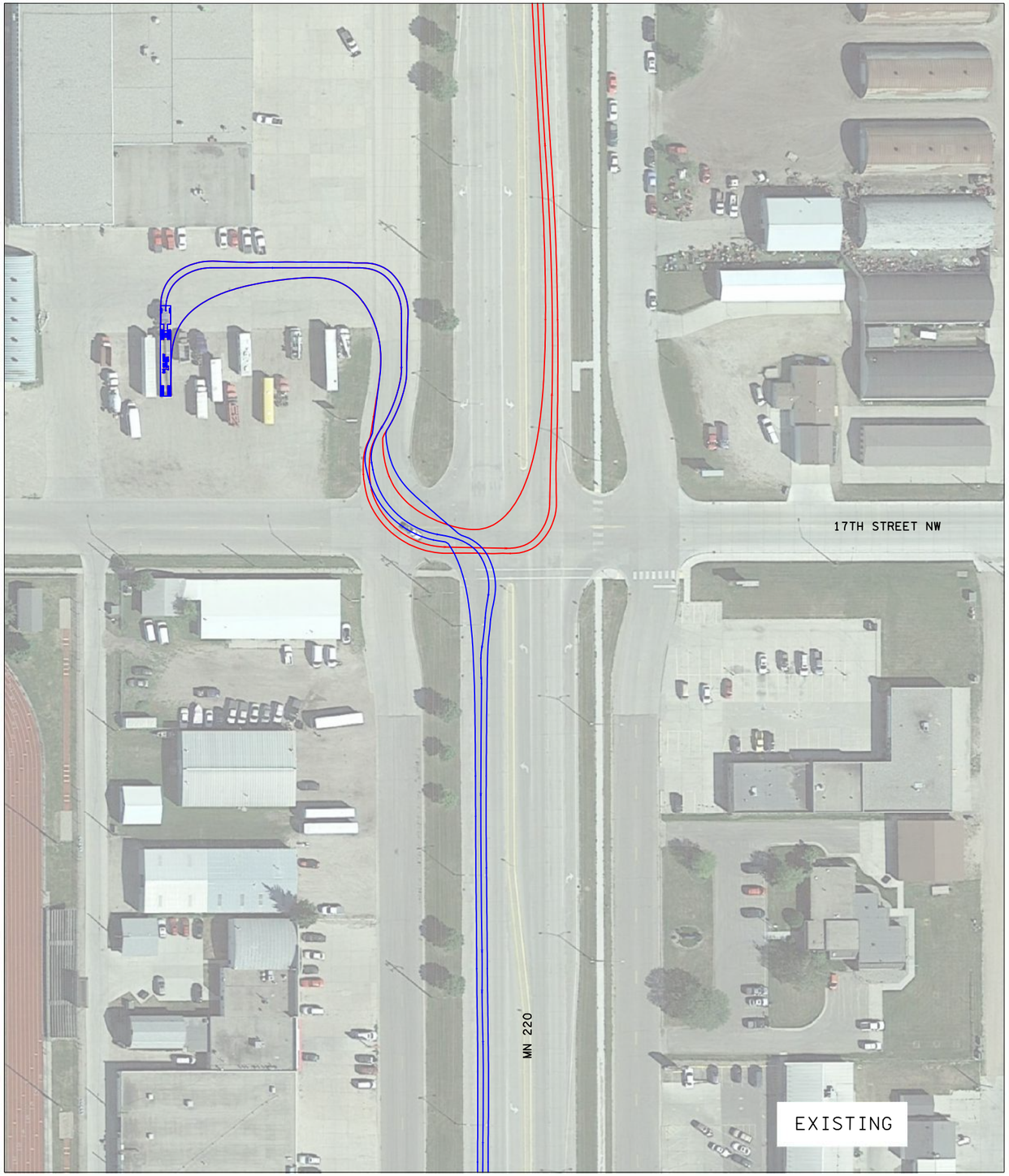
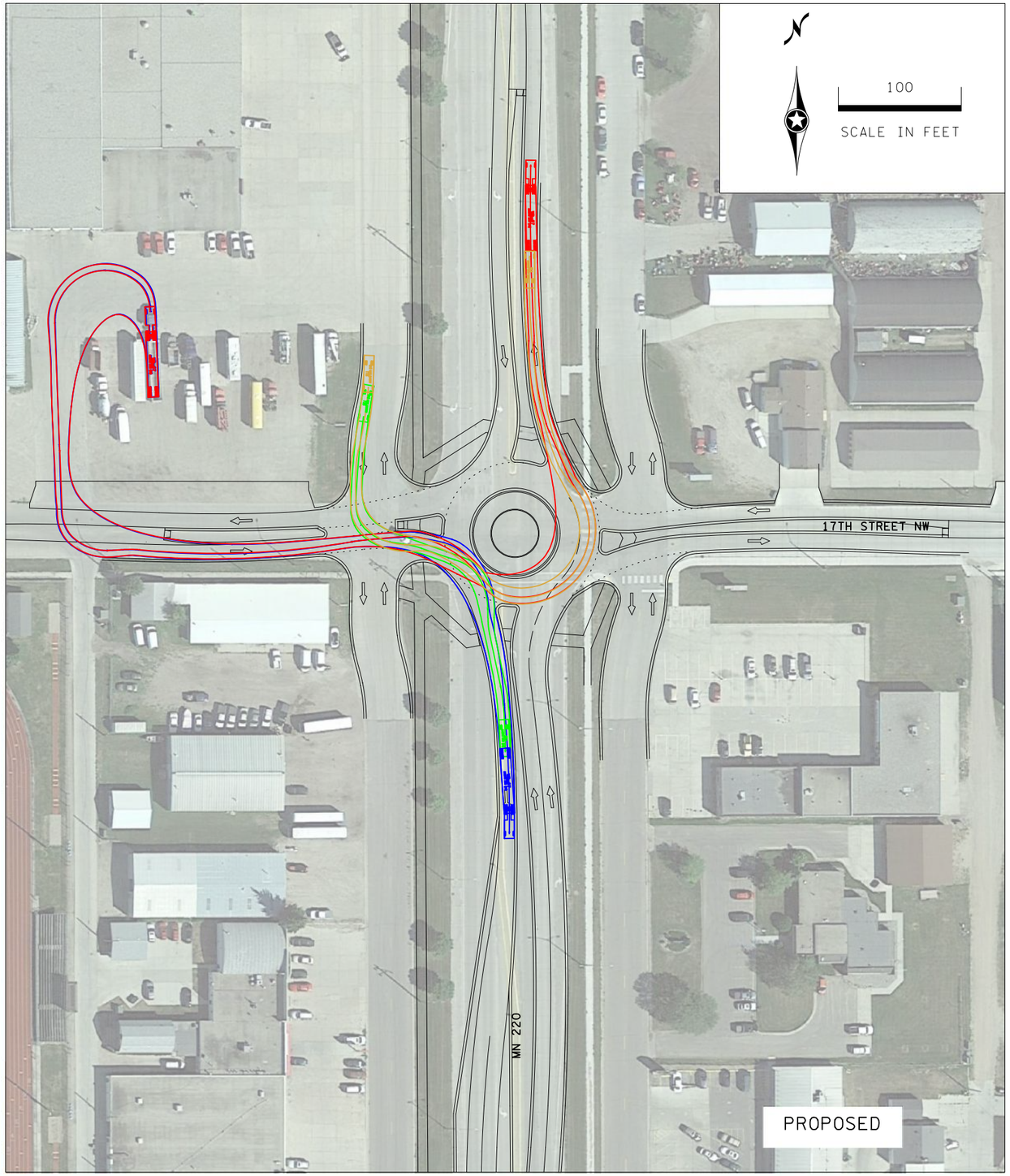
MN 220/17th Street NW
WB 67 Turn Movements Into Valley Truck





MN 220 Corridor Study

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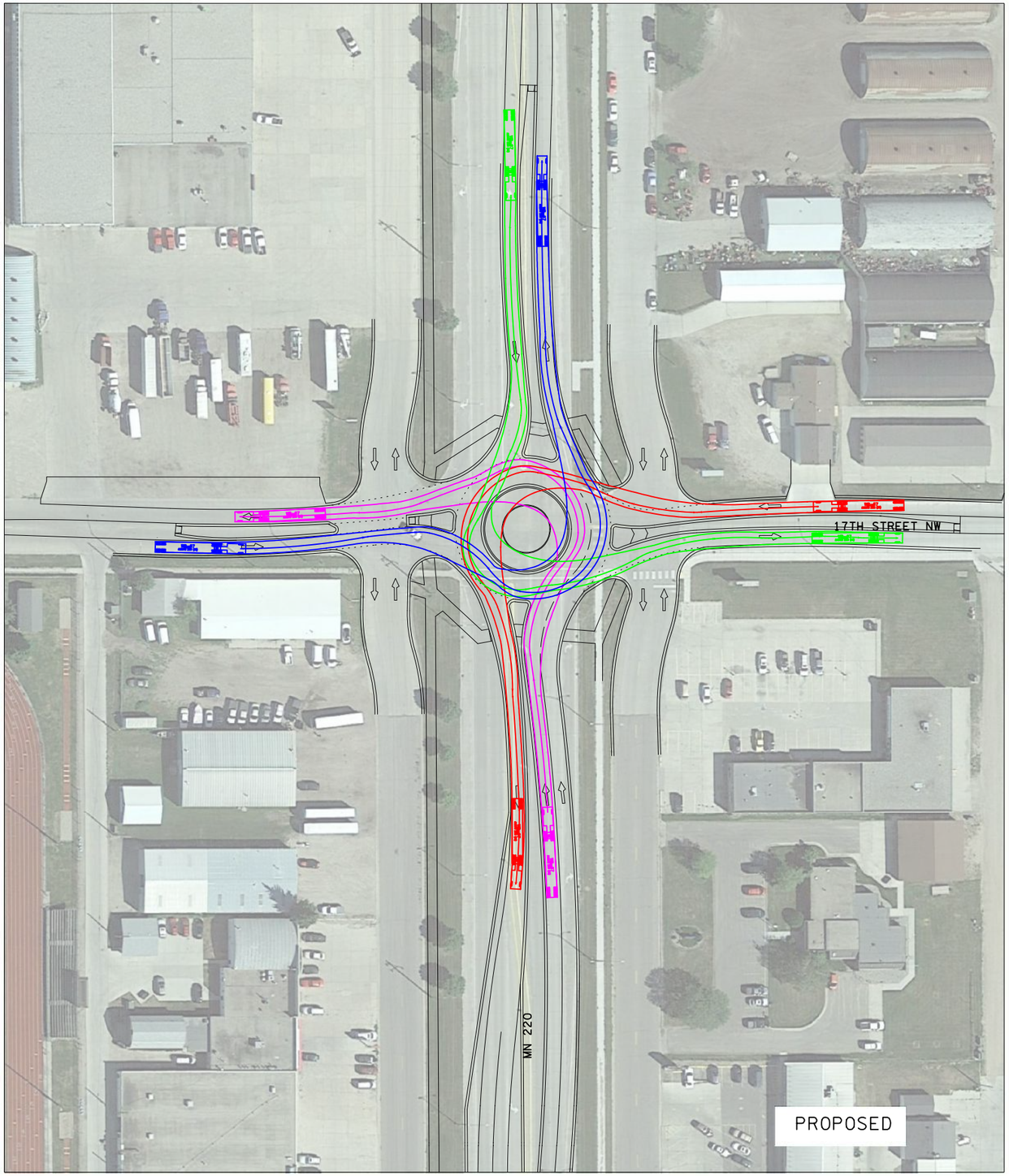
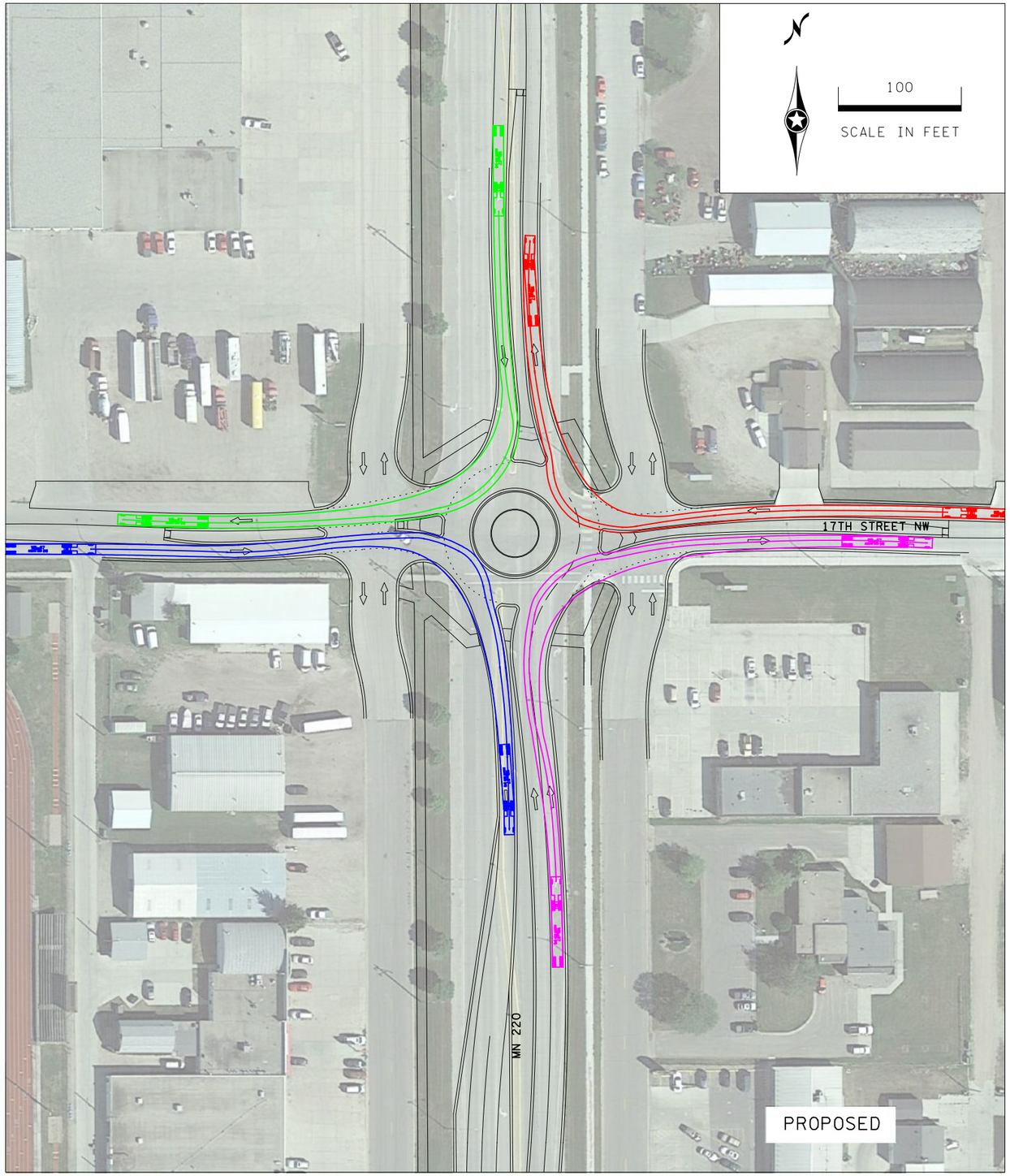
MN 220/17th Street NW
WB 67 Turn Movements Out of Valley Truck





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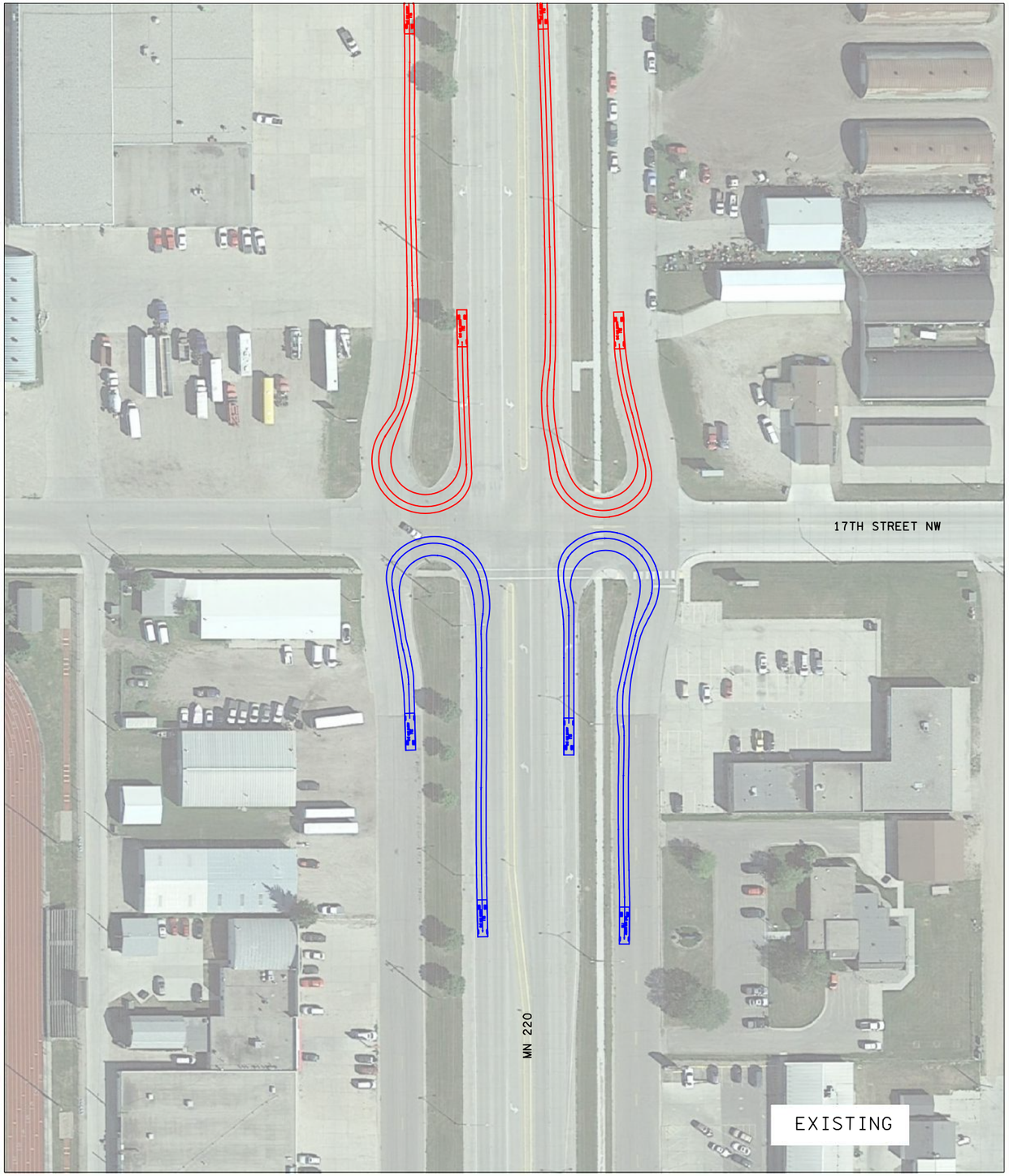
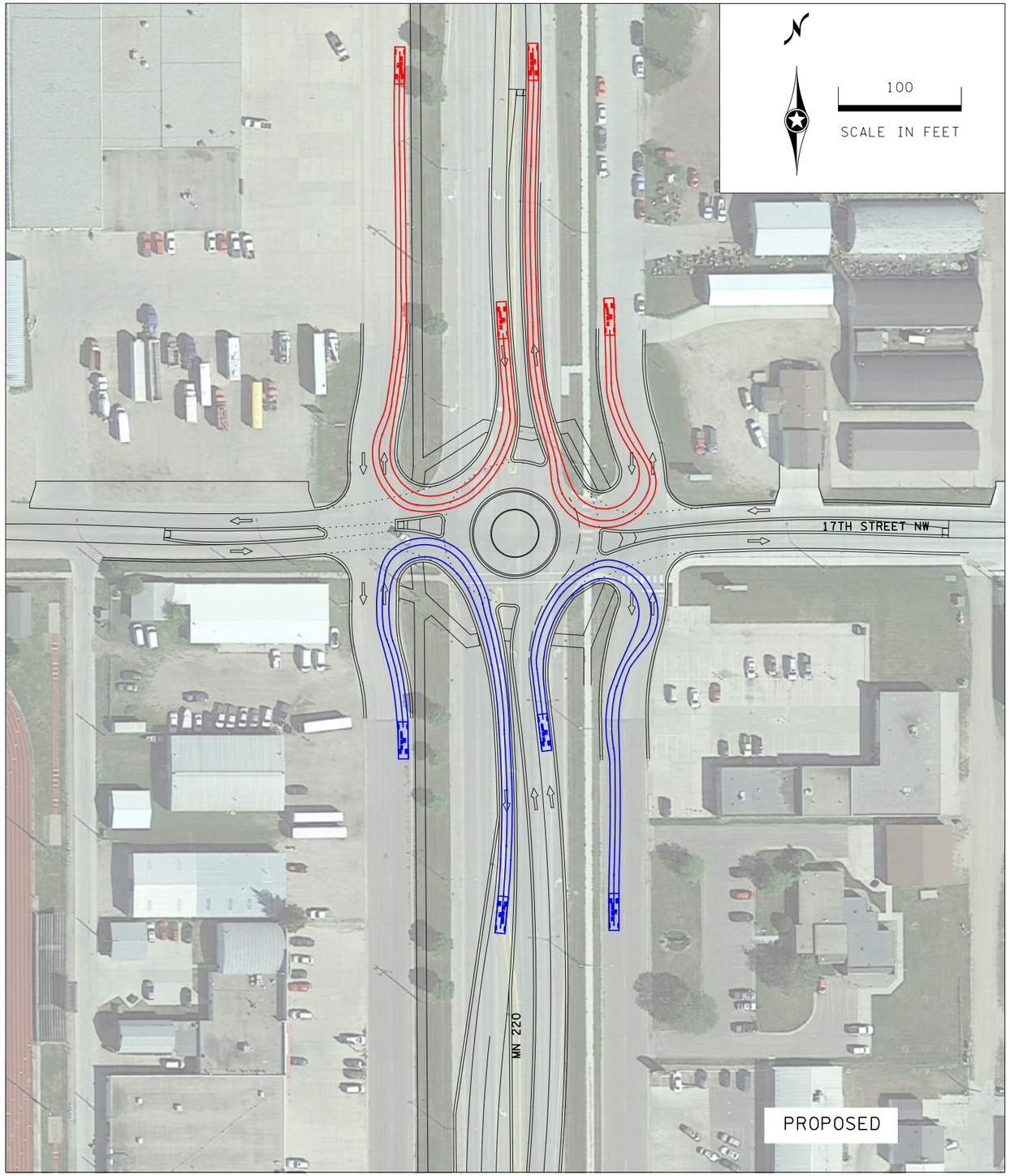
WB 67 Left Turn Movements

WB 67 Right Turn Movements

MN 220/17th Street NW
WB 67 Turn Movements





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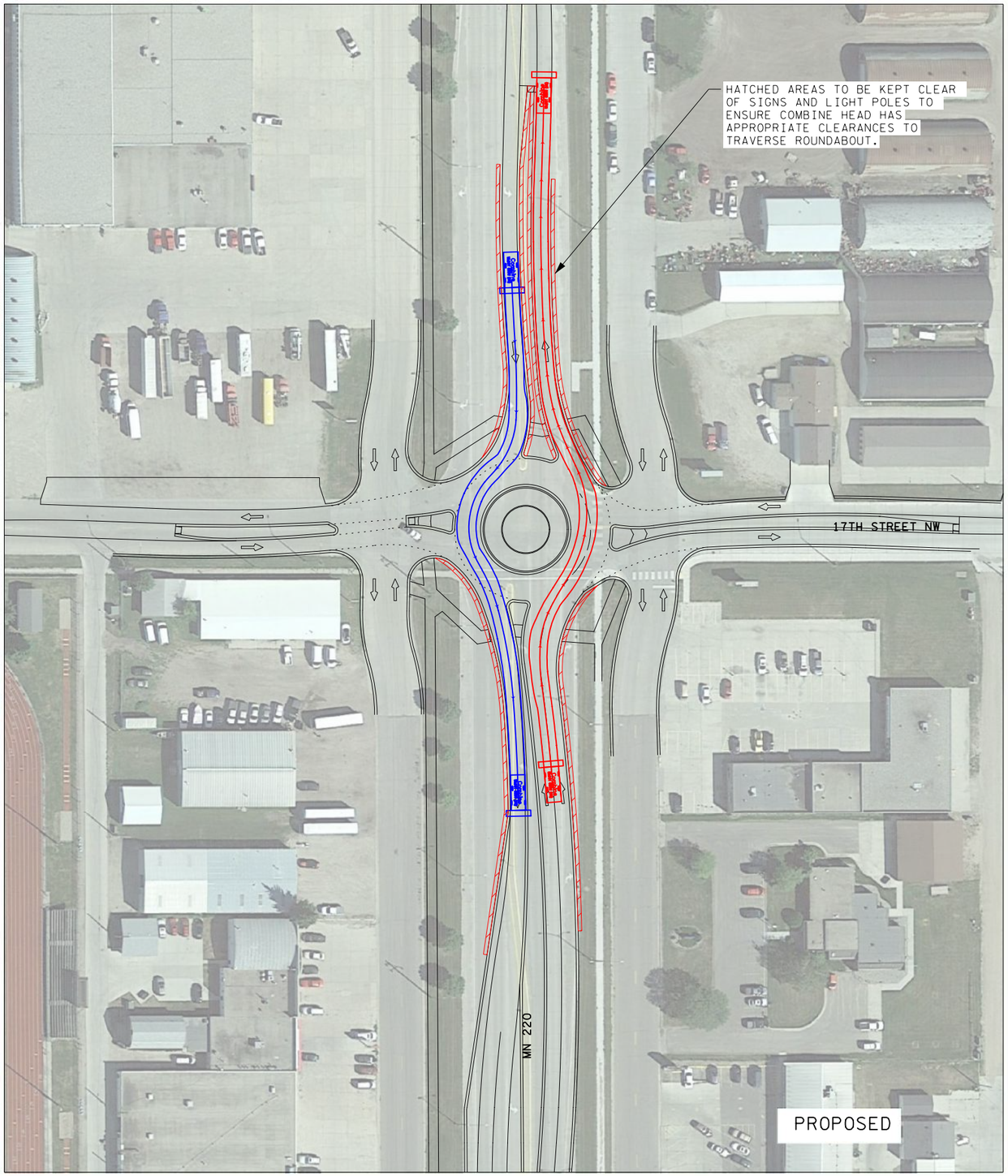
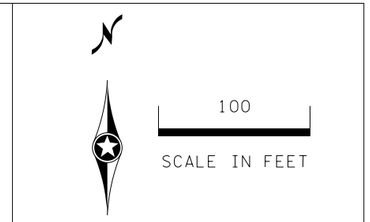
MN 220/17th Street NW
SU Double Right Turn Movements





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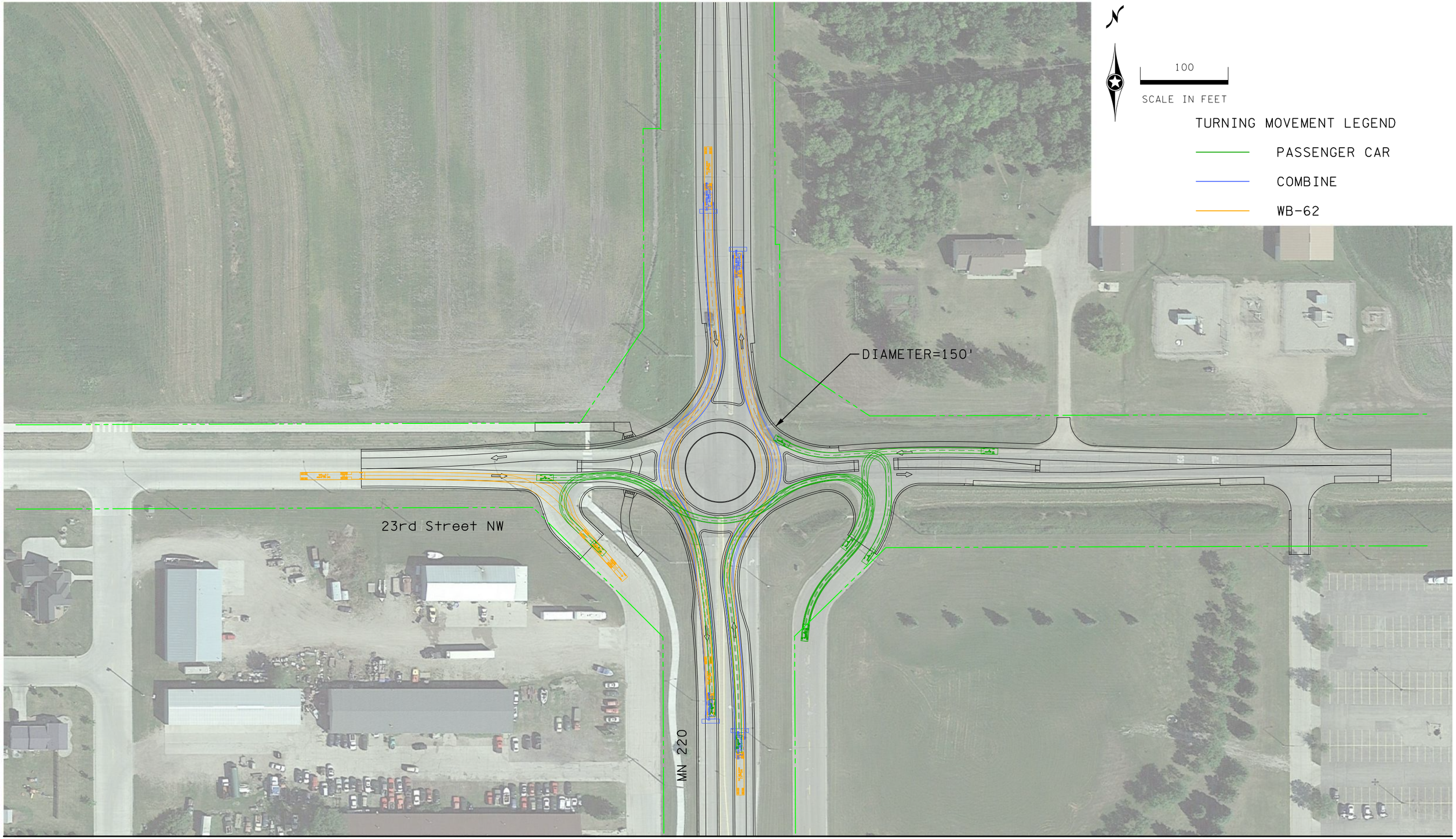
MN 220/17th Street NW
Combine Through Movements



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MN 220/23rd Street NW
Alternative B - Single Lane Roundabout
Turning Movements