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South Loop Roadway Infrastructure Improvement Study

Prepared for

City of Bloomington



January 2017

SRF No. 0169190

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Executive Summary

An update to the traffic evaluation has been completed to the Alternative Urban Areawide Review (AUAR) for the South Loop District in the City of Bloomington. The South Loop District is bounded by I-494 to the north, TH 77 to the west and the river to the south and east. The main study goals are to collect updated traffic counts and land use projections throughout the South Loop District, identify transportation issues, recommend improvements, and develop conceptual layouts and cost estimates.

Existing Conditions

The existing conditions were evaluated to identify current transportation issues and to establish a baseline for comparison with future development within the South Loop District. The evaluation of existing conditions includes a review of non-motorized, transit, and motorized facilities.

Existing pedestrian/bicyclist volumes and facilities were reviewed for the South Loop District. The main goal of this evaluation was to identify high volume pedestrian and bicycle locations and to identify missing connections (bicycle routes, trails, sidewalks and pedestrian crossings) within the District.

The Blue Line Light Rail Transit (LRT) operates through the South Loop District. In addition the South Loop District is well served by bus routes (local, express, bus-rapid-transit) providing access to/from the South Loop District to much of the Twin Cities area. Existing transit facilities were accounted for in the traffic operations analysis.

Intersection turning movement counts were collected at 36 intersection in the South Loop District. Three peak hour volume sets were valuated including the weekday a.m., weekday p.m., and Saturday peak hours. The intersection volumes were adjusted to represent an 85th percentile day, which is understood to represent the typical weekday/Saturday peak hour volume during the back to school shopping season, which is typically the threshold used to conduct traffic operations analysis for traffic studies near the Mall of America (MOA).

The traffic operations analysis was conducted using PTV Vissim, which is an effective tool to analyze LRT operations, pedestrians and roundabouts. Results of the existing capacity analysis indicate that all study intersections currently operate at an acceptable overall LOS D or better during the peak hours, with the existing traffic control, geometric layout, and signal timing. Note that the results of the traffic simulation were consistent with field observations including locations where poor lane utilization occurs, which results in queueing issues.

Traffic Forecasts

Year 2025 and year 2040 traffic forecasts account for background growth, travel pattern shifts due to construction of the 77th Street connection, future traffic expected to be generated by expansions to MSP Airport, and trips generated by the expected land use changes in year 2025 and year 2040 within the South Loop District.

Trip generation estimates were developed for existing, year 2025 and year 2040 based on the current and future development expected to occur in the South Loop District. The future development land use assumptions are consistent with the AUAR. Trip rate data were obtained from a combination of the *Institute of Transportation Engineer (ITE) Trip Generation Manual, 9th Edition*, peak hour driveway counts conducted locally, and engineering judgment. Modal reductions due to trips arriving via transit, carpool, or walk/bike and multi-use reductions accounting for trips utilizing one or more land uses were also included in the trip generation analysis.

Year 2025 Conditions

Year 2025 conditions were evaluated to identify if/where improvements to the existing roadway network will be needed to accommodate future traffic forecasts. Once again non-motorized traffic, transit, and motorized traffic were reviewed.

Based on the Bloomington Alternative Transportation Plan (ATP) a number of priority improvements related to the pedestrian/bicyclists facilities in the South Loop District were identified. These included expansion of the Nine Mile Creek Regional Trail through the South Loop District as well as improvements to the American Boulevard and East Old Shakopee Road corridors to continue the pedestrian-way enhancements.

The MOA Transit Station renovations are expected to be completed by year 2025. The renovations plan to improve efficiency of bus operations, simplify access for mass transit vehicles, provide clear and convenient pedestrian access, improve the aesthetics, and increase the exterior visibility and presence of the station.

To determine if the existing roadway network can accommodate year 2025 traffic forecasts, a detailed traffic capacity analysis was completed. Study intersections were once again analyzed using Vissim. Results of the year 2025 operations analysis indicate that a number of intersection are expected to have traffic operation issues under year 2025 conditions without improvements. To address the operational issues, 13 improvements were identified.

Concepts and Preliminary Cost Estimates

Based on the year 2025 land use assumptions, the improvements identified below are the highest priority and most likely to be needed by year 2025 conditions. With these improvements all study intersections are expected to operate at LOS D or better under year 2025 conditions. Illustrations of concepts are provided at the end of the Executive Summary.

Priority 1 Improvement: I-494/24th Avenue

This concept includes a second northbound right-turn lane at the I-494/24th Avenue interchange by converting an existing through lane to a shared through/right-turn lane. The northbound right-turn is also proposed to be signalized since there will be three lanes merging into two lanes on the eastbound I-494 on ramp. The northbound right-turn phase is proposed to overlap with all phases except the southbound left-turn phase.

This concept has a preliminary cost estimate of \$500,000.

Priority 2 Improvement: I-494/34th Avenue

This concept adds another northbound right-turn lane at the I-494/34th Avenue interchange by converting an existing through lane to a shared through/right-turn lane. The northbound right-turn and southbound left-turns are also proposed to be signalized since there will be four lanes merging into three lanes on the eastbound I-494/TH 5 on ramp. The northbound right-turn movement would overlap with the following existing phases: 1, 3, 4, 7, and 8. To reduce the likelihood of southbound queues extending into the I-494/34th Avenue North Crossover intersection, a “dummy phase” will need to be added to clear the southbound left-turn movement through the interchange. The northbound right-turn phase is proposed to overlap with all phases except the southbound left-turn.

An alternative to signalizing the northbound right-turn and southbound left-turn movements at the I-494/34th Avenue interchange would be to add two additional lanes to the eastbound I-494/TH 5 on ramp. This would allow for the two northbound right-turn lanes and two southbound left-turn lanes to make their respective movements concurrently without conflicting with each other.

In addition to the second northbound right-turn lane at the I-494/34th Avenue interchange, the following improvements are proposed at the 34th Avenue/American Boulevard intersection:

- Eliminate the eastbound/westbound left-turn path overlap to provide the opportunity to implement protected/permitted phasing and also allow the left-turn phases to time concurrently.
- Reduce the eastbound through to one lane and shift the eastbound left-turn lanes south. The length of the inside eastbound left-turn lane is also proposed to be extended.
- Reduce the westbound through to one lane and shift the westbound left-turn lane south.
- Extend the eastbound left-turn lanes to 33rd Avenue.
- Increase the pedestrian storage area near the LRT stations on the north and south sides of the intersection.

This concept has a preliminary cost estimate of \$1,175,000.

Priority 3 Improvement: Killebrew Drive/20th Avenue

This concept converts one southbound left-turn lane into a right-turn lane. The southbound right-turn also becomes signalized and overlaps with the eastbound left-turn. No Right Turn on Red (RTOR) is proposed; this configuration and operation is similar to the Lindau Lane/IKEA Way and Lindau Lane/22nd Avenue intersections on the north side of the MOA.

This concept has a preliminary cost estimate of \$275,000.

Priority 4 Improvement: Signal Timing

Signal timing improvements are expected to be needed at 15 of the study intersections to better accommodate the year 2025 traffic forecasts. The need for signal timing improvements is based on when adjacent development occurs.

The cost to retime these signals would be approximately \$45,000 (approximately \$3,000 per signal).

Priority 5 Improvement: Lindau Lane/IKEA Way and Lindau Lane/22nd Avenue

This concept modifies the existing southbound right-turn cat-tracking at the Lindau Lane/IKEA Way intersection and adds cat-tracking to the southbound right-turn at Lindau Lane/22nd Avenue. The cat-tracking should align the easternmost southbound right-turn lane with the southernmost westbound lane. Based on the downstream ramps, the southern and middle westbound lanes are the heaviest utilized lanes; the northern westbound lane leads to eastbound I-494, which is the least utilized ramp. It is not proposed to update the northbound left-turn cat-tracking at the Lindau Lane/IKEA Way intersection since shifting the cat-tracking south would increase the total number of vehicles in the southern lane exiting the MOA, causing additional delay for northbound through and right-turn vehicles due to the northbound left-turn queues spilling back from the turn lanes. Wayfinding will also need to be updated accordingly.

Priority 6 Improvement: American Boulevard/International Drive

This concept converts the American Boulevard/International Drive intersection to three-quarter access (no left-turns or through movements from the side-street). The American Boulevard/Metro Drive intersection is also proposed to be converted to a roundabout as part of this concept to facilitate the required U-turn for southbound vehicles on International Drive that are destined for the east. Converting the American Boulevard/Metro Drive intersection to a roundabout will also allow for the northbound approach to be added in the future once development occurs to the south of American Boulevard.

This concept has a preliminary cost estimate of \$1,350,000.

Priority 7 Improvement: 24th Avenue (I-494 to 82nd Street)

This concept consists of restriping and median work to improve lane utilization and better position drivers for downstream movements. As part of this, triple westbound left-turns are proposed at the I-494/24th Avenue interchange. A second eastbound right-turn lane at the interchange and signalization of this movement are proposed. The eastbound right-turn lane would overlap with all phases except the westbound left-turn and southbound through phases.

While a few existing channelized right-turn lanes are shown removed since they are not needed from a capacity perspective, right-turn channelization along 24th Avenue should be reevaluated during the design phase to potentially remove additional channelized right-turns. Several add-in lanes are also removed since the additional capacity is not needed and the existing add-in lanes place vehicles in lanes that drop downstream, requiring vehicles to weave shortly after entering 24th Avenue.

The existing roadway right-of-way should be maintained on 24th Avenue to accommodate a north/south on-street bicycle facility. Further review is needed to assess the feasibility of constructing bike lanes on 24th Avenue and also the potential type (e.g. two-way or one-way, type of separation from traffic, location along 24th Avenue, etc.).

This concept has a preliminary cost estimate of \$4,750,000.

Priority 8 Improvement: Killebrew Drive/22nd Avenue

This concept consists of restriping the northbound and southbound shared left-turn/through lanes to a through lane. A single left-turn lane on both approaches is expected to adequately accommodate the traffic; left-turn path overlap is also eliminated by removing the outside left-turn lane. Since there would not be any path overlap with the lane use adjustments, the northbound and southbound approaches would not need to operate split-phase, improving the efficiency of the signal operations.

This concept has a preliminary cost estimate of \$50,000.

Priority 9 Improvement: East Old Shakopee Road/28th Avenue

There are two intersection control improvements that were considered at the East Old Shakopee Road/28th Avenue intersection to mitigate the delay for southbound left-turning vehicles:

- Signalizing the intersection
- Multi-lane roundabout (2x1)

Both of these concepts would improve operations and allow side-street vehicles to enter traffic on East Old Shakopee Road. Both of these alternatives are expected to provide acceptable operations in year 2040. It was assumed that the northbound approach would not exist by year 2025; however, the design of the signalized intersection or roundabout should allow for the northbound approach to be constructed in the future with minimal change.

This concept has a preliminary cost estimate of \$825,000 and \$1,175,000 for the traffic signal and roundabout concepts, respectively.

Priority 10 Improvement: Killebrew Drive/East Old Shakopee Road/24th Avenue

This concept consists of restriping the westbound approach and modifying the curb on the westbound approach of the East Old Shakopee Road/24th Avenue intersection so the three westbound lanes maintain lane continuity through the intersection. This concept develops a westbound right-turn lane where the westbound lane currently drops and is forced to turn right.

This concept has a preliminary cost estimate of \$75,000.

Priority 11 Improvement: East Old Shakopee Road/33rd Avenue

This concept consists of adding a marked pedestrian crossing across East Old Shakopee Road between 33rd Avenue and 31st Avenue to better accommodate pedestrians at one of the busiest crossing in the South Loop District. The proposed pedestrian crossing is a two-stage crossing that provides storage in the median of East Old Shakopee Road for pedestrians. The concept proposes Rectangular Rapid Flash Beacons (RRFBs) at the crossing to increase the visibility of the crossing to drivers. A High Intensity Activated crosswalk (HAWK) should also be considered.

This concept has a preliminary cost estimate of \$250,000.

Priority 12 Improvement: American Boulevard/30th Avenue

This concept is to install a traffic signal at the American Boulevard/30th Avenue intersection once warranted and if the side-street traffic has difficulties finding acceptable gaps in traffic on American Boulevard. The geometry of the intersection is already setup to be signalized, so minimal geometric modifications would be required to signalize the intersection.

This concept has a preliminary cost estimate of \$625,000.

Priority 13 Improvement: American Boulevard/28th Avenue

This concept changes the lane utilization of the northbound approach at the American Boulevard/28th Avenue intersection. Currently there is one northbound left-turn lane, two northbound through lanes, and one channelized right-turn lane. The two northbound through lanes lead to a service road for the airport, which is seldom used. To increase the capacity of the northbound approach and align the northbound through movement with the receiving lane, this concept converts the western northbound through lane to shared left-turn/through lane and the eastern northbound through lane is converted to the right-turn lane. The channelized northbound right-turn is also removed to improve the safety of pedestrians

This concept has a preliminary cost estimate of \$475,000.

Year 2040 Conditions

Year 2040 conditions were evaluated to identify if/where additional improvements to the concepts identified under year 2025 conditions will be needed to accommodate future traffic forecasts.

Planned regional trail and corridor improvements should continue to be a priority for the South Loop District. Concepts developed for intersection and corridor improvements should take into consideration the alternative transportation plans for the South Loop District and look for opportunities to improve the connectivity of the pedestrian/bicyclist system as well as provide safer pedestrian/bicyclist crossing locations. As funding and right-of-way becomes available, steps should be taken to aid in the development of pedestrian/bicyclist regional and local plans.

While no changes were assumed to the transit routes/frequencies from existing conditions to year 2040 conditions, if LRT were to be selected as the preferred transit type for the Riverview Corridor, the alignment would likely follow the Blue Line LRT tracks/stops within the South Loop District. If the frequency of LRT crossing events were to increase, additional intersection capacity improvements would likely be needed. Grade separated crossings or intersections would need to be considered at the at-grade LRT crossings at both the American Boulevard/34th Avenue and 24th Avenue/Killebrew Drive intersections.

To determine if the roadway network with the improvements identified under year 2025 conditions can accommodate year 2040 traffic forecasts, a detailed traffic capacity analysis was completed. Study intersections were once again analyzed using Vissim. Results of the year 2040 operations analysis indicate that a number of intersection are expected to have traffic operation (delay and/or queuing) issues under year 2040 conditions without additional improvements.

To address the traffic operational issues under year 2040 conditions, improvements were identified for consideration. It is important to note that due to the uncertainty of the year 2040 forecasts the improvements listed below are considerations. Once detailed development plans are available and more is known about driverless vehicle technology the improvements listed below should be re-evaluated.

- 24th Avenue/79th Street – if opportunity arises, consider closing this intersection.
- I-494/Thunderbird Ramp Eastbound Ramp
- 24th Avenue/American Boulevard – extend the eastbound left-turn lane
- Killebrew Drive/20th Avenue – the eastbound through lane of the MOA circulatory roadway should be evaluated for potential to convert to a shared through/right-turn lane. This would eliminate the hatched out pavement area as this would become a traffic lane. The triangular median between the circulatory roadway and MOA entrance could be expanded to the east to reduce the southbound approach to one lane and eliminate the need for additional traffic control.
- I-494/34th Avenue Interchange – triple southbound right-turns, triple westbound left-turns, triple northbound through lanes at the north crossover intersection and triple eastbound right-turns and triple northbound right-turns at the south crossover intersection. Between the north and south crossover on 34th Avenue, there are four lanes in each direction.
 - Regional improvements, such as expanding the capacity of the westbound I-494 and TH 5 off-ramps, will also be needed to carry the demand at the I-494/34th Avenue interchange.
- 34th Avenue/American Boulevard – triple eastbound left-turn lanes, four northbound through lanes, and dual westbound right-turn lanes with a southbound left-turn signal overlap phase.
 - This intersection should be re-evaluated once more information is known regarding regional transit improvements to the study area (e.g. Riverview Corridor LRT).
- American Boulevard/Thunderbird Road – assuming that the I-494/Thunderbird Eastbound Ramp project is constructed, the southbound approach should be expanded to provide dual southbound left-turn lanes, a through lane, and a shared through/right-turn lane
- East Old Shakopee Road and TH 77 Northbound Ramps – extend eastbound dual left-turn lane storage.
 - Closure of Glenview Lane and conversion to a continuous flow intersection could also be considered.
- East Old Shakopee Road/28th Avenue – two intersection control options (traffic signal and multi-lane roundabout) were identified under year 2025 conditions. Under year 2040 conditions dual eastbound and southbound left-turn lanes should be considered with the traffic control option. Both are expected to provide acceptable operations.
- East Old Shakopee Road/30th Avenue – traffic control change is needed (signal assumed)
- East Old Shakopee Road/33rd Avenue – traffic control change is needed (signal assumed)

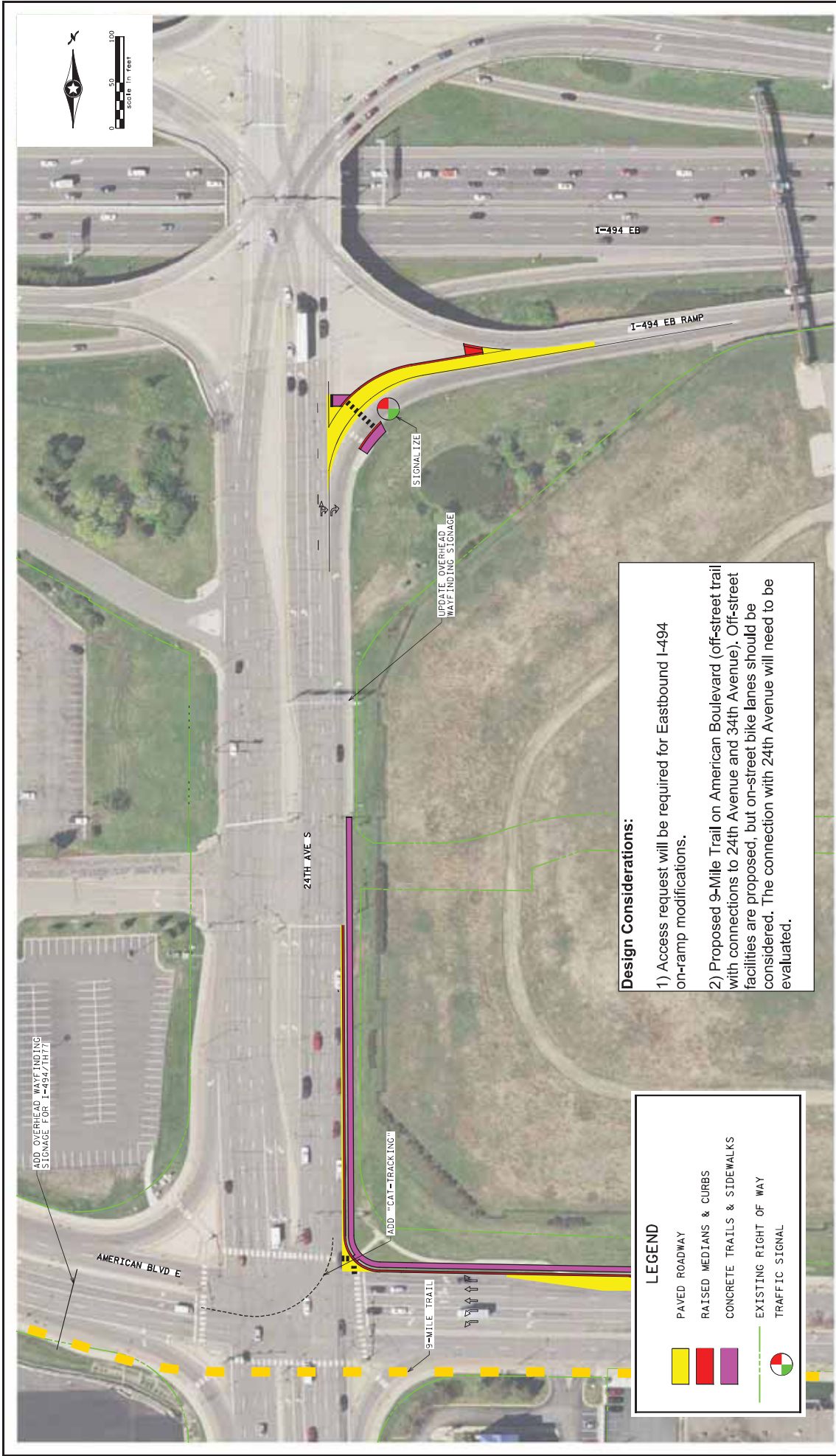
Wayfinding

The wayfinding plans are an integral component of current and future operations in the South Loop District. As new development occurs, both the dynamic and static wayfinding signs should be reviewed and updated if needed to better accommodate traffic. Efficient use of the freeway and local wayfinding sign plans has the potential to reduce congestion and limit the intersection capacity improvements needed in the South Loop District.

Autonomous Vehicle Impacts

In the past when estimating future traffic forecasts, it has been assumed that the current assumptions relating to travel trends, capacity, and mode preference will not significantly change under future conditions. However, based on upcoming new technology and several behavioral trends it is likely these base assumptions will be different under future conditions compared to what they are now. One of the most disruptive changes expected to impact traffic forecasts/patterns is the introduction of autonomous vehicles (AV) or self-driving vehicles.

Based on the current information that is available, it is difficult to estimate how the technology will be used and how it will affect mobility. It is recommended that this technology be reviewed once again when the South Loop District Update occurs in approximately five years (year 2022). At that time more information will be known about AV technologies and better assumptions/decisions can be developed to assess what the infrastructure needs are needed in the long-term (year 2025 and beyond).



SRI 24TH AVE / I-494 EB NORTHBOUND DUAL RIGHT-TURN CONCEPT
 Consulting Group, Inc.
 100-#9190
 1/6/2017

South Loop Roadway Infrastructure Improvements Study
 CITY OF BLOOMINGTON, MN






Figure 1

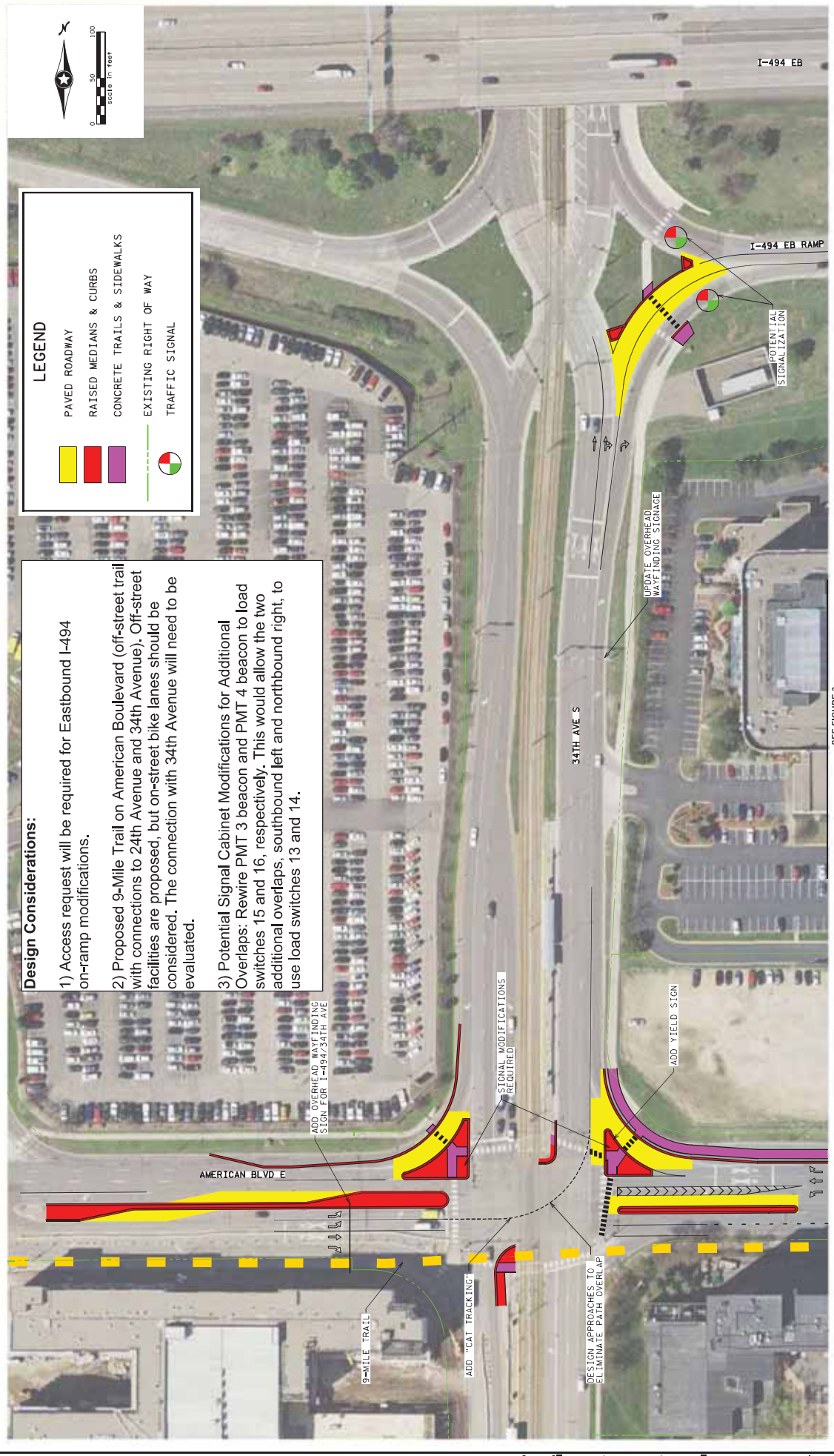
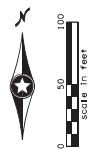
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Design Considerations:

- 1) Access request will be required for Eastbound I-494 on-ramp modifications.
- 2) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered. The connection with 34th Avenue will need to be evaluated.
- 3) Potential Signal Cabinet Modifications for Additional Overlaps: Rewire PMT 3 beacon and PMT 4 beacon to load switches 15 and 16, respectively. This would allow the two additional overlaps, southbound left and northbound right, to use load switches 13 and 14.

LEGEND

	PAVED ROADWAY
	RAISED MEDIANS & CURBS
	CONCRETE TRAILS & SIDEWALKS
	EXISTING RIGHT OF WAY
	TRAFFIC SIGNAL



SEE FIGURE 3

Figure 2

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SEE FIGURE 2

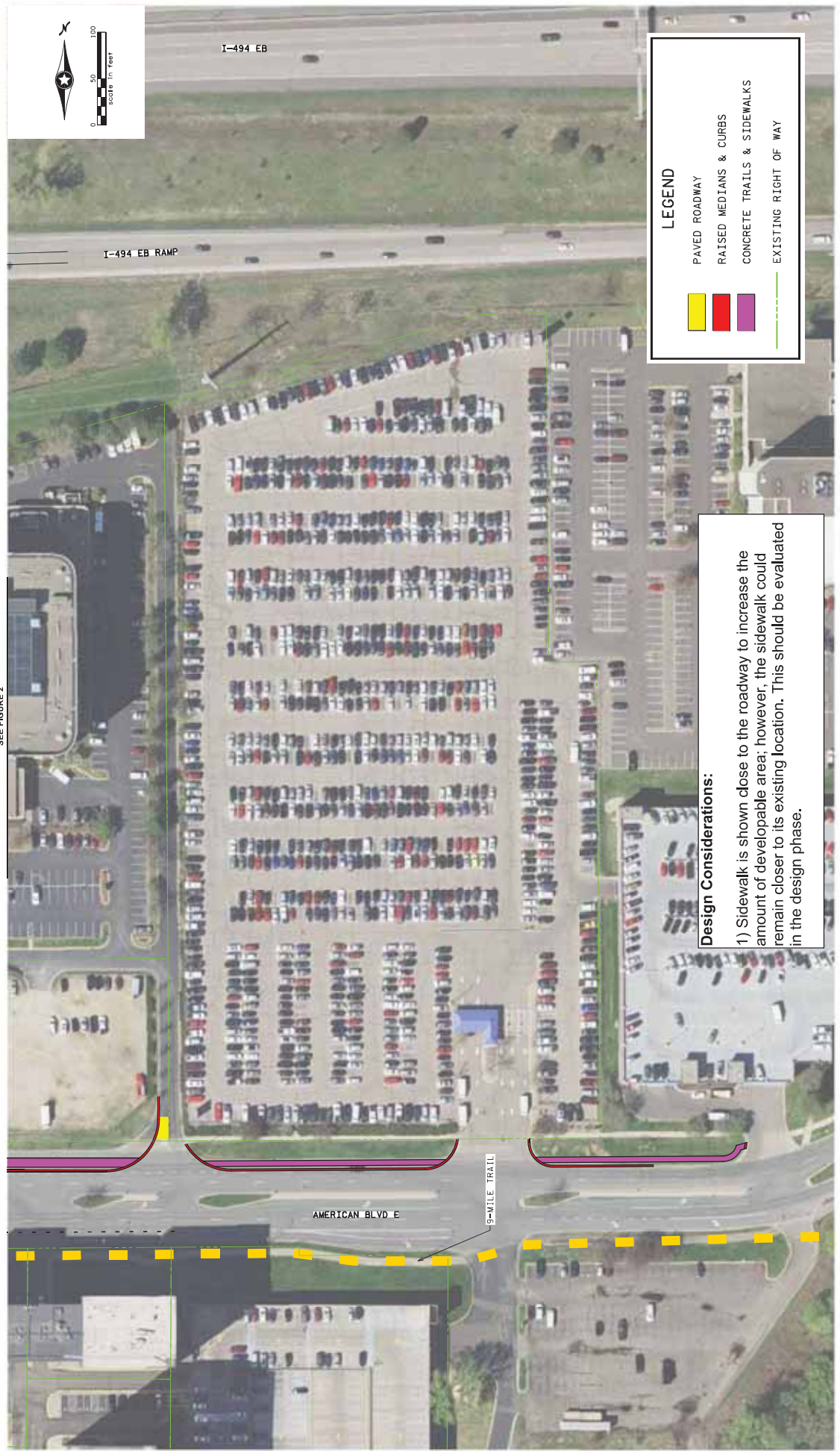


Figure 3



Design Considerations:

- 1) Evaluate converting eastbound through lane of Mall of America circulatory roadway to a shared through/right-turn lane. This would eliminate the hatched out pavement area as this would become a traffic lane. The triangular median between the circulatory roadway and the Mall of America entrance could be expanded to the east to reduce the southbound approach to one lane and eliminate the need for additional traffic control.
- 2) The southbound right-turn porkchop could be removed to create a standard 90 degree turn. The western curb line would be shifted to the east with this option.

SRI KILLBREW DR / 20TH AVE SOUTHBOUND DUAL RIGHT-TURN CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#9190
 1/6/2017

Figure 4

Design Considerations:

- 1) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered.
- 2) Evaluate channelization at International Boulevard in the design phase.
- 3) Roundabout should be designed to accommodate a northbound approach once development occurs to the south of American Boulevard.

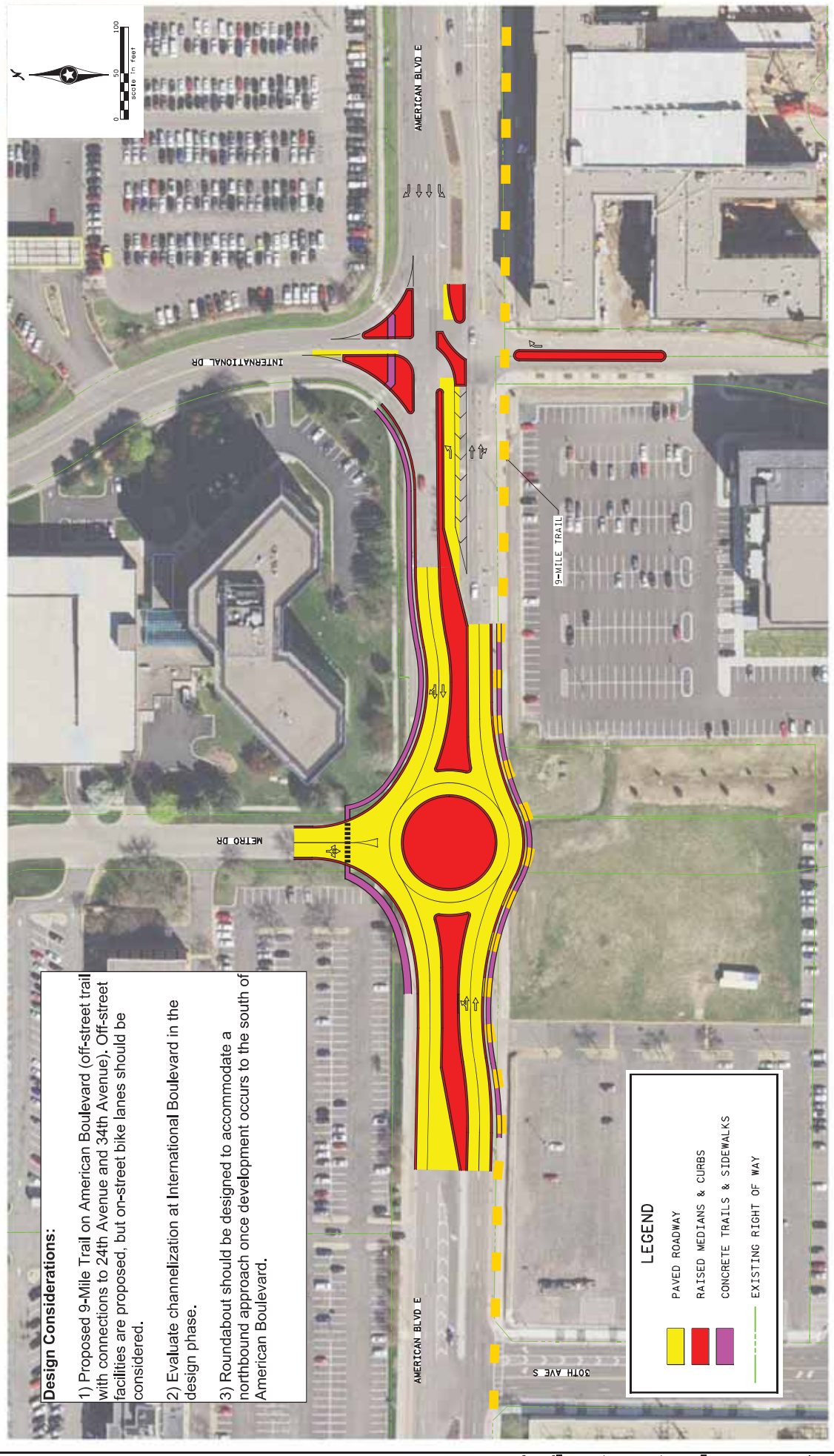
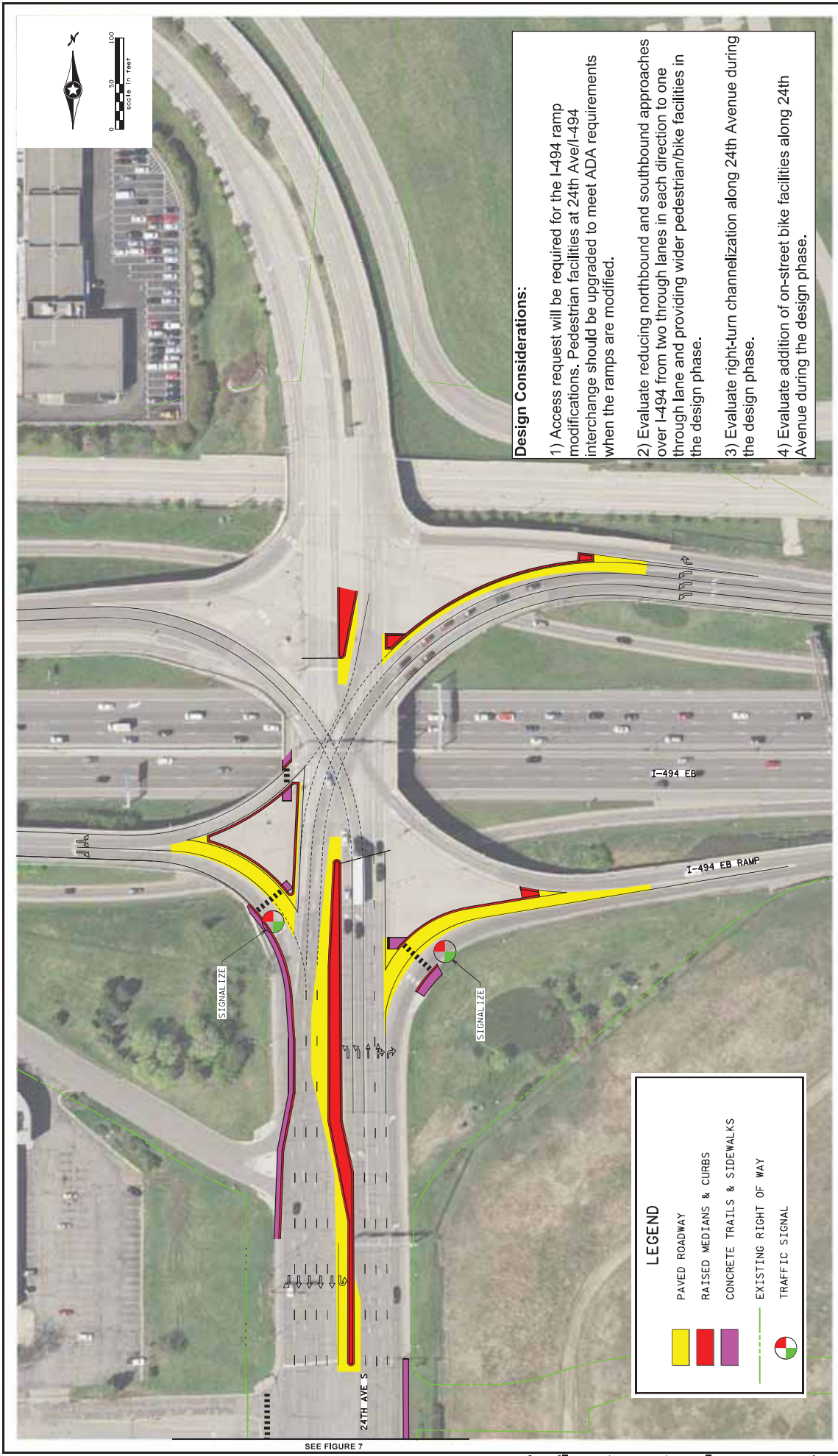


Figure 5

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Design Considerations:

- 1) Access request will be required for the I-494 ramp modifications. Pedestrian facilities at 24th Ave/I-494 interchange should be upgraded to meet ADA requirements when the ramps are modified.
- 2) Evaluate reducing northbound and southbound approaches over I-494 from two through lanes in each direction to one through lane and providing wider pedestrian/bike facilities in the design phase.
- 3) Evaluate right-turn channelization along 24th Avenue during the design phase.
- 4) Evaluate addition of on-street bike facilities along 24th Avenue during the design phase.

LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- CONCRETE TRAILS & SIDEWALKS
- EXISTING RIGHT OF WAY
- TRAFFIC SIGNAL

SEE FIGURE 7

SRF 24TH AVE CORRIDOR CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#9190
 1/26/2017

Figure 6

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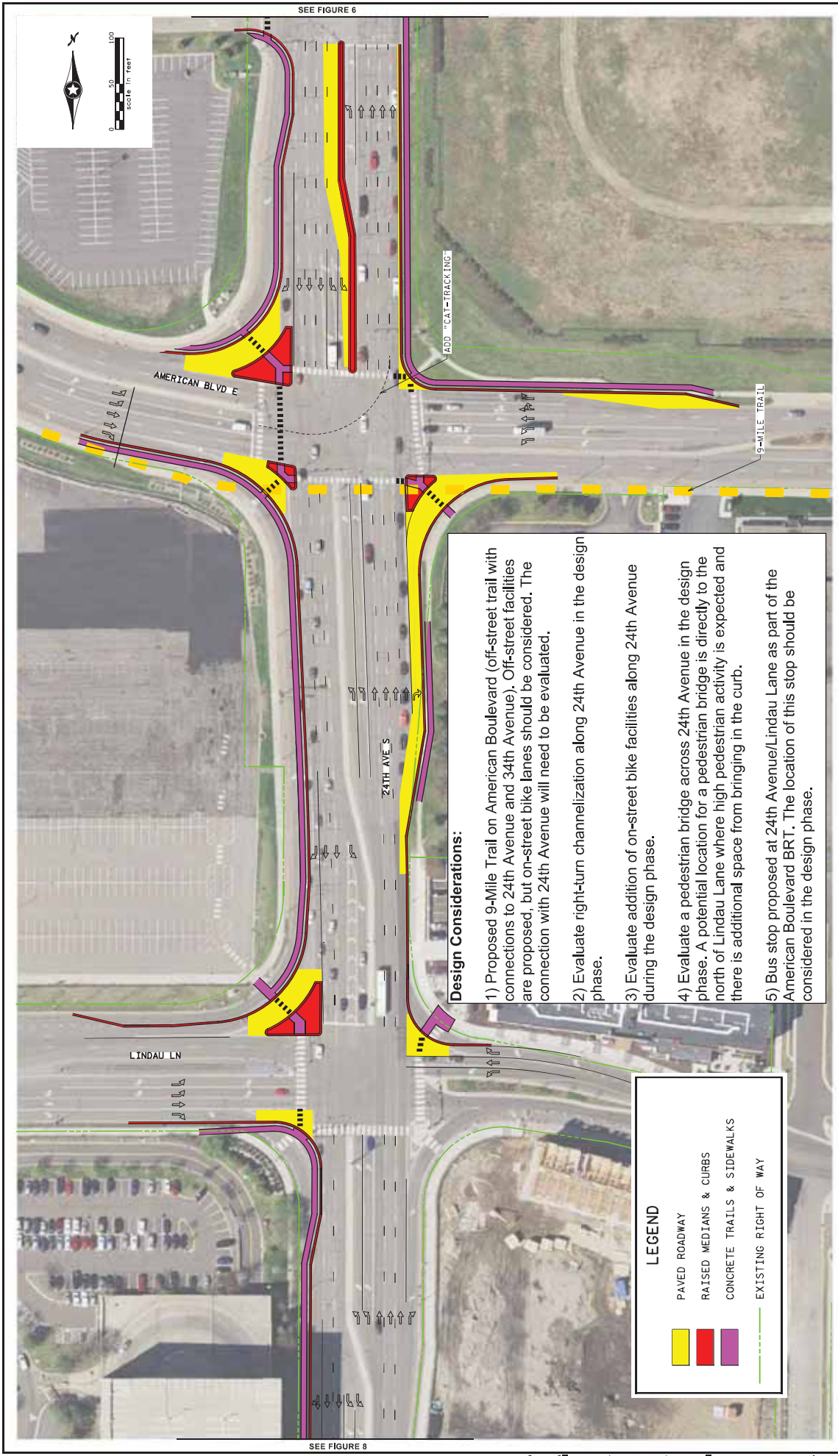


Figure 7

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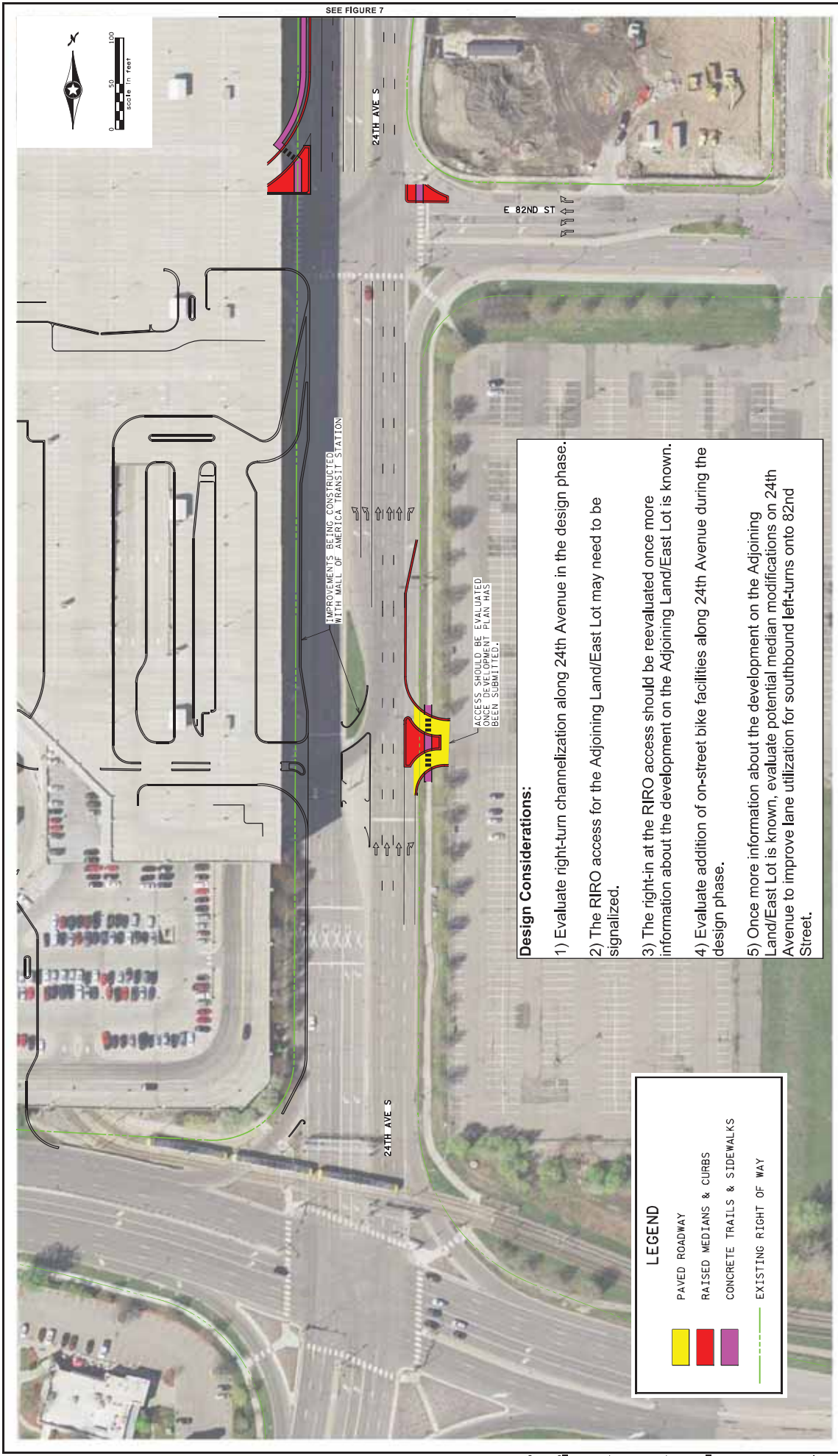
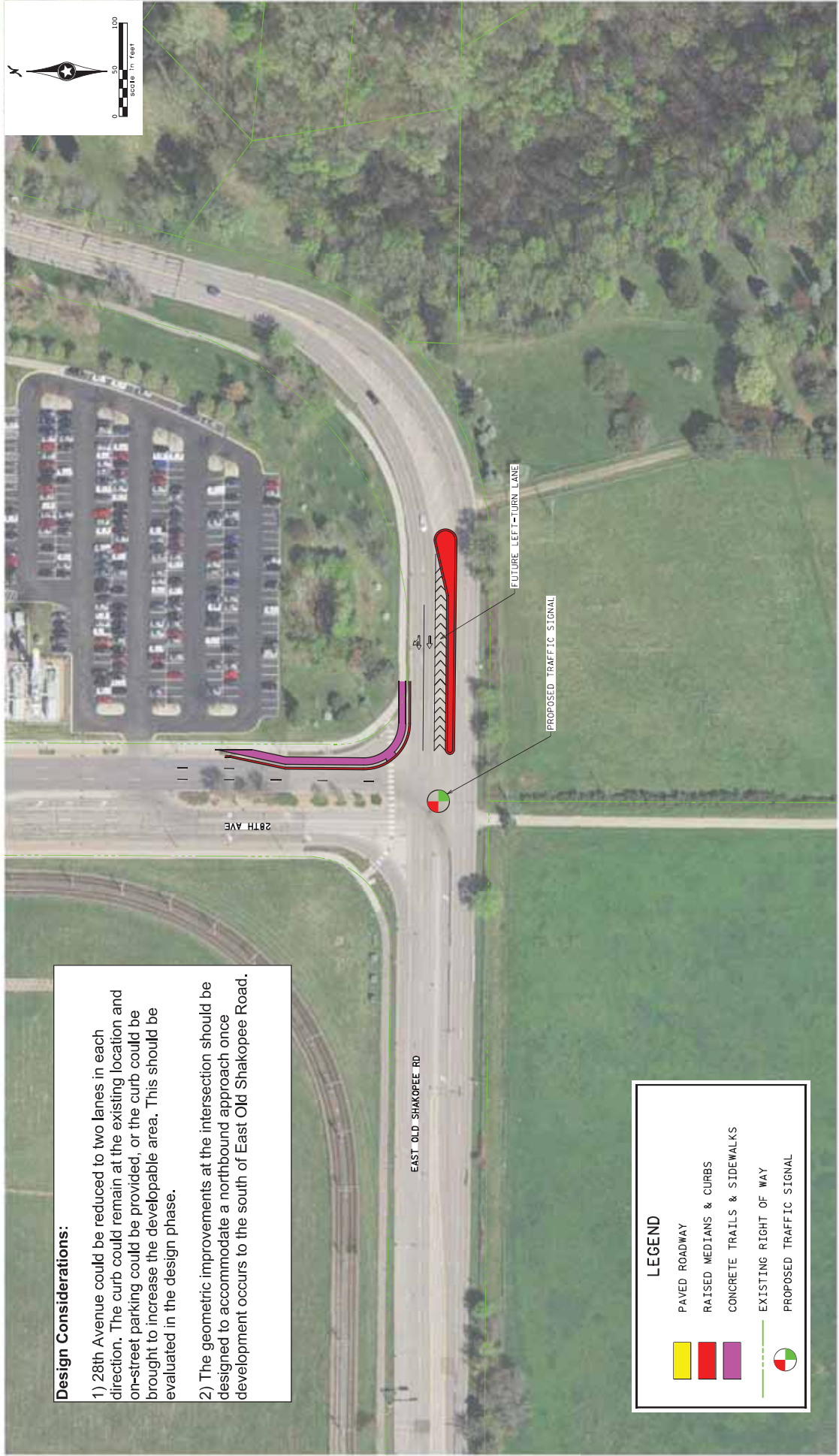


Figure 8



Figure 9

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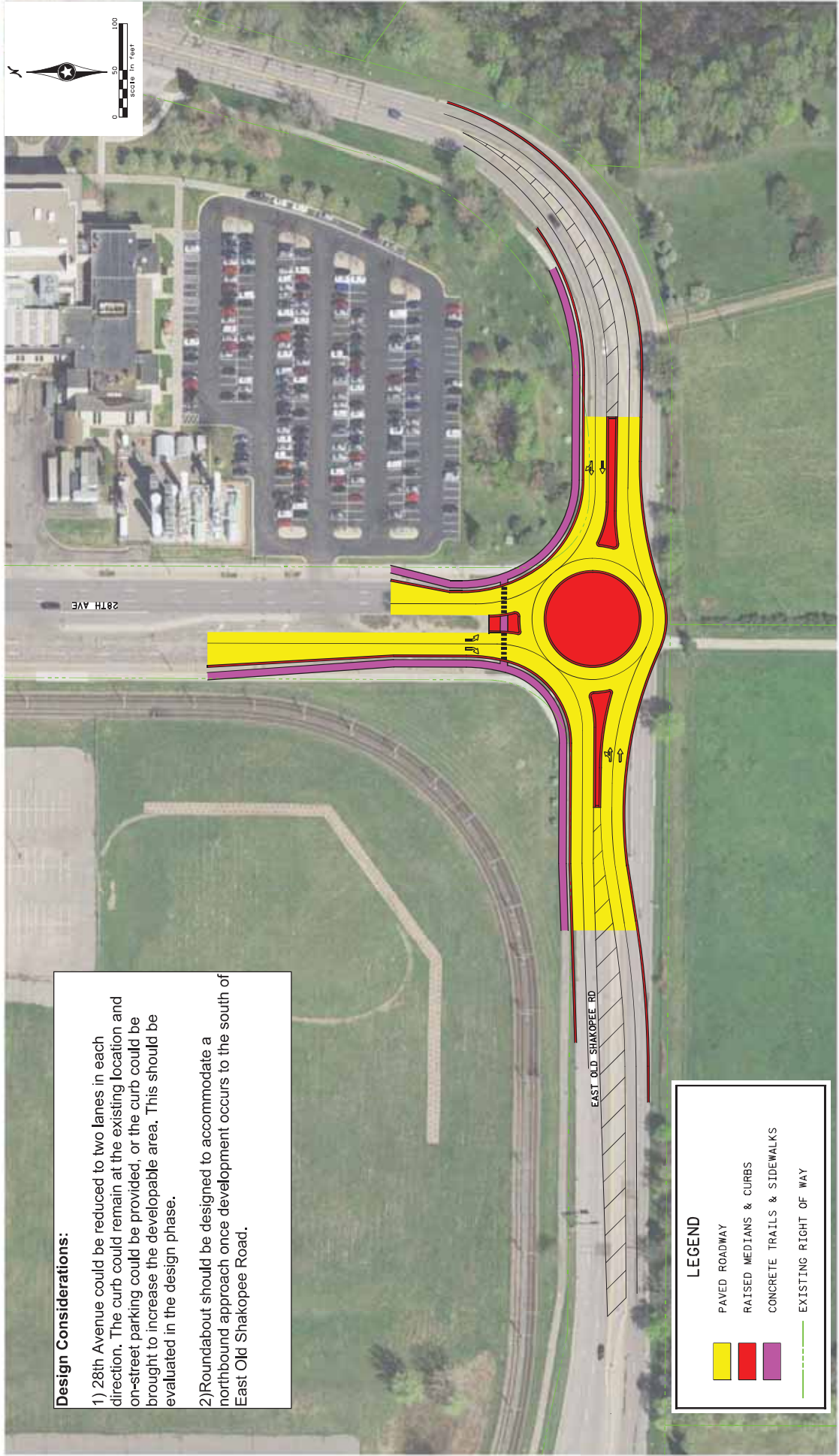
Design Considerations:

- 1) 28th Avenue could be reduced to two lanes in each direction. The curb could remain at the existing location and on-street parking could be provided, or the curb could be brought to increase the developable area. This should be evaluated in the design phase.
- 2) The geometric improvements at the intersection should be designed to accommodate a northbound approach once development occurs to the south of East Old Shakopee Road.

SRE EAST OLD SHAKOPEE ROAD / 28TH AVENUE CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 JOB #5150
 1/12/2017
 CITY OF BLOOMINGTON, MN

Figure 10

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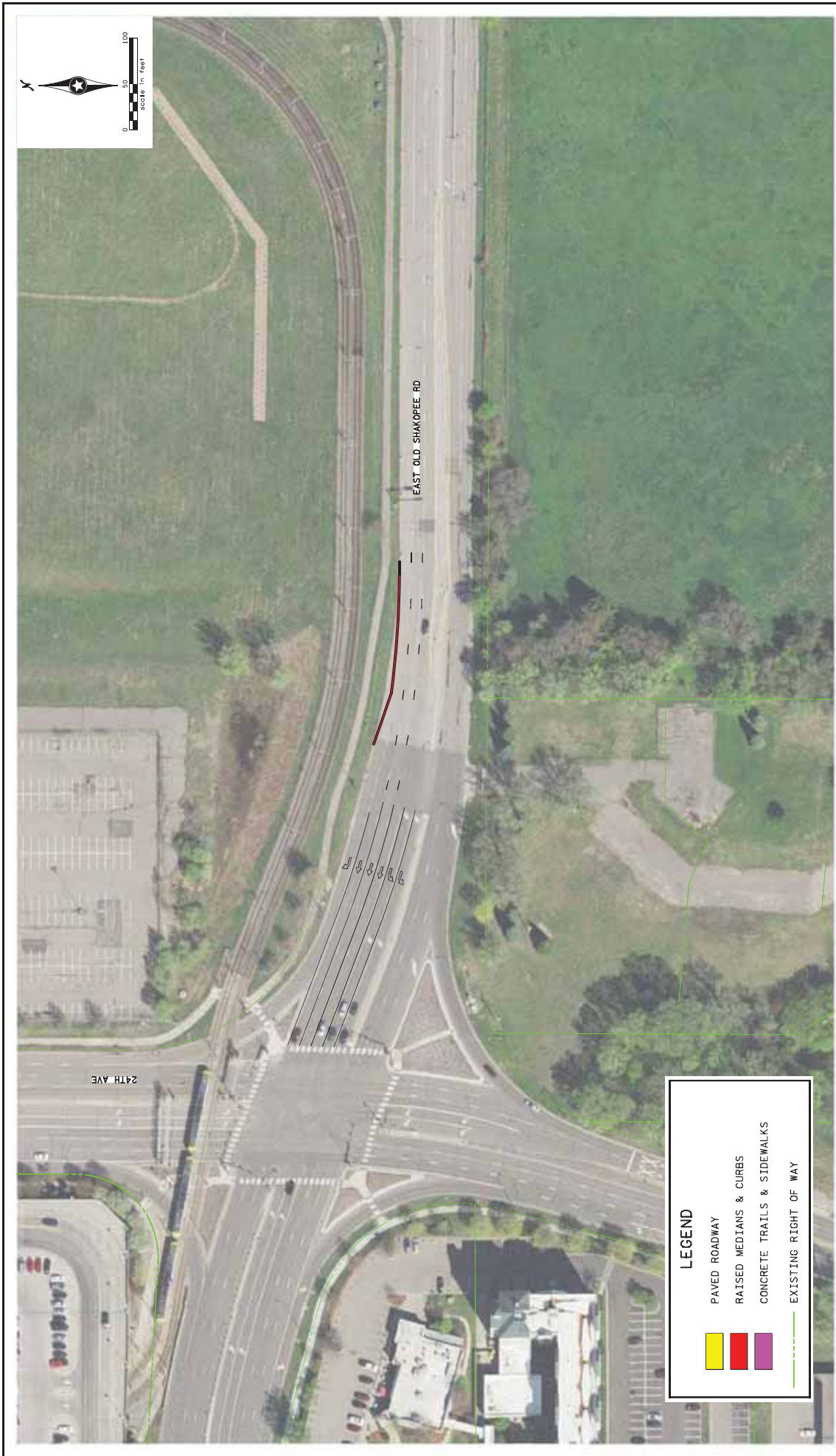
Design Considerations:

- 1) 28th Avenue could be reduced to two lanes in each direction. The curb could remain at the existing location and on-street parking could be provided, or the curb could be brought to increase the developable area. This should be evaluated in the design phase.
- 2) Roundabout should be designed to accommodate a northbound approach once development occurs to the south of East Old Shakopee Road.

SRI EAST OLD SHAKOPEE RD / 28TH AVE ROUNDABOUT CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 100-#5150
 11/7/2017
 CITY OF BLOOMINGTON, MN

Figure 11

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SRI EAST OLD SHAKOPEE ROAD / 24TH AVENUE WESTBOUND APPROACH CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#5150
 1/17/2017

Figure 12



Figure 13

SRI EAST OLD SHAKOPEE ROAD / 33RD AVENUE CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 JOB #5150
 1/12/2017
 CITY OF BLOOMINGTON, MN

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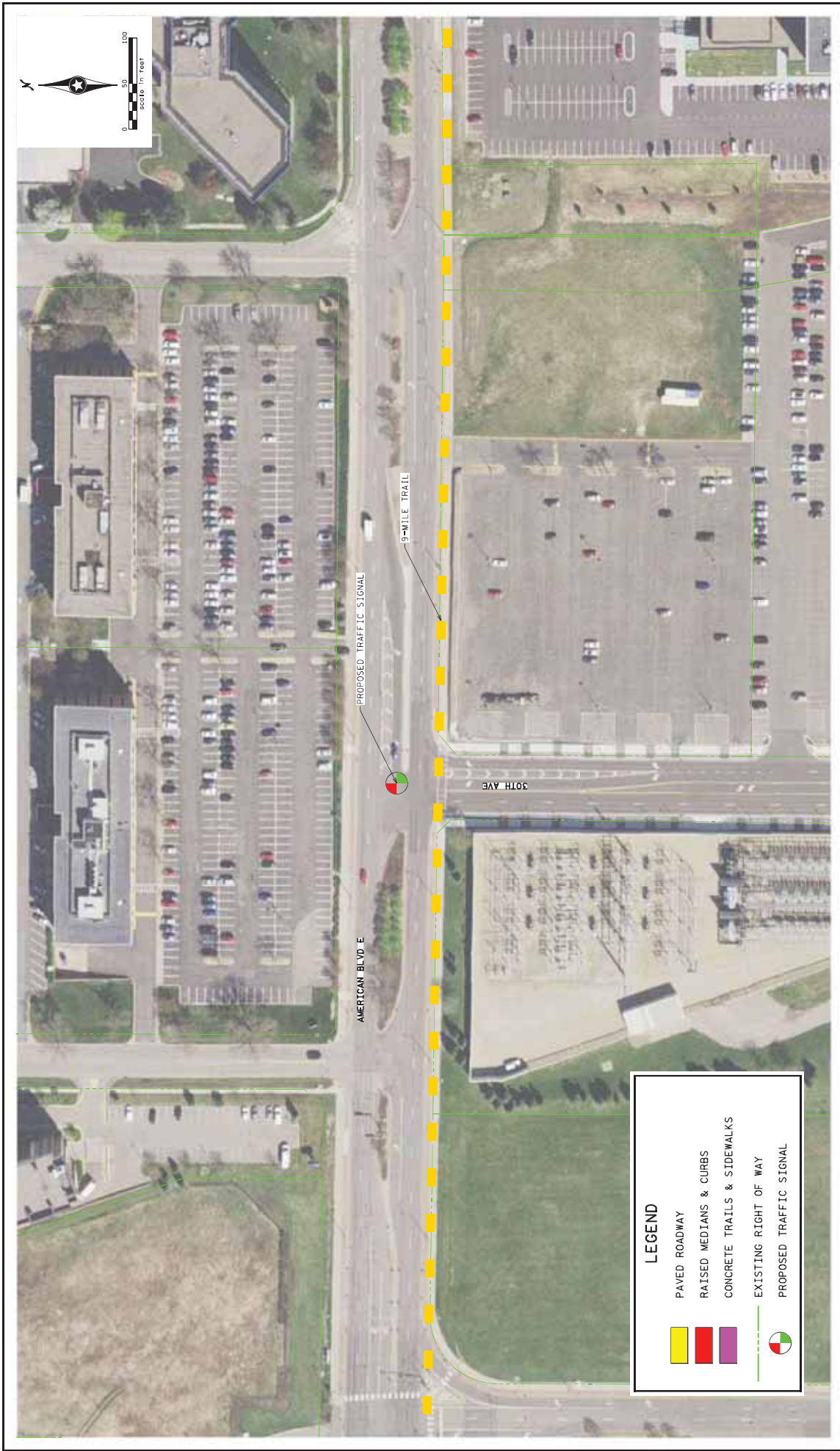
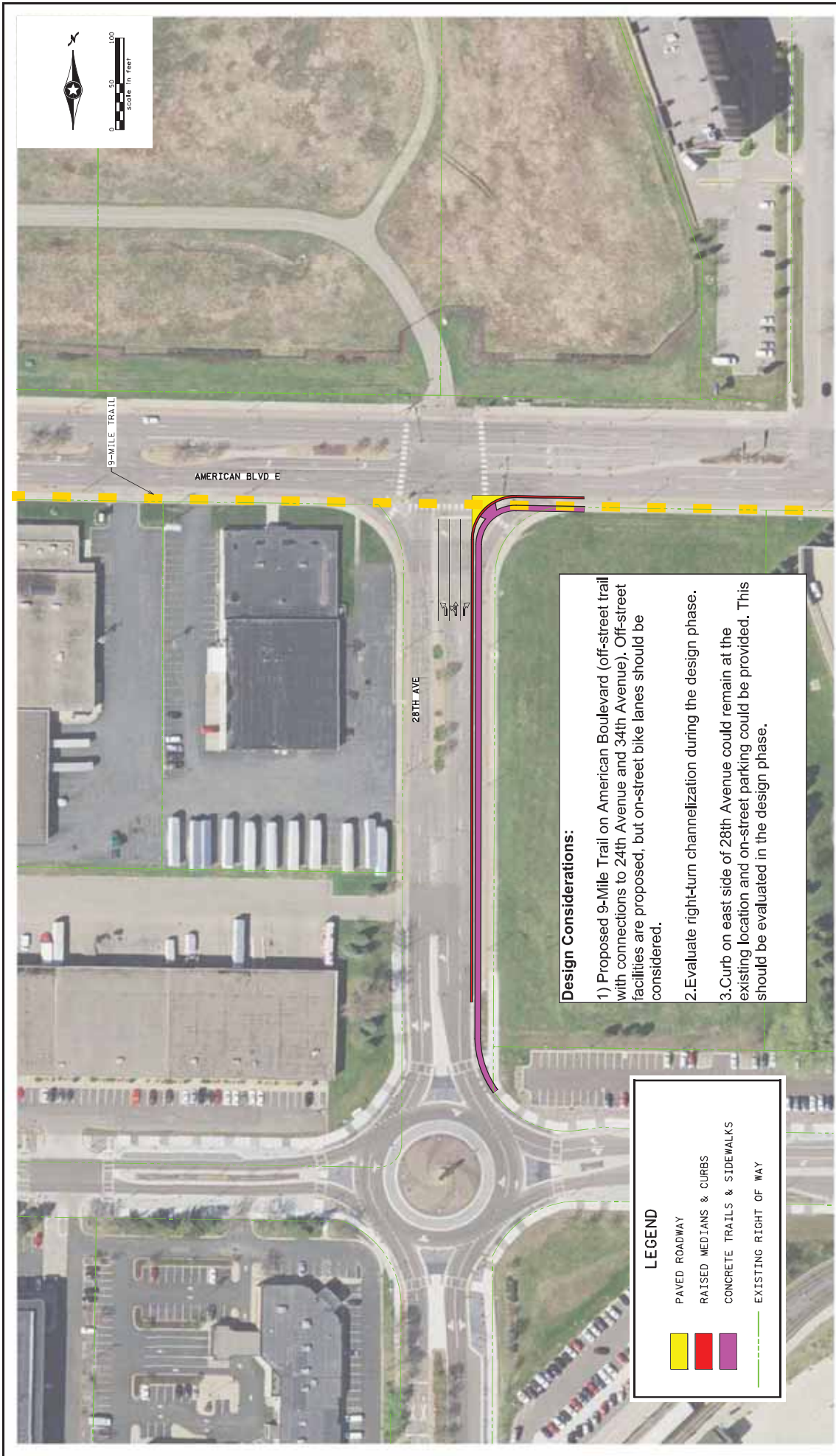


Figure 14

SRI Consulting Group, Inc.
 AMERICAN BLVD/30TH AVE INSTALL TRAFFIC SIGNAL CONCEPT
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN



Design Considerations:

- 1) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered.
2. Evaluate right-turn channelization during the design phase.
3. Curb on east side of 28th Avenue could remain at the existing location and on-street parking could be provided. This should be evaluated in the design phase.

LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- CONCRETE TRAILS & SIDEWALKS
- EXISTING RIGHT OF WAY

SRH AMERICAN BLVD / 28TH AVE CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#5150
 11/7/2017

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Introduction

As requested, an update to the traffic evaluation has been completed to the Alternative Urban Areawide Review (AUAR) for the South Loop District in the City of Bloomington. The original AUAR was completed in 2002 and subsequent updates have been completed in 2009 and 2012. This report focuses on the updates to the traffic operations analysis, recommended improvements, and preliminary cost estimates for proposed improvements to be used for purposes of updating the AUAR.

The South Loop District (also referred to as the District) is bounded by I-494 to the north, TH 77 to the west and the river to the south and east (see Figure 1: Project Area). This report provides additional details regarding traffic operations and the recommended improvements to support the AUAR submittal. The main study goals are to collect updated traffic counts and land use projections throughout the District, identify transportation issues, recommend improvements, and develop conceptual layouts and cost estimates for the recommended improvements.

Project Background

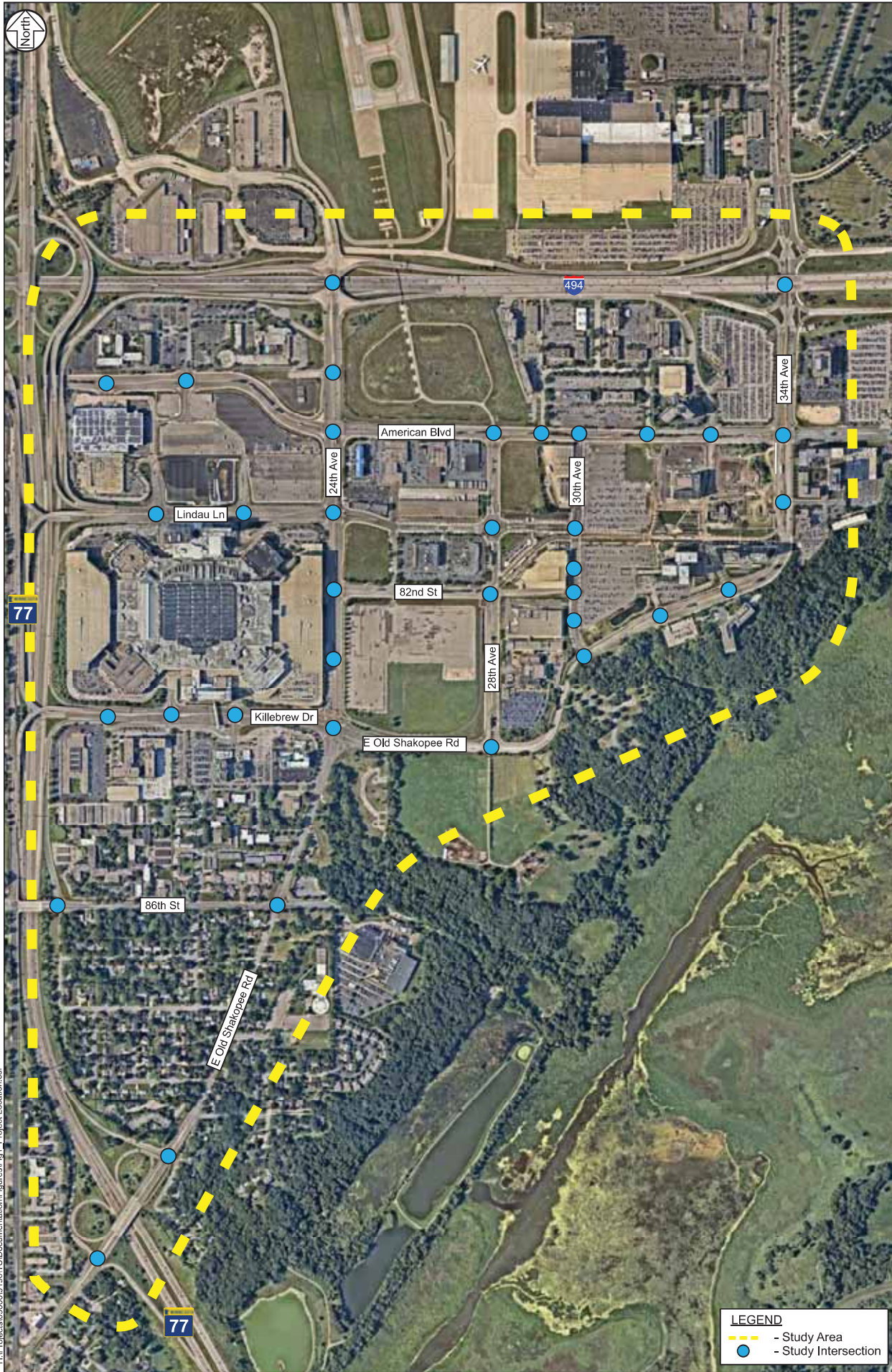
This study is an update to the previous traffic study completed for the previous AUAR update in the South Loop District in 2012. The study evaluated traffic operations within the study area and identified a number of infrastructure improvements. Since the completion of the 2012 update, the following infrastructure improvements and developments have been constructed:

Transportation Infrastructure Improvements

- Internal Mall of America (MOA) improvements on the north side of the building
- Lindau Lane Grade Separation
- Lindau Lane Extension between 24th Avenue and 30th Avenue
- Lindau Lane and 28th Avenue roundabout
- 30th Avenue improvements between American Boulevard and East Old Shakopee Road
- 33rd Avenue extension between American Boulevard and East Old Shakopee Road
- Killebrew Drive Pedestrian Bridge
- I-494/34th Avenue Diverging Diamond Interchange (DDI)
- 28th Avenue Park-and-Ride parking lot modifications

Development Projects

- MOA Phase 1C (open at time of study, but office and retail space was not fully leased)
- Radisson Blu Hotel
- TownePlace Suites Hotel
- 8100 26th Avenue South Multi-Use Development (under construction at time of the study)
- Bloomington Central Station (BSC) Hyatt Regency Hotel (opened near the start of the study)
- BSC Residential Phase I and II (under construction at time of the study)



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Project Location
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

00169190
 January 2017

Figure 1

Existing Conditions

The existing conditions were evaluated to identify current transportation issues and to establish a baseline for comparison to determine impacts associated with future development within the South Loop District. The evaluation of existing conditions includes a review of non-motorized, transit, and motorized facilities.

Non-Motorized Traffic

Existing pedestrian/bicyclist volumes and facilities were reviewed for the South Loop District. The main goal of this evaluation is to identify high volume pedestrian and bicycle locations and to identify missing connections (bicycle routes, trails, sidewalks and pedestrian crossings) within the District.

Pedestrian/Bicyclist Data Collection

Two-way pedestrian and bicyclist volumes were collected by the City of Bloomington for a 12-hour period (7:00 a.m. to 7:00 p.m.) over a one to three day period at five locations during June 2015. A summary of the pedestrian and bicyclist volumes are shown in Table 1. The two highest pedestrian/bicyclist volume locations are at American Boulevard just east of 24th Avenue and at the East Old Shakopee Road/33rd Avenue intersection.

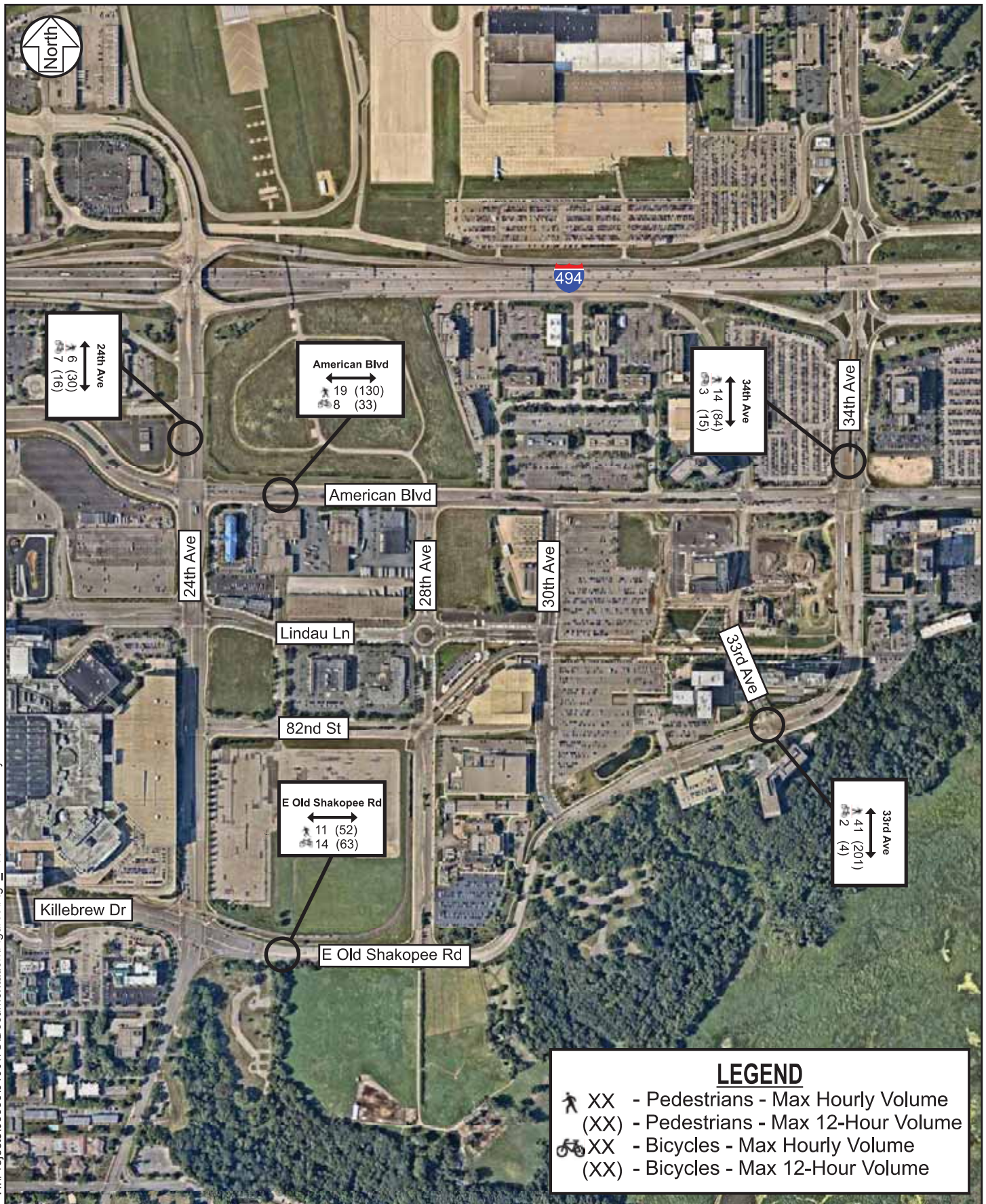
Table 1. Summer 2015 Pedestrian and Bicyclist Count Summary (Two-Way Counts)

Location	Max Hour Volume Pedestrian (Bicyclist)	Max 12-Hour Volume Pedestrian (Bicyclist)
24th Avenue (North of American Boulevard)	6 (7)	30 (16)
34th Avenue (North of American Boulevard)	14 (3)	84 (15)
American Boulevard (East of 24th Avenue)	19 (8)	130 (33)
East Old Shakopee Road at 33rd Avenue	41 (2)	201 (4)
East Old Shakopee Road (East of 24th Avenue)	11 (14)	52 (63)

Supplemental pedestrian and bicyclist volumes were collected at intersections throughout the District in March/April 2016 and focused on the weekday a.m., weekday p.m. and Saturday midday peak periods. During the data collection dates, few pedestrians/bicyclist were counted (i.e. less than ten per hour) at most study intersections. This is partially due to the cold and/or rainy weather during the counts. Intersections where more than ten (10) peak hour pedestrians/bicyclist were counted crossing one or more approaches include:

- 24th Avenue/American Boulevard
- 24th Avenue/Lindau Lane
- 24th Avenue /82nd Street
- 34th Avenue/American Boulevard
- Lindau Lane/30th Avenue
- 28th Avenue/82nd Avenue
- 30th Avenue/North HP Driveway/METRO Park-and-Ride

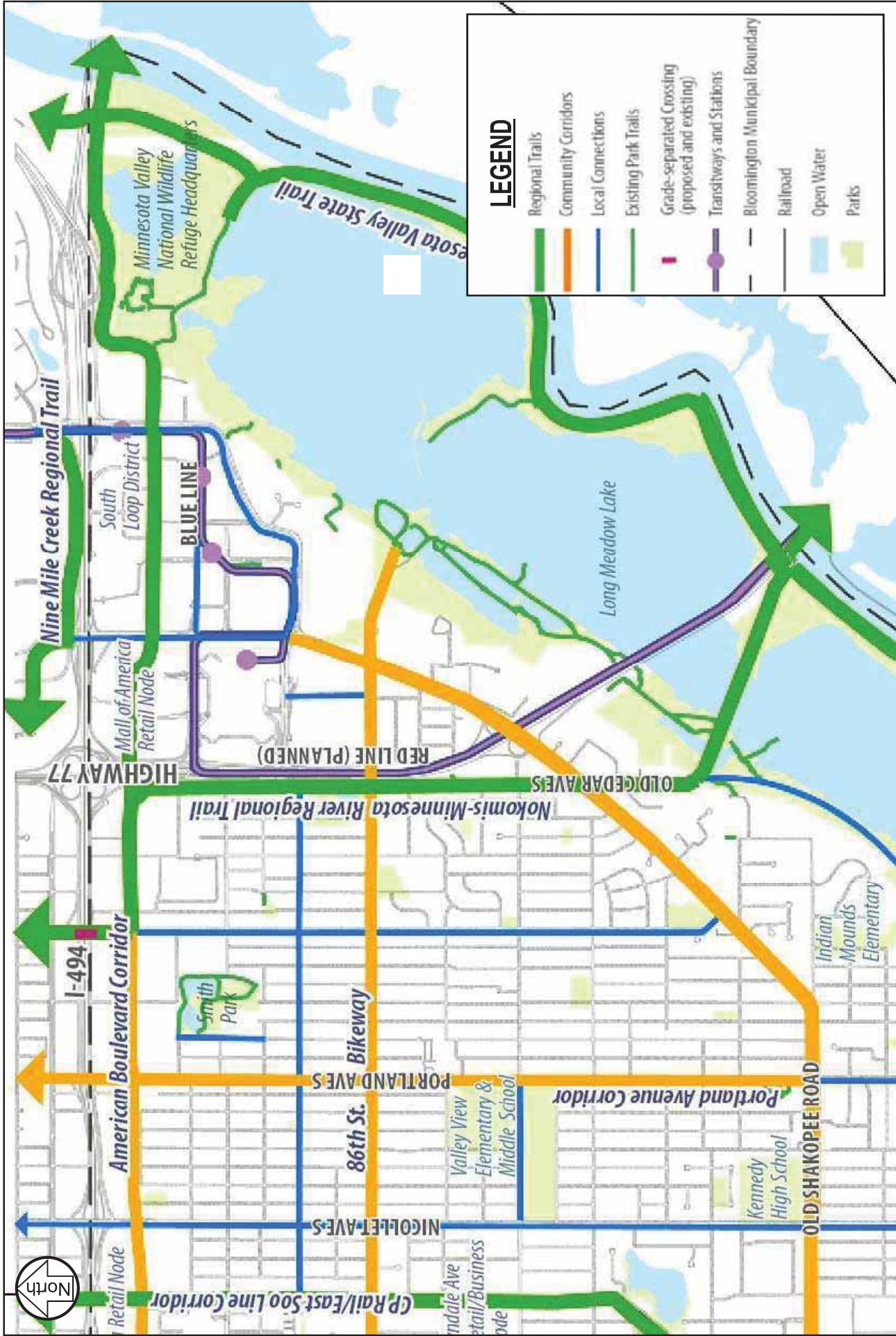
The pedestrian/bicyclist counts are summarized in Figure 2.



Pedestrian/Bicyclist Facilities

The existing pedestrian/bicyclist facilities such as sidewalks, trails, and crosswalks were reviewed for the corridors within the South Loop District. The *City of Bloomington Alternative Transportation Plan (ATP)*, dated April 2016, shown in Figure 3 illustrates the pedestrian/bicycle functional system:

- The **Minnesota Valley State Trail is an existing regional trail** that is located on the west bank of the Minnesota River and to the east of Long Meadow Lake within the South Loop District. The regional trail connects into the Minnesota Valley National Wildlife Refuge Visitor Center via the Long Meadow Lake Trail (an existing park trail).
- **Existing park trails including the Long Meadow Lake Trail** are located at multiple locations between East Old Shakopee Road and Long Meadow Lake (near 28th Avenue, 31st Avenue, Appletree Square, and 86th Street).
- **American Boulevard is identified as a Regional Trail** within the study area. Master plans for the expansion of the Nine Mile Creek Regional Trail indicate that the preferred alignment is along American Boulevard. American Boulevard currently has enhanced sidewalks and connects to the Minnesota Valley National Wildlife Refuge Visitor Center.
- **East Old Shakopee Trail is identified as a community corridor** between TH 77 and Killebrew Drive. There is sidewalk between TH 77 and Killebrew Drive that alternates between the west and east sides of the road.
- **East Old Shakopee Trail is identified as a local connection** to the north and east of Killebrew Drive. On this segment East Old Shakopee Road has a multi-use trail on the north/west side. There is also a sidewalk on the east side of East Old Shakopee Road/34th Avenue between 31st Avenue and American Boulevard.
- **86th Street is identified as a community corridor.** 86th Street has on-street bike lanes.
- **24th Avenue is identified as a local connection.** 24th Avenue has sidewalks on both sides of the roadway between Killebrew Drive and American Boulevard. To the north of American Boulevard sidewalks are located on the west side of the road and there is a missing sidewalk connection on the east side of 24th Avenue north of American Boulevard. The sidewalks/crossings at the interchange are narrow.
- **28th Avenue 30th Avenue, and 33rd Avenue have sidewalks** located on the west and east sides between East Old Shakopee Road and American Boulevard
- **34th Avenue within the study area has sidewalks** located on the east side.
- **Lindau Lane between 22nd Avenue and 28th Avenue has sidewalks** located on both the north and south sides: the sidewalks between 22nd Avenue and 24th Avenue provide access to the MOA and/or parking lots north of Lindau Lane. No pedestrian crossings are permitted across Lindau Lane west of the 24th Avenue intersections.
- **82nd Street has sidewalk** Located on the north and south side.
- **Killebrew Drive between 20th Avenue and East Old Shakopee Road has sidewalks:** Located on the north and south sides.
- **Grade separated crossings** are provided across Lindau Lane between 22nd Avenue and 24th Avenue and across Killebrew Drive west of 22nd Avenue.



Pedestrian/Bicyclist Functional System

South Loop Roadway Infrastructure Improvement Study
City of Bloomington



Figure 3

Pedestrian/Bicyclist Infrastructure Network Review

The existing pedestrian/bicyclist infrastructure network within the South Loop District was reviewed. The *City of Bloomington ATP* reviewed the study area at high-level and identified a number of gaps within the District (illustrated in Figure 4). The following corridors within the District were identified as an existing off-street trail gap:

- 24th Avenue between the I-494 interchange and Killebrew Drive/East Old Shakopee Road
- 34th Avenue between the I-494 interchange and American Boulevard
- American Boulevard between TH 77 and 34th Avenue
- East Old Shakopee Road between Killebrew Drive to south of TH 77

The following corridors within the District were identified as an existing on-street trail gap:

- East Old Shakopee Road between Killebrew Drive to south of TH 77

The following corridors were identified as an existing gap, but undetermined what type of facility:

- East Old Shakopee Road between Killebrew Drive and 86th Street

An additional review of the pedestrian/bicyclist infrastructure was conducted to identify locations where there are specific sidewalk/trail gaps on the corridors within the study area:

- A gap in sidewalk is located on the east side of 24th Avenue north of American Boulevard. There is an existing trail on the north side of American Boulevard that could eventually connect to the sidewalk which starts just south of 79th Street, the sidewalk gap is approximately 450 feet.
- The sidewalk along East Old Shakopee Road between Killebrew Drive and TH 77 is not consistently located on the east and/or west sides of the road. Sidewalk gaps are located in the following locations on the segment:
 - East side of the road between Killebrew Drive and 88th Street (sidewalk located on west side of the road).
 - West side of the road between 88th Street and 89th Street (sidewalk located on the east side of the road).
 - West side of the road between the Northbound TH 77 Ramp and Old Cedar Avenue.

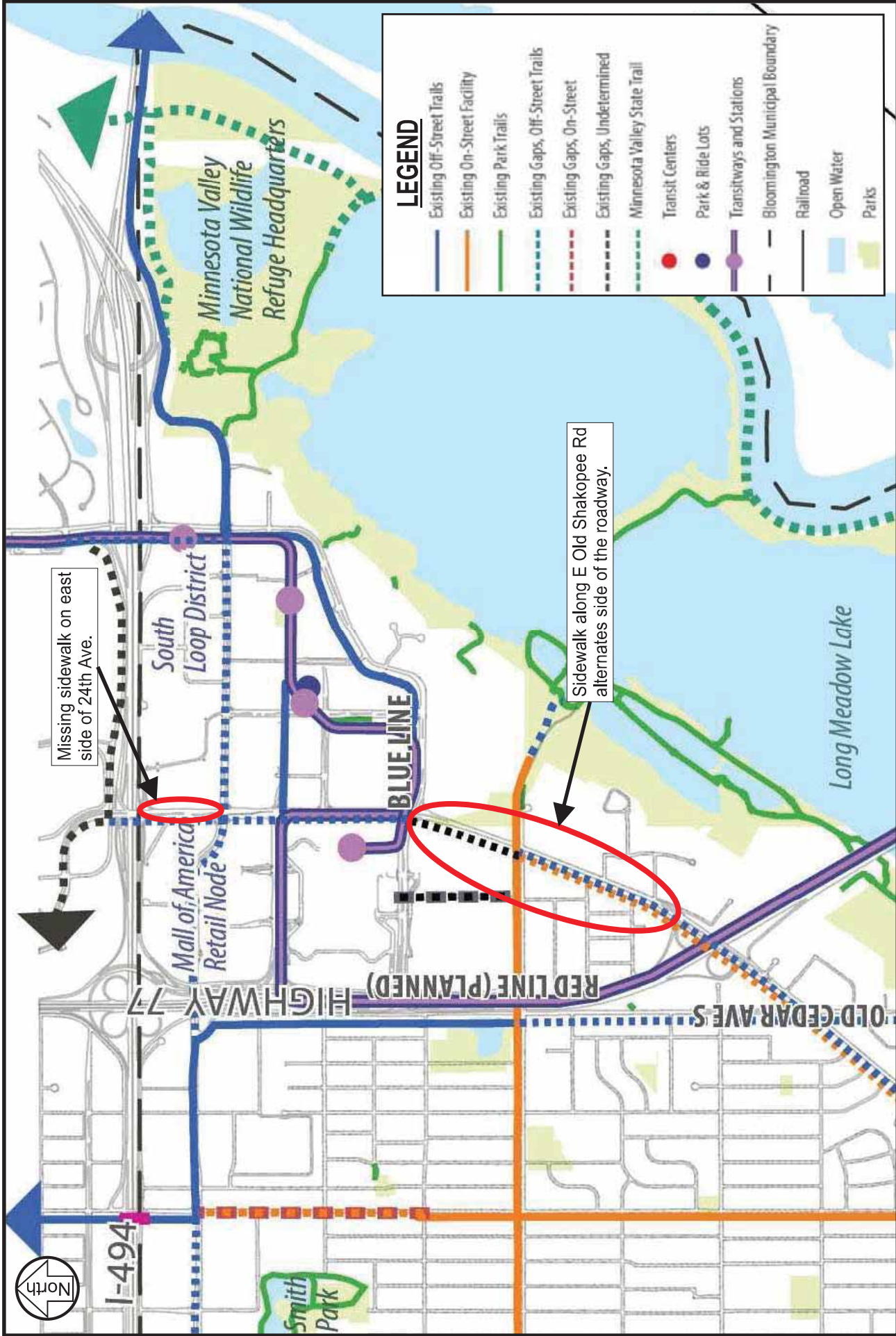


Figure 4

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Transit

The Blue Line Light Rail Transit (LRT) operates through the South Loop District. In addition, the District is well served by bus routes (local, express, and bus-rapid-transit) providing access to/from the South Loop District to much of the Twin Cities area.

Blue Line Light Rail Transit

There are four LRT stations within the South Loop District. The end-of-the line station is located at the MOA on the ground level at the mall's northeast parking ramp. Additional LRT stations include the 28th Avenue Station (park-and-ride facility), the Bloomington Central Station, and the American Boulevard Station.

Within the South Loop District, there are seven locations where there are currently at-grade crossings, which include the following intersections:

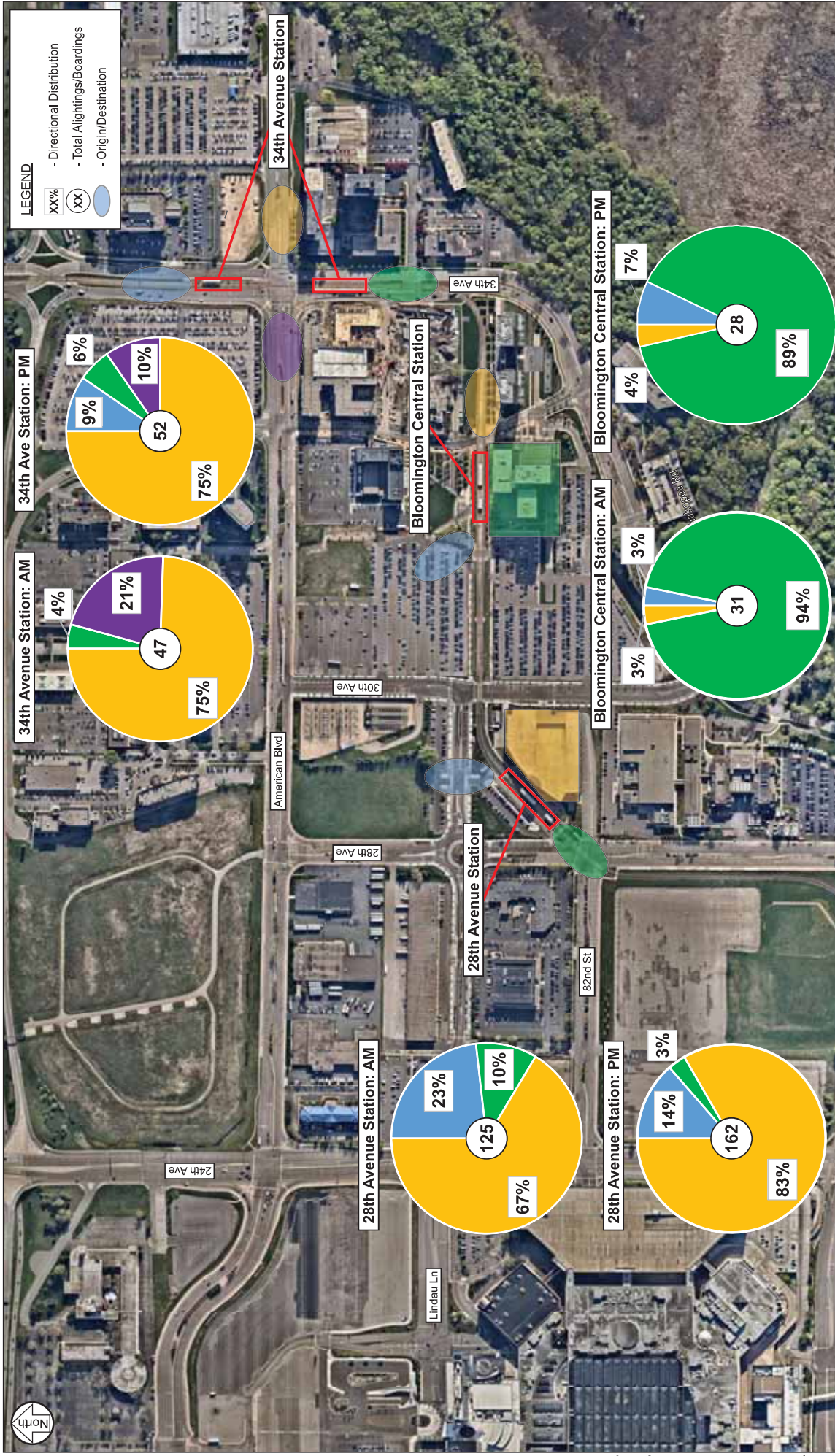
- 24th Avenue/East Old Shakopee Road/Killebrew Drive
- 28th Avenue/82nd Street
- 30th Avenue/Lindau Lane
- 33rd Avenue north of East Old Shakopee Road (midblock)
- 34th Avenue south of Appletree Square (midblock, crosses southbound lanes only)
- 34th Avenue/American Boulevard
- 34th Avenue/I-494 Interchange

LRT Data Collection

SRF collected pedestrian counts at three LRT stations in the South Loop District during the weekday a.m., weekday p.m., and Saturday peak periods. The purpose of collecting this data was to understand how many people are utilizing LRT during the peak periods and to identify where riders are coming to/from. Counts were conducted at the American Boulevard Station, Bloomington Central Station, and the 28th Avenue Park-and-Ride Station. Results of the counts are summarized in Table 2 and illustrated in Figure 5. These counts were used to estimate transit factors for developments within the South Loop District based on the land use and proximity to a LRT station.

Table 2. LRT Pedestrian Counts

LRT Station	A.M. Peak Hour Boardings/Alightings	P.M. Peak Hour Boardings/Alightings
American Boulevard/34th Avenue Station	47	52
Bloomington Central Station	31	28
28th Avenue Station (Park-and-Ride)	125	162



Light Rail Transit Pedestrian Counts
 South Loop Roadway Infrastructure Improvement Study
 Bloomington, MN
 Figure 5

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As illustrated in Figure 5, riders using the American Boulevard/34th Avenue station were primarily destined to/from the east approach (office/hotel/park-and-fly type uses). Riders using the Bloomington Central Station were primarily destined to/from the Health Partners offices. Riders using the 28th Avenue Station were primarily people utilizing the park-and-ride.

Based on information provided by Metro Transit, the MOA Transit Center has more than 5,000 customer boardings each day. As part of the *Mall of American Special Generator Survey*, which is dated April 2012, survey information was gathered to estimate the mode share for visitors/employees to/from the MOA. Results of this survey indicate that approximately 11 percent of trips arrive via LRT. Note that approximately two (2) percent arrive via biking or walking, approximately four (4) percent arrive via public bus service (Metro Transit), and approximately seven (7) percent utilize a hotel shuttle services. The majority of visitors arrive via a private vehicle (approximately 69 percent).

Transit Routes/Frequency

As shown in Table 3, the South Loop District is well-served by transit. All Metro Transit service stops within the District are listed in Table 3, which provide access throughout the metropolitan area and beyond.

Table 3. Transit Operations Summary

Route	Service Area	Rush Hour Frequency (minutes)
METRO Red Line	Red Line Apple Valley-MOA	15
METRO Blue Line	Blue Line - Minneapolis - Airport - MOA	10
5	Brooklyn Center - Fremont - 26th Avenue - Chicago - MOA	5-10
54	W 7Street - Airport - MOA (Ltd Stop)	15
415	MOA - Mendota Heights - Eagan	2 trips
444	Savage-Burnsville-MOA	30
495	Shakopee - MOA	60
515	Southdale - 66th Street - Bloomington Avenue - MOA	15
538	Southdale - York Avenue - Southtown - 86th Street - MOA	30
539	Normandale College - France Avenue - 98th Street - MOA	30
540	Edina - Richfield - 77th Street - MOA	15-20
542	84th Street - 76th Street - American Boulevard - MOA	30

Motorized Traffic

The evaluation of existing conditions includes peak hour intersection turning movement counts, field observations, a review of the MOA gate counts, Minnesota Department of Transportation (MnDOT) loop detector data, and an intersection capacity analysis.

Data Collection

The data collection efforts focused on Thursday and Saturday conditions. This is consistent with other traffic studies completed in the South Loop District. Based on experience with working in the South Loop District, Thursday conditions typically have higher traffic volumes than Tuesday or Wednesday conditions. This is likely due to the traffic generated by the MOA. Further, a Saturday condition was also evaluated to capture the peak time period for the retail/hotel developments.

Intersection Turning Movement Counts

SRF collected Thursday and Saturday cordon counts (24-hour) at eight locations to collect all entering and exiting traffic to the District. Both motorized and non-motorized were collected. Counts were conducted at the following locations in March/April 2016:

- 24th Avenue/I-494 Single Point Interchange
- 34th Avenue/I-494 South Crossover
- American Boulevard/IKEA driveway
- Lindau Lane/IKEA Way
- Killebrew Drive/20th Avenue
- TH 77 Southbound/Northbound Ramps Merge at Killebrew Drive
- East Old Shakopee Road/TH 77 Northbound Ramps
- E 86th Street/TH 77 Service Road

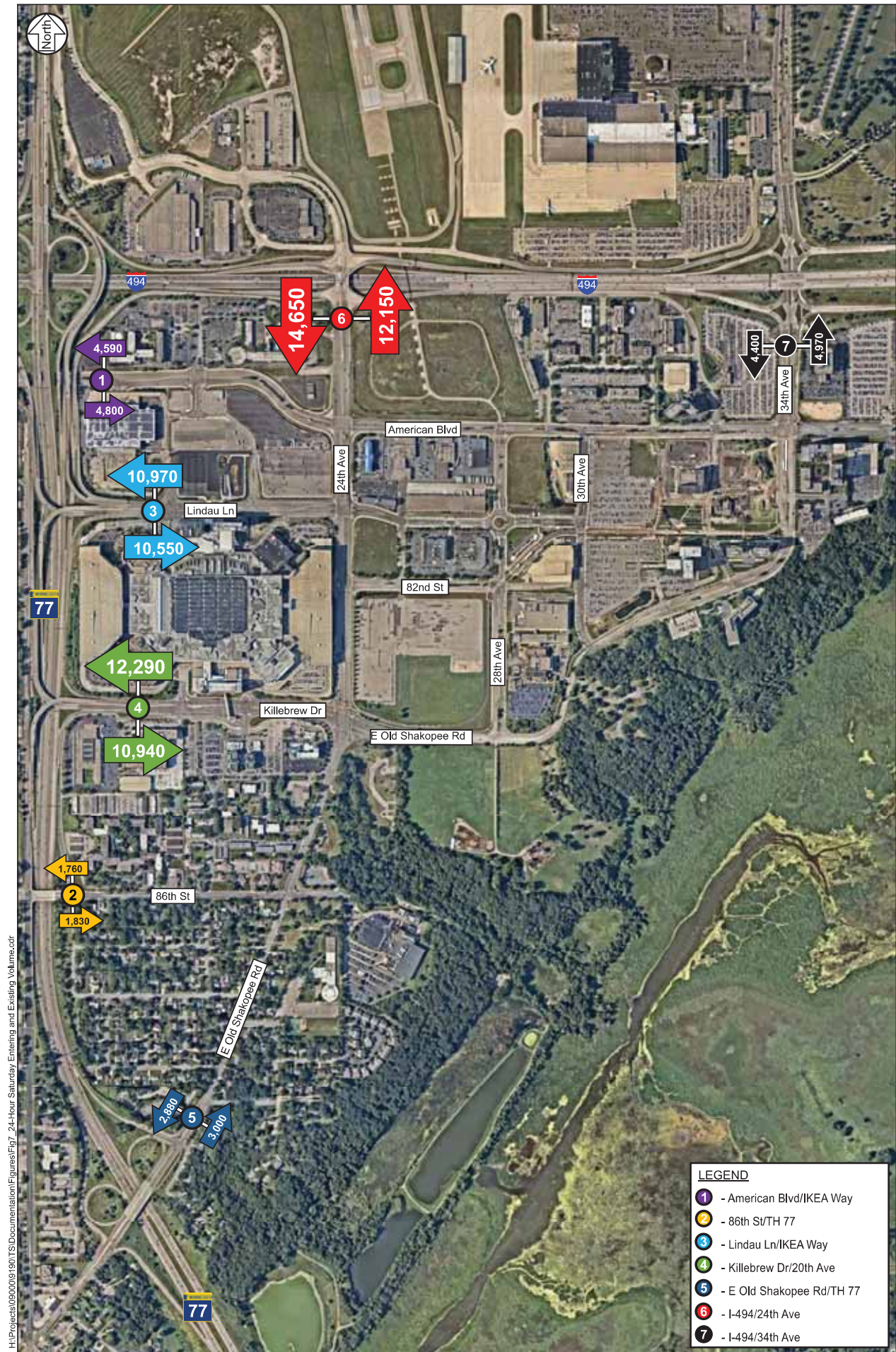
A summary of the 24-hour weekday and Saturday counts entering and exiting the District area is provided in Figure 6 and Figure 7, respectively. It should be noted that the volumes in the figure represent the raw vehicle counts collected at the locations (i.e. no adjustments were made to represent an 85th percentile day as discussed in the following section or to balance between study intersections). Further the counts shown in the figures do not include pedestrian/bicyclist volumes since they were low due to the weather on the days of data collection. The hourly volume profiles for each intersection for both the weekday and Saturday counts are included in Appendix A. A comparison of the weekday and Saturday volume information indicates that segments with higher weekday volumes are likely due to office generated trips (i.e. 34th Avenue, American Boulevard, 86th Street, East Old Shakopee Road) versus the segments with higher Saturday volumes are likely due to the retail generated trips (i.e. 24th Avenue, Lindau Lane, Killebrew Drive).



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Figure 6



H:\Projects\09000091901\TSDocumentation\Figures\Fig_24-Hour Saturday Entering and Existing Volume.cdr



Figure 7

In addition to the 24-hour cordon counts, SRF conducted peak period turning movement counts (passenger vehicles, pedestrians, and bicycles) during the Thursday a.m. peak and p.m. peak and Saturday peak periods at the following locations in March/April 2016:

- 24th Avenue/79th Street
- 24th Avenue/American Boulevard
- 24th Avenue/Lindau Lane
- 24th Avenue/82nd Street
- 24th Avenue/ MOA Gate 6
- 24th Avenue/Killebrew Drive/East Old Shakopee Road
- 34th Avenue/American Boulevard
- 34th Avenue/I-494 North Crossover
- 34th Avenue/Appletree Square
- American Boulevard/Thunderbird Road
- American Boulevard/28th Avenue
- American Boulevard/Metro Drive West
- American Boulevard/30th Avenue
- American Boulevard/31st Avenue/Metro Drive East
- American Boulevard/33rd Avenue/International Drive
- Lindau Lane/22nd Avenue
- Killebrew Drive/22nd Avenue
- East Old Shakopee Road/TH 77 Southbound Ramps
- East Old Shakopee Road/86th Street
- East Old Shakopee Road/28th Avenue
- East Old Shakopee Road/30th Avenue
- East Old Shakopee Road/31st Avenue/Ceridian Driveway
- East Old Shakopee Road/33rd Avenue/Ceridian Driveway
- 28th Avenue/Lindau Lane
- 28th Avenue/82nd Street
- 30th Avenue/Lindau Lane
- 30th Avenue/North HP Driveway /Metro Park-and-Ride
- 30th Avenue/Central HP Driveway
- 30th Avenue/South HP Driveway

A review of the intersection turning movement counts found that the weekday a.m. peak hour is from 7:30 to 8:30 a.m., the weekday p.m. peak hour is from 4:30 to 5:30 p.m., and the Saturday peak is from 3:00 to 4:00 p.m. Detailed information is provided in Appendix A.

85th Percentile Adjustments

When conducting traffic studies in the South Loop District, the base volume sets are adjusted to reflect the 85th percentile condition. The 85th percentile is understood to represent the typical weekday/Saturday peak hour volume during the back to school shopping season, which is typically the threshold used to conduct traffic operations analysis for traffic studies near the MOA. The traffic volumes in this area fluctuate weekly, so historical traffic volume information as well as MOA Gate Counts and MnDOT Loop Detector data were reviewed to determine what adjustments should be made so that the existing volume set represents a 85th percentile traffic volume set.

Gate Closure Day

During data collection on Saturday, March 19, 2016 the MOA gates closed starting around 2:00 p.m. Gate closures occur when the parking ramps are fully utilized and the access locations are blocked off to route vehicles to alternative parking locations, such as the parking lot west of 24th Avenue between 82nd Street and East Old Shakopee Road. While collecting traffic volumes on a gate closure day was not intended and not used for the baseline existing volumes, the gate closure conditions are helpful to understand traffic volumes/patterns during a worst-case condition. SRF counted the MOA access intersections on this gate closure day and recounted on a non-gate closure day in April 2016. This information was used to help develop the Saturday 85th percentile peak hour condition.

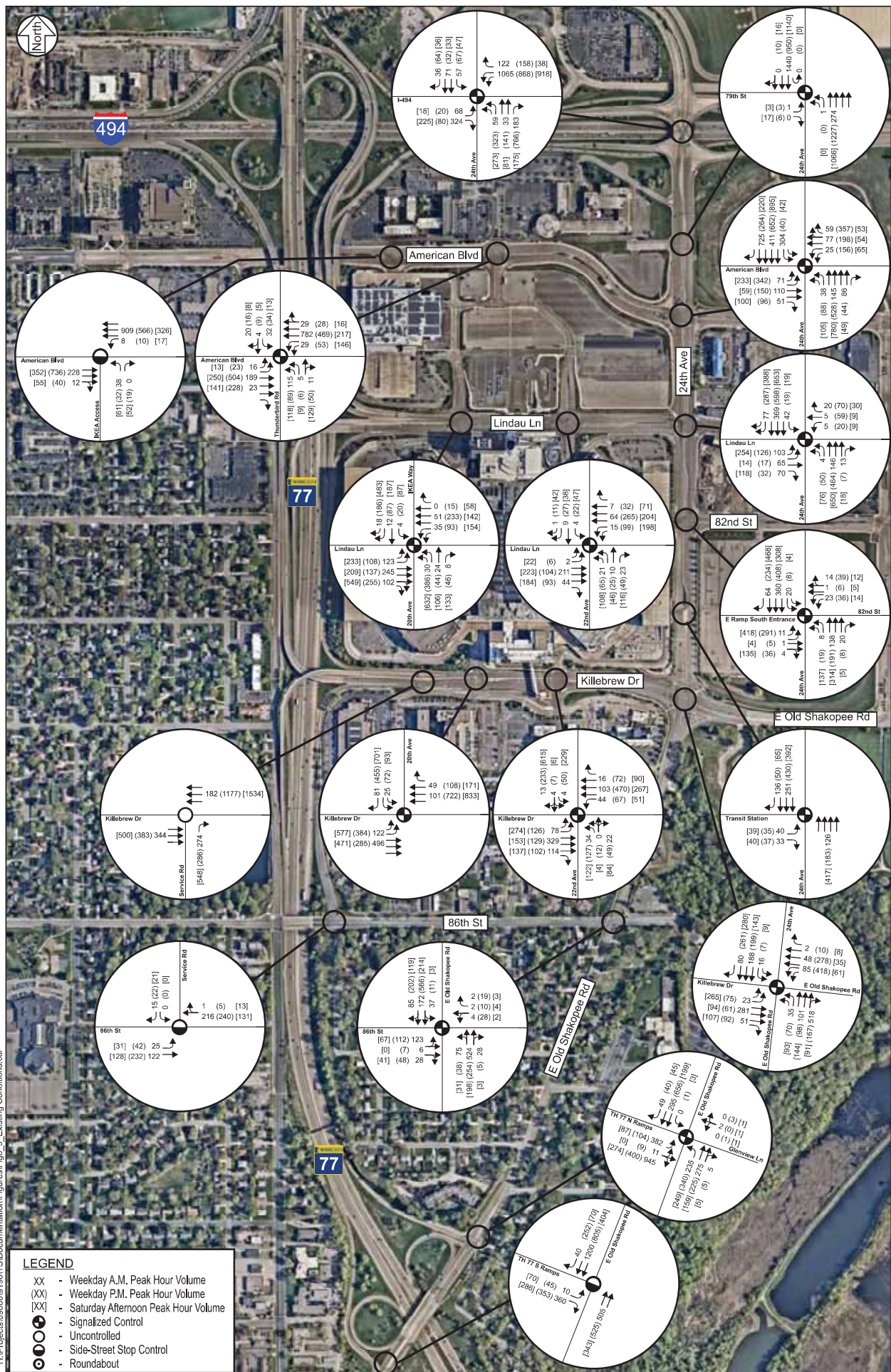
MOA Gate Counts/MnDOT Loop Detector

January 2015 to April 2016 MOA gate count and MnDOT loop detector data was reviewed for both Thursday and Saturday conditions and compared to the data collection days in March and April. Additional information summarizing the results of the MOA Gate Count and MnDOT Loop Detector review are provided in Appendix B.

For locations where the traffic volumes varied from the 85th percentile, adjustment factors were developed and applied to the peak hour condition to develop an 85th percentile volume. The adjustment factors applied to each study intersection for the weekday a.m., weekday p.m., and Saturday peak hours are provided in Appendix C.

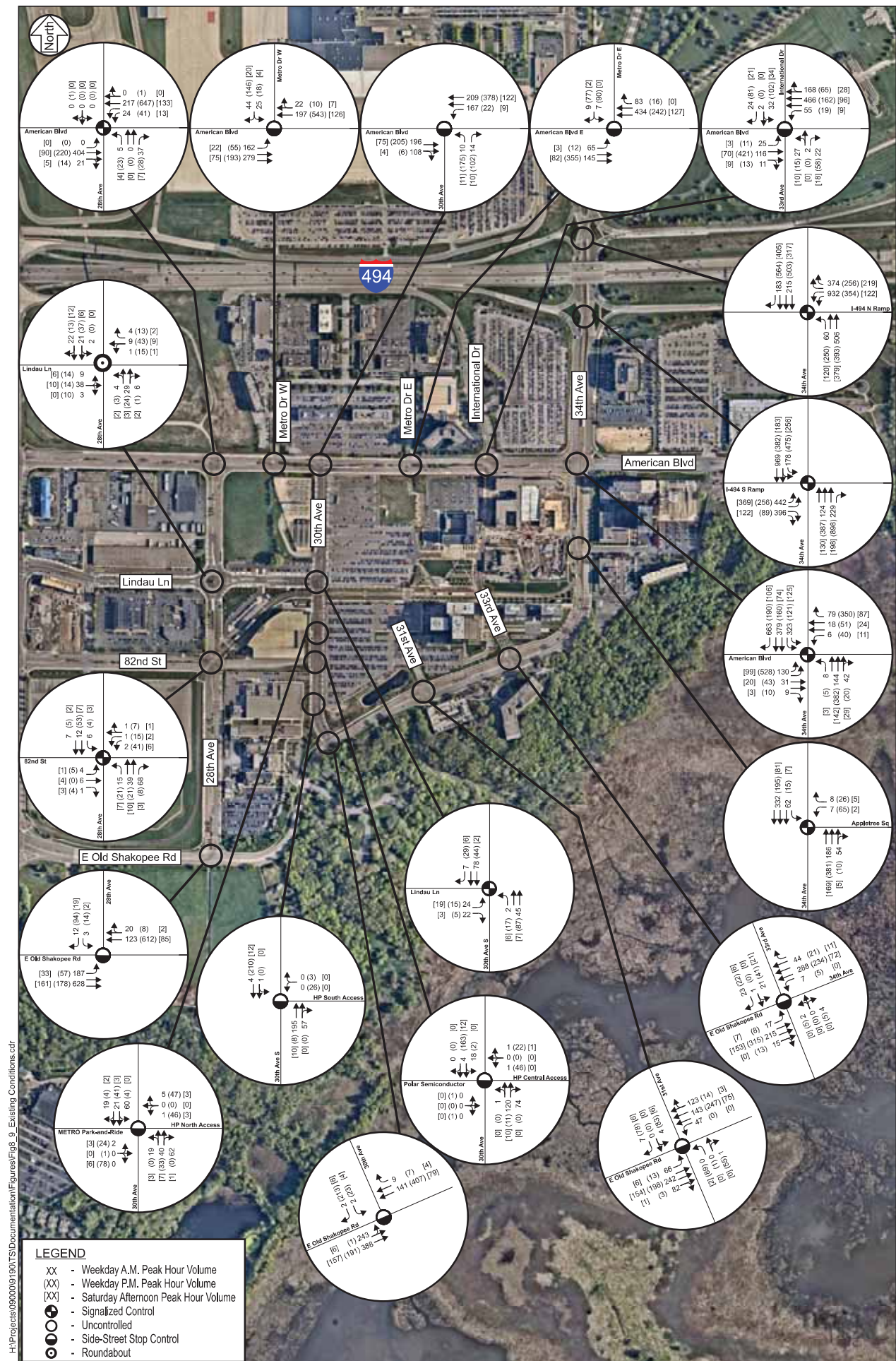
Roadway Characteristics

Field observations were conducted to identify roadway characteristics within the study area (i.e. roadway geometry, posted speed limits, and traffic controls). Existing signal timing was provided by the City of Bloomington. At-grade LRT crossing locations were also identified and accounted for in the analysis. Existing geometrics, traffic control, and weekday a.m. and p.m. and Saturday peak hour volumes are shown in Figure 8 and Figure 9.



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Figure 8



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Field Observations

The following on-site field observations were noted and utilized in the calibration of the existing model:

Locations where unbalanced lane utilization was observed:

- Southbound 24th Avenue (I-494/24th Avenue interchange to Lindau Lane)
 - This is due to a high number of vehicles destined to make a southbound right-turn into the MOA. This poor lane utilization was observed to start at the westbound left-turn movement at the I-494/24th Avenue interchange (70 percent in the northern left-turn lane and 30 percent in the southern left-turn lane). The lane imbalance continues south through the Lindau Lane intersection.
- Northbound 24th Avenue (Lindau Lane to the I-494/24th Avenue interchange).
 - Northbound queuing occurs as a result of vehicles positioning themselves to make the northbound right-turn movement at the I-494/24th Avenue interchange.
 - While it is understood that periodically the northbound through lane queues may extend to 82nd Street with traffic stopping to merge into the far right lane during the peak hour, this was not observed during field observations.
- Eastbound left-turn movement at the 24th Avenue/American Boulevard
 - The majority of traffic making the left-turn is destined to make a northbound right-turn movement at the I-494/24th Avenue interchange (approximately 30 percent in the northern left-turn lane and 70 percent in the southern left-turn lane). There was minimal use of the inside turn lane and during the weekday p.m. peak hour, the outside left-turn lane frequently queues past the storage, blocking access to the inside left-turn lane.
- Eastbound left-turn movement at Lindau Lane/IKEA Way
 - A majority of the vehicles currently making a left-turn are destined for IKEA (60 percent in the northern left-turn lane and 40 percent in the southern left-turn lane).
- Northbound left-turn and southbound right-turn movement at Lindau Lane/IKEA Way
 - Majority of vehicles exiting the MOA at this location (during the weekday p.m. and Saturday peak hours) are destined for the ramp to I-494 westbound and TH 77 (80 percent in the western left-turn lane and 20 percent in the eastern left-turn lane).
 - Southbound right-turn vehicles are destined for the ramp to I-494 westbound and TH 77 (approximately 70 percent in the eastern right-turn lane and 30 percent in the western right-turn lane).
- Eastbound left-turn movement at 34th Avenue/American Boulevard
 - The majority of traffic making the left-turn is destined to make a northbound right-turn movements at the I-494/34th Avenue interchange (approximately 20 percent in the northern left-turn lane and 80 percent in the southern left-turn lane). There was minimal use of the inside turn lane and during the weekday p.m. peak hour, the outside left-turn lane frequently queues past the storage, blocking access to the inside left-turn lane.

Intersection Operations Analysis

An operations analysis was conducted to quantify how traffic operates at the study intersections under existing conditions. PTV Vissim (Version 7.00-16) was used since it is an effective tool to analyze LRT operations, pedestrians, and roundabouts. Intersection operations analysis results identify a Level of Service (LOS) which indicates how well an intersection is operating. Intersections are ranked from LOS A through LOS F. The LOS results are based on average delay per vehicle, which correspond to the delay threshold values shown in Table 4. LOS A indicates the best traffic operation and LOS F indicates an intersection where demand exceeds capacity. Overall intersection LOS A through LOS D is considered acceptable by the City of Bloomington.

Table 4. Level of Service Criteria for Signalized and Unsignalized Intersections

LOS Designation	Signalized Intersection Average Delay/Vehicle (seconds)	Unsignalized Intersection Average Delay/Vehicle (seconds)
A	≤ 10	≤ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50

For side-street stop controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service. This takes into account the total number of vehicles entering the intersection and the capability of the intersection to support these volumes. Second, it is important to consider the delay on the minor approach. Since the mainline is not stop controlled, the majority of delay is attributed to the minor approaches. It is typical of unsignalized intersections with higher mainline traffic volumes to experience high levels of delay, i.e. poor levels of service, on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions.

Results of the existing capacity analysis shown in Table 5 indicate that all study intersections currently operate at an acceptable overall LOS D or better during the weekday a.m., weekday p.m. and Saturday peak hours, with the existing traffic control, geometric layout, and signal timing. The LOS results for the weekday a.m., weekday p.m., and Saturday peak hours are illustrated in Figure 10, Figure 11, and Figure 12, respectively. Detailed traffic operations results, including movement delays and queue lengths are provided in Appendix D.

Table 5. Existing Conditions Peak Hour Capacity Analysis (Level of Service)

Intersection	AM Peak Hour	PM Peak Hour	Sat Peak Hour
24th Avenue/I-494 Interchange	B	B	B
24th Avenue/79th Avenue	A	A	A
24th Avenue/American Boulevard	C	C	C
24th Avenue/Lindau Lane	A	B	B
24th Avenue/82nd St	A	B	C
24th Avenue/Transit Station	A	A	A
24th Avenue/Killebrew Drive /East Old Shakopee Road	C	C	C
34th Avenue/I-494 Interchange	C	B	B
34th Avenue/American Boulevard	B	C	B
34th Avenue/Appletree Square	A	A	A
American Boulevard/IKEA Access ⁽¹⁾	A/B	A/B	A/A
American Boulevard/Thunderbird Road	A	A	B
American Boulevard/28th Avenue/Airport Access	A	A	A
American Boulevard/Metro Drive West ⁽¹⁾	A/A	A/B	A/A
American Boulevard/30th Avenue ⁽¹⁾	A/B	A/C	A/A
American Boulevard/Metro Drive East ⁽¹⁾	A/B	A/C	A/A
American Boulevard/33rd Avenue/International Drive ⁽¹⁾	A/B	A/C	A/A
Lindau Lane/IKEA Way	B	C	D
Lindau Lane/22nd Avenue	A	B	C
SB TH 77/NB TH 77 Merge at Killebrew Drive ⁽¹⁾	A/A	A/A	A/A
Killebrew Drive/20th Avenue	A	B	C
Killebrew Drive/22nd Avenue	A	B	D
East Old Shakopee Road/TH 77 S Ramps ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/TH 77 N Ramps	B	A	A
East Old Shakopee Road/86th Street	A	A	A
East Old Shakopee Road/28th Avenue ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/30th Avenue ⁽¹⁾	A/B	A/A	A/A
East Old Shakopee Road/31st Avenue ⁽¹⁾	A/B	A/B	A/A
East Old Shakopee Road/33rd Avenue/Ceridian Access ⁽¹⁾	A/A	A/A	A/A
28th Avenue/Lindau Lane	A	A	A
28th Avenue/82nd Street	A	B	B
30th Avenue/Lindau Lane	A	A	A
30th Avenue/North HP Driveway/METRO Park-and-Ride ⁽¹⁾	A/A	A/A	A/A
30th Avenue/Central HP Driveway ⁽¹⁾	A/A	A/A	A/A
30th Avenue/South HP Driveway ⁽¹⁾	A/A	A/A	A/A
E 86th Street/Service Road ⁽¹⁾	A/A	A/A	A/A

(1) Side-street stop controlled intersection. Overall intersection LOS followed by the worst approach.



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Existing LOS - Weekday AM Peak Hour
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

Figure 10



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Existing LOS - Weekday PM Peak Hour
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

Figure 11



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Existing LOS - Saturday Peak Hour
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

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Figure 12

Key Operational Issues

Although all of the intersections currently operate at acceptable overall levels of service during the peak hours, the following operational issues were observed during field observations as well as in the simulation model:

24th Avenue/American Boulevard

- During the weekday p.m. peak hour, the southern eastbound left-turn queues extend back approximately 400 feet, which is beyond the available left-turn storage of approximately 300 feet. As mentioned under the field observations, this movement has an unbalanced lane utilization.

24th Avenue/I-494 Interchange

- During the weekday a.m. and p.m. peak hour, the northern westbound left-turn lane queues extend 355 feet and 285 feet, respectively. As mentioned under the field observations, this movement has an unbalanced lane utilization.

34th Avenue/American Boulevard

- During the weekday p.m. peak hour, the southern eastbound left-turn queues extend back approximately 450 feet, which is beyond the available left-turn storage of approximately 180 feet. As mentioned under the field observations, this movement has an unbalanced lane utilization.

Lindau Lane/IKEA Way

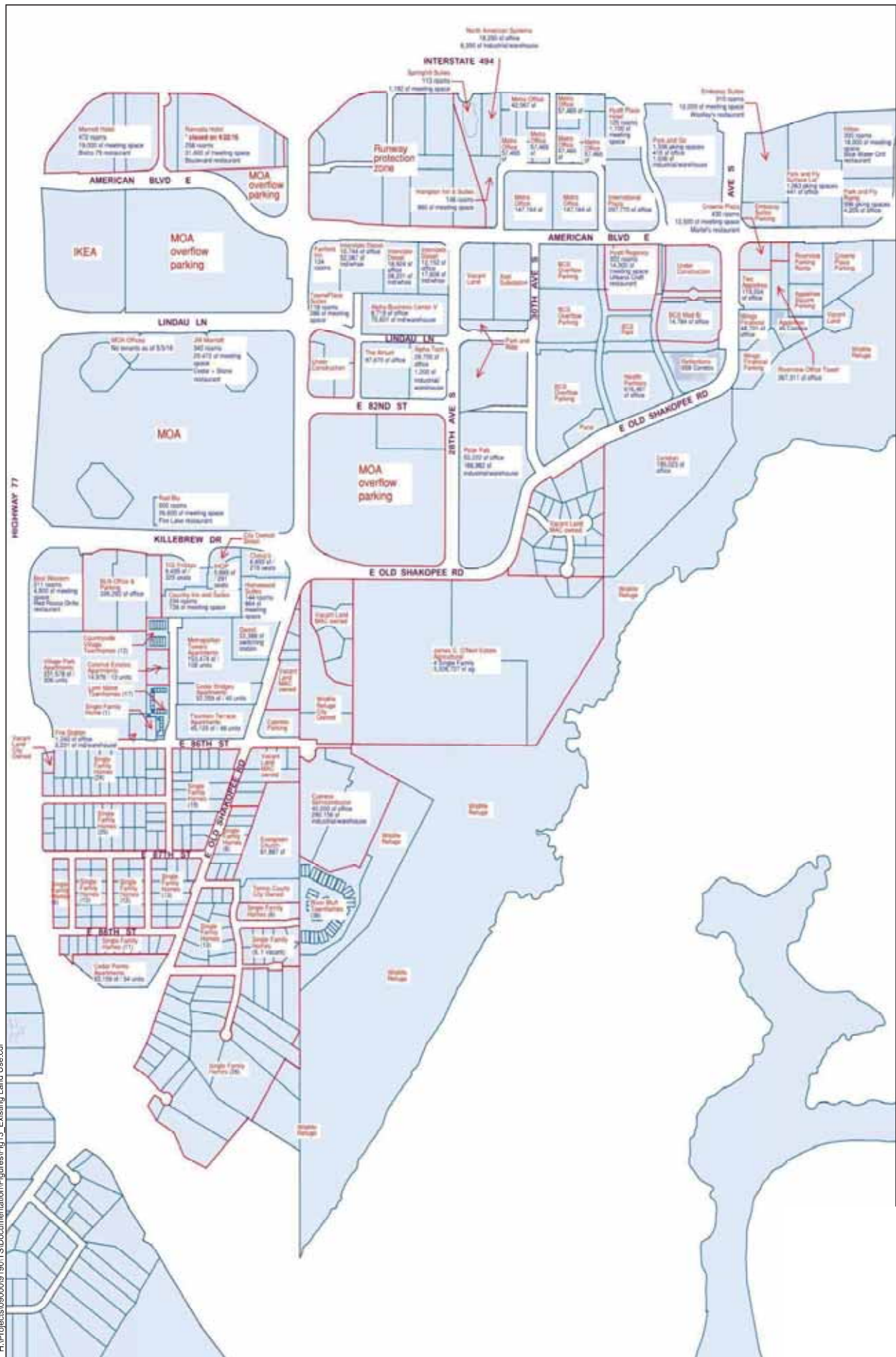
- During the Saturday peak hour, northbound left-turn queues extend approximately 500 feet, blocking access to the northbound through and right-turn lanes on the south approach.

Trip Generation Analysis

Trip generation estimates were developed for existing, year 2025 and year 2040 based on the current and future development expected to occur in the South Loop District. The future development land use assumptions are consistent with the AUAR.

Existing Land Use

The existing intersection turning movement counts were reviewed to understand the routes, travel patterns, and trip rates that are currently being used to enter and exit the South Loop District. It is important to understand the existing routes to accurately distribute trips generated by future development in the South Loop District. Existing South Loop District trips were generated for the study area based on land use data provided by the City and the *Institute of Transportation Engineer (ITE) Trip Generation Manual, 9th Edition*. The existing land use size and type for each parcel was provided by the City of Bloomington and is illustrated in Figure 13.



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Using the average ITE trip generation rate for all land uses to generate existing trips in the South Loop District resulted in traffic volumes that were higher or lower than the traffic volumes collected during the intersection turning movement counts. The MOA and Health Partners are exceptions; both of these developments generated traffic at a similar rate to ITE. To account for existing developments that are generating higher or lower than the average ITE rate, adjustment factors were developed for the weekday a.m., weekday p.m., and Saturday peak hours for the TAZs.

In general the existing developments generated trips at a lower rate than the ITE average trip rate. There are a variety of reasons for why developments may be generating less than the average ITE trip rate for that specific land use. Some of these factors include:

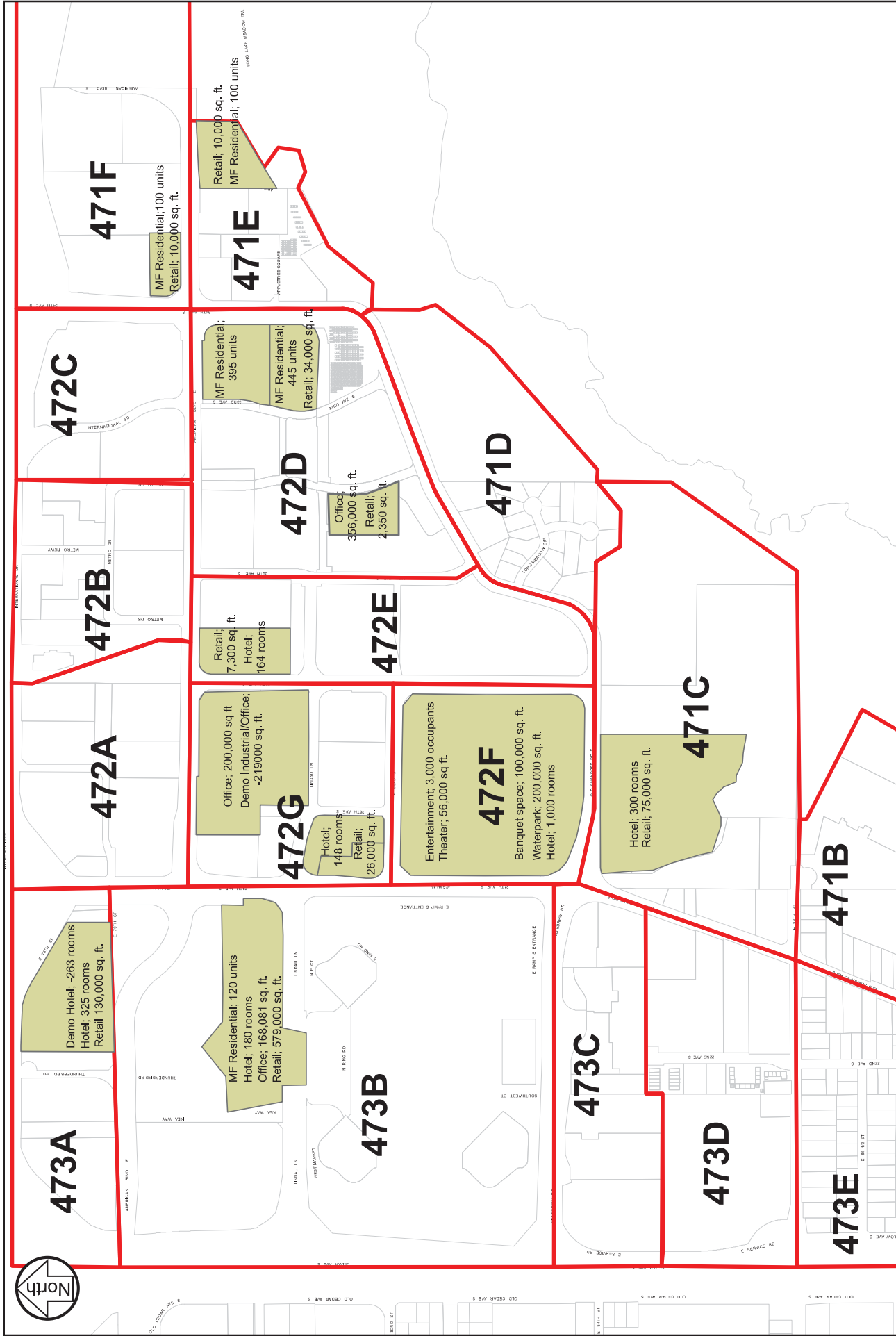
- Mode share (a portion of trips are arriving via transit, carpool, or walk/bike)
- Multi-use (trips that are utilizing one or more land uses within the area)
- The building space within the development is not fully utilized/leased
- The development is a less than average generator

In addition to validating the routing and trip generation assumptions, the trips generated by existing developments is important to understand for locations where proposed future development will replace an existing development. Under that scenario, the calibrated existing development trips will be used to estimate what trips should be removed from the existing volume set. A detailed comparison of existing trip generation estimates compared the ITE trip generation estimates is provided in the Appendix E.

Year 2025 Land Use

Trip generation estimates for the weekday a.m., weekday p.m. and Saturday peak hours were calculated for the anticipated development land use scenario under year 2025 conditions. The year 2025 planned land use is illustrated in Figure 14. To estimate the number of trips that will be generated by future developments the *ITE Trip Generation Manual, 9th Edition* was used. While ITE was used to develop trip generation estimates for a majority of the parcels, due to the uniqueness of the planned land uses for the developments listed below, additional resources/assumptions were utilized to develop trip generation estimates. The assumptions used to generate trips for these developments are provided in Appendix F.

- Hotel/Retail Development in 473A
- MOA Phase 1C and 2B in 473 B
- MOA Transit Station in 473B
- Waterpark Hotel/Banquet Space in 472F
- Entertainment/Theater in 472 F
- 28th Avenue Park-and-Ride in 472E



Based on existing observations, the following modal and multi-use reductions were applied:

- For all development located within one-quarter (1/4) mile of a LRT station, a five (5) percent modal reduction was applied to the trip generation estimates. This reduction is consistent with the observations completed at each of the LRT stations during the weekday a.m. and p.m. peak hours.
- To account for motorists that will utilize one or more land uses, a five (5) percent multi-use reduction was applied to locations where mixed-use developments are proposed. This multi-use reduction was developed based on a combination of existing observations and the methodology described in the *ITE Trip Generation Handbook*.
- A 15 percent reduction for all proposed hotel developments was applied to peak hour trips. Driveway count information collected by SRF and Spack Consulting at hotels in the South Loop District suggest that the hotels in this area consistently generate trips at a lower rate than the average ITE trip rate. This is likely due to the close proximity of the airport and the MOA since the hotels provide shuttle services to both of these locations.

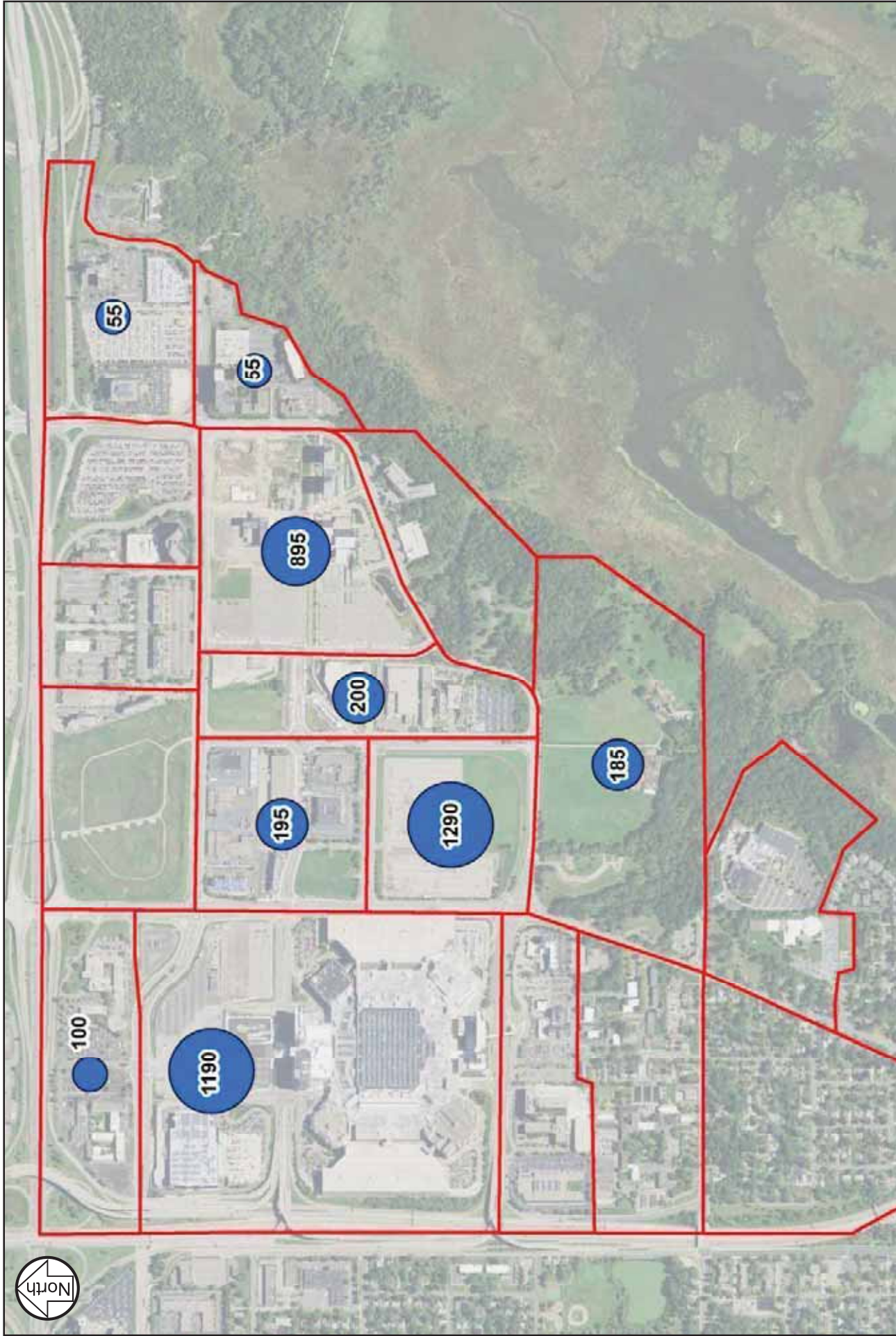
Year 2025 development traffic is summarized by TAZ in Figure 15, Figure 16, and Figure 17 for the weekday a.m., weekday p.m., and Saturday midday peak hours, respectively. The trip generation estimates account for any existing land uses that are proposed to be removed under year 2025 conditions and the development trips illustrated represent the net increase in trips to each TAZ. Trip generation estimates and assumptions used for each development and summarized by TAZ are provided in Appendix G.

Year 2040 Land Use

Trip generation estimates for the weekday a.m., weekday p.m., and Saturday peak hours were calculated for the expected development between year 2025 and year 2040 conditions. The year 2040 planned land use is illustrated in Figure 18. To estimate the number of trips that will be generated by future development the *ITE Trip Generation Manual, 9th Edition* was used. While ITE was used to develop trip generation estimates for a majority of the parcels, due to the uniqueness of the planned land uses for the developments listed below additional resources/assumptions were utilized to develop trip generation estimates. The assumptions used to generate trips for these developments are provided in Appendix F.

- MOA Phase 2C and Hotel/Retail Development in TAZ 473B
- 28th Avenue Park-and-Ride in 472E

The modal and multi-use reduction assumptions applied under year 2025 conditions were also applied under year 2040 conditions. Year 2040 development traffic is summarized by TAZ in Figure 19, Figure 20, and Figure 21 for the weekday a.m., weekday p.m., and Saturday peak hours respectively. The trip generation estimates account for any existing land uses that are proposed to be removed under year 2040 conditions and the development trips illustrated represent the net increase in trips to each TAZ.



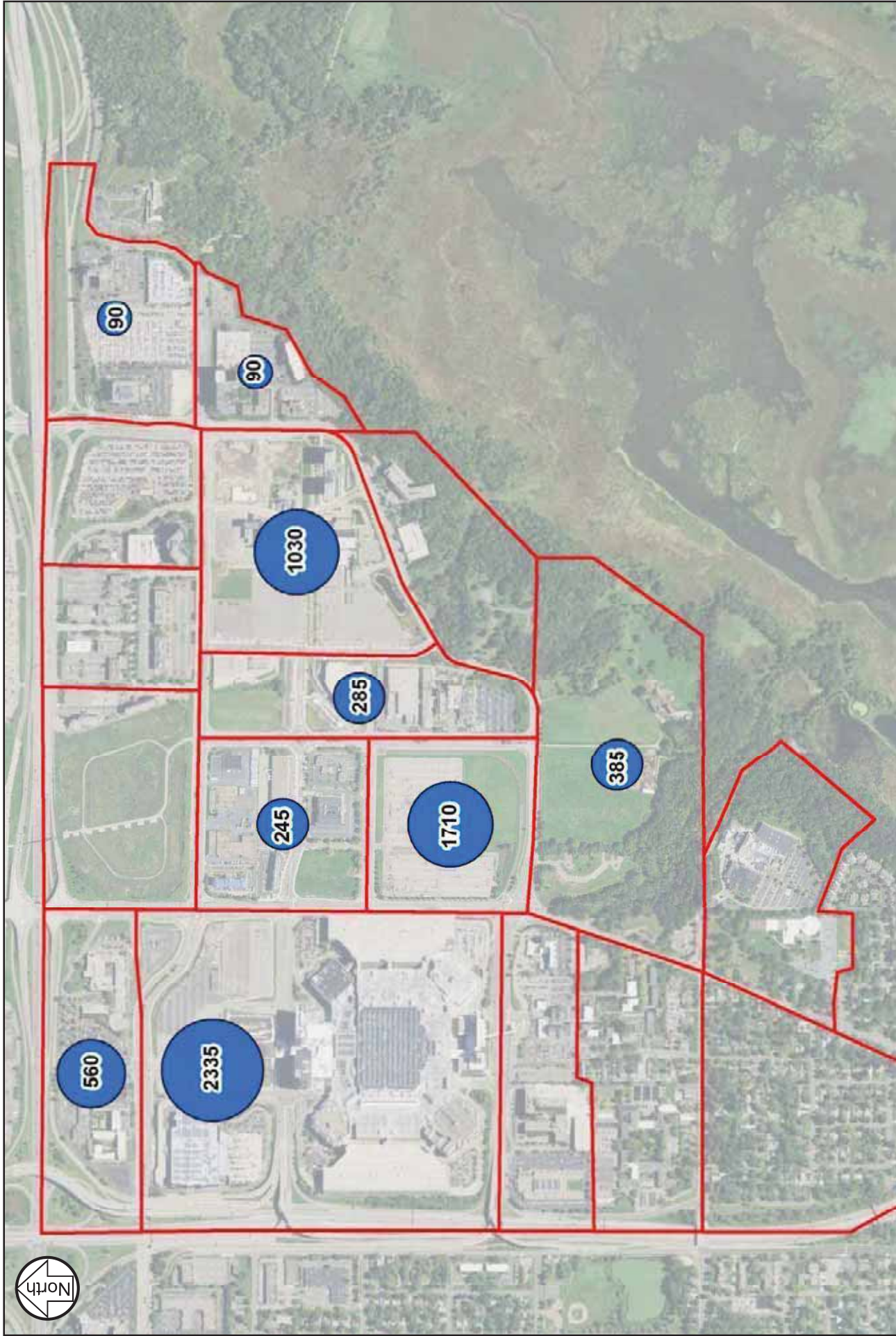
Year 2025 Development Trips - Weekday AM Peak Hour

South Loop Roadway Infrastructure Improvement Study
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Figure 15



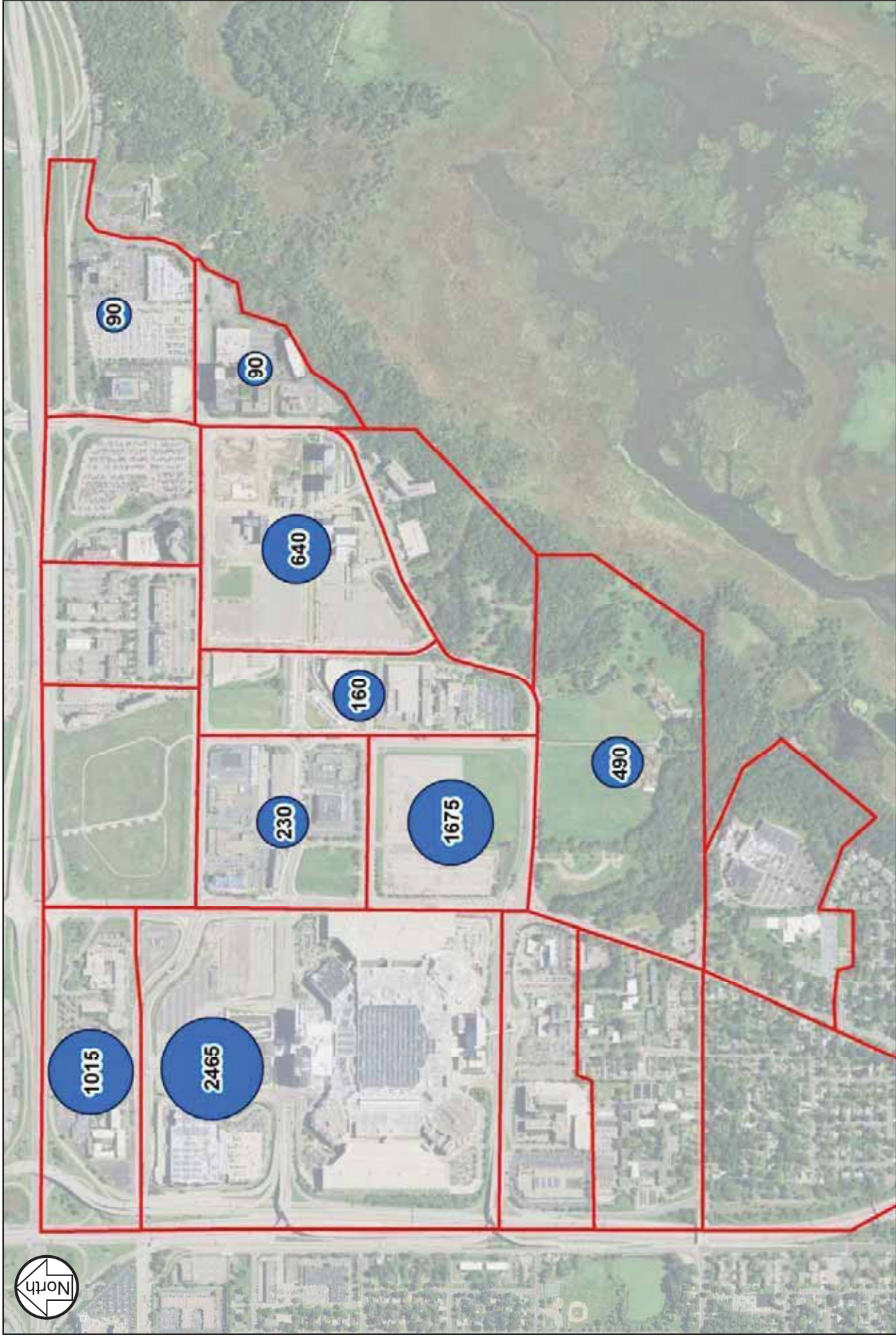
Year 2025 Development Trips - Weekday PM Peak Hour

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City of Bloomington

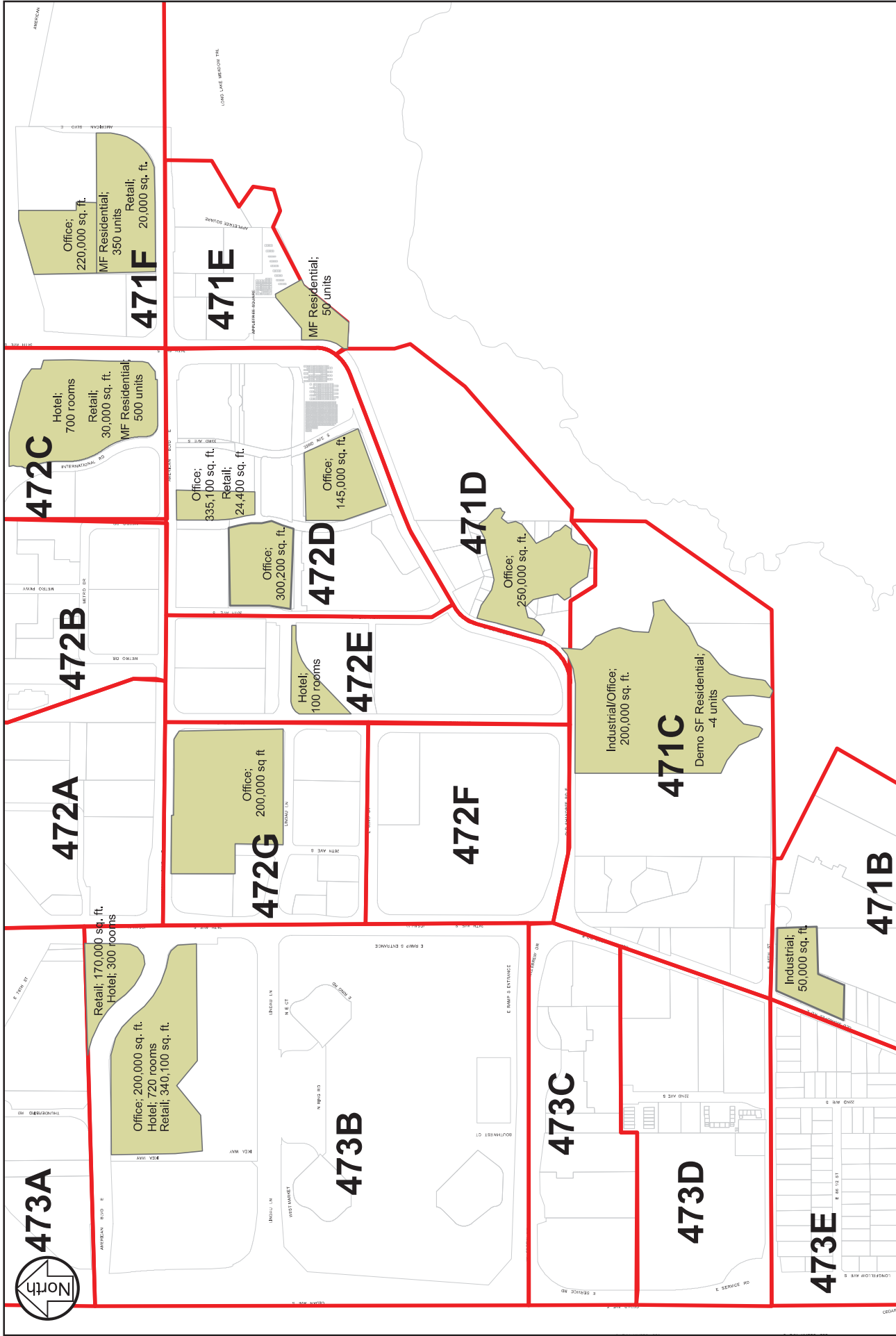


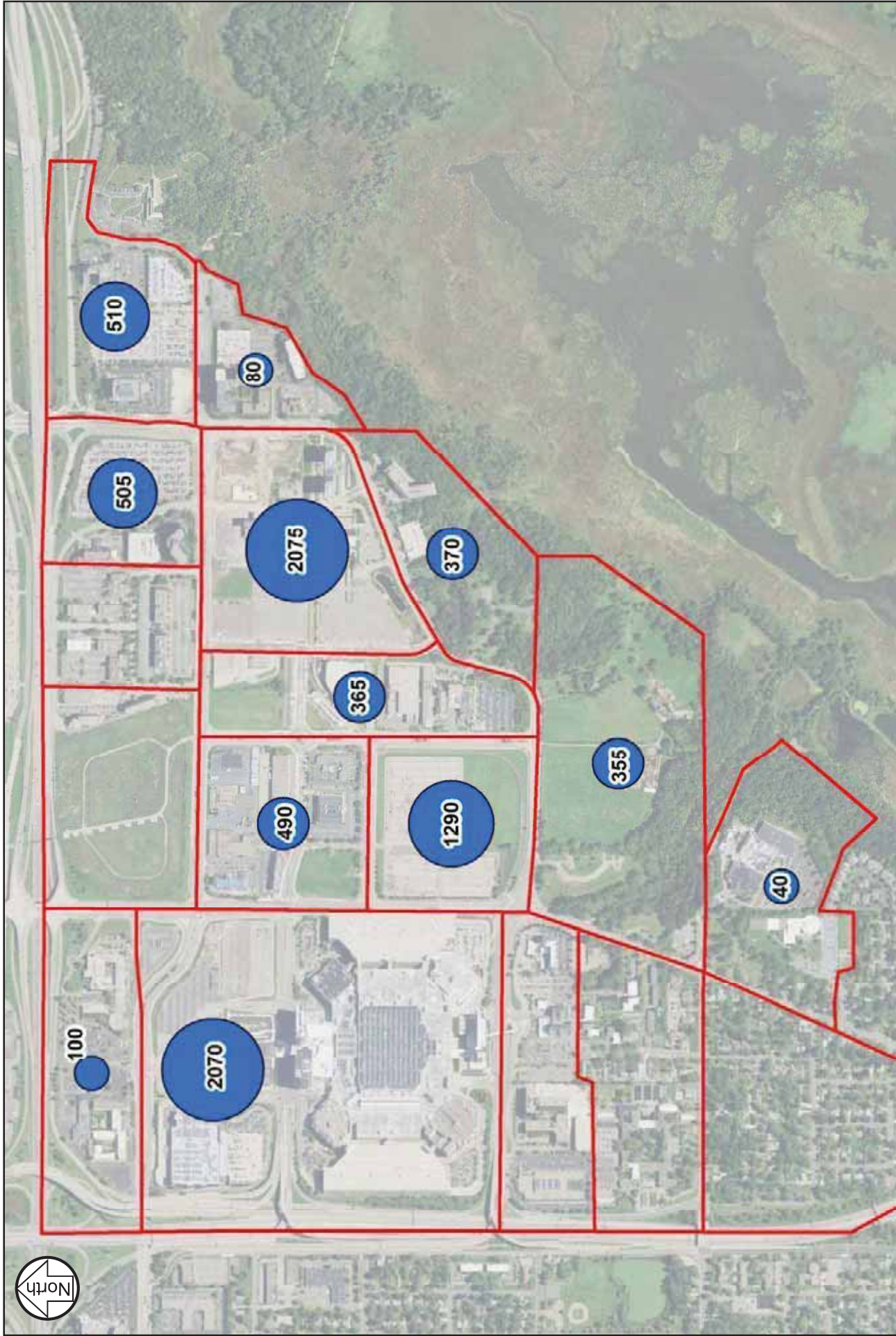
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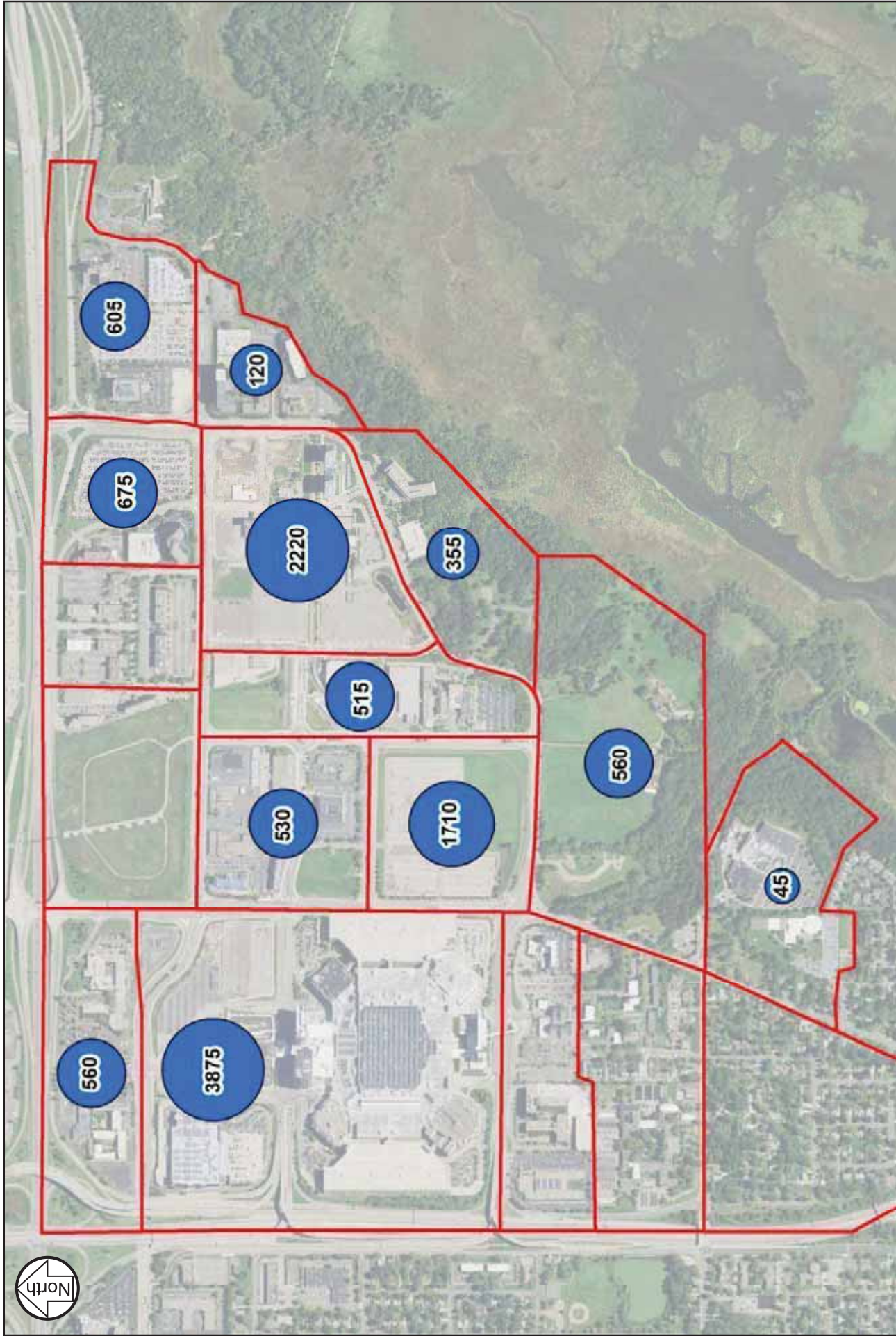
Figure 16

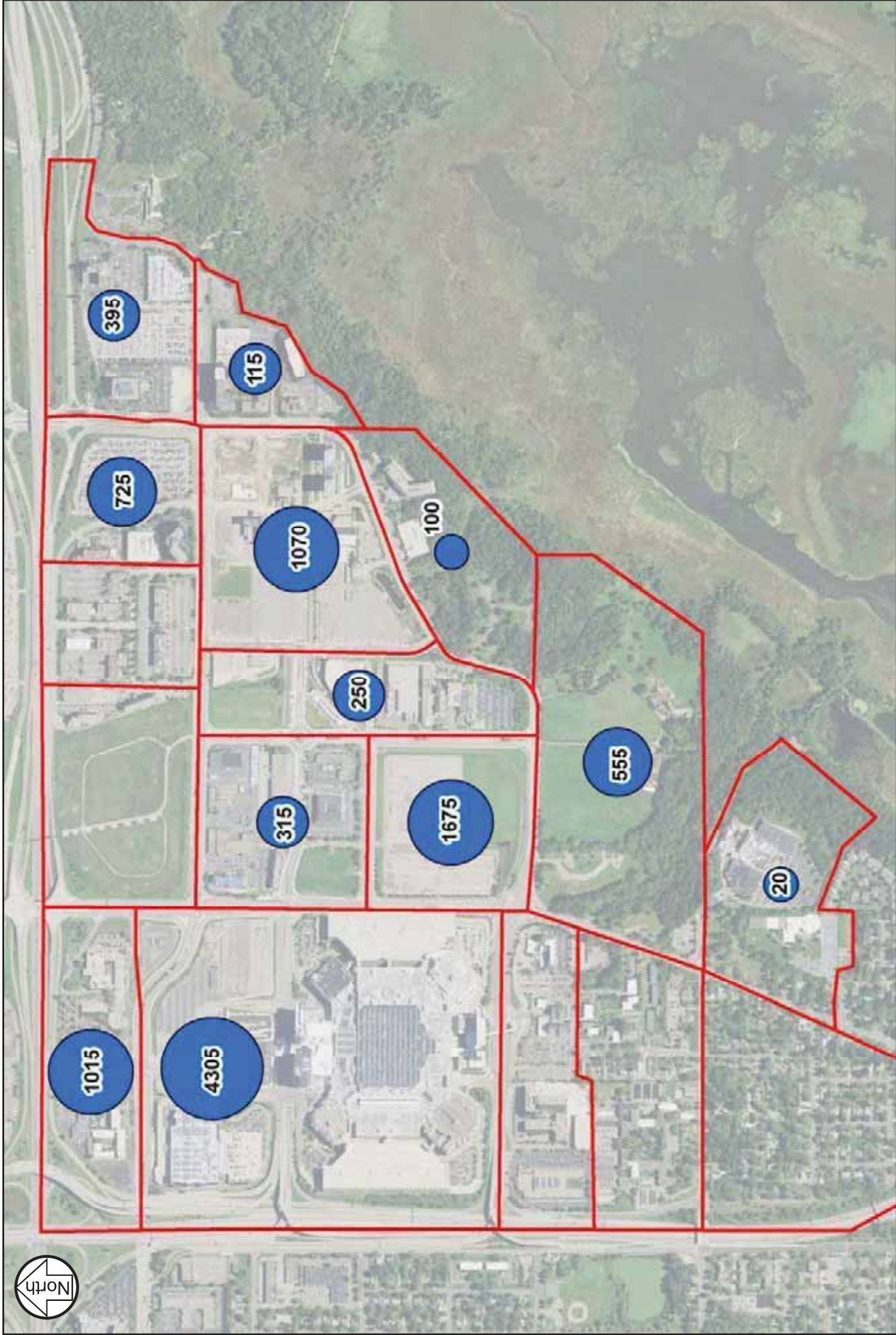


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Year 2025 and 2040 development trip estimates were assumed to generate trips based on the average ITE trip rate and modal/multi-use assumptions developed for year 2025. However, it is important to note that there are a number of unknowns under year 2040 conditions that would impact traffic forecast estimates for all development traffic in the South Loop District (i.e. existing, year 2025 and year 2040 development generated trips). A few of these unknowns are listed below. Based on these uncertainties, the year 2040 forecasts year 2040 infrastructure improvement needs should be re-evaluated every five (5) years as the AUAR is being updated:

- Driverless vehicle impacts to traffic volumes/patterns
 - *Traffic Forecasting and Autonomous Vehicles (2016 European Transport Conference)* found the following:
 - Difficult to estimate how autonomous vehicles (AV) will be used and how AV will affect mobility as a whole
 - AV technology will be available in four to ten (10) years
 - Large dispersion in expert's opinion on how AV will affect forecasts
 - When AV will be widespread? (when will AV make up 10 percent, 20 percent of the car fleet?)
 - Percent of AV owned versus a shared vehicle model
 - Impacts to transit ridership
 - Behavioral change (rider can legally undertake other activities while travelling)
- At this time it is unknown what changes there will be to current and/or proposed transit routes as well as frequency in the South Loop District. Metro Transit is considering LRT or bus rapid transit (BRT) to be constructed on the West 7th Street Corridor (i.e. Riverview Corridor) that would terminate at the MOA. American Boulevard is also being considered for future BRT, which would utilize American Boulevard and terminate at the MOA. There is also the potential for the Blue Line LRT to increase frequency during peak and non-peak times.
 - Additional or increased frequency transit routes including LRT, BRT, local, and/or express may influence the mode choice for users to/from the South Loop District.
- Development trips were estimated using the average ITE rate for both year 2025 and 2040 development to provide a conservative estimate. However, developments may not generate at the average rate.
- To provide a conservative estimate, the process used to estimate development trips assumed that all developments would have the same peak hour; however, the development peaks may not all be within the same hour and may vary between a two to three peak hour period.
- With the increase of congestion to the South Loop District and surrounding regional transportation system there is potential for peak period spreading to occur.
- Behavioral changes with future driving age populations may shift traffic patterns, such as mode choice and flexibility in work hours.
- A higher percentage of employees electing to work remotely may change traffic patterns.

Directional Distribution

The existing weekday a.m., weekday p.m. and Saturday peak hour intersection turning movement counts as well as the Met Council Regional Travel Demand Model were reviewed to develop a directional distribution. In addition, the general travel patterns/routing were developed for each TAZ based on a combination of existing turning movement count data, route time/distance information, and engineering judgment. The access, directional distribution, and routing percentages are provided in the Appendix H. These distribution patterns are fairly consistent with those assumed in previous studies within the area.

Access

The City provided access assumptions for all planned land uses, including the access location and if the access is restricted or full. The access assumptions graphic provided in the Appendix H.

Based on the access assumptions and planned land use assumptions the following should be noted:

- The 24th Avenue/79th Street intersection is located less than 500 feet from the I-494/24th Avenue interchange eastbound right-turn and westbound left-turn merge point. This short distance makes it difficult for vehicles that are destined to make a southbound right-turn at 79th Street to weave to the appropriate lane. This intersection should be monitored under future conditions and access at this location should not be guaranteed when a development proposal is submitted for the southwest quadrant of the interchange.
- Under year 2025 conditions a hotel/retail development is planned in the southeast quadrant of the 24th Avenue/Killebrew Drive/East Old Shakopee Road intersection (TAZ 471C). Since the Kelly Farms property is not anticipated to redevelop until after year 2025 conditions, a full access to the development is assumed on the south side of East Old Shakopee Road approximately 300 feet east of 24th Avenue (where an existing curb-cut is located). This access is located in the 24th Avenue/Killebrew Drive/East Old Shakopee Road intersection northbound right-turn/eastbound through movement merge point and has potential to create safety/operational issues. However, this is the only feasible access location for the planned development in year 2025 until the Kelly Farms property to the east redevelops. If/when a development proposal is submitted for this location, the access should be reconsidered and a detailed traffic study should be completed to assess the safety and operational impacts of the access.
- While there is no development proposal currently submitted for the adjoining land area bounded by 24th Avenue to the west, 82nd Street to the north, 28th Avenue to the east, and East Old Shakopee Road to the south (TAZ 472F), the proposed location of the parking lots/supply within the TAZ will impact how vehicles enter/exit the development. Based on information provided by the City, two of the planned access locations to the TAZ cross LRT tracks; one located on East Old Shakopee Road (right-in/right-out) and a second access on 28th Avenue (full access). These access locations should be critically reviewed when development plans are known. Further, discussion with Metro Transit should occur to determine the feasibility and requirements for the assumed access locations.

Year 2025 Conditions No Improvements

Year 2025 conditions were evaluated to identify if/where improvements to the existing roadway network will be needed to accommodate future traffic forecasts.

Non-Motorized Traffic

Pedestrian volumes were generated for the proposed land uses under year 2025 conditions. The pedestrian volume assumptions are based on the modal reduction assumptions applied to the trip generation estimates. For instance, all developments located within one-quarter mile of a LRT station, five percent of development trips were assumed to be made to/from the station via walk/biking. Further trips generated to/from hotels, the proposed theater in 472F and the MOA were also quantified based on the trip generation mode choice assumptions.

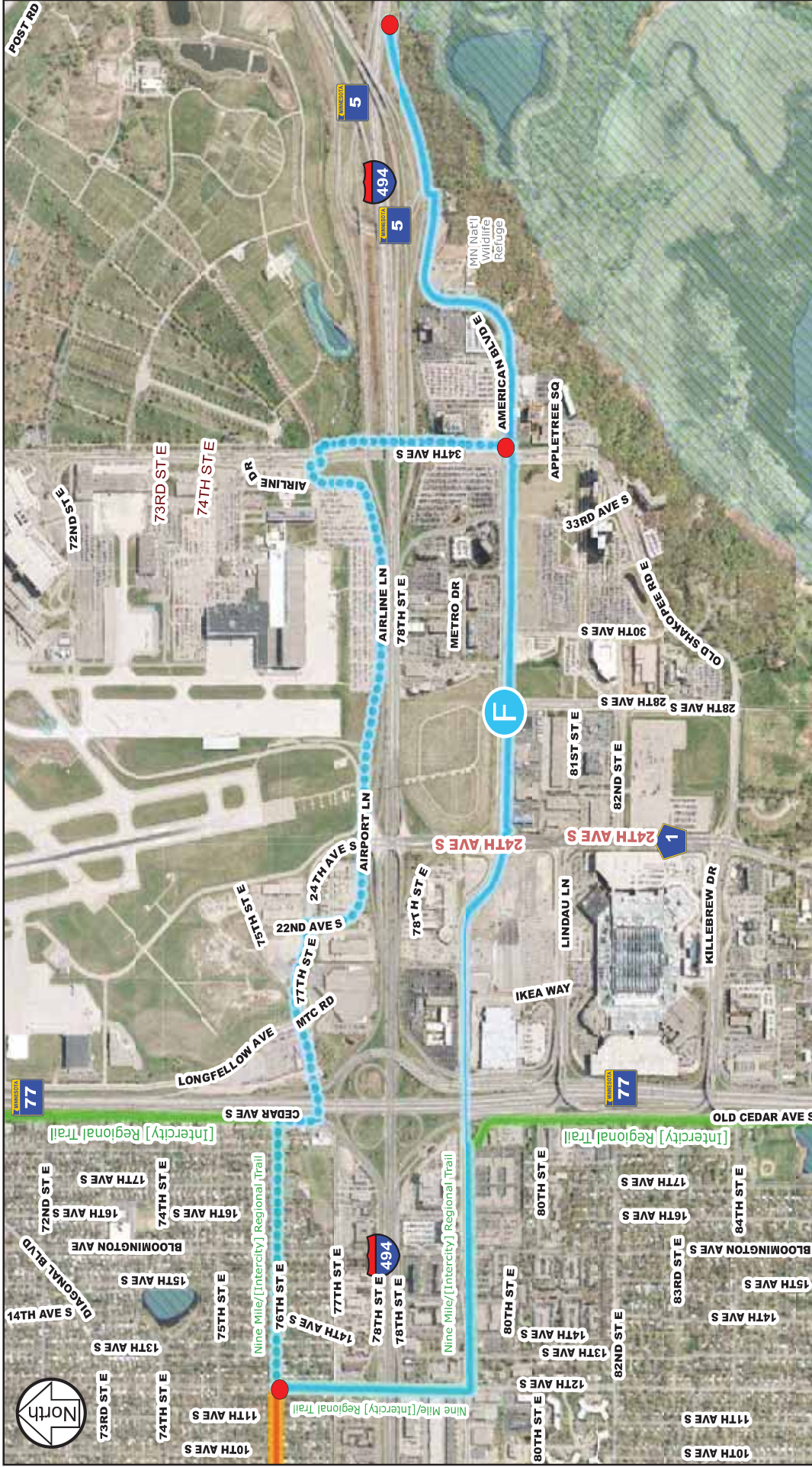
Based on current and expected pedestrian volumes, standalone pedestrian crossing improvements have been identified at three locations. It should be noted that additional pedestrian/bicyclist infrastructure improvements were identified, but have been incorporated into the intersection and corridor improvements discussed in the following section. The three standalone pedestrian/bicyclist infrastructure improvements include the following:

- Crossing enhancements at the East Old Shakopee Road/33rd Avenue intersection.
 - Currently more than 200 pedestrians cross East Old Shakopee Road at this location daily. The intersection does not have marked crosswalks. Enhanced crossing treatments were considered to improve the safety of pedestrians crossing at this location.
 - It is recommended that a marked pedestrian midblock crossing be constructed for pedestrians crossing East Old Shakopee Road midblock between 33rd Avenue and 31st Avenue. The proposed pedestrian crossing would provide a two-stage crossing via a pedestrian refuge island in the median. In addition, Rectangular Rapid Flash Beacons (RRFBs) are recommended to increase the visibility of the crossing to drivers. A High Intensity Activated crosswalk (HAWK) should also be considered at this location. The concept and preliminary cost estimate are provided in the next section (Priority #11)
- Grade separated crossing on 24th Avenue connecting TAZ 472F and the MOA Phase 1.
 - Based on the planned land uses for TAZ 472F (i.e. hotel, water park, banquet space, theater), the development trips are expected to generate significant pedestrian trips to/from the MOA. This would also connect the TAZ 472F development trips to the MOA Transit Station.
 - The new MOA Transit design has taken into consideration the potential for a pedestrian skyway connection. This connection would improve pedestrian safety by providing a grade separated crossing. It should be noted that since the development plans, building layout, and orientation for TAZ 472F are unknown at this time and because it would be expected to be a privately funded improvement, no concept or cost estimate are provided.

- Grade separated crossing on 24th Avenue connecting the east side of 24th Avenue and MOA Phase 2.
 - Currently pedestrian crossings are not permitted on the north approach of the 24th Avenue/Lindau Lane intersection. This is due to a combination of the low pedestrian volume demand at this approach (current) and the high volume of eastbound left-turning vehicles. Providing a pedestrian phase on the south approach does not have as significant of an impact to the signal timing operations for the intersection since the eastbound left-turn phase and pedestrian phase on the south approach can time concurrently.
 - With the construction of MOA Phase 2 the pedestrian demand on the north approach is expected to increase. A grade separated pedestrian crossing (e.g. pedestrian bridge) would provide a safe crossing location for pedestrians traveling between the hotels on the east side of 24th Avenue and the MOA. It should be noted that since the development plans/building layout for MOA Phase 2 had not been approved at the time of the study and because it would be expected to be a privately funded improvement, no concept or cost estimate are provided.

It should also be noted that the Bloomington ATP Plan has identified a number of priority improvements related to the pedestrian/bicycle facilities in the South Loop District, which are summarized below:

- Nine Mile Creek Regional Trail: Three Rivers Park District (TRPD) Regional Trail
 - This trail provides an east-west connection between the Hyland and Nokomis-Minnesota River trails and provides opportunities for connections to Edina, Richfield, and Minneapolis.
 - The Bloomington segment of the regional trail would be approximately 3.25 miles long and connect to Minnesota Valley National Wildlife Refuge Visitor Center. This segment would utilize existing sidewalk and trail facilities for much of its length (see Figure 22 for proposed alignment).
 - Based on information provided in the Nine Mile Creek Regional Trail Master Plan, the trail plans to utilize the Intercity Regional Trail from 76th Street south along 12th Avenue over I-494 via a new pedestrian/bicycle bridge to American Boulevard and then east to Old Cedar Avenue. At Old Cedar Avenue, the Intercity Regional Trail Corridor extends south to the 86th Street Bikeway and Nine Mile Creek Regional Trail continues east under TH 77 along American Boulevard to the existing trail crossing of the Minnesota River at I-494 adjacent to the Minnesota Valley National Wildlife Refuge Visitor Center.
 - Full realization of the Bloomington segment is contingent on the ability to secure additional right-of-way, improve the TH 77 underpass crossing to better accommodate the trail, and improve the existing sidewalk/trail for almost the entire length of the segment. Given the complexities of these factors, an alternative route through the Metropolitan Airport Commission (MAC) property, has also been identified the north side of I-494 (see Figure 22).



Nine Mile Creek Regional Trail | Bloomington



Map prepared by Three Rivers Park District
 Planning Department - AR September 11, 2013
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 correction, and update.



Nine Mile Creek Regional Trail Proposed Alignment

South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

Figure 22

- Community Corridor Segments
 - America Boulevard Corridor (between Normandale Boulevard and 34th Avenue) is an important connection between the Nokomis-Minnesota River trail, Nine Mile Creek and Hyland trails. The continuation of pedestrian-way enhancements as part of street improvements are recommended, as is filling any gaps that currently exist.
 - East Old Shakopee Road Corridor (between Bloomington Ferry Road to the I-494/24th Avenue Interchange) is among the most complex, trafficked, and costly of the corridors to improve. For that reason, it is a lower priority since improvement costs are likely to be high while public value is relatively modest compared to the other priority corridors identified in the ATP. In the near term, priority focus should be on completing missing gaps and continuing to provide enhanced pedestrian connections to retail and business nodes as they develop. Applying the Complete Streets Program guidelines as segments of this corridor are upgraded over time is the recommended approach to enhancing this corridor for pedestrians/bicyclists.

Transit

The MOA Transit Station renovations are expected to be completed by year 2025. The renovations plan to improve efficiency of bus operations, simplify access for mass transit vehicles, provide clear and convenient pedestrian access, improve the aesthetics, and increase the exterior visibility and presence of the station. Currently all buses, delivery vehicles, and MOA staff enter/exit via the 24th Avenue/Transit Station (MOA Gate 6) access. Under the proposed layout, buses would have a separate entrance on 24th Avenue north of Gate 6 (improving bus operations) and delivery vehicles/MOA staff would enter via a new access on Killebrew Drive just west of 24th Avenue. Buses, delivery vehicles, and MOA staff would exit via the Gate 6 access, but buses and delivery vehicles/MOA staff vehicles would remain separated.

As previously mentioned, Metro Transit is considering implementing either a BRT or LRT transit route on West 7th Street referred to as the Riverview Corridor. This transit route is expected to terminate at the MOA. However, the Riverview Corridor is not expected to be constructed by year 2025 and is not currently funded. If funded, the project estimates that it will open in 10 to 12 years. The American Boulevard BRT corridor is also being considered for future operations, which would utilize American Boulevard and terminate at the MOA. No other major transit improvements were identified in the programmed capital transit improvements within the study area. Therefore, no changes to transit frequency or routing were assumed under year 2025 conditions.

Traffic Forecasts

Year 2025 traffic forecasts account for background growth, travel pattern shifts due to the construction of the 77th Street connection, future traffic expected to be generated by expansions to MSP Airport, and year 2025 development traffic within the South Loop District.

Background Growth

General background growth expected in the South Loop District was evaluated using the Met Council Regional Travel Demand Model. Based on a review of current travel patterns through the study area, few trips travel through the District that are not destined to/from one of the developments. Non-South Loop District generated trips are primarily traffic generated by developments to the west of TH 77 near American Boulevard that utilize American Boulevard to access I-494 at either the 24th Avenue or 34th Avenue interchange. To account for growth generated by these routes, an annual growth rate of one-half percent was applied to the through trips on American Boulevard.

77th Street Connection

The 77th Street connection across TH 77 north of I-494 was assumed to be completed by year 2025 conditions. Based on the current design timeline and funding status of the project, it is reasonable to assume that the connection will be open by the year 2025. The Met Council Regional Travel Demand Model was reviewed to understand how this connection will impact existing and future traffic volumes in the study area. The connection provides an alternative route for accessing destinations/roadway connections to the west of TH 77 and a small percent of existing and future development traffic is expected to access the South Loop District via this connection.

This connection is expected to have the greatest impact during the a.m. peak hour, when it will act as a parallel reliever for I-494 westbound traffic, which is frequently congested during the a.m. peak period. The Met Council Regional Travel Demand Model was reviewed to estimate the number of new trips to the system (i.e. trips now exiting/entering at the I-494/24th Avenue interchange) and trips that are changing from their current route (i.e. trips entering/exiting at the I-494/24th Avenue interchange and using American Boulevard).

Based on current traffic volumes, approximately 40 weekday a.m., 30 weekday p.m., and 10 Saturday peak hour trips are expected to now utilize the I-494/24th Avenue interchange to access the 77th Street connection instead of continuing on I-494. Additionally, at the I-494/24th Avenue interchange, approximately 210 weekday a.m., 135 weekday p.m., and 50 Saturday peak hour trips are expected to divert from traveling to/from the south via a westbound left- or northbound right-turn to utilizing the 77th Street connection via a westbound right- or southbound left-turn. Further. This connection was also accounted for when routing future development traffic to/from the study area.

Minneapolis-Saint Paul Airport Projections

The traffic forecasts developed for the Metropolitan Airports Commission (MAC) in the *MSP Area Roadway Improvement Project Memo* dated 2011, which was completed as part of the *Minneapolis-St. Paul International Airport 2020 Improvements EA/EAW* study, were used to estimate the future trips expected to be generated by expansion to the MSP Airport. The Airport Relocate Scenario was recommended from the EAW. Under this scenario, SkyTeam Airlines (Delta Airlines and alliance partners) remain at Terminal 1 and all other carriers are relocated to Terminal 2.

The airport expansion is expected to increase traffic to/from the north of the I-494/34th Avenue interchange. The increases in traffic under year 2025 turning movement counts developed for the 2011 study were assumed for this analysis. The traffic volume increases applied to the year 2025 southbound left, southbound right, eastbound left and westbound right turn movements are summarized in Table 6.

Table 6. MSP Airport Traffic Volume Increases at the I-494/34th Avenue Interchange

Movement	New Trips		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Southbound Left	+215	+575	+310
Southbound Right	+395	+1,085	+805
Eastbound Left	+350	+920	+620
Westbound Right	+500	+305	+280
Total	+1,460	+2,885	+2,015

The resultant year 2025 traffic forecasts, which include trips generated by development growth to the District, general background growth, travel pattern shifts due to the 77th Street connection, and MSP airport traffic are shown in Figure 23 and Figure 24.

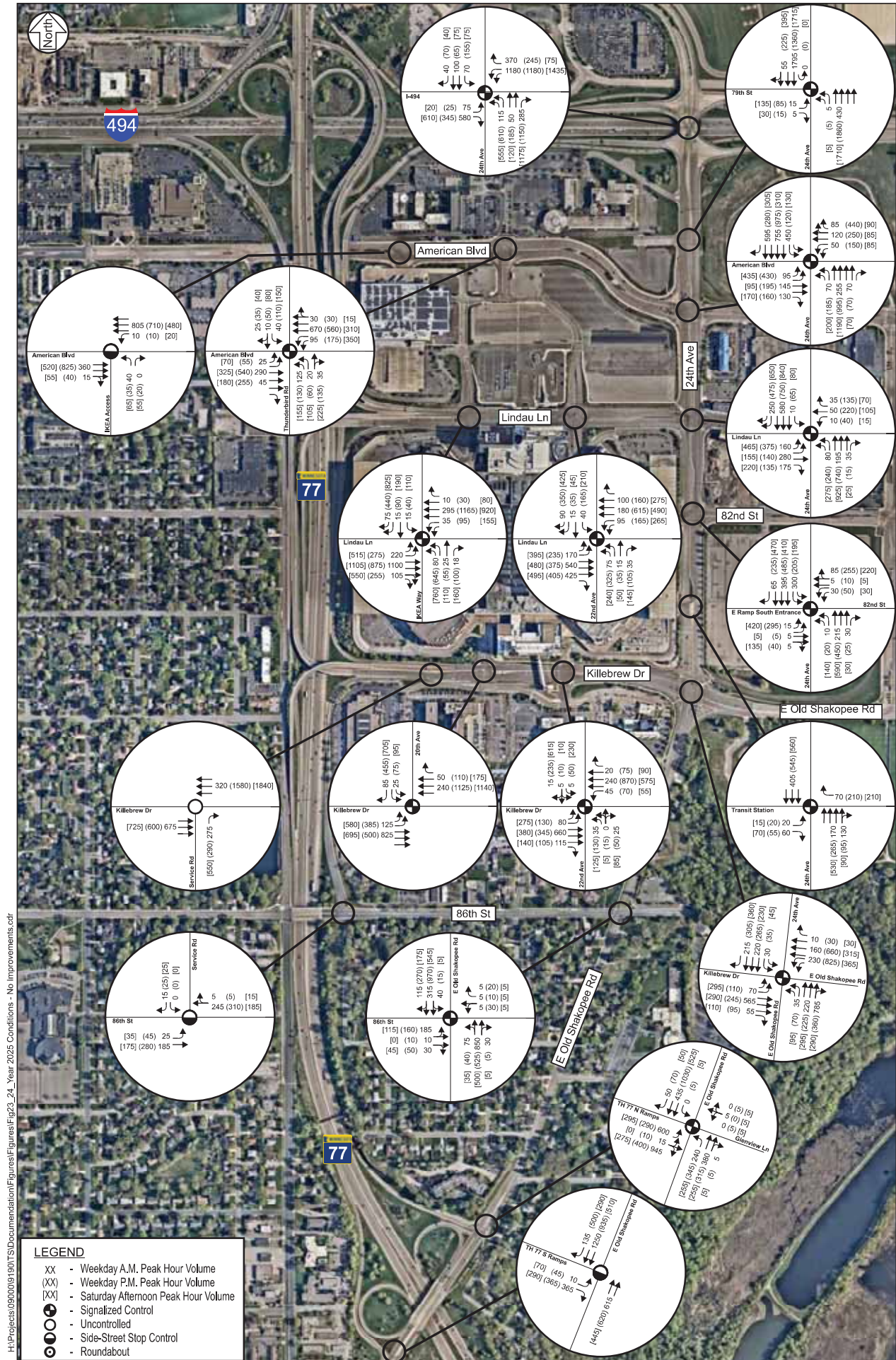
Intersection Operations Analysis

To determine if the existing roadway network can accommodate year 2025 traffic forecasts, a detailed traffic capacity analysis was completed. Study intersections were once again analyzed using Vissim. Results of the year 2025 operations analysis shown in Table 7 indicate that a number of intersection are expected to have traffic operational (delay and/or queuing) issues under year 2025 conditions without improvements. The LOS results for the weekday a.m., weekday p.m., and Saturday peak hours are illustrated in Figure 25, Figure 26, and Figure 27, respectively. Detailed traffic operations results are provided in Appendix I.

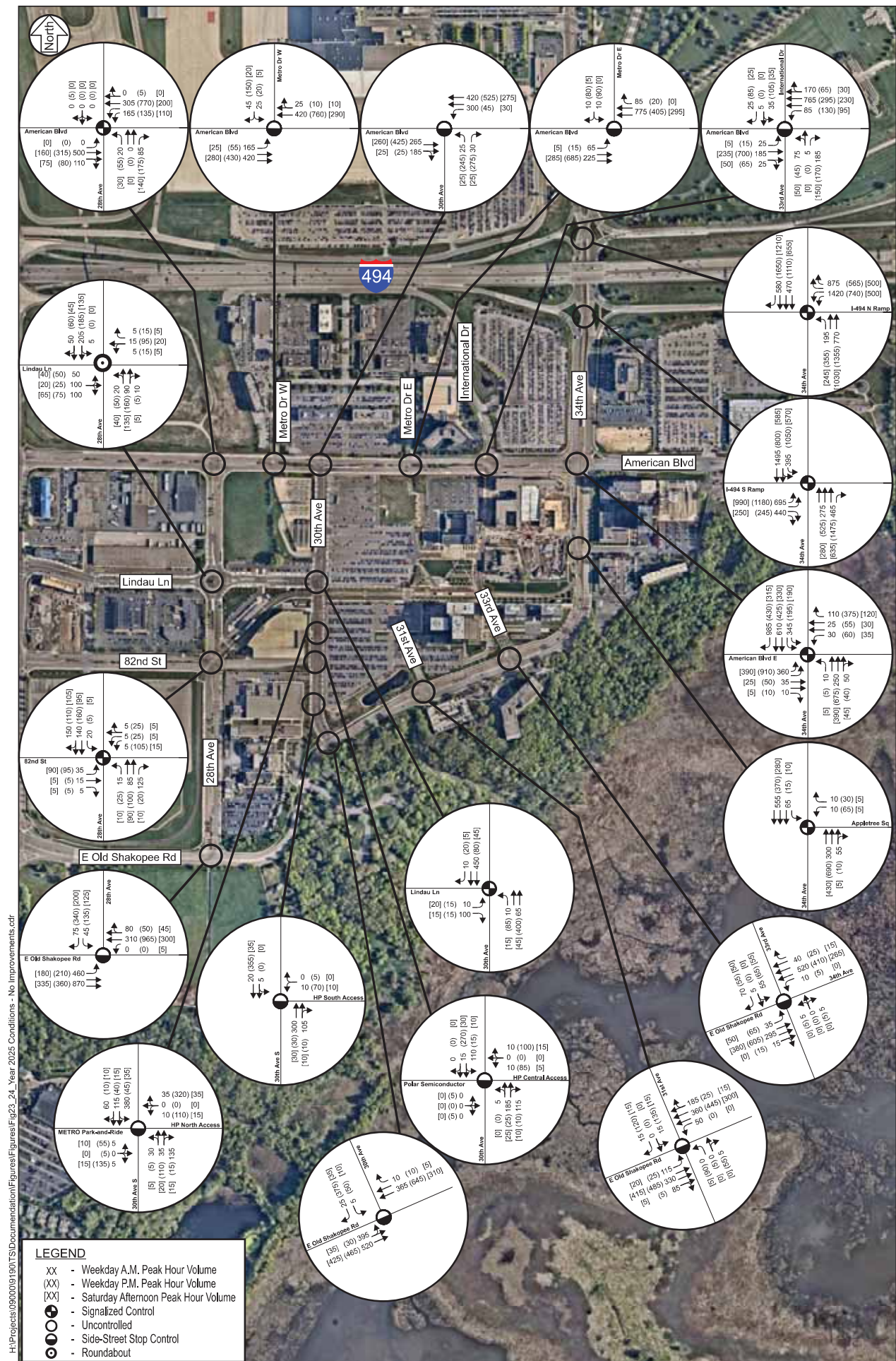
Year 2025 Recommended Improvement Concepts

Recommended improvement concepts were developed at the study intersections to address the traffic operational issues identified under year 2025 conditions. It is important to note that if development expected between year 2025 and year 2040 occurs earlier than anticipated that additional improvements may be needed prior to year 2025 conditions. However, based on the year 2025 land use assumptions, the improvements identified below are the highest priority and most likely to be needed by year 2025 conditions.

A summary table, 11x17 illustrations of concepts, and preliminary cost estimate are included in Appendix J. It should be noted that the cost estimates include construction costs, an assumed engineering/administration cost of 26 percent, a 20 percent contingency, and right-of-way costs. The costs are in year 2017 dollars. Year 2025 conditions with recommended improvements are shown in Figure 28 and Figure 29.



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Table 7. Year 2025 Conditions Peak Hour Capacity Analysis (No Improvements)

Intersection	AM Peak Hour	PM Peak Hour	Sat Peak Hour
24th Avenue/I-494 Interchange	B	D	E
24th Avenue/79th Avenue	A	B	C
24th Avenue/American Boulevard	C	D	E
24th Avenue/Lindau Lane	B	E	D
24th Avenue/82nd St	B	B	C
24th Avenue/Transit Station	A	A	A
24th Avenue/Killebrew Drive /East Old Shakopee Road	C	E	C
34th Avenue/I-494 Interchange	D	D	C
34th Avenue/American Boulevard	C	D	C
34th Avenue/Appletree Square	A	A	A
American Boulevard/IKEA Access ⁽¹⁾	A/C	A/C	A/B
American Boulevard/Thunderbird Road	B	C	D
American Boulevard/28th Avenue/Airport Access	A	A	A
American Boulevard/Metro Drive West ⁽¹⁾	A/B	A/C	A/A
American Boulevard/30th Avenue ⁽¹⁾	A/C	C/E	A/A
American Boulevard/Metro Drive East ⁽¹⁾	A/C	A/C	A/A
American Boulevard/33rd Avenue/International Drive ⁽¹⁾	A/D	F/F	A/B
Lindau Lane/IKEA Way	B	F	F
Lindau Lane/22nd Avenue	B	F	F
SB TH 77/NB TH 77 Merge at Killebrew Drive ⁽¹⁾	A/A	A/A	A/A
Killebrew Drive/20th Avenue	A	B	C
Killebrew Drive/22nd Avenue	A	B	C
East Old Shakopee Road/TH 77 S Ramps ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/TH 77 N Ramps	B	B	B
East Old Shakopee Road/86th Street	A	B	A
East Old Shakopee Road/28th Avenue ⁽¹⁾	A/C	F/F	A/C
East Old Shakopee Road/30th Avenue ⁽¹⁾	A/B	A/C	A/A
East Old Shakopee Road/31st Avenue ⁽¹⁾	A/B	A/C	A/A
East Old Shakopee Road/33rd Avenue/Ceridian Access ⁽¹⁾	A/A	A/B	A/A
28th Avenue/Lindau Lane	A	A	A
28th Avenue/82nd Street	B	C	B
30th Avenue/Lindau Lane	B	A	A
30th Avenue/North HP Driveway/METRO Park-and-Ride ⁽¹⁾	A/D	A/B	A/A
30th Avenue/Central HP Driveway ⁽¹⁾	A/B	A/A	A/A
30th Avenue/South HP Driveway ⁽¹⁾	A/B	A/A	A/A
E 86th Street/Service Road ⁽¹⁾	A/A	A/A	A/A

(1) Side-street stop controlled intersection. Overall intersection LOS followed by the worst approach.



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LEGEND

- - LOS C or Better
- - LOS D
- - LOS E or F
- ● - Stop Controlled: Overall LOS Followed by Worst Approach



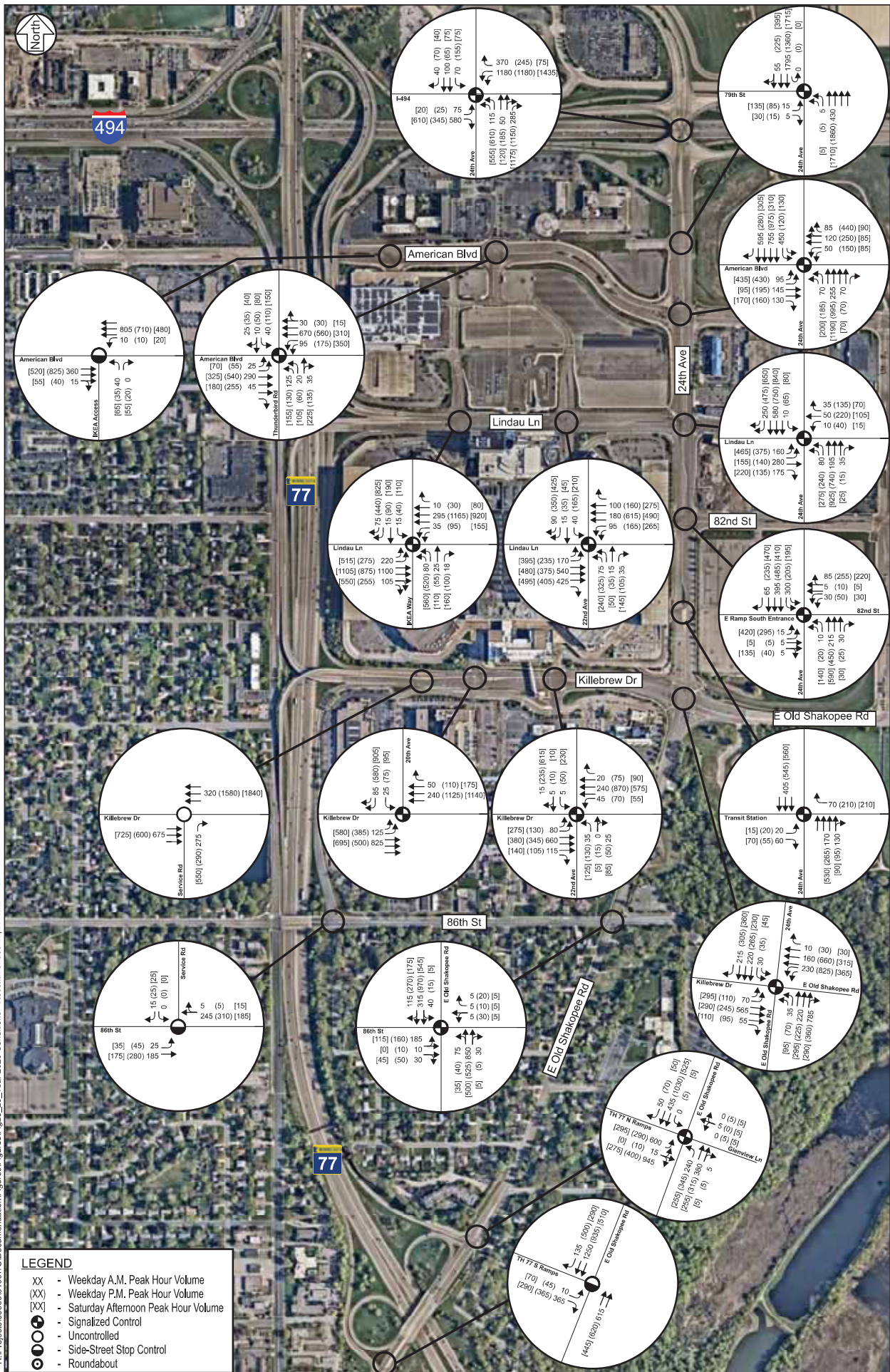
H:\Projects\090000\91901\TSDocumentation\Figures\Fig26_Year 2025 LOS No Improvements-Weekday PM Peak Hour.cdr

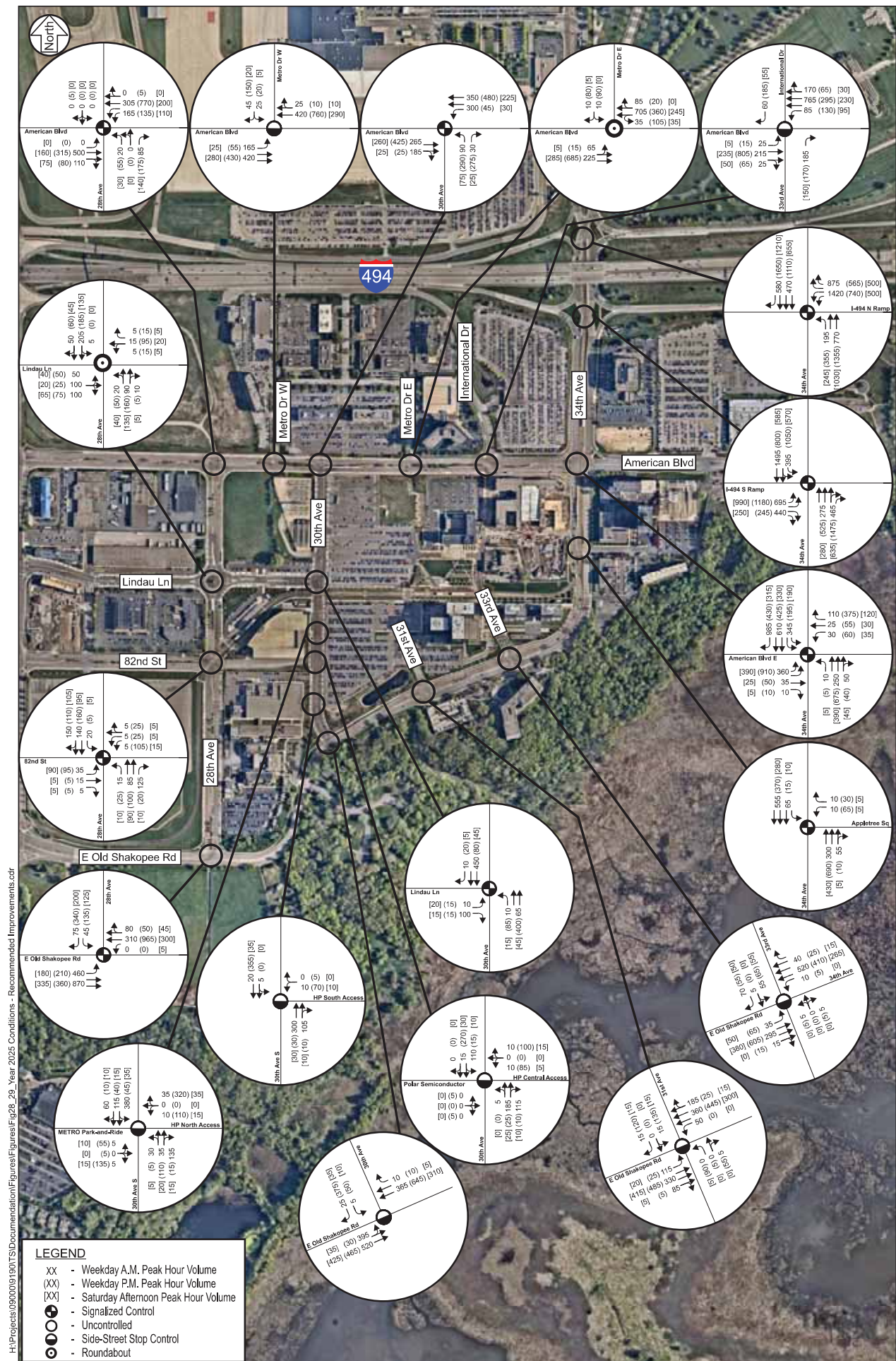
LEGEND

- - LOS C or Better
- - LOS D
- - LOS E or F
- Stop Controlled: Overall LOS Followed by Worst Approach



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Priority 1 Improvement: I-494/24th Avenue

Need

This improvement addresses the existing unbalanced lane utilization that exists upstream of the I-494/24th Avenue interchange resulting from motorists positioning themselves to make a northbound right-turn movement onto eastbound I-494. This poor lane utilization is most prevalent during the p.m. peak hour at the 24th Avenue/American Boulevard intersection where the eastbound left-turn lanes and northbound through lanes have poor lane utilization; approximately 70 percent of eastbound left-turn traffic is in the southern left-turn lane. Providing an additional northbound lane onto eastbound I-494 will improve lane utilization upstream of the interchange.

Improvement Description

This concept includes a second northbound right-turn lane at the I-494/24th Avenue interchange by converting an existing through lane to a shared through/right-turn lane. The northbound right-turn is also proposed to be signalized since there will be three lanes merging into two lanes on the eastbound I-494 on ramp. The northbound right-turn phase is proposed to overlap with all phases except the southbound left-turn phase. The concept is shown in Figure 30

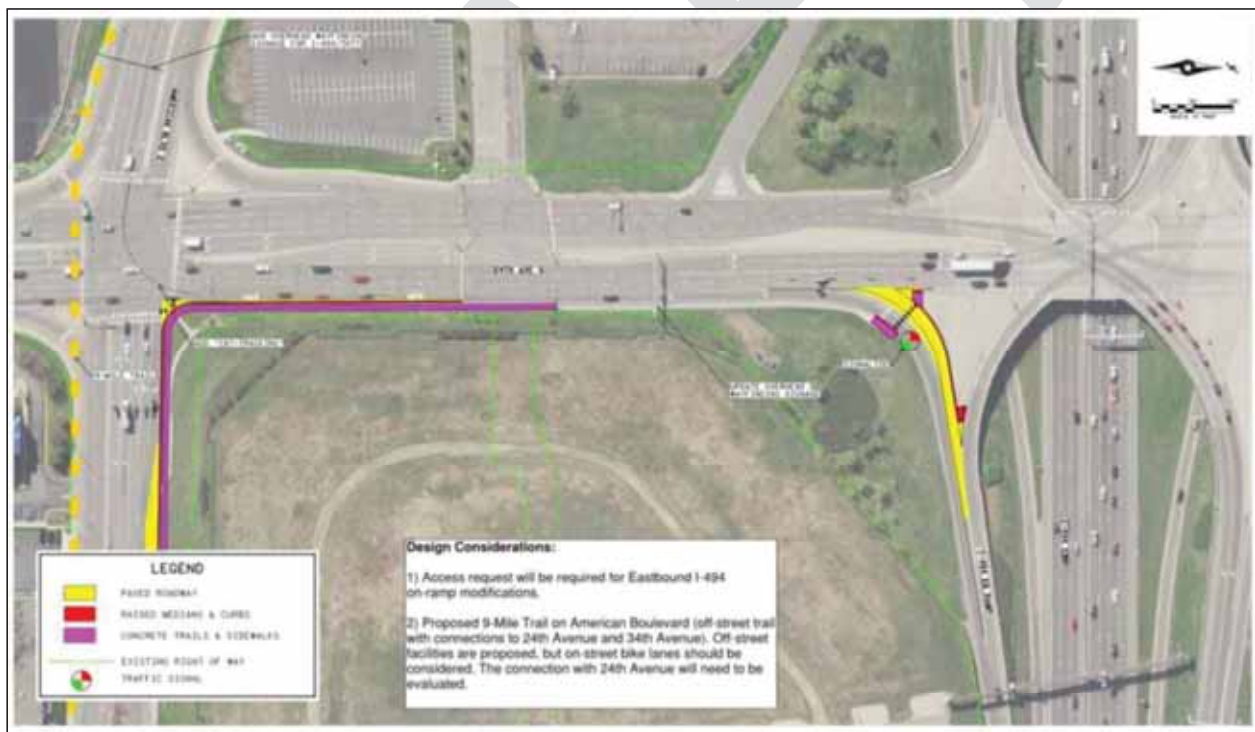


Figure 30. Priority 1: I-494/24th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$500,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 2 Improvement: I-494/34th Avenue

Need

This improvement addresses the existing unbalanced lane utilization that exists upstream of the I-494/34th Avenue interchange resulting from motorists positioning themselves to make a northbound right-turn movement onto eastbound I-494. This poor lane utilization is most prevalent during the p.m. peak hour at the 34th Avenue/American Boulevard intersection where the eastbound left-turn lanes have poor lane utilization; approximately 80 percent of eastbound left-turn traffic is in the southern left-turn lane. Providing an additional northbound right-turn lane onto eastbound I-494 will improve lane utilization upstream of the interchange.

Improvement Description

This concept adds another northbound right-turn lane at the I-494/34th Avenue interchange by converting an existing through lane to a shared through/right-turn lane. The northbound right-turn and southbound left-turns are also proposed to be signalized since there will be four lanes merging into three lanes on the eastbound I-494/TH 5 on ramp. The northbound right-turn movement would overlap with the following existing phases: 1, 3, 4, 7, and 8. To reduce the likelihood of southbound queues extending into the I-494/34th Avenue North Crossover intersection, a “dummy phase” will need to be added to clear the southbound left-turn movement through the interchange. The northbound right-turn phase is proposed to overlap with all phases except the southbound left-turn.

An alternative to signalizing the northbound right-turn and southbound left-turn movements at the I-494/34th Avenue interchange would be to add two additional lanes to the eastbound I-494/TH 5 on ramp. This would allow for the two northbound right-turn lanes and two southbound left-turn lanes to make their respective movements concurrently without conflicting with each other.

In addition to the second northbound right-turn lane at the I-494/34th Avenue interchange, the following improvements are proposed at the 34th Avenue/American Boulevard intersection:

- Eliminate the eastbound/westbound left-turn path overlap to provide the opportunity to implement protected/permitted phasing and also allow the left-turn phases to time concurrently.
- Reduce the eastbound through to one lane and shift the eastbound left-turn lanes south. The length of the inside eastbound left-turn lane is also proposed to be extended.
- Reduce the westbound through to one lane and shift the westbound left-turn lane south.
- Extend the eastbound left-turn lanes to 33rd Avenue.
- Increase the pedestrian storage area near the LRT stations on the north and south sides of the intersection.

The concept is shown in Figure 31 and Figure 32.

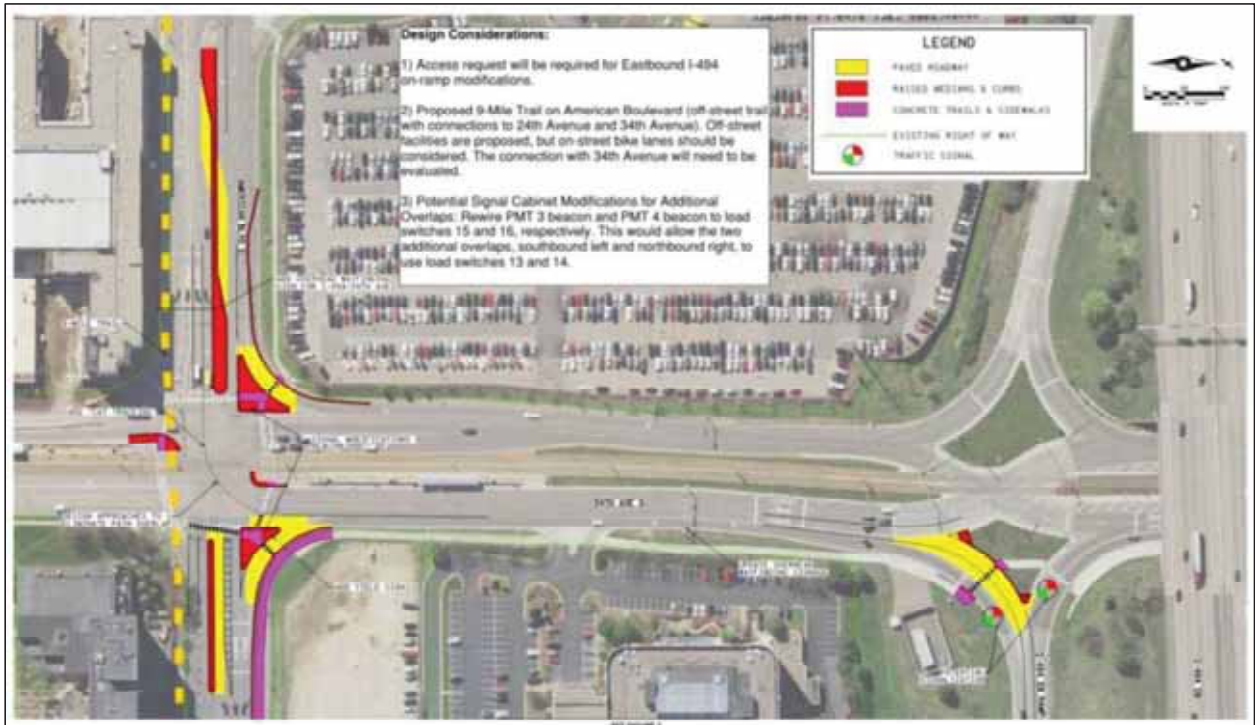


Figure 31. Priority 2: I-494/34th Avenue



Figure 32. Priority 2: I-494/34th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$1,175,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 3 Improvement: Killebrew Drive/20th Avenue

Need

This improvement addresses the southbound right-turn queue exiting the MOA during the Saturday peak during year 2025 conditions. Queues are expected to extend through the internal signalized intersection to the west on the MOA perimeter roadway. This queue is the result of fewer acceptable gaps in traffic as volume on Killebrew Drive increases.

Improvement Description

This concept converts one southbound left-turn lane into a right-turn lane. The southbound right-turn also becomes signalized and overlaps with the eastbound left-turn. No Right Turn on Red (RTOR) is proposed; this configuration and operation is similar to the Lindau Lane/IKEA Way and Lindau Lane/22nd Avenue intersections on the north side of the MOA. The concept is shown in Figure 33.



Figure 33. Priority 3: Killebrew Drive/20th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$275,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 4 Improvement: Signal Timing

Need

At some point between existing and year 2025 conditions, signal timing improvements are expected to be needed at each of the intersections listed below to maintain traffic flow. The timing for the need of the signal timing improvements for each identified intersection will be based on when adjacent development occurs.

- 24th Avenue/I-494
- 24th Avenue/79th Street
- 24th Avenue/American Boulevard
- 24th Avenue Lindau Lane
- 24th Avenue/82nd Street
- 24 Avenue/Transit Station
- American Avenue/Thunderbird Road
- Lindau Lane/IKEA Way
- Lindau Lane/22nd Avenue
- Killebrew Drive/20th Avenue
- Killebrew Drive/22nd Avenue
- Killebrew Drive/East Old Shakopee Rd/24th Avenue
- I-494/34th Avenue
- 34th Avenue/American Boulevard
- 34th Avenue/Apple tree Square

Preliminary Cost Estimate

The cost to retime these signals would be approximately \$3,000 per signal (total of \$45,000).

Priority 5 Improvement: Lindau Lane/IKEA Way and Lindau Lane/22nd Avenue

Need

This improvement addresses the existing and future unbalanced lane utilization exiting IKEA and MOA Phase 2B and Phase 2C that is the result of motorists positioning themselves for the movements onto southbound TH 77, northbound TH 77/westbound I-494, and eastbound I-494.

Improvement Description

This concept modifies the existing southbound right-turn cat-tracking at the Lindau Lane/IKEA Way intersection and adds cat-tracking to the southbound right-turn at Lindau Lane/22nd Avenue. The cat-tracking should align the easternmost southbound right-turn lane with the southernmost westbound lane. Based on the downstream ramps, the southern and middle westbound lanes are the heaviest utilized lanes; the northern westbound lane leads to eastbound I-494, which is the least utilized ramp. It is not proposed to update the northbound left-turn cat-tracking at the Lindau Lane/IKEA Way intersection since shifting the cat-tracking south would increase the total number of vehicles in the southern lane exiting the MOA, causing additional delay for northbound through and right-turn vehicles due to the northbound left-turn queues spilling back from the turn lanes. Wayfinding will also need to be updated accordingly.

It should be noted that approximately 125 and 200 vehicles during the PM and Saturday peak hours, respectively, that were exiting the MOA at Lindau Lane/20th Avenue/IKEA Way via a northbound left-turn movement were shifted to make a southbound right-turn at the Killebrew Drive/20th Avenue intersection. This adjustment can be accomplished through internal wayfinding. This was assumed since vehicles exiting the MOA have multiple route options. With the construction of MOA Phase 2B there will be less green time for MOA Phase 1 vehicles to exit at the Lindau Lane/20th Avenue/IKEA Way intersection. Rather than increasing the capacity at the Lindau Lane intersections, traffic is expected to naturally “balance” itself out as motorists become familiar with faster route options and wayfinding signage.

Priority 6 Improvement: American Boulevard/International Drive

Need

This improvement addresses the difficulty northbound and southbound vehicles are expected to have finding acceptable gaps in traffic on American Boulevard at the American Boulevard/International Drive intersection under year 2025 conditions.

Improvement Description

This concept converts the American Boulevard/International Drive intersection to three-quarter access (no left-turns or through movements from the side-street). The American Boulevard/Metro Drive intersection is also proposed to be converted to a roundabout as part of this concept to facilitate the required U-turn for southbound vehicles on International Drive that are destined for the east. Converting the American Boulevard/Metro Drive intersection to a roundabout will also allow for the northbound approach to be added in the future once development occurs to the south of American Boulevard.

The concept is shown in Figure 34.

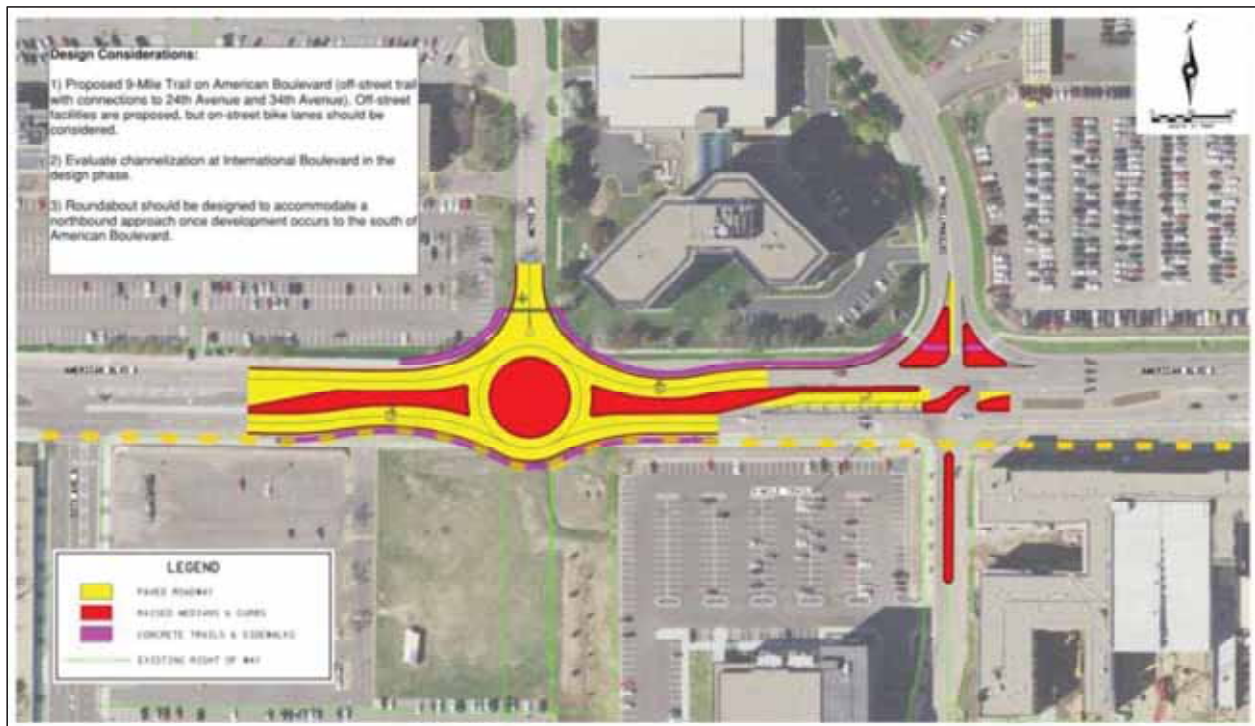


Figure 34. Priority 6: American Boulevard/International Drive

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$1,350,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 7 Improvement: 24th Avenue (I-494 to 82nd Street)

Need

This improvement addresses the existing unbalanced lane utilization that exists along 24th Avenue and better utilizes the existing roadway width. In addition to improving lane utilization, this improvement provides better accommodations for pedestrians. It should be noted that this improvement assumes that the improvements identified in Priority 1 at the I-494/24th Avenue interchange have been constructed. If this improvement (priority #7) is accelerated so that the corridor and interchange improvements were done at the same time, it would also account for the priority #1 improvements.

Improvement Description

This concept consists of restriping and median work to improve lane utilization and better position drivers for downstream movements. As part of this, triple westbound left-turns are proposed at the I-494/24th Avenue interchange. A second eastbound right-turn lane at the interchange and signalization of this movement are proposed. The eastbound right-turn lane would overlap with all phases except the westbound left-turn and southbound through phases.

While a few existing channelized right-turn lanes are shown removed since they are not needed from a capacity perspective, right-turn channelization along 24th Avenue should be reevaluated during the design phase to potentially remove additional channelized right-turns. Several add-in lanes are also removed since the additional capacity is not needed and the existing add-in lanes place vehicles in lanes that drop downstream, requiring vehicles to weave shortly after entering 24th Avenue.

The existing roadway right-of-way should be maintained on 24th Avenue to accommodate a north/south on-street bicycle facility. Further review is needed to assess the feasibility of constructing bike lanes on 24th Avenue and also the potential type (e.g. two-way or one-way, type of separation from traffic, location along 24th Avenue, etc.).

The concept is shown in Figure 35, Figure 36, and Figure 37.

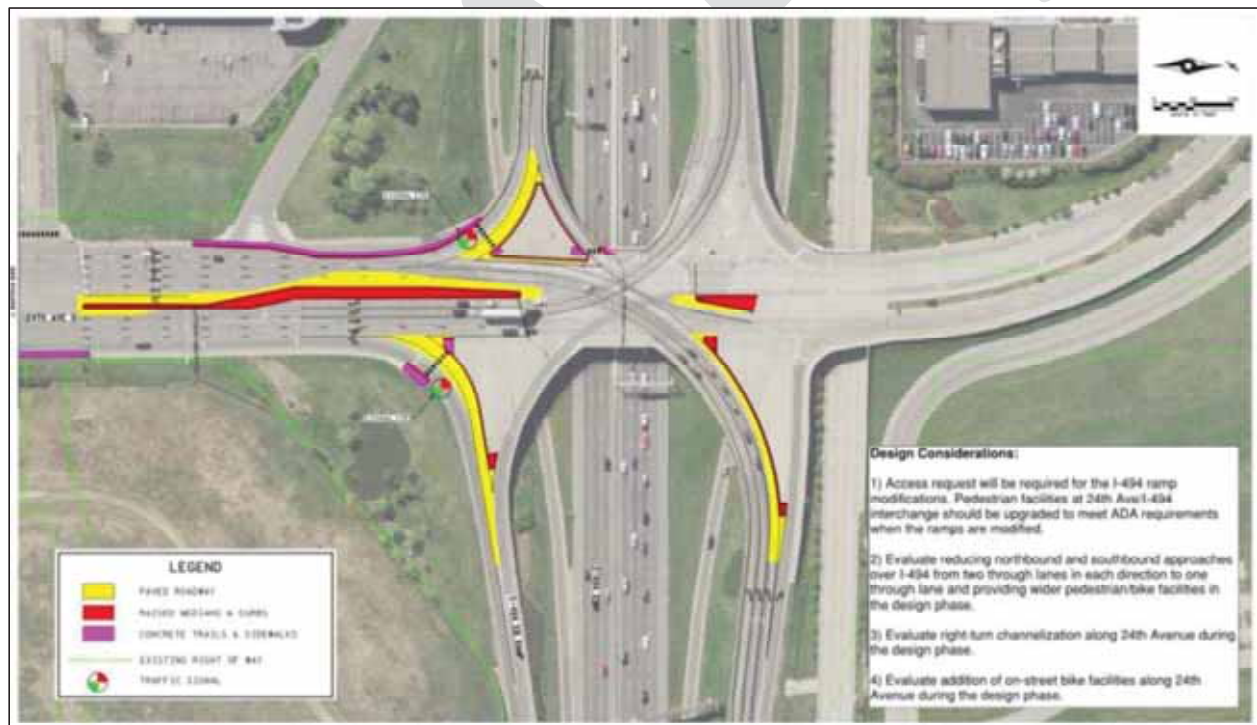


Figure 35. Priority 7: 24th Avenue (I-494 to 82nd Street)

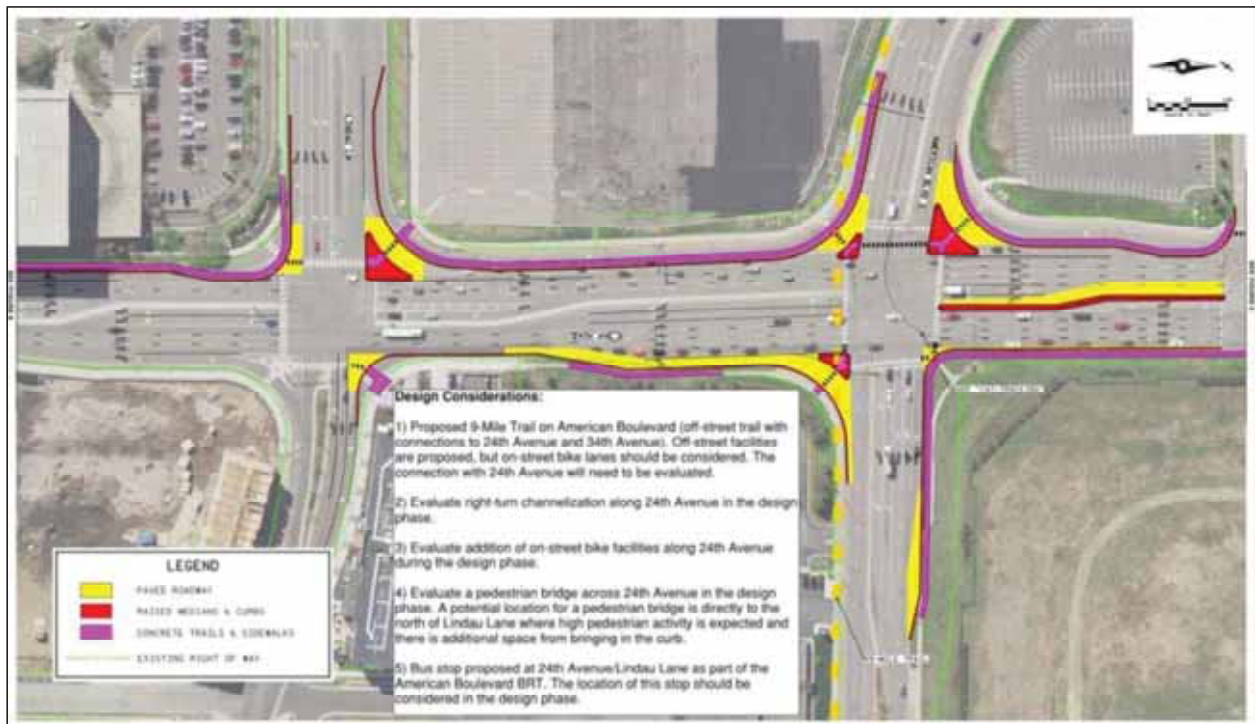


Figure 36. Priority 7: 24th Avenue (I-494 to 82nd Street)



Figure 37. Priority 7: 24th Avenue (I-494 to 82nd Street)

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$4,750,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 8 Improvement: Killebrew Drive/22nd Avenue

Need

This improvement addresses the northbound and southbound right-turn queues that occasionally form from a left-turn vehicle in the outside left-turn lane blocking the free movement. This improvement also improves the efficiency of the signal operations at this intersection (currently operating split phase).

Improvement Description

This concept consists of restriping the northbound and southbound shared left-turn/through lanes to a through lane. A single left-turn lane on both approaches is expected to adequately accommodate the traffic; left-turn path overlap is also eliminated by removing the outside left-turn lane. Since there would not be any path overlap with the lane use adjustments, the northbound and southbound approaches would not need to operate split-phase, improving the efficiency of the signal operations.

The concept is shown in Figure 38.



Figure 38. Priority 8: Killebrew Drive/22nd Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$50,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 9 Improvement: East Old Shakopee Road/28th Avenue

Need

This improvement addresses the difficulty southbound left-turn vehicles are expected to have finding acceptable gaps in traffic on East Old Shakopee Road at the East Old Shakopee Road/28th Avenue intersection during the p.m. peak hour under year 2025 conditions.

Improvement Description

There are two intersection control improvements that were considered at the East Old Shakopee Road/28th Avenue intersection to mitigate the delay for southbound left-turning vehicles:

- Signalizing the intersection
- Multi-lane roundabout (2x1)

Both of these concepts would improve operations and allow side-street vehicles to enter traffic on East Old Shakopee Road. Both of these alternatives are expected to provide acceptable operations in year 2040. It was assumed that the northbound approach would not exist by year 2025; however, the design of the signalized intersection or roundabout should allow for the northbound approach to be constructed in the future with minimal change.

The signalized concept is shown in Figure 39 and the roundabout concept is shown in Figure 40.

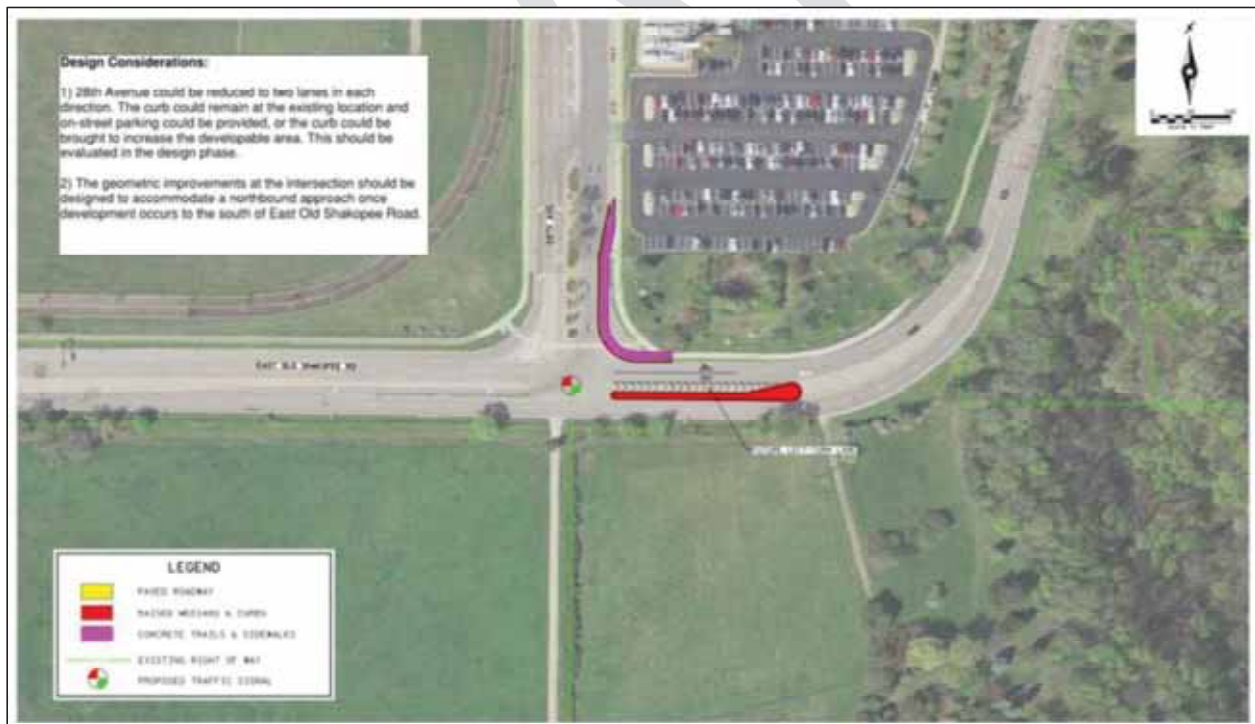


Figure 39. Priority 9: East Old Shakopee Road/28th Avenue

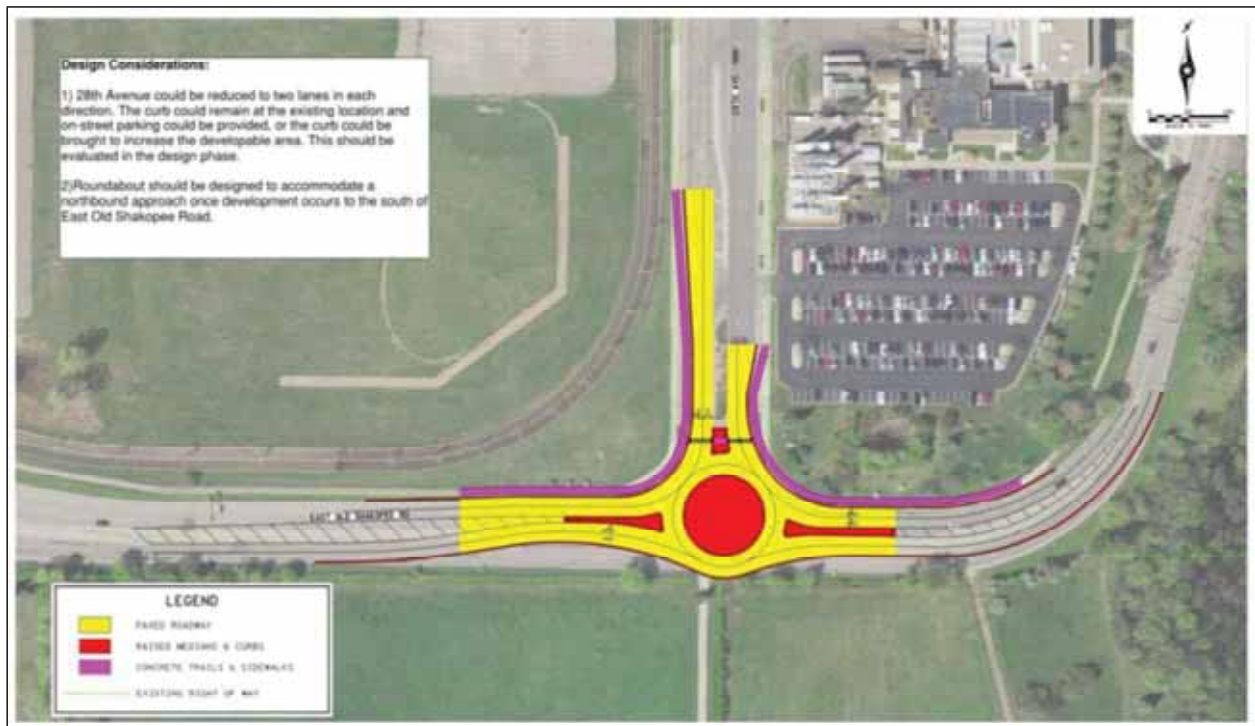


Figure 40. Priority 9: East Old Shakopee Road/28th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$825,000 and \$1,175,000 for the traffic signal and roundabout concepts, respectively.

11x17 graphics of the proposed improvements and the detailed cost estimates are provided in Appendix J.

Priority 10 Improvement: Killebrew Drive/East Old Shakopee Road/24th Avenue

Need

This concept improves the lane continuity of the westbound approach at the Killebrew Drive/East Old Shakopee Road/24th Avenue intersection, addressing an existing issue. Currently the northern most westbound through lane drops and is forced to make a right-turn, while the southernmost westbound through lane develops into two through lanes.

Improvement Description

This concept consists of restriping the westbound approach and modifying the curb on the westbound approach of the East Old Shakopee Road/24th Avenue intersection so the three westbound lanes maintain lane continuity through the intersection. This concept develops a westbound right-turn lane, whereas the current geometry forces the northern most westbound lane to turn right.

The concept is shown in Figure 41.



Figure 41. Priority 10: Killebrew Drive/East Old Shakopee Road/24th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$75,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 11 Improvement: East Old Shakopee Road/33rd Avenue

Need

This concept improves the pedestrian facilities between the East Old Shakopee Road/33rd Avenue and East Old Shakopee Road/31st Avenue intersections. Currently the pedestrian crossing on East Old Shakopee Road is unmarked. Based on pedestrian/bicyclist counts collected by the City of Bloomington in June 2015, there are approximately 200 crossings per day.

Improvement Description

This concept consists of adding a marked pedestrian crossing across East Old Shakopee Road between 33rd Avenue and 31st Avenue to better accommodate pedestrians at one of the busiest crossing in the South Loop District. The proposed pedestrian crossing is a two-stage crossing that provides storage in the median of East Old Shakopee Road for pedestrians. The concept proposes Rectangular Rapid Flash Beacons (RRFBs) at the crossing to increase the visibility of the crossing to drivers. However, depending on the future crossing demand, a High Intensity Activated crosswalk (HAWK) should be considered.

The concept is shown in Figure 42.



Figure 42. Priority 11: East Old Shakopee Road/33rd Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$250,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 12 Improvement: American Boulevard/30th Avenue

Need

This improvement addresses the American Boulevard/30th Avenue intersection that is expected to be near capacity and the difficulty northbound left-turns that are expected to have finding acceptable gaps in traffic on American Boulevard in the p.m. peak hour under year 2025 conditions.

Improvement Description

This concept is to install a traffic signal at the American Boulevard/30th Avenue intersection once warranted and if the side-street traffic has difficulties finding acceptable gaps in traffic on American Boulevard. The geometry of the intersection is already setup to be signalized, so minimal geometric modifications would be required to signalize the intersection.

The concept is shown in Figure 43.



Figure 43. Priority 12: American Boulevard/30th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$625,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Priority 13 Improvement: American Boulevard/28th Avenue

Need

While there is not expected to be an operational issue at the American Boulevard/28th Avenue intersection, there is opportunity to better utilize the existing roadway and improve the safety of pedestrians. The goal of this improvement is to change the lane assignment to improve pedestrian safety at the American Boulevard/28th Avenue intersection.

Improvement Description

This concept changes the lane utilization of the northbound approach at the American Boulevard/28th Avenue intersection. Currently there is one northbound left-turn lane, two northbound through lanes, and one channelized right-turn lane. The two northbound through lanes lead to a service road for the airport, which is seldom used. To increase the capacity of the northbound approach and align the northbound through movement with the receiving lane, this concept converts the western northbound through lane to shared left-turn/through lane and the eastern northbound through lane is converted to the right-turn lane. The channelized northbound right-turn is also removed to improve the safety of pedestrians.

The concept is shown in Figure 44.



Figure 44. Priority 13: American Boulevard/28th Avenue

Preliminary Cost Estimate

This concept has a preliminary cost estimate of \$475,000.

An 11x17 graphic of the proposed improvement and the detailed cost estimate are provided in Appendix J.

Year 2025 Conditions with Recommended Improvements

Year 2025 conditions with the recommended improvements are summarized in this section.

Intersection Operations Analysis

A detailed traffic capacity analysis was completed to assess the expected traffic operations with recommended improvements. Study intersections were once again analyzed using Vissim. Results of the year 2025 operations analysis shown in Table 8 indicate that with the recommended improvements the study intersections are expected to operate at LOS D or better during the weekday a.m., weekday p.m., and Saturday peak hours. The LOS results for the weekday a.m., weekday p.m., and Saturday peak hours are illustrated in Figure 45, Figure 46, and Figure 47, respectively. Detailed traffic operations results are provided in Appendix K.

Table 8. Year 2025 Conditions Peak Hour Capacity Analysis (Recommended Improvements)

Intersection	AM Peak Hour	PM Peak Hour	Sat Peak Hour
24th Avenue/I-494 Interchange	C	C	C
24th Avenue/79th Avenue	A	A	A
24th Avenue/American Boulevard	C	C	C
24th Avenue/Lindau Lane	B	C	C
24th Avenue/82nd St	B	B	C
24th Avenue/Transit Station	A	A	A
24th Avenue/Killebrew Drive /East Old Shakopee Road	C	C	C
34th Avenue/I-494 Interchange	D	D	C
34th Avenue/American Boulevard	C	D	C
34th Avenue/Appletree Square	A	A	A
American Boulevard/IKEA Access ⁽¹⁾	A/B	A/C	A/B
American Boulevard/Thunderbird Road	B	C	C
American Boulevard/28th Avenue/Airport Access	A	A	A
American Boulevard/Metro Drive West ⁽¹⁾	A/B	A/B	A/A
American Boulevard/30th Avenue	B	B	A
American Boulevard/Metro Drive East	A	A	A/A
American Boulevard/33rd Avenue/International Drive ⁽¹⁾	A/A	A/A	A/A
Lindau Lane/IKEA Way	B	D	D
Lindau Lane/22nd Avenue	B	C	C
SB TH 77/NB TH 77 Merge at Killebrew Drive ⁽¹⁾	A/A	A/A	A/A
Killebrew Drive/20th Avenue	A	B	D
Killebrew Drive/22nd Avenue	A	B	C
East Old Shakopee Road/TH 77 S Ramps ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/TH 77 N Ramps	B	B	B
East Old Shakopee Road/86th Street	A	A	A
East Old Shakopee Road/28th Avenue	A	B	B
East Old Shakopee Road/30th Avenue ⁽¹⁾	A/B	A/C	A/A
East Old Shakopee Road/31st Avenue ⁽¹⁾	A/B	A/C	A/A
East Old Shakopee Road/33rd Avenue/Ceridian Access ⁽¹⁾	A/A	A/B	A/A
28th Avenue/Lindau Lane	A	A	A
28th Avenue/82nd Street	B	C	B
30th Avenue/Lindau Lane	B	A	A
30th Avenue/North HP Driveway/METRO Park-and-Ride ⁽¹⁾	A/D	A/B	A/A
30th Avenue/Central HP Driveway ⁽¹⁾	A/B	A/A	A/A
30th Avenue/South HP Driveway ⁽¹⁾	A/B	A/B	A/A
E 86th Street/Service Road ⁽¹⁾	A/A	A/A	A/A

(1) Side-street stop controlled intersection. Overall intersection LOS followed by the worst approach.



H:\Projects\09000\09190\TSDocumentation\Figures\Fig45_Year 2025 LOS Recommended Improvements-Weekday AM Peak Hour.cdr





H:\Projects\090000\91901\TSDocumentation\Figures\Fig46_Year 2025 LOS Recommended Improvements-Weekday PM Peak Hour.cdr





H:\Projects\0900009190\TSDocumentation\Figures\Fig47_Year 2025 LOS Recommended Improvements-Saturday Peak Hour.cdr



Year 2025 LOS Recommended Improvements: Saturday Peak Hour
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

Figure 47

Year 2040 Conditions No Improvements

Year 2040 conditions were evaluated to identify if/where additional improvements will be needed to accommodate future traffic forecasts. It is important to note that due to the uncertainty of the year 2040 conditions, the issues/improvements are only considerations. Once detailed development plans are available and more is known about driverless vehicle technology, the South Loop District should be re-evaluated.

Non-Motorized Traffic

All regional trail and corridor improvements identified in the Bloomington ATP and discussed in the year 2025 Non-Motorized section should continue to be a priority for the South Loop District. Concepts developed for intersection and corridor improvements should take into consideration the alternative transportation plans for the South Loop District and look for opportunities to improve the connectivity of the pedestrian/bicyclist system as well as provide safe pedestrian/bicyclist crossing locations. As funding and right-of-way becomes available, steps should be taken to aid in the development of pedestrian/bicyclist regional and local plans.

Transit

Metro Transit is considering either a BRT or LRT route on West 7th Street (i.e. Riverview Corridor). The MOA Transit Station could potentially be the end of the line station for this new high frequency transit route. The Riverview Corridor is defined by the Mississippi River on the south, I-35E and Ford Parkway on the north, Lowertown and Union Depot on the east, and the MSP airport and MOA on the west. Ramsey County Regional Railroad Authority is leading a transit study to research, analyze and identify opportunities to improve transit within the Riverview Corridor. One improvement being considered is the BRT or LRT connection between downtown Saint Paul and the MSP International Airport and/or MOA. Also, as previously mentioned American Boulevard is also being considered for future BRT, which would utilize American Boulevard and terminate at the MOA. No other major transit improvements were identified in the programmed capital transit improvements within the study area.

While no changes were assumed to the transit routes/frequencies from existing conditions to year 2040 conditions, if LRT were to be selected as the preferred transit type for the Riverview Corridor, the alignment would likely follow the Blue Line LRT tracks/stops within the South Loop District. If the frequency of LRT crossing events were to increase, additional intersection capacity improvements would likely be needed. Grade separated crossings or intersections would need to be considered at the at-grade LRT crossings at both the American Boulevard/34th Avenue and 24th Avenue/Killebrew Drive intersections. Year 2040 forecasts and capacity improvements are discussed in the following sections in more detail.

Traffic Forecasts

Year 2040 traffic forecasts include the traffic growth expected under year 2025 conditions as well as account for additional background growth, future traffic expected to be generated by expansions to MSP Airport, and year 2040 development traffic within the South Loop District.

Background Growth

General background growth expected to the South Loop District was evaluated once again using the Met Council Regional Travel Demand Model. To account for growth generated by non-South Loop District development, through traffic on American Boulevard was increased by an annual growth rate of one-half percent.

Minneapolis-Saint Paul Airport Projections

Similar to the year 2025 traffic forecasts, the traffic forecasts developed for the *MSP Area Roadway Improvement Project Memo* dated 2011, which was completed as part of the *MSP International Airport 2020 Improvements EA/EAW* study, was used to estimate the future trips expected to be generated by expansion to the MSP Airport. The Airport Relocate Scenario was once again assumed. The increases in traffic assumed for year 2040 conditions between year 2025 and year 2040 are summarized in Table 9. It should be noted that the traffic forecasts assumed for year 2040 are based on the year 2030 forecasts from the EA/EAW. Based on updated assumptions for the growth timeline for the MAC, it is reasonable to assume that the year 2030 forecasts from the 2011 study represent a year 2040 condition.

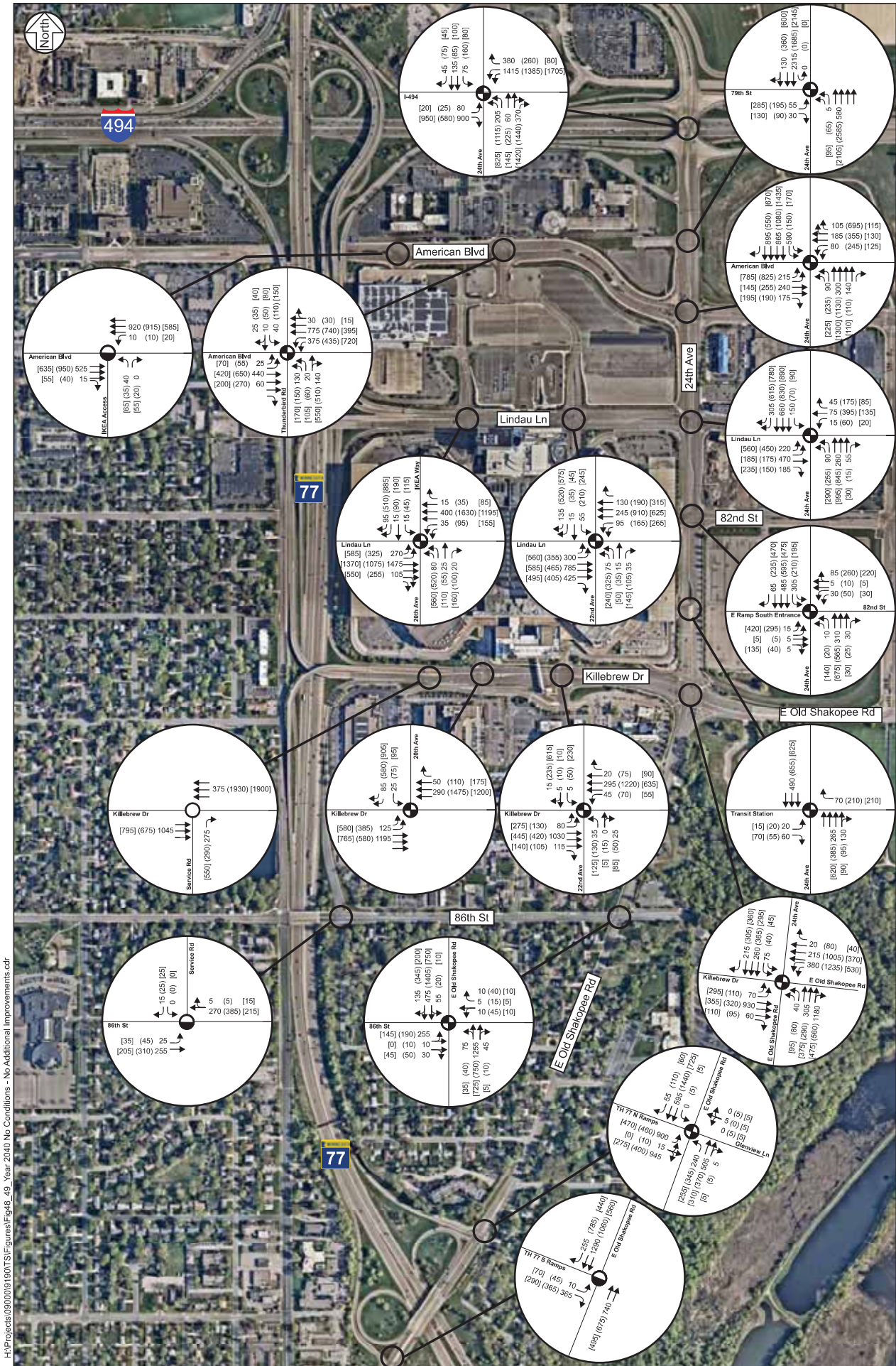
Table 9. MSP Airport Traffic Volume Increases

Movement	New Trips (Between 2025 and 2040)		
	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Southbound Left	+370	+770	+445
Southbound Right	+310	+1,170	+800
Eastbound Left	+430	1090	+805
Westbound Right	+580	+445	+355
Total	+1,690	+3,475	+2,405

Demand Routing

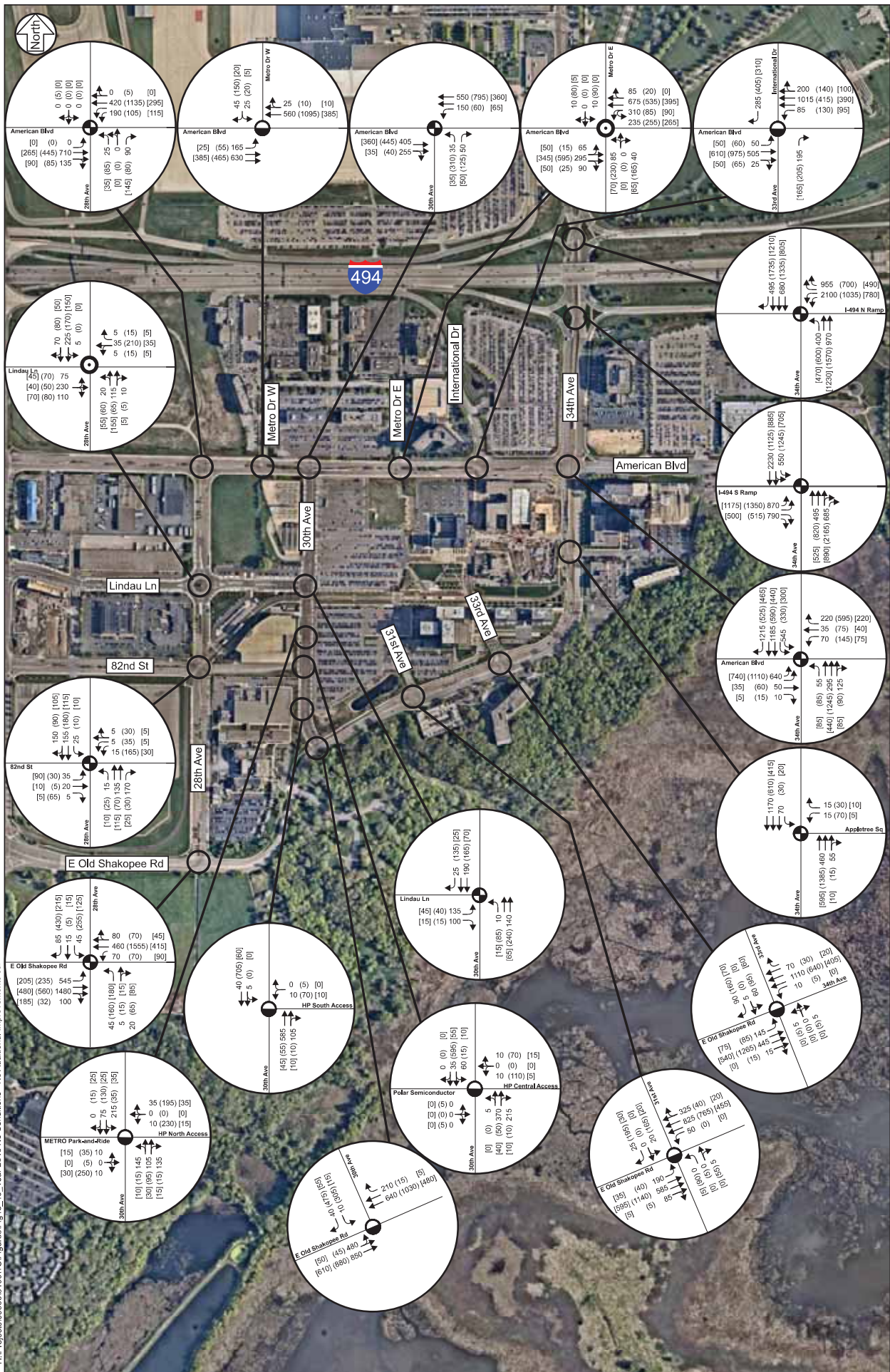
Travel patterns for development trips that have multiple route options were adjusted based on expected travel times under year 2040 conditions. It is understood that traffic will “balance” itself out under future conditions as motorists adjust to typical traffic conditions. Therefore, during the weekday a.m. and p.m. peak hours vehicles to/from the I-494/34th Avenue interchange and the southern BCS office developments were diverted away from using American Boulevard/30th Avenue and re-routed to access via East Old Shakopee Road/30th Avenue.

The resultant year 2040 traffic forecasts which include trips generated by development growth to the District, general background growth, and MSP airport traffic are shown in Figure 48 and Figure 49.



H:\Projects\03000190\ITS\Figures\Fig48_49_Year 2040 No Conditions - No Additional Improvements.cdr

H:\Projects\09000190\ITS\Figures\Fig48_49_Year 2040 No Conditions - No Additional Improvements.cdr



Intersection Operations Analysis

To determine if the roadway network with the improvements identified under year 2025 conditions can accommodate year 2040 traffic forecasts, a detailed traffic capacity analysis was completed. Study intersections were once again analyzed using Vissim. Results of the year 2040 operations analysis shown in Table 10 indicate that a number of intersection are expected to have traffic operational (delay and/or queuing) issues under year 2040 conditions without additional improvements. The LOS results for the weekday a.m., weekday p.m., and Saturday peak hours are illustrated in Figure 50, Figure 51, and Figure 52, respectively. Detailed traffic operations results are provided in Appendix L.

DRAFT

Table 10. Year 2040 Conditions Peak Hour Capacity Analysis (No Additional Improvements)

Intersection	AM Peak Hour	PM Peak Hour	Sat Peak Hour
24th Avenue/I-494 Interchange	D	D	F
24th Avenue/79th Avenue	B	B	C
24th Avenue/American Boulevard	C	E	D
24th Avenue/Lindau Lane	C	D	C
24th Avenue/82nd St	B	B	C
24th Avenue/Transit Station	A	A	A
24th Avenue/Killebrew Drive /East Old Shakopee Road	C	D	D
34th Avenue/I-494 Interchange	E	E	C
34th Avenue/American Boulevard	C	F	D
34th Avenue/Appletree Square	A	B	A
American Boulevard/IKEA Access ⁽¹⁾	A/C	D/F	A/B
American Boulevard/Thunderbird Road	B	F	D
American Boulevard/28th Avenue/Airport Access	A	A	A
American Boulevard/Metro Drive West ⁽¹⁾	A/C	A/B	A/A
American Boulevard/30th Avenue	A	B	A
American Boulevard/Metro Drive East	A	C	A
American Boulevard/33rd Avenue/International Drive ⁽¹⁾	A/A	C/C	A/A
Lindau Lane/IKEA Way	B	E	E
Lindau Lane/22nd Avenue	B	E	D
SB TH 77/NB TH 77 Merge at Killebrew Drive ⁽¹⁾	A/A	A/A	A/A
Killebrew Drive/20th Avenue	A	B	D
Killebrew Drive/22nd Avenue	A	B	C
East Old Shakopee Road/TH 77 S Ramps ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/TH 77 N Ramps	C	B	B
East Old Shakopee Road/86th Street	B	B	A
East Old Shakopee Road/28th Avenue	B	C	B
East Old Shakopee Road/30th Avenue ⁽¹⁾	A/B	C/F	A/B
East Old Shakopee Road/31st Avenue ⁽¹⁾	A/C	B/F	A/B
East Old Shakopee Road/33rd Avenue/Ceridian Access ⁽¹⁾	A/B	A/C	A/A
28th Avenue/Lindau Lane	A	A	A
28th Avenue/82nd Street	B	C	B
30th Avenue/Lindau Lane	B	B	A
30th Avenue/North HP Driveway/METRO Park-and-Ride ⁽¹⁾	A/B	F/F	A/A
30th Avenue/Central HP Driveway ⁽¹⁾	A/B	F/F	A/A
30th Avenue/South HP Driveway ⁽¹⁾	A/C	F/F	A/A
E 86th Street/Service Road ⁽¹⁾	A/A	A/A	A/A

(1) Side-street stop controlled intersection. Overall intersection LOS followed by the worst approach.



H:\Projects\090000\91901\TSDocumentation\Figures\Fig50_Year 2040 LOS No Additional Improvements_Weekday AM Peak Hour.cdr

LEGEND

- - LOS C or Better
- - LOS D
- - LOS E or F
- ● - Stop Controlled: Overall LOS Followed by Worst Approach





H:\Projects\09000\09190\TSDocumentation\Figures\Fig51_Year 2040 LOS No Additional Improvements-Weekday PM Peak Hour.cdr



Year 2040 LOS No Additional Improvements: Weekday PM Peak Hour
 South Loop Roadway Infrastructure Improvement Study
 City of Bloomington

Figure 51



H:\Projects\090000\91901\TSDocumentation\Figures\Fig52_Year 2040 LOS No Additional Improvements-Saturday Peak Hour.cdr

Improvements for Consideration

To address the operational issues identified under year 2040 conditions the improvements listed below were identified. It is important to note that due to the uncertainty of the year 2040 forecasts the improvements listed below are considerations. Once detailed development plans are available and more is known about driverless vehicle technology the improvements listed below should be re-evaluated.

24th Avenue/79th Street

- A combination of the increased southbound traffic on 24th Avenue and the close access spacing of this intersection to the I-494/24th Avenue interchange limits the capacity for southbound vehicles. If opportunity arises, it is recommended that this intersection be closed. Development traffic utilizing this intersection has alternative access/route options.

I-494/Thunderbird Ramp Eastbound Ramp

- This improvement has been identified as a potential long-term improvement under previous traffic studies completed for the South Loop District and MOA. The I-494/Thunderbird Road Eastbound Off-Ramp would provide an alternative route for vehicles entering the South Loop District from northbound TH 77. This would directly reduce traffic volume and subsequently the delay for the eastbound left-turn movement at the Lindau Lane/IKEA Way/20th Avenue intersection. This is expected to be a heavily used route based on the high percentage of vehicles destined to the MOA from TH 77 to the south (25 percent). Further, based on the current alignment, it is difficult for vehicles from the Lindau Lane/TH 77 Northbound off-ramp to make an eastbound left-turn at the Lindau Lane/IKEA Way/20th Avenue intersection since vehicles need to cross two to three lanes within 300 feet to make a left-turn. As traffic volumes increase, this movement is expected to become more challenging.
- Current discussions are in progress with MnDOT about the potential to provide an eastbound I-494 on ramp at Thunderbird Road. This would provide an alternative route for vehicles making an eastbound left-turn at the 24th Avenue/American Boulevard intersection to a northbound right-turn at the I-494/24th Avenue interchange. Under year 2040 conditions the 24th Avenue/American Boulevard intersection operates at LOS E during the weekday p.m. peak hour and the I-494/24th Avenue interchange operates at LOS F during the Saturday peak hour; construction of this on-ramp would reduce delay/queues at these intersections.
- While this improvement is not identified under year 2025 conditions, once the MOA Phase 2 is fully built out, the interchange is expected to be needed to accommodate traffic volumes.

Lindau Lane at IKEA Way/20th Avenue and 22nd Avenue

- The construction of I-494/Thunderbird Eastbound Ramp project will help divert traffic away from these two intersections.
- Similar to year 2025 conditions, as the MOA Phase 2 continues to expand and generate more trips the capacity for northbound left-turn movements exiting at the Lindau Lane/IKEA Way/20th Avenue is reduced. Through internal wayfinding, MOA Phase 1 vehicles should be diverted away from using the Lindau Lane/IKEA Way/20th Avenue intersection to exit via a southbound right-turn movement at the Killebrew Drive/20th Avenue intersection.

24th Avenue/American Boulevard

- The construction of the I-494/Thunderbird Eastbound Ramp project is expected to reduce the number of vehicles making an eastbound left-turn movement at this intersection.
- To reduce the likelihood of eastbound left-turn queues extending beyond the available turn lane storage, it is recommended that the eastbound left-turn lane be extended (utilize existing median to extend turn lane).

Killebrew Drive/20th Avenue

- As mentioned under year 2025 conditions as a design consideration, the eastbound through lane of the MOA circulatory roadway should be evaluated for potential to convert to a shared through/right-turn lane. This would eliminate the hatched out pavement area as this would become a traffic lane. The triangular median between the circulatory roadway and MOA entrance could be expanded to the east to reduce the southbound approach to one lane and eliminate the need for additional traffic control.

I-494/34th Avenue Interchange

- To accommodate year 2040 traffic generated by the South Loop District and the MSP International Airport expansion, the capacity improvements identified under the *MSP International Airport 2020 Improvements EA/EAW* study should be constructed. These infrastructure improvements include triple southbound right-turns, triple westbound left-turns, triple northbound through lanes at the north crossover intersection and triple eastbound right-turns and triple northbound right-turns at the south crossover intersection. Between the north and south crossover on 34th Avenue, there are four lanes in each direction.
- Regional improvements, such as expanding the capacity of the westbound I-494 and TH 5 off-ramps, will also be needed to carry the demand at the I-494/34th Avenue interchange.
- The LRT currently runs twice-per-cycle to reduce the travel time of the LRT through the interchange. If the volumes through this interchange reach the projected levels, the twice-per-cycle operation should be re-evaluated since no vehicles are able to pass through the interchange while the LRT phase is running.

34th Avenue/American Boulevard

- Additional capacity improvements are needed at this intersection to accommodate the year 2040 forecasts. This intersection should be re-evaluated once more information is known regarding regional transit improvements to the study area (e.g. Riverview Corridor LRT) and the impacts of driverless vehicle technology to the transportation network.
- Based on the year 2040 forecasts, to provide LOS E or better conditions during the peak hours intersection, improvement assumptions included a triple eastbound left-turn lanes, four northbound through lanes, dual westbound left-turn lanes, and dual westbound right-turn lanes with a southbound left-turn signal overlap phase.

American Boulevard/Thunderbird Road

- For both a scenario where the I-494/Thunderbird Eastbound Ramp project is constructed and not constructed, capacity improvements will be needed at the southbound approach to accommodate the year 2040 traffic volumes.

- For the year 2040 improvements analysis it was assumed that the I-494/Thunderbird Eastbound Ramp project was constructed. The assumed improvements to the southbound approach included dual southbound left-turn lanes, a through lane, and a shared through/right-turn lane

East Old Shakopee Road and TH 77 Northbound Ramps

- To accommodate the year 2040 forecast it was assumed that the eastbound dual left-turn lane storage would be extended.
- Closure of Glenview Lane and conversion to a continuous flow intersection could also be considered.

East Old Shakopee Road/28th Avenue

- Two intersection control options (traffic signal and multi-lane roundabout) were identified under year 2025 conditions. Under year 2040 conditions dual eastbound and southbound left-turn lanes should be considered with the traffic control option. Both are expected to provide acceptable operations. For the year 2040 improvements analysis it was assumed that the traffic signal and intersection improvements would be constructed.

East Old Shakopee Road/30th Avenue

- To accommodate the increase in traffic due to the expansion to the BCS office intersection, traffic control change is needed at this intersection. A traffic signal was assumed.

East Old Shakopee Road/33rd Avenue

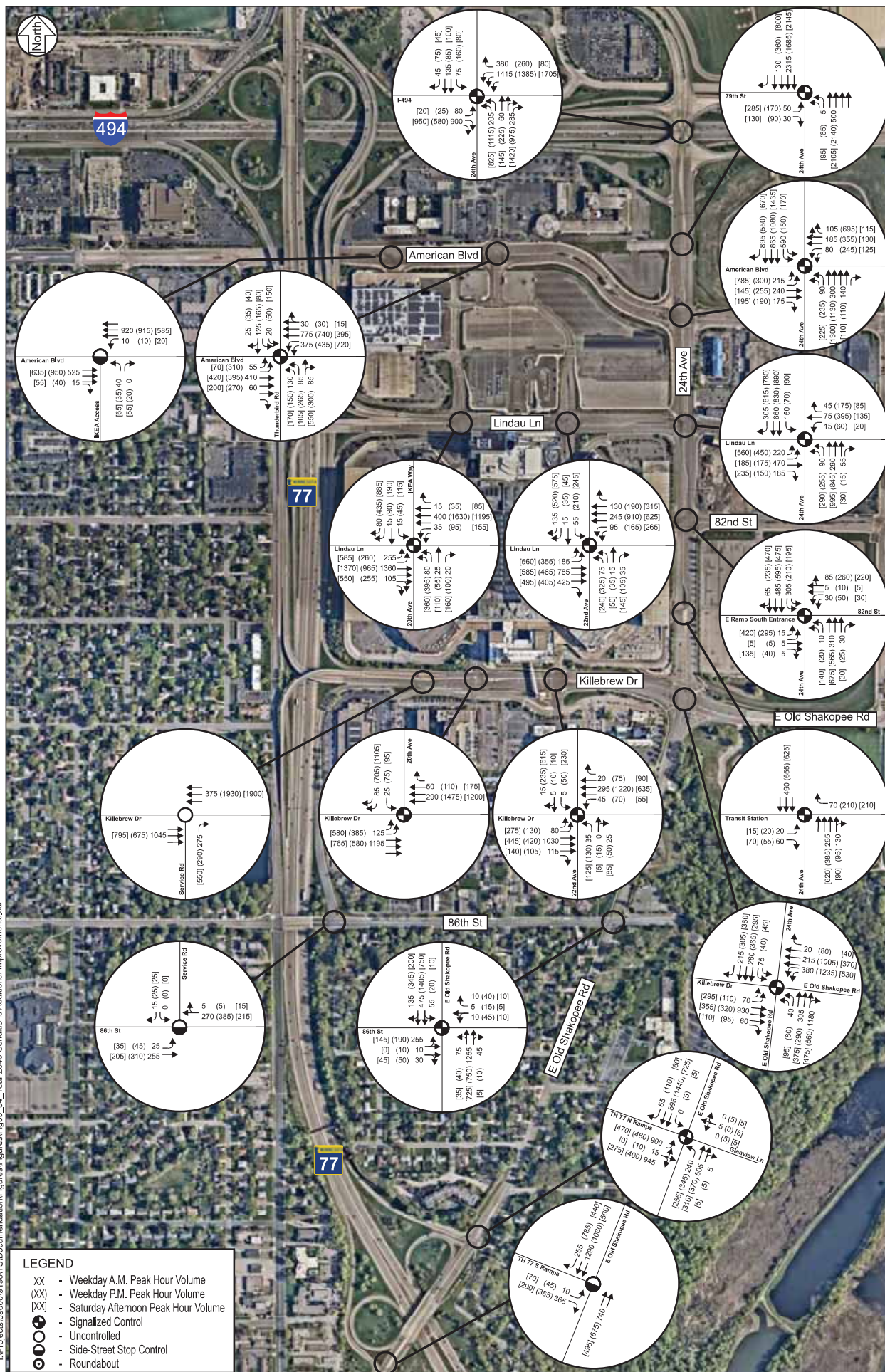
- To accommodate the increase in traffic due to the expansion to the BCS office intersection, traffic control change is needed at this intersection. A traffic signal was assumed.

Intersection Operations Analysis With Additional Improvements

A detailed traffic capacity analysis was completed under year 2040 conditions with the additional improvements identified for consideration. Year 2040 traffic volumes with recommended improvements are shown in Figure 53 and Figure 54. Study intersections were once again analyzed using Vissim.

Results of the year 2040 operations analysis shown in Table 11 indicate that with identified additional improvements the study intersections are expected to operate at LOS D or better during the weekday a.m., weekday p.m., and Saturday peak hours. The LOS results for the weekday a.m., weekday p.m., and Saturday peak hours are illustrated in Figure 55, Figure 56, and Figure 57, respectively. Detailed traffic operations results are provided in Appendix M.

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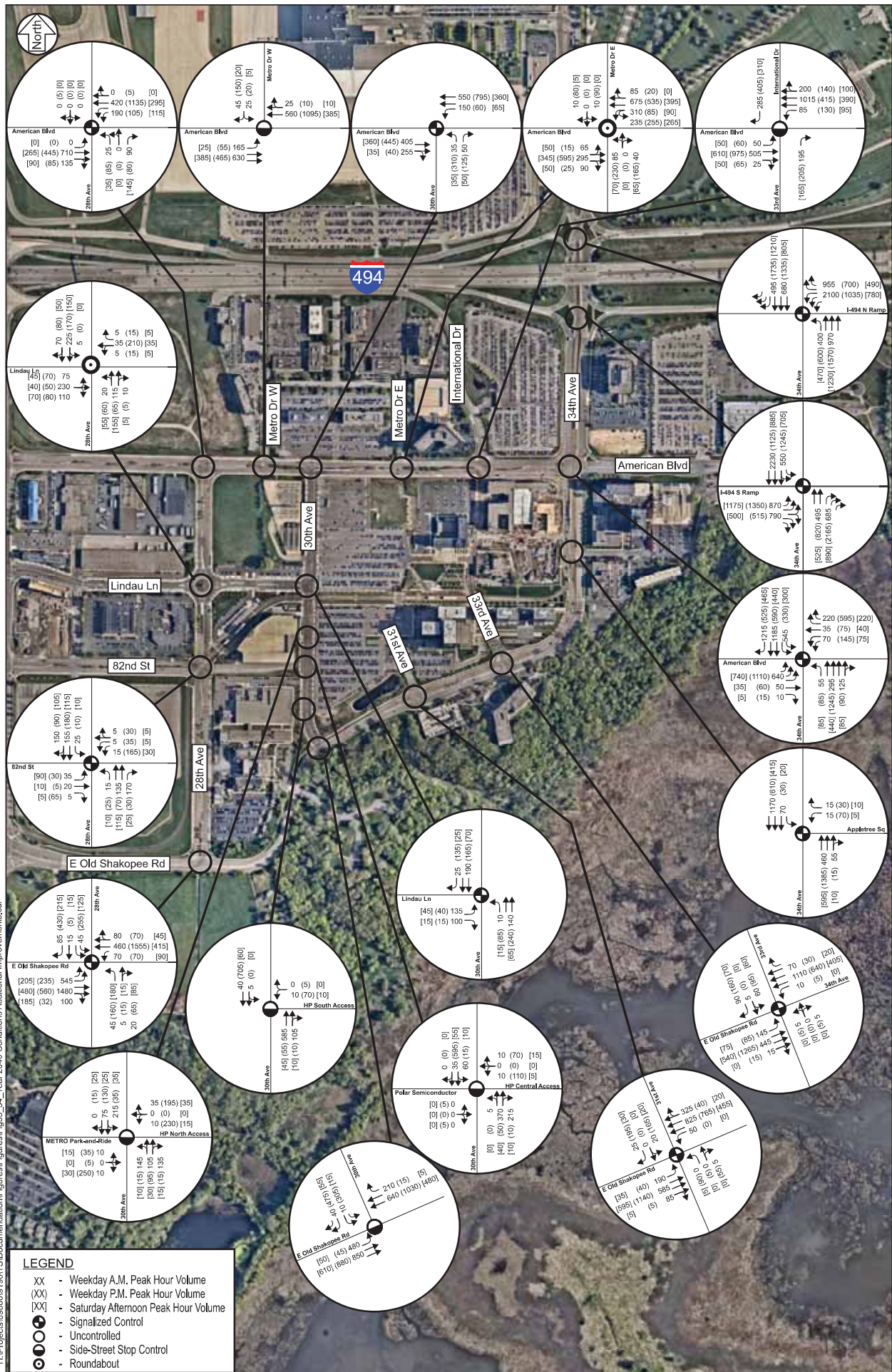


Table 11. Year 2040 Conditions Peak Hour Capacity Analysis (Additional Improvements)

Intersection	AM Peak Hour	PM Peak Hour	Sat Peak Hour
24th Avenue/I-494 Interchange	C	C	D
24th Avenue/79th Avenue	A	A	B
24th Avenue/American Boulevard	C	C	C
24th Avenue/Lindau Lane	C	C	C
24th Avenue/82nd St	B	B	C
24th Avenue/Transit Station	A	A	A
24th Avenue/Killebrew Drive /East Old Shakopee Road	D	D	C
34th Avenue/I-494 Interchange	D	D	C
34th Avenue/American Boulevard	D	D	D
34th Avenue/Appletree Square	A	A	A
American Boulevard/IKEA Access ⁽¹⁾	A/C	A/C	A/B
American Boulevard/Thunderbird Road	C	C	D
American Boulevard/28th Avenue/Airport Access	A	A	A
American Boulevard/Metro Drive West ⁽¹⁾	A/C	A/C	A/A
American Boulevard/30th Avenue	A	B	A
American Boulevard/Metro Drive East	A	C	A
American Boulevard/33rd Avenue/International Drive ⁽¹⁾	A/A	B/B	A/A
Lindau Lane/IKEA Way	B	D	D
Lindau Lane/22nd Avenue	B	D	C
SB TH 77/NB TH 77 Merge at Killebrew Drive ⁽¹⁾	A/A	A/A	A/A
Killebrew Drive/20th Avenue	A	C	C
Killebrew Drive/22nd Avenue	A	B	B
East Old Shakopee Road/TH 77 S Ramps ⁽¹⁾	A/A	A/A	A/A
East Old Shakopee Road/TH 77 N Ramps	C	C	B
East Old Shakopee Road/86th Street	B	B	A
East Old Shakopee Road/28th Avenue	C	C	B
East Old Shakopee Road/30th Avenue	A	A	A
East Old Shakopee Road/31st Avenue	A	A	A
East Old Shakopee Road/33rd Avenue/Ceridian Access ⁽¹⁾	A/C	A/C	A/A
28th Avenue/Lindau Lane	A	A	A
28th Avenue/82nd Street	C	C	B
30th Avenue/Lindau Lane	B	B	A
30th Avenue/North HP Driveway/METRO Park-and-Ride ⁽¹⁾	A/B	A/B	A/A
30th Avenue/Central HP Driveway ⁽¹⁾	A/B	A/B	A/A
30th Avenue/South HP Driveway ⁽¹⁾	A/C	A/C	A/A
E 86th Street/Service Road ⁽¹⁾	A/A	A/A	A/A

(1) Side-street stop controlled intersection. Overall intersection LOS followed by the worst approach.



H:\Projects\09000\09190\TSDocumentation\Figures\Fig55_Year 2040 LOS Additional Improvements-Weekday AM Peak Hour.cdr

LEGEND

- - LOS C or Better
- - LOS D
- - LOS E or F
- - Stop Controlled: Overall LOS Followed by Worst Approach





H:\Projects\090000\9190\TSDocumentation\Figures\Fig56_Year 2040 LOS Additional Improvements-Weekday PM Peak Hour.cdr





H:\Projects\09000\09190\TSDocumentation\Figures\Fig57_Year 2040 LOS Additional Improvements-Saturday Peak Hour.cdr

LEGEND

- - LOS C or Better
- - LOS D
- - LOS E or F
- Stop Controlled: Overall LOS Followed by Worst Approach



Wayfinding

The South Loop District currently has seven (7) Freeway Plans that adjust dynamic message signage (DMS) on the adjacent freeway system to direct motorists on the preferred way to access the South Loop District. The Bloomington Police Department (BPD) and MOA work together to determine which plan should be implemented and then communicate with MnDOT TMC, who determines if the sign change request is appropriate. The signs default to reset back to Plan 1, which is the default plan, at 5:00 p.m. and 10:00 p.m. every day. Note that based on sign change protocol, sign changes will not occur more than one change per hour. The freeway sign change protocol is provided in Appendix N.

Dynamic messaging signage is located on TH 5, I-494 (west of Portland Avenue, at the I-494 eastbound to southbound ramp, and east of TH 5), and on TH 77 (north of I-494, and south of TH 77). Depending on the traffic conditions, each plan provides a different combination for how vehicles are guided to access the South Loop District, including the ability to direct to the following interchange options: I-494/24th Avenue, I-494/34th Avenue, TH 77/Lindau Lane, TH 77/Killebrew Drive, and TH 77/East Old Shakopee Road.

The South Loop District also has four local road wayfinding plans that adjust via DMS. The BPD and MOA work together to determine the plan request where the MOA requests a sign plan change and the Bloomington Traffic Engineer or Patrol Supervisor determines if the sign plan change is appropriate. Differing from the freeway plans, the local road plans will not automatically reset and sign changes will not occur more than one change per 15 minutes.

The four local road wayfinding plans include conditions for when both ramps are open (A), when the west ramp is full (B), when the east ramp is full (C), and for when both ramps are full (D). To help direct motorists, DMS are located on 24th Avenue, 34th Avenue, American Boulevard, Lindau Lane, Killebrew Lane, and East Old Shakopee Road. The plans direct motorists to where available parking is located and work in coordination with the freeway plans to provide the best possible operations.

As recommended in the *Mall of America Phase 2B Traffic Study*, dated November 2015, when the MOA Phase 2 development occurs, the existing wayfinding plan for the South Loop District should be revisited. This includes revisiting the freeway and local road plan DMS to determine which plans should be utilized when Gate Closures occur and if any new plans should be developed. For example, Plan 7 should be used when Phase 1 and 2 have gate closures. This plan will direct traffic to use the I-494/34th Avenue interchange and the TH 77/East Old Shakopee Road interchange. This will provide relief to 24th Avenue and Lindau Lane. The update should also consist of DMS and static signs on the local roadway network and internal to the site. At this time, the exact location and messages on those signs have not been determined.

The wayfinding plans are an integral component of current and future operations in the South Loop District. As new development occurs both the dynamic and static wayfinding signs should be reviewed and updated if needed to better accommodate traffic. Efficient use of the freeway and local wayfinding sign plans has the potential to reduce congestion and limit the intersection capacity improvements needed in the South Loop District.

Autonomous Vehicle Impacts

In the past when estimating future traffic forecasts, it has been assumed that the current assumptions relating to travel trends, capacity, and mode preference will not significantly change under future conditions. However, based on upcoming new technology and several behavioral trends it is likely these base assumptions will be different under future conditions compared to what they are now. One of the most disruptive changes expected to impact traffic forecasts/patterns is the introduction of autonomous vehicles (AV) or self-driving vehicles.

A recent paper (*Traffic Forecasting and Autonomous Vehicles*) submitted for the 2016 European Transport conference surveyed industry experts on how AV technology will impact traffic models and projects. The conclusion of this study is that there is a wide spread view on when and how AV technology will impact current travel conditions. Based on the current information that is available, it is very difficult to estimate how the technology will be used and how it will affect mobility.

The following information summarizes key information based on what is known or thought most likely to occur in the upcoming years.

Adoption

- AV and connected vehicle (CV) are emerging technologies.
- Some components already exist, additional concepts and applications are being tested.
- Some expect that broad adoption will occur within the next 10 to 15 years.
- Market acceptance, liability and other issues are currently unknown.

Operations/Safety

- Safety improvements, increasing the reliability of transportation system.
- Performance/efficiency improvement, such as vehicle spacing.
- Efficiencies due to dynamic routing and parking location.

Travel Behavior

- It is unclear whether the overall impact would increase or decrease vehicle miles of travel. This will depend on how the technology emerges and its cost.
- Autonomous and shared vehicles provide accessibility and opportunity for people who may not otherwise travel.
- Extra circulation of vehicles (seeking remote parking, etc.) may increase traffic.
- Transit last mile/first mile could reduce long-haul travel by automobile, but increase traffic around transit station.

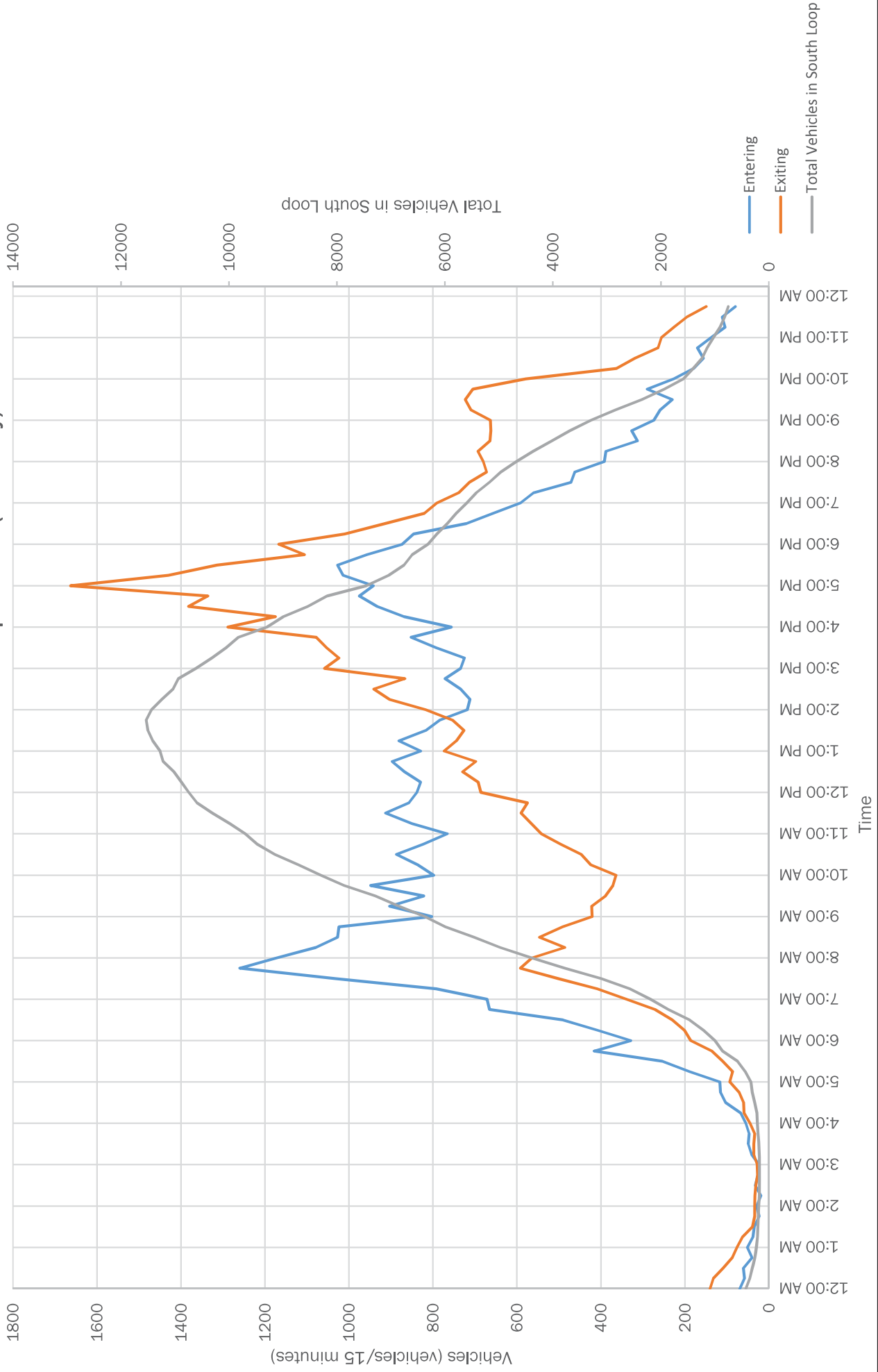
The key take away from what is known about AV technology is there is currently too much uncertainty with how the technology will be implemented and what the impact to the transportation network will be. It is recommended that this technology be reviewed once again when the South Loop District Update occurs in approximately five years (year 2022). At that time more information will be known about CV and AV technologies and better assumptions/decisions can be developed to assess what the infrastructure needs are needed in the long-term (year 2025 and beyond).

Appendix A
24-Hour Counts: Hourly Profiles

DRAFT

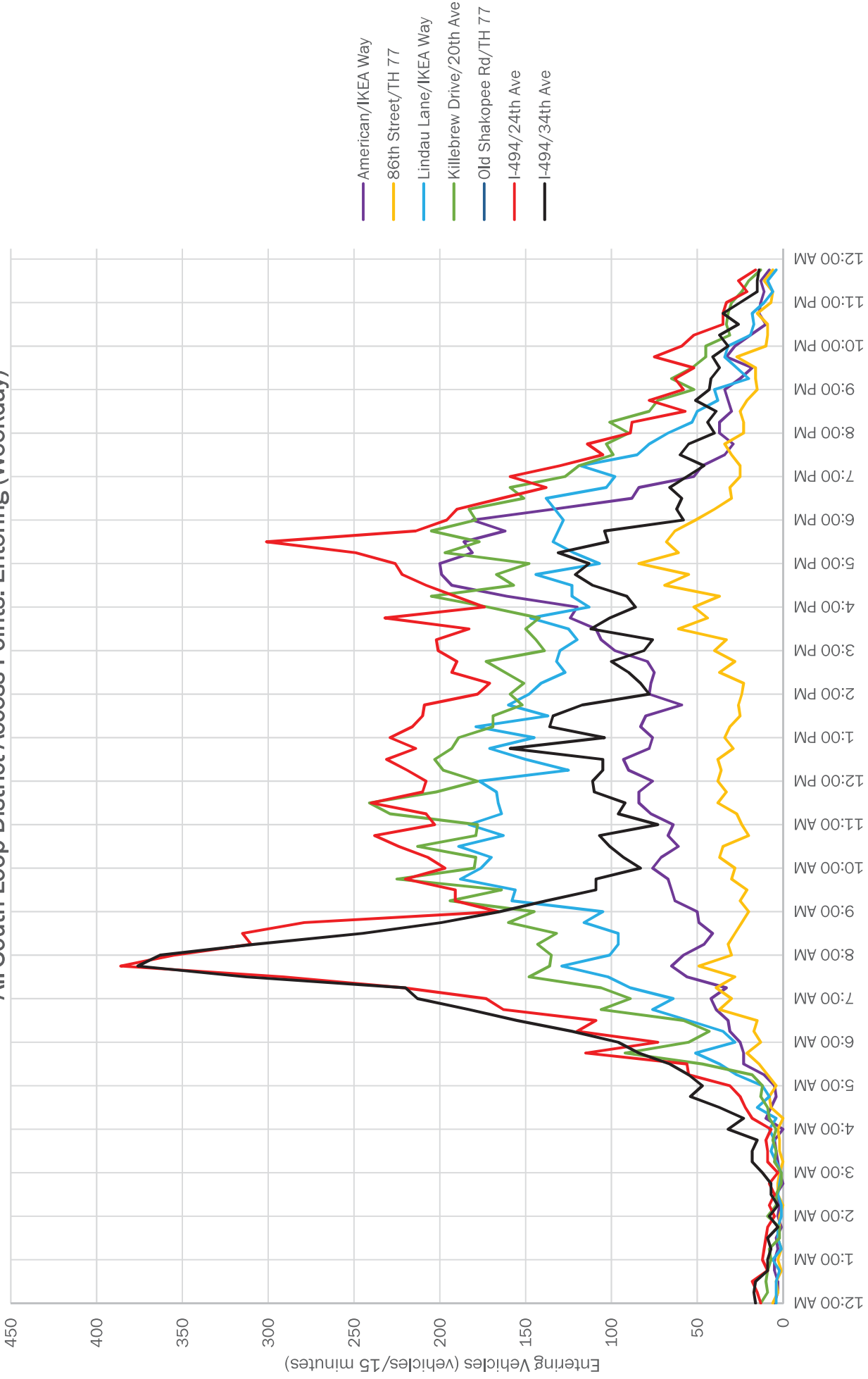
South Loop District Traffic Study:
Data Collection Summary

All Access Points to South Loop District (Weekday)



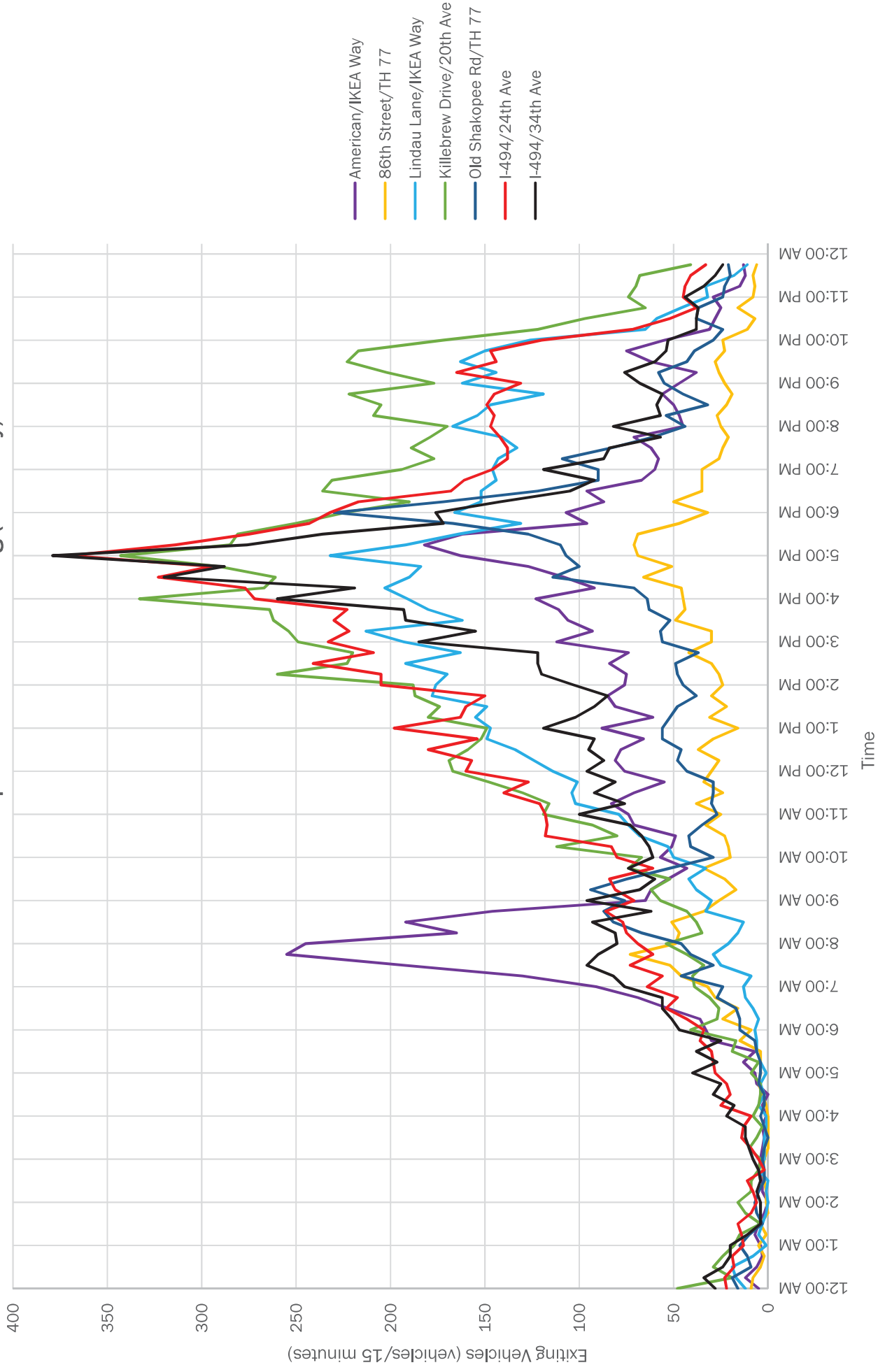
South Loop District Traffic Study:
Data Collection Summary

All South Loop District Access Points: Entering (Weekday)



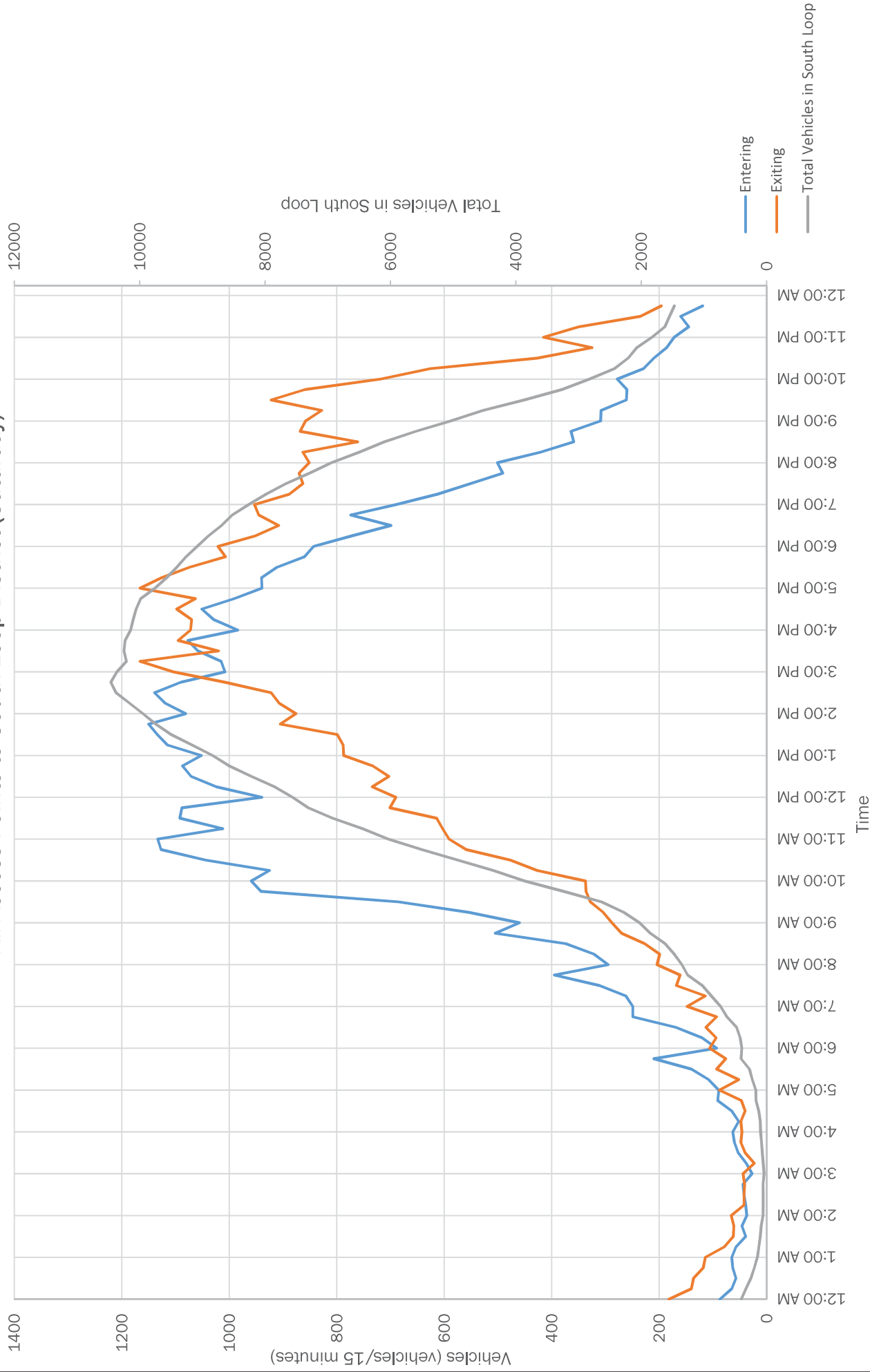
South Loop District Traffic Study:
Data Collection Summary

All South Loop Access Points: Exiting (Weekday)



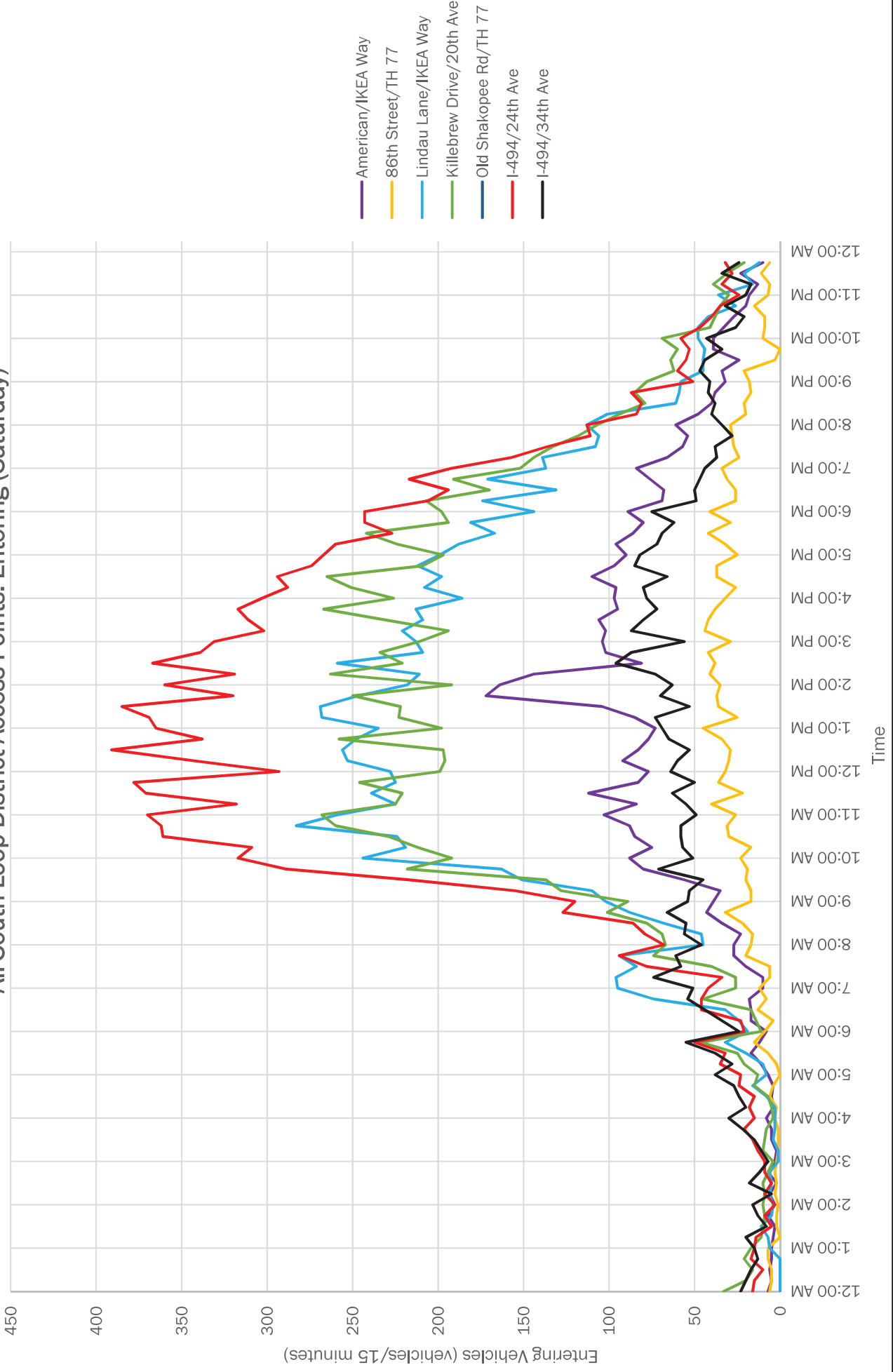
South Loop District Traffic Study: Data Collection Summary

All Access Points to South Loop District (Saturday)



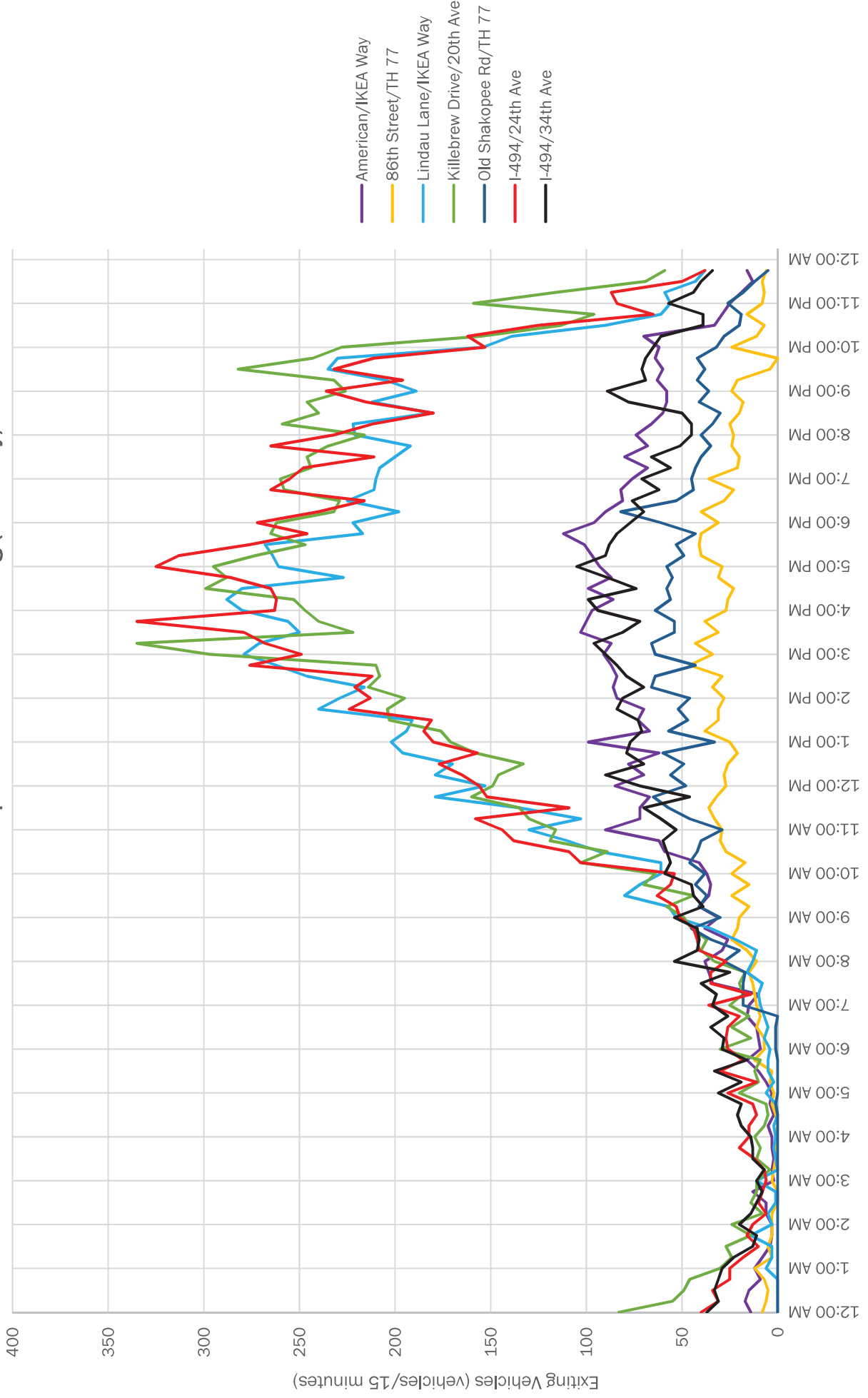
South Loop District Traffic Study:
Data Collection Summary

All South Loop District Access Points: Entering (Saturday)



South Loop District Traffic Study:
Data Collection Summary

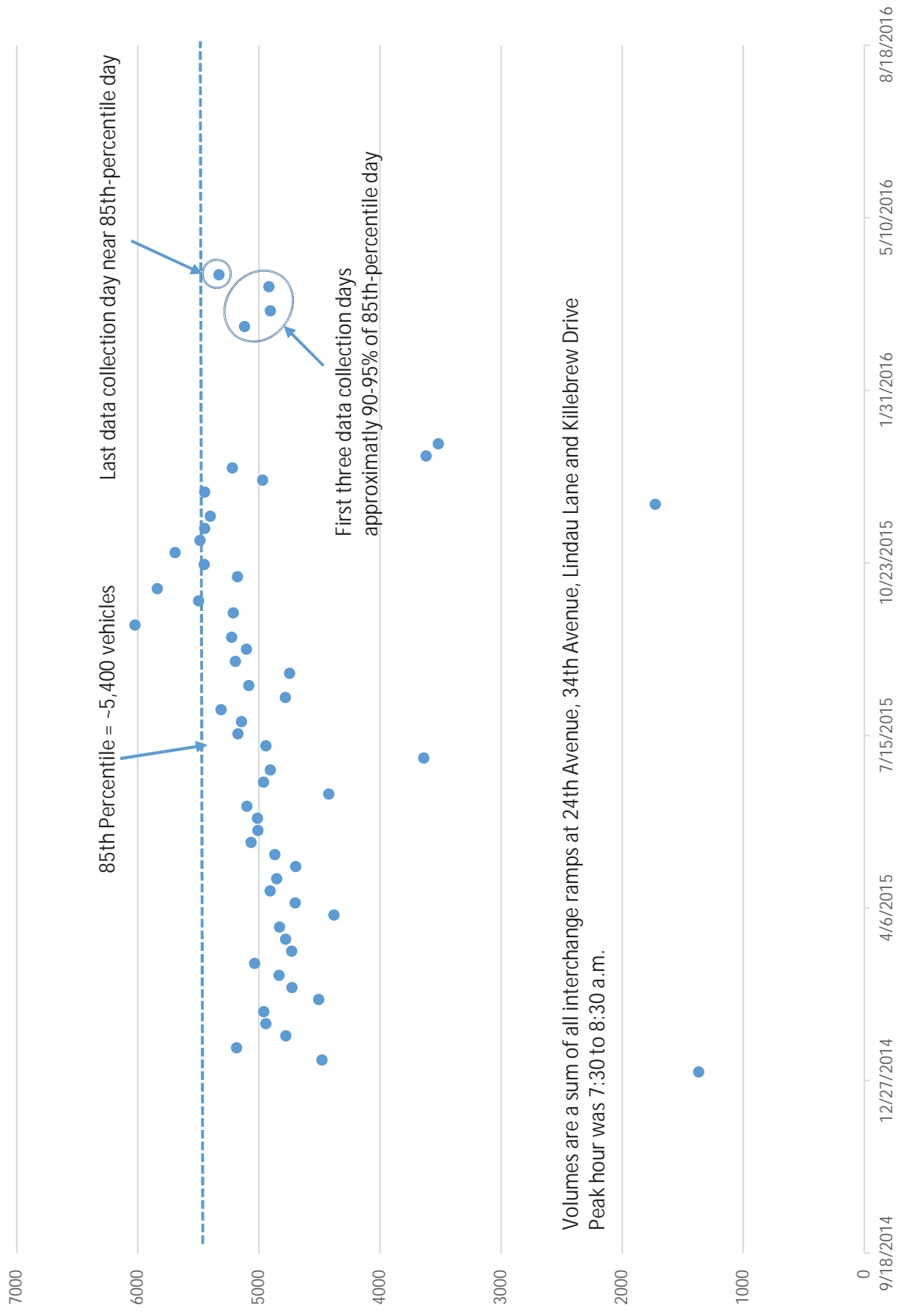
All South Loop Access Points: Exiting (Saturday)



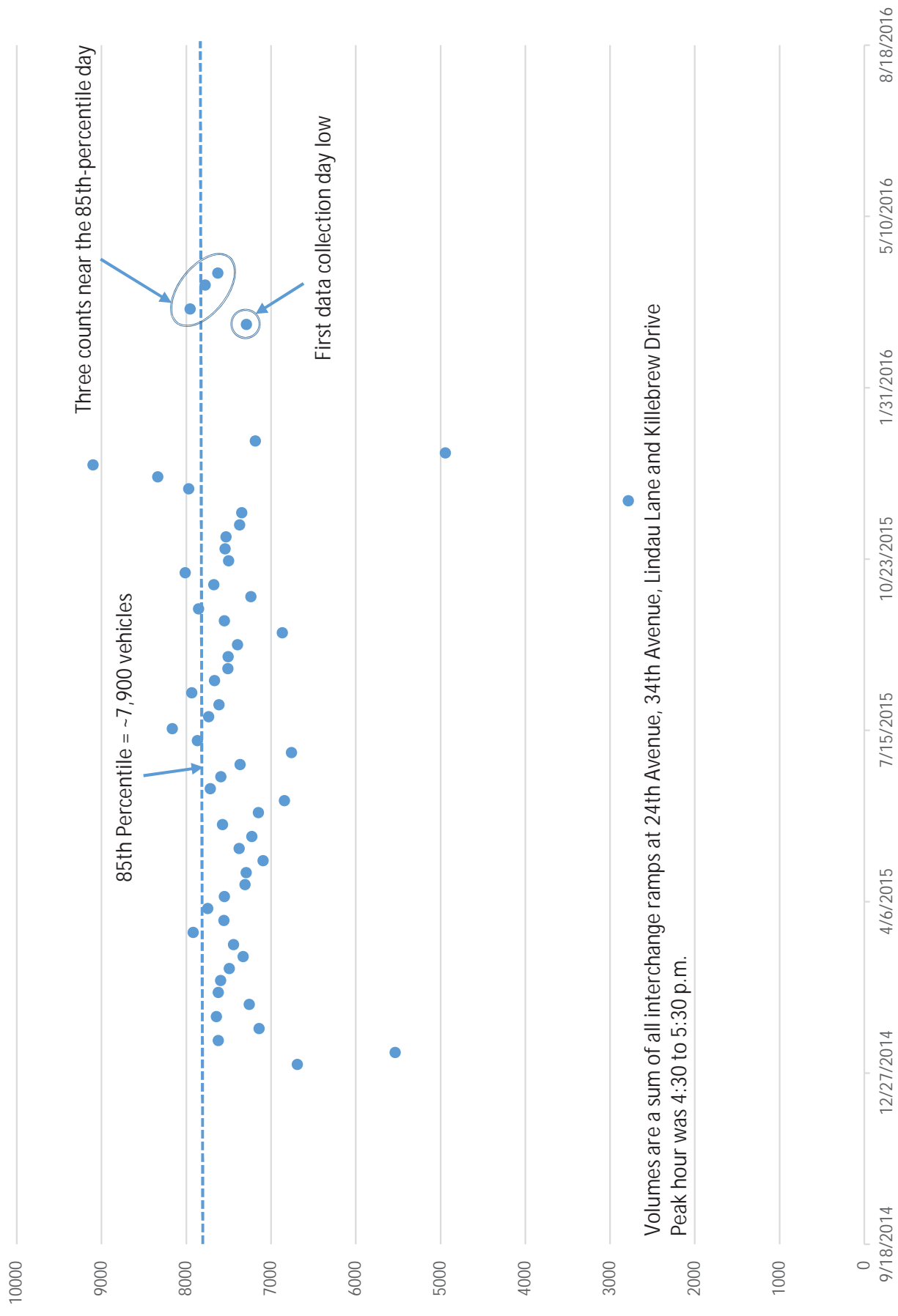
Appendix B
Gate Count/MnDOT Loop Detector Analysis

DRAFT

AM Peak Hour Interchange Volumes

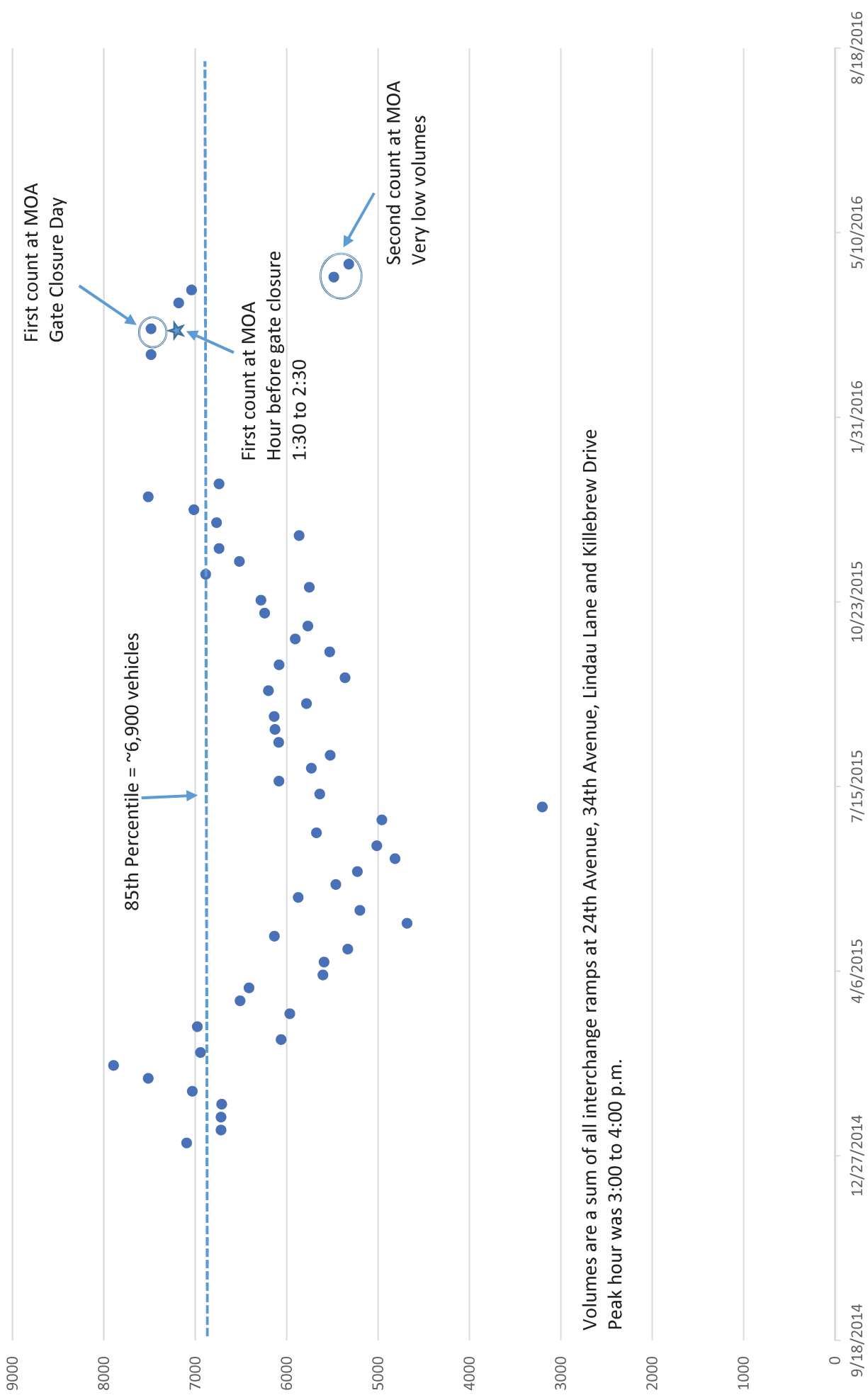


PM Peak Hour Interchange Volumes



South Loop District Traffic Study: Data Collection Summary

Saturday Peak Hour Interchange Volumes



Appendix C
Data Collection Intersection Adjustment Factors

DRAFT



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Data Collection Locations and Times
 South Loop District Traffic Study
 Bloomington, MN

00169190
 March 2016

Figure 1

South Loop District Traffic Study:
Data Collection Summary

Intersection Number	Intersection Name	Count Type	A.M. Collection Date	P.M. Collection Date	Saturday Collection Date	AM Adjustment Factor	PM Adjustment Factor	Saturday Adjustment Factor	Notes
1	Lindau Lane/30th Avenue	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
2	E Old Shakopee Road/30th Avenue	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
3	E Old Shakopee Road/South HP Driveway/31st Avenue	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
4	30th Avenue/North HP Driveway	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
5	30th Avenue/Middle HP Driveway	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
6	30th Avenue/South HP Driveway	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
7	American Boulevard/IKEA Access	24 Hour	3/31/2016	3/31/2016	4/2/2016	1.10	1.00	0.96	-
8	Lindau Lane/IKEA Way	24 Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
9	Killebrew Drive/20th Avenue	24 Hour	3/17/2016	3/17/2016	3/19, 4/23	1.10	1.00	1.30	-
10	Killebrew Drive/E Service Road	24 Hour	3/17/2016	3/17/2016	3/19/2016	1.10	1.00	1.30	-
11	86th Street/E Service Road	24 Hour	3/31/2016	3/31/2016	4/2/2016	1.05	1.02	1.04	-
12	E Old Shakopee Road/North 77 Ramps	24 Hour	4/24/2016	4/20/2016	4/23/2016	1.00	1.00	1.00	-
13	I-494/24th Avenue	24 Hour	3/31/2016	3/31/2016	4/2/2016	1.10	1.00	0.96	-
14	I-494 S Ramps/34th Avenue	24 Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
15	American Boulevard/Thunderbird Road	Peak Hour	July 2015	July 2015	4/23/2016	1.10	1.00	0.96	Used counts collected for MOA Phase 2B Traffic Study (July 2015)
16	American Boulevard/24th Avenue	Peak Hour	3/31/2016	3/31/2016	4/2/2016	1.10	1.00	0.96	-
17	American Boulevard/28th Avenue	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
18	American Boulevard/Metro Drive W	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
19	American Boulevard/30th Avenue	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
20	American Boulevard/Metro Drive E	Peak Hour	4/27/2016	4/27/2016	--	1.00	1.03	1.00	Did not collect on Saturday
21	American Boulevard/International Drive	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
22	American Boulevard/34th Avenue	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
23	Lindau Lane/22nd Avenue	Peak Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
24	Lindau Lane/24th Avenue	Peak Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
25	Lindau Lane/28th Avenue	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
26	24th Avenue/82nd Street	Peak Hour	3/31/2016	3/31/2016	4/2/2016	1.10	1.00	0.96	-
27	24th Avenue/82nd Street	Peak Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
28	28th Avenue/82nd Street	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-
29	Killebrew Drive/22nd Avenue	Peak Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
30	Killebrew Drive/24th Avenue	Peak Hour	3/17/2016	3/17/2016	4/16/2016	1.10	1.00	1.25	-
31	E Old Shakopee Road/South TH 77 Ramps	Peak Hour	4/27/2016	4/20/2016	4/23/2016	1.03	1.00	1.00	-
32	E Old Shakopee Road/86th Street	Peak Hour	3/31/2016	3/31/2016	4/2/2016	1.05	1.02	1.04	-
33	E Old Shakopee Road/28th Avenue	Peak Hour	3/31/2016	3/31/2016	4/2/2016	1.10	1.00	0.96	-
34	E Old Shakopee Road/33rd Avenue/Ceridian Access	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
35	34th Avenue/Apple Tree Square	Peak Hour	3/8/2016	3/8/2016	3/5/2016	1.05	1.08	0.92	-
36	I-494 N Ramps/34th Avenue	Peak Hour	4/7/2016	4/7/2016	4/9/2016	1.00	1.03	1.00	-

Appendix D
Existing MOE

DRAFT

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	2	53	13.7	B	13.7	B	0.7	A
	Right	0	-	-	-	A				
Eastbound	Thru	226	0	0	0.1	A	0.1	A		
	Right	10	0	0	0.4	A				
Westbound	Left	7	0	7	1.8	A	0.3	A		
	Thru	895	0	0	0.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
0	0	0
228	226	-2
12	10	-2
8	7	-1
909	895	-14

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	337	0	0	0.0	A	0.5	A	0.5	A
	-	278	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
344	337	-7
274	278	4

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.0	A	3.5	A
	Right	13	1	69	7.0	A				
Eastbound	Left	25	0	22	3.9	A	1.5	A		
	Thru	121	0	0	1.0	A				
Westbound	Thru	209	0	0	4.7	A	4.7	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
15	13	-2
25	25	0
122	121	-1
216	209	-7
1	0	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	503	0	0	0.2	A	0.2	A	1.3	A
	Thru	1,187	0	5	0.4	A				
Southbound	Right	42	0	5	0.5	A	0.4	A		
	Left	10	2	29	35.5	E				
Eastbound	Left	10	2	29	35.5	E	6.0	A		
	Right	358	0	0	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
505	503	-2
1,200	1,187	-13
40	42	2
10	10	0
360	358	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	115	10	62	23.2	C	21.9	C	8.5	A
	Thru	4	1	15	25.5	C				
	Right	9	0	0	2.6	A				
Southbound	Left	33	5	87	26.4	C	20.1	C		
	Thru	4	5	87	30.2	C				
	Right	18	0	15	6.4	A				
Eastbound	Left	19	3	28	31.0	C	7.3	A		
	Thru	186	3	46	5.7	A				
	Right	23	0	3	0.9	A				
Westbound	Left	27	4	39	27.4	C	6.0	A		
	Thru	768	7	93	5.3	A				
	Right	27	7	120	5.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
115	115	0
5	4	-1
11	9	-2
32	33	1
4	4	0
20	18	-2
16	19	3
189	186	-3
23	23	0
29	27	-2
782	768	-14
29	27	-2

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (AM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	30	3	38	23.2	C	18.5	B	10.2	B
	Thru	25	2	34	16.4	B				
	Right	7	0	35	5.6	A				
Southbound	Left	4	0	13	12.3	B	14.5	B		
	Thru	11	1	27	21.5	C				
	Right	18	1	29	10.7	B				
Eastbound	Left	123	8	58	16.6	B	8.5	A		
	Thru	245	4	61	6.4	A				
	Right	101	10	100	3.7	A				
Westbound	Left	32	2	39	17.4	B	12.2	B		
	Thru	51	2	35	8.9	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
30	30	0
24	25	1
8	7	-1
4	4	0
12	11	-1
18	18	0
123	123	0
245	245	0
102	101	-1
35	32	-3
51	51	0
0	0	0

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	27	2	32	17.2	B	6.3	A	3.6	A
	Right	78	0	20	2.6	A				
Eastbound	Left	121	5	61	10.4	B	3.0	A		
	Thru	492	5	61	1.2	A				
Westbound	Thru	101	2	48	5.6	A	4.0	A		
	Right	47	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	27	2
81	78	-3
122	121	-1
496	492	-4
101	101	0
49	47	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	232	6	96	7.9	A	6.3	A	11.0	B
	Thru	276	3	59	4.9	A				
	Right	5	3	59	5.9	A				
Southbound	Left	0	-	-	-	A	9.6	A		
	Thru	284	8	74	11.1	B				
	Right	45	0	0	0.4	A				
Eastbound	Left	375	30	139	27.7	C	13.1	B		
	Thru	10	30	141	27.6	C				
	Right	945	0	25	7.1	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
235	232	-3
275	276	1
5	5	0
0	0	0
295	284	-11
49	45	-4
382	375	-7
11	10	-1
945	945	0
0	0	0
2	0	-2
0	0	0

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	20	1	27	11.9	B	9.1	A	4.8	A
	Thru	10	0	25	14.4	B				
	Right	25	1	57	4.9	A				
Southbound	Left	4	0	15	10.2	B	11.4	B		
	Thru	9	0	24	11.9	B				
	Right	0	-	-	-	A				
Eastbound	Left	2	0	9	6.9	A	2.9	A		
	Thru	206	2	51	3.1	A				
	Right	50	0	53	2.0	A				
Westbound	Left	18	1	31	19.4	B	6.5	A		
	Thru	63	0	24	3.3	A				
	Right	5	0	5	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	20	-1
10	10	0
23	25	2
4	4	0
9	9	0
1	0	-1
2	2	0
211	206	-5
44	50	6
15	18	3
64	63	-1
7	5	-2

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	33	4	43	26.2	C	16.3	B	6.1	A
	Thru	0	-	-	-	A				
	Right	21	0	2	0.6	A				
Southbound	Left	4	1	24	18.2	B	9.0	A		
	Thru	4	1	24	21.0	C				
	Right	12	0	2	2.0	A				
Eastbound	Left	81	3	46	11.2	B	4.5	A		
	Thru	323	3	61	4.1	A				
	Right	115	0	13	1.1	A				
Westbound	Left	45	2	43	13.9	B	7.4	A		
	Thru	102	2	43	5.6	A				
	Right	18	0	5	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	33	-1
0	0	0
22	21	-1
4	4	0
4	4	0
13	12	-1
78	81	3
329	323	-6
114	115	1
44	45	1
103	102	-1
16	18	2

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	57	12	64	46.6	D	16.2	B	13.3	B
	Thru	32	7	39	45.1	D				
	Right	176	0	0	1.2	A				
Southbound	Left	55	13	86	43.9	D	34.4	C		
	Thru	72	13	64	44.0	D				
	Right	36	0	0	0.8	A				
Eastbound	Left	68	3	55	9.7	A	3.0	A		
	Right	324	0	0	1.6	A				
Westbound	Left	1,057	51	356	13.7	B	13.2	B		
	Right	120	7	91	8.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
59	57	-2
33	32	-1
183	176	-7
57	55	-2
71	72	1
36	36	0
68	68	0
324	324	0
1,065	1,057	-8
122	120	-2

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.4	A	2.3	A
	Thru	268	0	0	0.4	A				
Southbound	Thru	1,433	0	32	2.7	A	2.7	A		
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
274	268	-6
1,440	1,433	-7
0	0	0
1	0	-1
0	0	0

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	35	13	71	63.0	E	32.8	C	20.8	C
	Thru	140	18	82	43.1	D				
	Right	82	0	22	2.3	A				
Southbound	Left	305	33	162	29.1	C	14.5	B		
	Thru	416	21	124	20.4	C				
	Right	710	0	45	4.8	A				
Eastbound	Left	68	20	87	60.3	E	36.6	D		
	Thru	110	16	88	36.7	D				
	Right	51	0	6	4.8	A				
Westbound	Left	22	7	46	65.9	E	35.7	D		
	Thru	79	16	81	47.7	D				
	Right	61	19	88	9.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	35	-3
145	140	-5
86	82	-4
304	305	1
411	416	5
725	710	-15
71	68	-3
110	110	0
51	51	0
26	22	-4
77	79	2
59	61	2

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	3	21	72.5	E	11.2	B	9.7	A
	Thru	136	4	65	10.3	B				
	Right	12	0	0	1.2	A				
Southbound	Left	42	5	63	24.6	C	8.2	A		
	Thru	370	6	97	7.5	A				
	Right	76	0	7	2.3	A				
Eastbound	Left	102	7	72	17.1	B	11.5	B		
	Thru	62	4	52	14.3	B				
	Right	70	0	7	0.7	A				
Westbound	Left	4	1	43	48.4	D	12.2	B		
	Thru	6	1	18	26.4	C				
	Right	21	0	2	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
146	136	-10
13	12	-1
42	42	0
369	370	1
77	76	-1
103	102	-1
65	62	-3
70	70	0
5	4	-1
5	6	1
20	21	1

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	10	1	25	17.7	B	5.5	A	6.0	A
	Thru	132	2	53	5.2	A				
	Right	21	0	5	2.0	A				
Southbound	Left	22	2	38	18.1	B	5.2	A		
	Thru	358	4	104	5.1	A				
	Right	65	0	4	1.1	A				
Eastbound	Left	10	1	23	19.4	B	14.7	B		
	Thru	0	-	-	-	A				
	Right	4	0	1	2.9	A				
Westbound	Left	20	3	51	24.6	C	15.2	B		
	Thru	0	-	-	-	A				
	Right	13	0	0	0.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	10	2
138	132	-6
20	21	1
20	22	2
360	358	-2
64	65	1
11	10	-1
1	0	-1
4	4	0
23	20	-3
1	0	-1
14	13	-1

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	123	0	30	1.4	A	1.4	A	5.7	A
Southbound	Thru	233	1	36	2.0	A	5.8	A		
	Right	135	6	95	12.5	B				
Eastbound	Left	40	2	54	16.7	B	12.4	B		
	Right	30	0	1	6.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
126	123	-3
251	233	-18
136	135	-1
40	40	0
33	30	-3

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	12	54	78.7	E	12.5	B	20.1	C
	Thru	102	12	72	34.7	C				
	Right	509	0	0	3.3	A				
Southbound	Left	14	3	30	45.0	D	17.5	B		
	Thru	185	11	91	18.0	B				
	Right	79	5	80	11.3	B				
Eastbound	Left	20	6	35	64.4	E	32.1	C		
	Thru	273	33	151	35.7	D				
	Right	53	0	0	1.0	A				
Westbound	Left	75	12	71	36.0	D	32.2	C		
	Thru	50	5	43	27.8	C				
	Right	4	0	3	15.8	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	37	2
101	102	1
518	509	-9
16	14	-2
188	185	-3
80	79	-1
23	20	-3
281	273	-8
51	53	2
85	75	-10
48	50	2
2	4	2

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	74	6	102	7.0	A	5.2	A	7.1	A
	Thru	519	6	102	5.0	A				
	Right	29	11	130	2.9	A				
Southbound	Left	38	3	70	8.4	A	5.3	A		
	Thru	163	3	69	4.5	A				
	Right	83	6	100	5.4	A				
Eastbound	Left	122	9	126	20.3	C	18.1	B		
	Thru	6	9	126	16.4	B				
	Right	26	9	148	8.4	A				
Westbound	Left	4	0	19	12.2	B	10.9	B		
	Thru	3	0	18	13.3	B				
	Right	2	0	6	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
75	74	-1
524	519	-5
28	29	1
37	38	1
172	163	-9
85	83	-2
123	122	-1
6	6	0
28	26	-2
4	4	0
2	3	1
2	2	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	1	21	18.2	B	3.5	A	1.9	A
	Thru	0	-	-	-	A				
	Right	40	0	0	1.0	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	2.0	A		
	Thru	400	1	57	2.0	A				
	Right	20	0	3	1.4	A				
Westbound	Left	24	1	32	12.1	B	1.5	A		
	Thru	217	0	15	0.3	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	7	2
0	0	0
37	40	3
0	0	0
0	0	0
0	0	0
0	0	0
404	400	-4
21	20	-1
24	24	0
217	217	0
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	1	2.2	A	1.5	A	2.7	A
	Thru	36	0	1	1.5	A				
	Right	8	0	1	0.8	A				
Southbound	Left	2	0	0	2.4	A	1.1	A		
	Thru	20	0	0	1.3	A				
	Right	24	0	0	0.9	A				
Eastbound	Left	8	0	5	3.1	A	4.0	A		
	Thru	35	0	5	4.4	A				
	Right	3	0	4	1.9	A				
Westbound	Left	0	-	-	-	A	9.4	A		
	Thru	7	0	3	12.3	B				
	Right	4	0	0	4.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
29	36	7
6	8	2
2	2	0
21	20	-1
22	24	2
9	8	-1
38	35	-3
3	3	0
1	0	-1
9	7	-2
4	4	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	13	3	48	29.4	C	8.1	A	9.8	A
	Thru	42	2	30	9.6	A				
	Right	67	1	53	3.1	A				
Southbound	Left	6	1	18	25.3	C	13.1	B		
	Thru	11	1	17	12.9	B				
	Right	7	1	28	2.9	A				
Eastbound	Left	3	0	15	21.7	C	17.4	B		
	Thru	8	0	16	15.8	B				
	Right	0	-	-	-	A				
Westbound	Left	3	0	11	22.3	C	22.3	C		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	13	-2
39	42	3
68	67	-1
6	6	0
12	11	-1
7	7	0
4	3	-1
6	8	2
1	0	-1
2	3	1
1	0	-1
1	0	-1

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	4	0	29	13.4	B	3.9	A	1.1	A
	Right	11	0	0	0.5	A				
Eastbound	Left	187	0	30	2.3	A	1.1	A		
	Thru	608	0	0	0.7	A				
Westbound	Thru	118	0	0	0.6	A	0.7	A		
	Right	21	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	4	1
12	11	-1
187	187	0
628	608	-20
123	118	-5
20	21	1

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	24	3	61	14.4	B	9.7	A	1.7	A
	Right	45	4	77	7.2	A				
Eastbound	Left	164	1	65	3.0	A	1.3	A		
	Thru	278	0	0	0.3	A				
Westbound	Thru	198	0	0	0.1	A	0.1	A		
	Right	24	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	24	-1
44	45	1
162	164	2
279	278	-1
197	198	1
22	24	2

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	9	1	40	15.5	C	10.7	B	1.4	A
	Right	14	0	44	7.6	A				
Eastbound	Thru	195	0	3	0.2	A	0.4	A		
	Right	106	0	0	0.8	A				
Westbound	Left	161	1	48	3.4	A	1.7	A		
	Thru	212	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
10	9	-1
14	14	0
196	195	-1
108	106	-2
167	161	-6
209	212	3

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	2	0	3	8.4	A	7.5	A	8.8	A
	Thru	41	2	45	7.5	A				
Southbound	Thru	77	3	46	8.8	A	8.5	A		
	Right	6	0	23	4.4	A				
Eastbound	Left	21	1	47	13.2	B	10.7	B		
	Right	22	0	30	8.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	2	0
45	41	-4
78	77	-1
7	6	-1
24	21	-3
22	22	0

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	19	0	2	0.6	A	0.5	A	0.8	A
	Thru	40	0	7	0.4	A				
	Right	63	0	8	0.5	A				
Southbound	Left	58	0	4	1.4	A	1.1	A		
	Thru	21	0	5	0.4	A				
	Right	21	0	5	0.7	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	5.4	A		
	Thru	0	-	-	-	A				
	Right	4	0	36	5.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
19	19	0
40	40	0
62	63	1
60	58	-2
21	21	0
19	21	2
2	0	-2
0	0	0
0	0	0
1	0	-1
0	0	0
5	4	-1

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (AM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.4	A	0.4	A
	Thru	120	0	0	0.2	A				
	Right	72	0	0	0.5	A				
Southbound	Left	17	0	14	1.6	A	1.3	A		
	Thru	4	0	0	0.0	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
120	120	0
74	72	-2
18	17	-1
4	4	0
0	0	0
0	0	0
0	0	0
0	0	0
1	0	-1
0	0	0
1	0	-1

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	191	0	0	0.2	A	0.3	A	0.3	A
	Right	56	0	0	0.5	A				
Southbound	Left	0	-	-	-	A	0.0	A		
	Thru	4	0	0	0.0	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
195	191	-4
57	56	-1
1	0	-1
4	4	0
0	0	0
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	1	0	26	26.0	D	13.0	B	1.7	A
	Right	2	0	22	6.5	A				
Eastbound	Left	239	1	59	2.8	A	1.9	A		
	Thru	373	0	32	1.4	A				
Westbound	Thru	139	0	0	0.5	A	0.5	A		
	Right	9	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	1	-1
2	2	0
243	239	-4
388	373	-15
141	139	-2
9	9	0

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	6	1	40	16.8	C	10.6	B	1.1	A
	Right	8	1	46	5.9	A				
Eastbound	Left	68	1	39	3.7	A	1.6	A		
	Thru	141	0	0	0.6	A				
Westbound	Thru	431	0	0	0.5	A	0.6	A		
	Right	81	0	18	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	6	-1
9	8	-1
65	68	3
145	141	-4
434	431	-3
83	81	-2

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.2	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	4	0	32	15.1	C	10.1	B		
	Thru	0	-	-	-	A				
	Right	5	0	51	6.1	A				
Eastbound	Left	66	1	32	3.5	A	0.9	A		
	Thru	233	0	0	0.2	A				
	Right	76	0	0	0.8	A				
Westbound	Left	50	1	38	4.3	A	1.4	A		
	Thru	142	0	3	0.2	A				
	Right	122	0	3	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
1	0	-1
4	4	0
0	0	0
7	5	-2
66	66	0
242	233	-9
82	76	-6
47	50	3
143	142	-1
123	122	-1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	24	2	52	11.3	B	8.6	A	2.2	A
	Thru	2	1	53	12.0	B				
	Right	25	1	46	5.7	A				
Southbound	Left	32	4	54	23.7	C	13.9	B		
	Thru	3	3	53	14.9	B				
	Right	24	0	7	0.7	A				
Eastbound	Left	27	1	35	6.4	A	1.4	A		
	Thru	110	0	0	0.2	A				
	Right	12	0	0	0.4	A				
Westbound	Left	53	0	21	4.2	A	0.9	A		
	Thru	465	0	0	0.4	A				
	Right	169	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
27	24	-3
2	2	0
22	25	3
32	32	0
2	3	1
24	24	0
25	27	2
116	110	-6
11	12	1
55	53	-2
466	465	-1
168	169	1

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	5.3	A	1.0	A
	Thru	0	-	-	-	A				
	Right	4	0	46	5.3	A				
Southbound	Left	21	1	47	10.3	B	5.6	A		
	Thru	0	-	-	-	A				
	Right	20	0	11	0.8	A				
Eastbound	Left	16	0	13	1.9	A	0.2	A		
	Thru	207	0	0	0.0	A				
	Right	13	0	0	0.4	A				
Westbound	Left	9	0	8	2.8	A	1.0	A		
	Thru	290	0	0	0.8	A				
	Right	43	0	2	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
4	4	0
21	21	0
1	0	-1
23	20	-3
17	16	-1
215	207	-8
15	13	-2
7	9	2
288	290	2
44	43	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	61	16	73	37.6	D	22.3	C	24.9	C
	Thru	62	16	73	78.0	E				
	Right	211	0	0	1.6	A				
Southbound	Left	179	27	111	37.8	D	21.8	C		
	Thru	35	26	110	46.7	D				
	Right	179	0	0	0.9	A				
Eastbound	Left	431	11	114	23.5	C	25.0	C		
	Right	401	38	176	26.6	C				
Westbound	Left	928	31	223	27.5	C	26.3	C		
	Right	370	30	147	23.3	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
60	61	1
64	62	-2
225	211	-14
178	179	1
37	35	-2
183	179	-4
442	431	-11
396	401	5
932	928	-4
374	370	-4

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	9	1	24	22.3	C	14.1	B	16.0	B
	Thru	137	9	84	17.4	B				
	Right	42	0	5	1.5	A				
Southbound	Left	317	36	151	33.3	C	14.5	B		
	Thru	383	15	120	13.6	B				
	Right	662	0	50	6.0	A				
Eastbound	Left	125	22	119	35.1	D	32.7	C		
	Thru	31	5	40	32.4	C				
	Right	9	0	1	0.5	A				
Westbound	Left	8	2	20	46.1	D	12.4	B		
	Thru	18	3	32	46.4	D				
	Right	75	0	6	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	9	1
144	137	-7
42	42	0
323	317	-6
379	383	4
663	662	-1
130	125	-5
31	31	0
9	9	0
6	8	2
18	18	0
79	75	-4

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	180	2	57	3.6	A	3.5	A	6.3	A
	Right	50	1	38	3.2	A				
Southbound	Left	62	4	68	13.8	B	7.7	A		
	Thru	337	6	89	6.6	A				
Westbound	Left	6	1	20	20.8	C	12.2	B		
	Right	7	0	41	4.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
186	180	-6
54	50	-4
62	62	0
332	337	5
7	6	-1
8	7	-1

Note: Results are the average of ten (10) simulation runs

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	32	4	55	23.2	C	14.5	B	1.0	A
	Right	20	0	4	0.6	A				
Eastbound	Thru	729	0	1	0.4	A	0.5	A		
	Right	40	0	0	0.8	A				
Westbound	Left	11	0	19	7.1	A	0.5	A		
	Thru	552	0	0	0.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	32	0
19	20	1
736	729	-7
40	40	0
10	11	1
566	552	-14

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	378	0	0	0.4	A	0.7	A	0.7	A
	-	289	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
383	378	-5
286	289	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.1	A	3.1	A
	Right	21	1	71	7.1	A				
Eastbound	Left	42	0	24	3.4	A	1.3	A		
	Thru	230	0	0	0.9	A				
Westbound	Thru	232	0	0	4.8	A	4.8	A		
	Right	5	0	0	3.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	21	-1
42	42	0
232	230	-2
240	232	-8
5	5	0

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	525	0	0	0.2	A	0.2	A	1.9	A
	Thru	791	0	18	0.5	A				
Southbound	Right	241	0	18	1.1	A	0.7	A		
	Left	45	4	52	23.2	C				
Eastbound	Left	45	4	52	23.2	C	7.2	A		
	Right	351	0	1	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
525	525	0
805	791	-14
252	241	-11
45	45	0
353	351	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	93	9	58	25.1	C	17.9	B	8.3	A
	Thru	5	1	17	27.1	C				
	Right	47	0	0	2.6	A				
Southbound	Left	33	5	89	25.5	C	20.5	C		
	Thru	8	5	89	32.8	C				
	Right	18	0	9	5.9	A				
Eastbound	Left	24	3	33	31.3	C	6.1	A		
	Thru	493	9	104	6.9	A				
	Right	232	0	19	1.8	A				
Westbound	Left	51	7	46	28.1	C	7.5	A		
	Thru	452	5	77	5.4	A				
	Right	28	4	102	4.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	93	4
6	5	-1
50	47	-3
34	33	-1
9	8	-1
18	18	0
23	24	1
504	493	-11
228	232	4
53	51	-2
469	452	-17
28	28	0

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	379	57	261	30.6	C	26.8	C	24.5	C
	Thru	46	3	50	16.8	B				
	Right	46	1	55	5.6	A				
Southbound	Left	20	1	30	12.4	B	24.8	C		
	Thru	87	15	98	34.7	C				
	Right	184	20	132	21.4	C				
Eastbound	Left	108	17	76	37.0	D	19.6	B		
	Thru	138	16	92	26.4	C				
	Right	247	34	131	8.1	A				
Westbound	Left	89	15	76	38.2	D	28.6	C		
	Thru	221	22	127	26.4	C				
	Right	15	0	44	4.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
386	379	-7
44	46	2
46	46	0
20	20	0
87	87	0
186	184	-2
108	108	0
137	138	1
255	247	-8
93	89	-4
233	221	-12
15	15	0

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	69	8	61	27.6	C	10.1	B	10.5	B
	Right	455	7	157	7.4	A				
Eastbound	Left	380	19	117	15.0	B	9.5	A		
	Thru	287	19	116	2.2	A				
Westbound	Thru	722	25	192	13.0	B	11.5	B		
	Right	102	0	0	0.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	69	-3
455	455	0
384	380	-4
285	287	2
722	722	0
108	102	-6

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	333	9	130	9.8	A	6.7	A	8.5	A
	Thru	230	1	40	2.5	A				
	Right	7	1	40	2.0	A				
Southbound	Left	0	-	-	-	A	10.2	B		
	Thru	634	17	170	10.7	B				
	Right	38	0	0	0.5	A				
Eastbound	Left	102	11	68	26.9	C	8.2	A		
	Thru	8	11	68	26.0	C				
	Right	400	0	1	3.1	A				
Westbound	Left	0	-	-	-	A	4.9	A		
	Thru	0	-	-	-	A				
	Right	4	0	38	4.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
340	333	-7
225	230	5
5	7	2
1	0	-1
656	634	-22
40	38	-2
104	102	-2
9	8	-1
400	400	0
1	0	-1
0	0	0
3	4	1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	64	5	53	19.2	B	13.4	B	11.5	B
	Thru	22	2	31	17.6	B				
	Right	52	1	63	4.6	A				
Southbound	Left	20	1	30	13.9	B	17.7	B		
	Thru	26	2	44	20.1	C				
	Right	11	1	29	19.0	B				
Eastbound	Left	5	1	19	20.7	C	8.9	A		
	Thru	100	4	67	11.7	B				
	Right	97	3	85	5.3	A				
Westbound	Left	96	7	58	23.2	C	11.2	B		
	Thru	250	4	66	7.6	A				
	Right	31	0	50	3.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
65	64	-1
25	22	-3
49	52	3
22	20	-2
27	26	-1
11	11	0
6	5	-1
104	100	-4
93	97	4
99	96	-3
265	250	-15
32	31	-1

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	127	16	104	27.0	C	20.7	C	14.4	B
	Thru	12	16	103	27.2	C				
	Right	47	0	4	1.9	A				
Southbound	Left	49	8	86	26.8	C	9.6	A		
	Thru	7	8	86	29.6	C				
	Right	231	1	53	5.3	A				
Eastbound	Left	127	12	71	24.3	C	13.4	B		
	Thru	125	6	64	12.5	B				
	Right	104	0	24	1.1	A				
Westbound	Left	67	8	81	26.8	C	15.5	B		
	Thru	468	19	135	15.8	B				
	Right	70	0	23	2.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
127	127	0
12	12	0
47	47	-2
49	49	-1
7	7	0
231	231	-2
126	127	1
129	125	-4
102	104	2
67	67	0
470	468	-2
72	70	-2

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	322	37	170	33.7	C	14.9	B	14.9	B
	Thru	140	17	90	35.7	D				
	Right	752	0	0	2.9	A				
Southbound	Left	64	16	95	46.9	D	29.7	C		
	Thru	33	8	52	52.4	D				
	Right	64	0	0	0.9	A				
Eastbound	Left	19	1	26	10.4	B	2.7	A		
	Right	81	0	0	0.9	A				
Westbound	Left	854	44	286	14.5	B	13.8	B		
	Right	155	10	103	9.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
323	322	-1
141	140	-1
766	752	-14
67	64	-3
32	33	1
64	64	0
20	19	-1
80	81	1
868	854	-14
158	155	-3

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.7	A	1.1	A
	Thru	1,214	0	19	0.7	A				
Southbound	Thru	940	0	7	1.5	A	1.5	A		
	Right	11	0	13	1.1	A				
Eastbound	Left	3	1	14	54.8	D	22.6	C		
	Right	6	0	50	6.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
1,227	1,214	-13
950	940	-10
10	11	1
3	3	0
6	6	0

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	83	16	84	42.0	D	20.7	C	28.1	C
	Thru	529	24	173	19.0	B				
	Right	45	0	7	1.6	A				
Southbound	Left	38	10	49	53.3	D	18.6	B		
	Thru	652	33	164	23.0	C				
	Right	265	0	24	2.9	A				
Eastbound	Left	326	118	395	66.8	E	46.0	D		
	Thru	148	14	84	26.8	C				
	Right	93	0	12	3.5	A				
Westbound	Left	152	34	127	51.6	D	33.6	C		
	Thru	187	44	169	41.0	D				
	Right	357	50	176	22.0	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
88	83	-5
528	529	1
44	45	1
40	38	-2
652	652	0
264	265	1
342	326	-16
150	148	-2
96	93	-3
156	152	-4
198	187	-11
357	357	0

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	51	14	59	64.5	E	16.5	B	14.8	B
	Thru	457	14	161	11.4	B				
	Right	7	0	0	1.6	A				
Southbound	Left	18	3	47	35.2	D	7.2	A		
	Thru	599	13	124	8.1	A				
	Right	277	0	21	3.4	A				
Eastbound	Left	121	24	113	42.2	D	34.7	C		
	Thru	19	4	35	40.7	D				
	Right	30	0	3	0.7	A				
Westbound	Left	17	6	56	60.6	E	32.8	C		
	Thru	54	16	89	58.5	E				
	Right	71	0	12	6.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
50	51	1
464	457	-7
7	7	0
19	18	-1
598	599	1
287	277	-10
126	121	-5
17	19	2
32	30	-2
20	17	-3
59	54	-5
70	71	1

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	21	7	41	64.2	E	13.7	B	16.0	B
	Thru	192	5	70	8.6	A				
	Right	8	0	1	1.4	A				
Southbound	Left	8	2	25	41.0	D	3.3	A		
	Thru	413	3	78	3.1	A				
	Right	228	0	12	2.3	A				
Eastbound	Left	283	49	228	44.3	D	39.6	D		
	Thru	4	1	12	44.7	D				
	Right	38	0	2	4.2	A				
Westbound	Left	35	13	77	54.0	D	29.2	C		
	Thru	6	2	20	66.4	E				
	Right	39	0	2	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
19	21	2
191	192	1
8	8	0
8	8	0
408	413	5
234	228	-6
291	283	-8
5	4	-1
36	38	2
36	35	-1
6	6	0
39	39	0

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	185	1	38	1.8	A	1.8	A	5.3	A
Southbound	Thru	429	1	61	2.8	A	4.3	A		
	Right	51	1	55	17.2	B				
Eastbound	Left	35	7	72	36.0	D	20.9	C		
	Right	37	0	16	6.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
183	185	2
430	429	-1
50	51	1
35	35	0
37	37	0

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	70	23	92	76.7	E	26.1	C	29.8	C
	Thru	100	11	64	30.9	C				
	Right	170	0	0	2.4	A				
Southbound	Left	7	2	20	55.4	E	19.1	B		
	Thru	198	23	190	26.5	C				
	Right	264	19	207	12.6	B				
Eastbound	Left	75	27	99	87.2	F	40.3	D		
	Thru	54	10	59	41.9	D				
	Right	92	0	0	1.1	A				
Westbound	Left	400	56	213	40.2	D	35.5	D		
	Thru	275	26	129	29.7	C				
	Right	12	1	15	10.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
70	70	0
98	100	2
167	170	3
7	7	0
199	198	-1
261	264	3
75	75	0
61	54	-7
92	92	0
418	400	-18
278	275	-3
10	12	2

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	38	4	63	12.6	B	5.7	A	7.6	A
	Thru	257	4	64	4.7	A				
	Right	4	7	91	2.9	A				
Southbound	Left	11	5	114	7.3	A	6.2	A		
	Thru	552	6	115	5.8	A				
	Right	195	10	146	7.3	A				
Eastbound	Left	110	9	107	20.6	C	17.2	B		
	Thru	7	9	102	16.2	B				
	Right	47	10	132	9.2	A				
Westbound	Left	27	2	43	13.6	B	9.2	A		
	Thru	9	2	43	12.6	B				
	Right	19	0	8	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	38	0
254	257	3
5	4	-1
11	11	0
566	552	-14
202	195	-7
112	110	-2
7	7	0
48	47	-1
28	27	-1
10	9	-1
19	19	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	25	3	40	22.4	C	11.4	B	2.6	A
	Thru	0	-	-	-	A				
	Right	26	0	0	0.7	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	2.8	A		
	Thru	220	1	58	2.9	A				
	Right	14	0	3	0.9	A				
Westbound	Left	41	2	41	14.1	B	1.9	A		
	Thru	639	1	52	1.1	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
23	25	2
0	0	0
28	26	-2
0	0	0
0	0	0
1	0	-1
0	0	0
220	220	0
14	14	0
41	41	0
647	639	-8
1	0	-1

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	3	2.6	A	1.6	A	3.7	A
	Thru	25	0	3	1.4	A				
	Right	0	-	-	-	A				
Southbound	Left	0	-	-	-	A	1.3	A		
	Thru	39	0	3	1.5	A				
	Right	17	0	4	1.0	A				
Eastbound	Left	13	0	9	2.5	A	4.6	A		
	Thru	14	0	9	8.7	A				
	Right	9	0	9	1.2	A				
Westbound	Left	16	0	7	6.0	A	6.2	A		
	Thru	39	0	7	7.0	A				
	Right	12	0	0	3.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	4	1
24	25	1
1	0	-1
0	0	0
37	39	2
13	17	4
14	13	-1
14	14	0
10	9	-1
15	16	1
43	39	-4
13	12	-1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	23	3	51	22.4	C	15.3	B	18.8	B
	Thru	19	1	20	12.0	B				
	Right	8	0	26	2.8	A				
Southbound	Left	4	0	11	17.3	B	21.5	C		
	Thru	55	5	45	23.3	C				
	Right	6	9	62	7.2	A				
Eastbound	Left	4	1	13	31.8	C	20.2	C		
	Thru	0	-	-	-	A				
	Right	4	0	4	8.6	A				
Westbound	Left	40	4	44	19.8	B	18.7	B		
	Thru	16	2	33	16.1	B				
	Right	7	2	33	18.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	23	2
21	19	-2
8	8	0
4	4	0
53	55	2
5	6	1
5	4	-1
0	0	0
4	4	0
41	40	-1
15	16	1
7	7	0

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	16	2	49	23.6	C	4.8	A	1.4	A
	Right	91	0	0	1.5	A				
Eastbound	Left	56	1	39	4.5	A	1.3	A		
	Thru	175	0	0	0.2	A				
Westbound	Thru	599	0	0	0.8	A	0.8	A		
	Right	9	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
14	16	2
94	91	-3
57	56	-1
178	175	-3
612	599	-13
8	9	1

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	18	9	94	20.0	C	11.3	B	2.3	A
	Right	145	12	109	10.2	B				
Eastbound	Left	54	1	44	4.8	A	1.1	A		
	Thru	194	0	0	0.1	A				
Westbound	Thru	535	0	0	0.2	A	0.2	A		
	Right	10	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	18	0
146	145	-1
55	54	-1
193	194	1
543	535	-8
10	10	0

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	176	13	100	21.0	C	17.6	C	6.5	A
	Right	101	1	53	11.6	B				
Eastbound	Thru	204	0	4	0.3	A	0.3	A		
	Right	8	0	0	0.3	A				
Westbound	Left	22	0	15	6.2	A	2.1	A		
	Thru	370	0	0	1.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
176	176	1
102	101	-1
205	204	-1
6	8	2
22	22	0
378	370	-8

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	15	0	4	8.2	A	8.0	A	9.5	A
	Thru	88	5	64	8.0	A				
Southbound	Thru	47	2	34	12.5	B	9.9	A		
	Right	29	0	40	5.7	A				
Eastbound	Left	15	1	41	16.5	B	15.6	B		
	Right	4	0	18	12.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
17	15	-2
87	88	1
44	47	3
29	29	0
15	15	0
5	4	-1

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.5	A	5.2	A
	Thru	34	0	3	0.5	A				
	Right	0	-	-	-	A				
Southbound	Left	4	0	2	0.7	A	0.3	A		
	Thru	43	0	6	0.3	A				
	Right	5	0	6	0.5	A				
Eastbound	Left	25	3	69	9.0	A	7.4	A		
	Thru	0	-	-	-	A				
	Right	77	3	71	6.9	A				
Westbound	Left	46	3	60	8.1	A	7.1	A		
	Thru	0	-	-	-	A				
	Right	46	3	63	6.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
33	34	1
0	0	0
4	4	0
41	43	2
4	5	1
24	25	1
1	0	-1
78	77	-1
46	46	0
0	0	0
47	46	-1

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	2.2	A
	Thru	13	0	0	0.1	A				
	Right	0	-	-	-	A				
Southbound	Left	3	0	0	0.5	A	0.2	A		
	Thru	164	0	0	0.2	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	45	3	61	8.2	A	7.7	A		
	Thru	0	-	-	-	A				
	Right	22	3	75	6.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
11	13	2
0	0	0
2	3	1
163	164	1
0	0	0
1	0	-1
0	0	0
1	0	-1
46	45	-1
0	0	0
22	22	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	8	0	0	0.1	A	0.1	A	1.4	A
	Right	0	-	-	-	A				
Southbound	Left	0	-	-	-	A	0.5	A		
	Thru	208	0	0	0.5	A				
Eastbound	Left	26	1	47	8.1	A	7.7	A		
	Right	4	1	55	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	8	0
0	0	0
0	0	0
210	208	-2
26	26	0
3	4	1

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	22	2	53	16.2	C	9.7	A	3.3	A
	Right	211	15	119	9.1	A				
Eastbound	Left	0	-	-	-	A	0.6	A		
	Thru	187	0	0	0.6	A				
Westbound	Thru	397	0	0	0.9	A	0.8	A		
	Right	8	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
23	22	-1
213	211	-2
1	0	-1
191	187	-4
407	397	-10
7	8	1

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	90	18	118	20.3	C	17.6	C	5.3	A
	Right	76	19	125	14.5	B				
Eastbound	Left	14	0	9	2.5	A	2.9	A		
	Thru	349	1	17	2.9	A				
Westbound	Thru	237	0	0	0.6	A	0.6	A		
	Right	17	0	1	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
90	90	0
77	76	-1
12	14	2
355	349	-6
242	237	-5
16	17	1

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	88	5	74	12.7	B	10.3	B	4.1	A
	Thru	0	-	-	-	A				
	Right	56	2	55	6.5	A				
Southbound	Left	85	6	76	12.5	B	9.9	A		
	Thru	0	-	-	-	A				
	Right	76	4	77	7.0	A				
Eastbound	Left	13	0	12	2.3	A	0.3	A		
	Thru	193	0	0	0.1	A				
	Right	4	0	0	0.8	A				
Westbound	Left	0	-	-	-	A	0.2	A		
	Thru	243	0	0	0.1	A				
	Right	15	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	88	-1
1	0	-1
55	56	1
83	85	2
0	0	0
78	76	-2
13	13	0
198	193	-5
3	4	1
0	0	0
247	243	-4
14	15	1

2016 VISSIM Model: Existing
South Loop Traffic Study
Arterial MOEs (PM Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	15	2	47	26.8	D	17.5	C	9.7	A
	Thru	0	-	-	-	A				
	Right	57	6	72	15.0	C				
Southbound	Left	99	18	95	35.6	E	19.8	C		
	Thru	0	-	-	-	A				
	Right	82	0	5	0.7	A				
Eastbound	Left	9	0	7	3.0	A	8.5	A		
	Thru	414	10	34	8.7	A				
	Right	14	11	38	4.6	A				
Westbound	Left	20	2	29	17.9	C	1.9	A		
	Thru	156	0	0	0.4	A				
	Right	65	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	15	0
0	0	0
58	57	-1
102	99	-3
0	0	0
81	82	1
11	9	-2
421	414	-7
13	14	1
19	20	1
162	156	-6
65	65	0

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	41	9.8	A	7.7	A	1.1	A
	Thru	0	-	-	-	A				
	Right	4	0	47	5.6	A				
Southbound	Left	42	2	60	10.0	A	7.0	A		
	Thru	0	-	-	-	A				
	Right	20	0	7	0.6	A				
Eastbound	Left	8	0	4	1.7	A	0.1	A		
	Thru	312	0	0	0.1	A				
	Right	14	0	0	0.4	A				
Westbound	Left	6	0	6	2.8	A	0.7	A		
	Thru	233	0	0	0.6	A				
	Right	19	0	2	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
0	0	0
5	4	-1
41	42	1
0	0	0
22	20	-2
8	8	0
315	312	-3
13	14	1
5	6	1
234	233	-1
21	19	-2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	251	30	138	34.0	C	16.2	B	17.4	B
	Thru	127	30	139	64.2	E				
	Right	877	0	0	4.2	A				
Southbound	Left	470	46	214	30.3	C	15.2	B		
	Thru	26	46	213	28.0	C				
	Right	563	0	0	2.0	A				
Eastbound	Left	249	8	79	22.6	C	21.6	C		
	Right	91	7	61	18.9	B				
Westbound	Left	352	13	107	23.4	C	21.3	C		
	Right	257	18	107	18.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
250	251	1
131	127	-4
894	877	-17
475	470	-5
28	26	-2
564	563	-1
256	249	-7
89	91	2
354	352	-2
256	257	1

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	14	42.5	D	30.2	C	29.0	C
	Thru	374	51	260	30.9	C				
	Right	20	0	2	13.5	B				
Southbound	Left	123	25	107	50.0	D	27.1	C		
	Thru	159	21	101	37.3	D				
	Right	189	0	13	3.5	A				
Eastbound	Left	515	115	452	44.3	D	42.7	D		
	Thru	40	6	45	34.4	C				
	Right	11	0	0	0.5	A				
Westbound	Left	40	13	83	52.6	D	12.2	B		
	Thru	49	12	63	54.3	D				
	Right	349	0	22	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
382	374	-8
20	20	0
121	123	2
160	159	-1
190	189	-1
528	515	-13
43	40	-3
10	11	1
40	40	0
51	49	-2
350	349	-1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	376	5	79	5.6	A	5.6	A	8.2	A
	Right	11	2	65	5.4	A				
Southbound	Left	15	1	32	17.9	B	9.2	A		
	Thru	194	5	74	8.5	A				
Westbound	Left	65	6	71	20.8	C	16.4	B		
	Right	26	1	57	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
381	376	-5
10	11	1
15	15	0
195	194	-1
65	65	0
26	26	0

Note: Results are the average of ten (10) simulation runs

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	58	5	69	14.3	B	7.7	A	1.3	A
	Right	54	0	6	0.6	A				
Eastbound	Thru	351	0	0	0.2	A	0.3	A		
	Right	54	0	0	0.7	A				
Westbound	Left	18	0	20	3.0	A	0.4	A		
	Thru	319	0	0	0.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
61	58	-3
52	54	2
352	351	-1
55	54	-1
17	18	1
326	319	-7

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	496	0	0	0.8	A	1.1	A	1.1	A
	-	549	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
500	496	-4
548	549	1

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	6.4	A	1.8	A
	Right	20	1	71	6.4	A				
Eastbound	Left	31	0	20	2.5	A	1.0	A		
	Thru	129	0	0	0.7	A				
Westbound	Thru	127	0	0	1.9	A	2.1	A		
	Right	13	0	0	3.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
21	20	-1
31	31	0
128	129	1
131	127	-4
13	13	0

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	344	0	0	0.1	A	0.1	A	2.2	A
	Thru	401	0	1	0.2	A				
Southbound	Right	69	0	1	0.5	A	0.2	A		
	Left	67	4	53	15.9	C				
Eastbound	Left	67	4	53	15.9	C	6.9	A		
	Right	286	0	2	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
343	344	1
404	401	-3
70	69	-1
70	67	-3
286	286	0

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	119	24	92	52.3	D	27.8	C	17.3	B
	Thru	10	3	34	51.7	D				
	Right	127	0	3	2.9	A				
Southbound	Left	13	5	78	58.7	E	45.0	D		
	Thru	5	5	78	72.7	E				
	Right	8	0	2	5.4	A				
Eastbound	Left	14	4	25	73.3	E	14.4	B		
	Thru	247	15	95	18.7	B				
	Right	145	0	25	1.4	A				
Westbound	Left	141	15	90	25.7	C	11.3	B		
	Thru	210	1	41	2.4	A				
	Right	17	0	24	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
118	119	1
9	10	1
129	127	-2
13	13	0
5	5	0
8	8	0
13	14	1
250	247	-3
141	145	4
146	141	-5
217	210	-7
16	17	1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	619	182	549	51.3	D	41.0	D	36.6	D
	Thru	107	11	99	23.1	C				
	Right	136	3	68	8.4	A				
Southbound	Left	87	6	72	18.3	B	41.0	D		
	Thru	188	61	270	57.4	E				
	Right	479	105	508	38.6	D				
Eastbound	Left	247	40	140	45.9	D	27.2	C		
	Thru	208	36	149	40.2	D				
	Right	531	65	188	13.5	B				
Westbound	Left	149	31	115	52.4	D	43.0	D		
	Thru	144	31	144	48.6	D				
	Right	59	2	66	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
632	619	-13
106	107	1
133	136	3
87	87	0
187	188	1
483	479	-4
233	247	14
209	208	-1
549	531	-18
154	149	-5
142	144	2
58	59	1

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	94	26	158	61.5	E	28.1	C	21.8	C
	Right	697	103	625	23.6	C				
Eastbound	Left	567	82	256	41.1	D	25.2	C		
	Thru	473	82	255	6.1	A				
Westbound	Thru	830	33	228	15.5	B	13.2	B		
	Right	164	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	94	1
701	697	-4
577	567	-10
471	473	2
833	830	-3
171	164	-7

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	245	3	73	4.7	A	3.7	A	5.3	A
	Thru	162	1	35	2.4	A				
	Right	6	1	36	2.3	A				
Southbound	Left	3	0	4	4.8	A	5.6	A		
	Thru	194	4	58	6.8	A				
	Right	41	0	0	0.1	A				
Eastbound	Left	84	7	58	20.9	C	6.8	A		
	Thru	0	-	-	-	A				
	Right	277	0	0	2.5	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
249	245	-4
159	162	3
5	6	1
3	3	0
199	194	-5
45	41	-4
87	84	-3
0	0	0
274	277	3
1	0	-1
1	0	-1
1	0	-1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	108	24	93	54.7	D	32.7	C	26.6	C
	Thru	45	12	76	47.7	D				
	Right	114	4	83	6.0	A				
Southbound	Left	45	10	69	40.8	D	41.1	D		
	Thru	38	10	67	49.9	D				
	Right	43	7	54	33.5	C				
Eastbound	Left	25	5	43	39.8	D	9.6	A		
	Thru	221	9	82	10.7	B				
	Right	185	3	69	4.3	A				
Westbound	Left	193	46	135	74.3	E	35.0	C		
	Thru	203	5	60	8.7	A				
	Right	69	0	49	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
108	108	0
46	45	-1
116	114	-2
47	45	-2
38	38	0
42	43	1
22	25	3
223	221	-2
184	185	1
198	193	-5
204	203	-1
71	69	-2

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	121	44	198	61.6	E	41.9	D	35.6	D
	Thru	4	43	196	56.9	E				
	Right	81	0	6	11.6	B				
Southbound	Left	228	181	727	58.8	E	44.0	D		
	Thru	6	175	707	72.9	E				
	Right	609	36	445	38.1	D				
Eastbound	Left	276	48	171	48.8	D	28.4	C		
	Thru	152	10	80	16.1	B				
	Right	139	0	17	1.2	A				
Westbound	Left	49	15	87	56.4	E	25.1	C		
	Thru	268	20	130	26.2	C				
	Right	91	2	60	5.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
122	121	-1
4	4	0
84	81	-3
229	228	-1
6	6	0
615	609	-6
274	276	2
153	152	-1
137	139	2
51	49	-2
267	268	1
90	91	1

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	270	17	137	19.0	B	9.8	A	18.0	B
	Thru	78	5	55	17.1	B				
	Right	688	0	0	5.4	A				
Southbound	Left	43	14	78	56.9	E	40.4	D		
	Thru	35	10	59	59.8	E				
	Right	35	0	0	0.8	A				
Eastbound	Left	19	2	28	19.9	B	2.7	A		
	Right	222	0	0	1.2	A				
Westbound	Left	910	104	449	29.0	C	28.2	C		
	Right	35	2	76	7.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
273	270	-3
81	78	-3
715	688	-27
47	43	-4
33	35	2
36	35	-1
18	19	1
225	222	-3
918	910	-8
38	35	-3

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	1.4	A	1.7	A
	Thru	1,037	0	13	1.4	A				
Southbound	Thru	1,133	0	16	1.7	A	1.7	A		
	Right	16	0	36	1.2	A				
Eastbound	Left	1	1	18	52.2	D	10.4	B		
	Right	16	1	58	7.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
1,066	1,037	-29
1,140	1,133	-7
16	16	0
3	1	-2
17	16	-1

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	99	25	96	61.3	E	28.0	C	26.9	C
	Thru	763	48	276	25.4	C				
	Right	50	0	14	1.8	A				
Southbound	Left	40	15	68	74.2	E	17.5	B		
	Thru	894	35	239	18.4	B				
	Right	216	0	28	3.5	A				
Eastbound	Left	225	82	287	70.8	E	46.7	D		
	Thru	62	8	64	30.4	C				
	Right	101	0	12	2.8	A				
Westbound	Left	57	15	72	54.5	D	39.1	D		
	Thru	54	11	63	46.0	D				
	Right	51	15	70	14.5	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
105	99	-6
780	763	-17
49	50	1
42	40	-2
895	894	-1
220	216	-4
233	225	-8
59	62	3
100	101	1
65	57	-8
54	54	0
53	51	-2

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	79	16	81	52.3	D	10.5	B	16.2	B
	Thru	634	9	161	5.6	A				
	Right	17	0	3	1.1	A				
Southbound	Left	16	3	41	39.8	D	13.4	B		
	Thru	652	42	291	17.9	B				
	Right	379	0	45	4.7	A				
Eastbound	Left	252	50	188	47.0	D	33.0	C		
	Thru	13	3	32	44.5	D				
	Right	115	0	13	1.1	A				
Westbound	Left	8	4	48	72.0	E	31.7	C		
	Thru	10	3	26	72.5	E				
	Right	29	0	4	6.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
76	79	3
650	634	-16
18	17	-1
19	16	-3
653	652	-1
388	379	-9
254	252	-2
14	13	-1
118	115	-3
9	8	-1
9	10	1
30	29	-1

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	130	25	114	51.3	D	22.1	C	22.4	C
	Thru	313	8	102	10.2	B				
	Right	4	0	1	1.2	A				
Southbound	Left	4	1	10	48.7	D	8.4	A		
	Thru	310	12	144	11.8	B				
	Right	461	1	73	5.7	A				
Eastbound	Left	410	93	403	52.8	D	41.8	D		
	Thru	4	1	14	37.8	D				
	Right	139	0	15	9.5	A				
Westbound	Left	12	5	48	58.0	E	35.5	D		
	Thru	4	1	18	69.5	E				
	Right	12	0	1	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
137	130	-7
314	313	-1
5	4	-1
4	4	0
308	310	2
468	461	-7
418	410	-8
4	4	0
135	139	4
14	12	-2
5	4	-1
12	12	0

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	409	1	64	2.0	A	2.0	A	4.7	A
Southbound	Thru	389	1	74	3.6	A	4.9	A		
	Right	65	2	57	12.3	B				
Eastbound	Left	40	7	79	32.5	C	18.4	B		
	Right	38	0	14	3.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
417	409	-8
392	389	-3
65	65	0
39	40	1
40	38	-2

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	92	19	91	47.8	D	29.0	C	27.5	C
	Thru	143	16	82	33.0	C				
	Right	88	0	0	2.9	A				
Southbound	Left	8	1	22	33.8	C	17.2	B		
	Thru	143	20	214	28.3	C				
	Right	285	17	229	11.2	B				
Eastbound	Left	260	50	211	56.9	E	36.9	D		
	Thru	95	7	63	22.5	C				
	Right	107	0	0	1.3	A				
Westbound	Left	51	6	52	26.5	C	23.7	C		
	Thru	32	3	37	23.1	C				
	Right	8	0	8	7.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	92	-1
144	143	-1
91	88	-3
9	8	-1
143	143	0
280	285	5
265	260	-5
94	95	1
107	107	0
61	51	-10
35	32	-3
8	8	0

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	31	2	50	6.4	A	3.3	A	5.1	A
	Thru	196	2	50	2.9	A				
	Right	3	4	75	2.0	A				
Southbound	Left	3	2	65	5.5	A	3.8	A		
	Thru	206	2	66	3.4	A				
	Right	115	4	96	4.4	A				
Eastbound	Left	68	4	73	15.6	B	12.5	B		
	Thru	0	-	-	-	A				
	Right	39	4	97	7.1	A				
Westbound	Left	3	0	19	9.3	A	8.2	A		
	Thru	4	0	19	14.3	B				
	Right	4	0	1	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
31	31	0
198	196	-2
3	3	0
3	3	0
214	206	-8
119	115	-4
67	68	1
0	0	0
41	39	-2
2	3	1
4	4	0
3	4	1

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	16	11.8	B	4.4	A	1.1	A
	Thru	0	-	-	-	A				
	Right	8	0	0	0.7	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	0.8	A		
	Thru	93	0	16	0.8	A				
	Right	4	0	0	0.9	A				
Westbound	Left	12	0	26	9.6	A	1.0	A		
	Thru	126	0	6	0.2	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
0	0	0
7	8	1
0	0	0
0	0	0
0	0	0
90	93	3
5	4	-1
13	12	-1
133	126	-7
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	3	0	0	2.1	A	1.3	A	4.5	A
	Thru	4	0	0	1.3	A				
	Right	3	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.9	A		
	Thru	5	0	0	1.2	A				
	Right	11	0	0	0.8	A				
Eastbound	Left	5	0	0	2.5	A	7.2	A		
	Thru	9	0	0	9.8	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	9.2	A		
	Thru	9	0	0	11.1	B				
	Right	2	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	3	1
3	4	1
2	3	1
0	0	0
6	5	-1
12	11	-1
6	5	-1
10	9	-1
0	0	0
1	0	-1
9	9	0
2	2	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	2	42	31.1	C	20.0	C	18.3	B
	Thru	9	1	10	18.2	B				
	Right	4	0	6	2.2	A				
Southbound	Left	1	0	2	18.1	B	12.0	B		
	Thru	4	0	6	10.5	B				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	13.7	B		
	Thru	4	0	12	11.4	B				
	Right	4	0	3	15.9	B				
Westbound	Left	5	1	19	28.0	C	23.0	C		
	Thru	1	0	8	8.6	A				
	Right	1	0	14	12.1	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	8	1
10	9	-1
3	4	1
3	1	-2
7	4	-3
2	0	-2
1	0	-1
4	4	0
3	4	1
6	5	-1
2	1	-1
1	1	0

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	2	0	19	9.5	A	2.9	A	0.5	A
	Right	14	0	0	1.9	A				
Eastbound	Left	31	0	5	1.0	A	0.4	A		
	Thru	158	0	0	0.2	A				
Westbound	Thru	77	0	0	0.5	A	0.5	A		
	Right	2	0	0	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	2	0
19	14	-5
33	31	-2
161	158	-3
85	77	-8
2	2	0

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	3	1	43	9.3	A	6.5	A	0.7	A
	Right	17	1	62	6.0	A				
Eastbound	Left	24	0	11	1.1	A	0.3	A		
	Thru	76	0	0	0.0	A				
Westbound	Thru	119	0	0	0.0	A	0.1	A		
	Right	8	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	3	-1
20	17	-3
22	24	2
75	76	1
126	119	-7
7	8	1

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	9	0	35	7.1	A	7.5	A	1.3	A
	Right	10	0	41	7.9	A				
Eastbound	Thru	75	0	0	0.1	A	0.1	A		
	Right	5	0	0	0.3	A				
Westbound	Left	9	0	1	9.1	A	1.1	A		
	Thru	117	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
11	9	-2
10	10	0
75	75	0
4	5	1
9	9	0
122	117	-5

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	5	0	0	6.8	A	7.3	A	9.5	A
	Thru	8	1	19	7.6	A				
Southbound	Thru	1	0	3	1.0	A	3.0	A		
	Right	6	0	24	3.4	A				
Eastbound	Left	18	1	38	13.3	B	13.0	B		
	Right	3	0	9	11.1	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
6	5	-1
7	8	1
2	1	-1
6	6	0
19	18	-1
3	3	0

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	2	0	1	0.3	A	0.3	A	2.9	A
	Thru	6	0	1	0.3	A				
	Right	1	0	0	0.2	A				
Southbound	Left	0	-	-	-	A	0.3	A		
	Thru	3	0	0	0.1	A				
	Right	3	0	0	0.4	A				
Eastbound	Left	4	0	40	6.2	A	5.8	A		
	Thru	0	-	-	-	A				
	Right	4	0	43	5.4	A				
Westbound	Left	3	0	33	5.8	A	5.3	A		
	Thru	0	-	-	-	A				
	Right	4	0	36	4.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	2	-1
7	6	-1
1	1	0
0	0	0
3	3	0
2	3	1
3	4	1
0	0	0
6	4	-2
3	3	0
0	0	0
3	4	1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.0	A	0.1	A
	Thru	10	0	0	0.0	A				
	Right	0	-	-	-	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	9	0	0	0.1	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
10	10	0
0	0	0
0	0	0
12	9	-3
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
1	0	-1

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	10	0	0	0.1	A	0.1	A	0.1	A
	Right	0	-	-	-	A				
Southbound	Left	0	-	-	-	A	0.0	A		
	Thru	9	0	0	0.0	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
10	10	0
0	0	0
0	0	0
12	9	-3
0	0	0
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	4	0	29	7.4	A	6.6	A	0.8	A
	Right	5	0	57	6.0	A				
Eastbound	Left	6	0	1	0.9	A	0.6	A		
	Thru	155	0	0	0.6	A				
Westbound	Thru	74	0	0	0.4	A	0.4	A		
	Right	4	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
8	5	-3
6	6	0
157	155	-2
79	74	-5
4	4	0

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.8	A
	Right	0	-	-	-	A				
Eastbound	Left	3	0	3	1.1	A	0.9	A		
	Thru	83	0	0	0.9	A				
Westbound	Thru	126	0	0	0.7	A	0.7	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
2	0	-2
3	3	0
82	83	1
127	126	-1
0	0	0

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.4	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	7	0	51	7.6	A	6.8	A		
	Thru	0	-	-	-	A				
	Right	5	0	54	5.5	A				
Eastbound	Left	7	0	2	0.7	A	0.1	A		
	Thru	152	0	0	0.1	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.0	A		
	Thru	74	0	0	0.0	A				
	Right	4	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
0	0	0
6	7	1
0	0	0
6	5	-1
6	7	1
154	152	-2
1	0	-1
0	0	0
75	74	-1
3	4	1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	0	41	8.4	A	6.7	A	2.0	A
	Thru	0	-	-	-	A				
	Right	17	1	49	5.9	A				
Southbound	Left	35	1	49	9.3	A	6.1	A		
	Thru	0	-	-	-	A				
	Right	20	0	2	0.4	A				
Eastbound	Left	4	0	2	1.1	A	0.3	A		
	Thru	69	0	0	0.3	A				
	Right	11	0	0	0.4	A				
Westbound	Left	9	0	3	3.4	A	0.6	A		
	Thru	98	0	0	0.4	A				
	Right	28	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
10	8	-2
0	0	0
18	17	-1
34	35	1
0	0	0
21	20	-1
3	4	1
70	69	-1
9	11	2
9	9	0
96	98	2
28	28	0

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.8	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	21	1	44	7.6	A	6.5	A		
	Thru	0	-	-	-	A				
	Right	4	0	0	0.3	A				
Eastbound	Left	7	0	2	0.7	A	0.1	A		
	Thru	151	0	0	0.0	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.5	A		
	Thru	73	0	0	0.4	A				
	Right	9	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
21	21	0
0	0	0
6	4	-2
7	7	0
153	151	-2
0	0	0
0	0	0
72	73	1
11	9	-2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	125	15	73	35.7	D	16.9	B	17.5	B
	Thru	10	15	73	67.0	E				
	Right	185	0	0	1.4	A				
Southbound	Left	255	29	143	30.0	C	14.2	B		
	Thru	64	29	142	30.4	C				
	Right	398	0	0	1.5	A				
Eastbound	Left	363	9	93	23.1	C	22.5	C		
	Right	127	11	75	20.7	C				
Westbound	Left	125	4	62	20.8	C	18.0	B		
	Right	218	14	93	16.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
120	125	5
10	10	0
194	185	-9
256	255	-1
61	64	3
405	398	-7
369	363	-6
122	127	5
122	125	3
219	218	-1

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	10	21.8	C	12.8	B	19.1	B
	Thru	138	8	76	15.1	B				
	Right	29	0	3	0.8	A				
Southbound	Left	131	19	93	32.8	C	20.4	C		
	Thru	72	7	43	24.3	C				
	Right	108	0	7	2.9	A				
Eastbound	Left	97	17	101	32.7	C	31.1	C		
	Thru	19	3	33	29.4	C				
	Right	4	0	0	0.4	A				
Westbound	Left	12	3	33	41.2	D	12.9	B		
	Thru	23	4	38	43.6	D				
	Right	86	0	11	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	4	1
142	138	-4
29	29	0
125	131	6
74	72	-2
106	108	2
99	97	-2
20	19	-1
3	4	1
11	12	1
24	23	-1
87	86	-1

2016 VISSIM Model: Existing
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	167	0	23	0.9	A	1.0	A	3.5	A
	Right	4	0	4	1.6	A				
Southbound	Left	8	0	20	11.0	B	8.1	A		
	Thru	81	2	40	7.8	A				
Westbound	Left	1	0	7	30.5	C	9.0	A		
	Right	5	0	35	4.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
169	167	-2
5	4	-1
7	8	1
81	81	0
2	1	-1
5	5	0

Note: Results are the average of ten (10) simulation runs

Appendix E
Existing Development ITE Comparison and Reductions

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Existing Reduction Percentages

		A.M. In Veh.	A.M. Out Veh.	P.M. In Veh.	P.M. Out Veh.	Peak Sat In Veh	Peak Sat Out Veh
TAZ	472D	15%	70%	80%	25%	85%	75%
TAZ	472B/472C	60%	45%	50%	55%	50%	75%
TAZ	471F/471E	45%	55%	50%	30%	65%	65%
TAZ	473A/473B	70%	65%	55%	65%	75%	80%
TAZ	472E/472G	20%	-10%	-20%	20%	15%	10%
TAZ	473D	0%	0%	0%	0%	0%	0%
TAZ	473C/473D	75%	70%	50%	65%	55%	40%
TAZ	471D	45%	80%	60%	55%	100%	95%
TAZ	471B	70%	85%	65%	75%	35%	-30%

Appendix F
Unique Land Use Trip Generation Assumptions

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Appendix F – Unique Planned Land Uses Trip Generation Assumptions

Hotel/Retail/Restaurant in 473A

- Trip Generation, reductions, and methodology is consistent with Bass Pro Shops Development Traffic Study, August, 2014.
 - ITE code 820 was used to develop trip generation estimates along with information provided by Bass Pro Shops. ITE code 861 (sporting goods superstore) was considered, but limited data was available so it was not used.
 - Restaurant assumed to include a hotel restaurant and a Fishbowl restaurant (includes 300 seats and an 80 seat meeting room).
- A 15% hotel reduction was applied to ITE Trip Generation AM peak hour Volumes. Reduction based on driveway counts and Spack Consulting's Open Source Trip Generation Data. Retail assumed not to be open during AM peak hour.

MOA Phase 1C in 473B

- Trip Generation, reductions, and methodology is consistent with Mall of America Phase 1C Traffic Operations Analysis, June, 2012.
 - Saturday trip generation estimates were determined using information from ITE Code 710 (General Office) due to insufficient Saturday data for ITE Code 720
 - Trip generation estimates for retail and restaurant land uses are based on the additional square footage being considered as an extension of the current MOA. This results in a multi-use reduction of 23 percent for weekday conditions and 40 percent for Saturday conditions. Retail assumed to be closed during AM peak hour.
 - Saturday trip generation estimates were determined using information from ITE Code 931 (Quality Restaurant) due to insufficient Saturday data for ITE Code 932 (High-Turnover Sit-Down Restaurant). Restaurant assumed to be closed during AM peak hour.

MOA Phase 2B & 2C in 473B

- Trip Generation, reductions, and methodology is consistent with Mall of America Phase 2B Traffic Operations Analysis, November, 2015.
 - Shopping Center trip generation estimates were developed using a combination of the existing MOA trip rate and ITE fitted curve rate.
 - A 30 percent multi-use reduction was assumed for weekday conditions and a 50 percent multi-use reduction was assumed for Saturday conditions.

Hotel/Retail in TAZ 473B

- Shopping Center trip generation estimates were developed using a combination of the existing MOA trip rate and ITE fitted curve rate.
- A 30 percent multi-use reduction was assumed for weekday conditions and a 50 percent multi-use reduction was assumed for Saturday conditions.

MOA Transit Station in 473B

- No entrance to MOA at Gate 6 (except emergency vehicles)
- Relocation of Metro bus entrance further north on 24th Avenue
- Relocation of delivery/employee entrance to Killebrew Drive

Proposed Waterpark Hotel in 472F

- A Waterpark Hotel trip rate was developed and used based on WaterPark of America driveway counts.
- Applied a 5 percent light rail reduction

Proposed Banquet Space in 472F

- Weekday Conditions: Frequent conferences (similar to MCC).
 - Estimated capacity is 3,300 people
 - Expected to operate similar to an office (ITE Office Code) – conference start and end near the commuter a.m. and p.m. peak periods.
 - LRT nearby and would be used by some of the local attendees
 - Assumed that the conference would have arrangements/deals with nearby hotels to offer convenient/close options to the conference
 - Applied a 40 percent modal reduction
- Saturday Conditions: Site used as an event space (weddings, parties)
 - Estimated capacity is 8,000 people
 - Multiple events based on the size, staggered start times and end times.
 - Peak event assumed to occur post Saturday peak hour (after 5:00/6:00 p.m. or later depending on the event)
 - Event attendees likely to stay at nearby hotel (less likely to use LRT than the conference attendees)
 - Used the ITE Multiplex Movie Theater Code
 - Applied a 30 percent modal reduction

Entertainment/Theater in 472 F

- Weekday show time assumed to be 7:00 p.m., Saturday afternoon show time assumed to be 1:00 p.m. and 7:00 p.m.
- Vehicle occupancy assumed to be two (2) people per vehicle
- A modal reduction of 15% (LRT, public bus, shuttle, walking, or biking)
- Unique trips during the peak hour were assumed to be 25% on a weekday (4:30 to 5:30 p.m.) and 50% on Saturday (3:00 to 4:00 p.m.)
- Only entering trips are expected during the peak hours analyzed.

28th Avenue Park-and-Ride in 472E

- The Bloomington Central Station Parking Ramp Traffic Study, June 16, 2016, identified that the existing 28th Avenue Park-and-Ride station is currently only 35 percent utilized on a typical day. This existing utilization was used to predict the following future utilization:
 - Assumed ~67% full under 2025
 - Assumed ~100% full by 2040

Appendix G
Year 2025 and Year 2040 Trip Generation Tables

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Table 1
Land Use Trip Generation - TAZ 471B
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Proposed/Planned Land Use</u>								
None								
Existing to 2025 Net New System Trips			0	0	0	0	0	0
Year 2040								
<u>Proposed Land Use</u>								
Industrial Park	130	50 ksf	34	7	9	9	6	12
2025 to 2040 Net New System Trips			34	7	9	9	6	12
Existing to 2040 Net New System Trips			34	7	9	9	6	12

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

Table 2
Land Use Trip Generation - TAZ 471C
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<i>Proposed/Planned Land Use</i> ^{(1),(2)}								
Hotel ⁽³⁾	310	300 Rooms	70	49	69	66	91	71
Retail	820	75 ksf	40	25	120	130	169	157
Existing to 2025 Net New System Trips			110	74	189	196	260	228
Year 2040								
<i>Proposed Land Use</i> ^{(1),(4)}								
Office	710	20 ksf	26	4	5	23	5	4
Industrial Park	130	180 ksf	115	25	31	115	19	41
2025 to 2040 Net New System Trips			141	29	36	138	24	45
Existing to 2040 Net New System Trips			251	103	225	334	284	273

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ A 15% hotel reduction was applied to ITE Trip Generation based on driveway counts collected by SRF and Spack Consulting Open Source Trip Generation Data.

⁽⁴⁾ Office/Industrial square footage estimated based on Cypress Solutions office/industrial ratio.

Table 3
Land Use Trip Generation - TAZ 471D
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Proposed/Planned Land Use</u>								
None								
Existing to 2025 Net New System Trips			0	0	0	0	0	0
Year 2040								
<u>Proposed Land Use</u> ⁽¹⁾								
Office	710	250 ksf	326	44	60	294	55	47
2025 to 2040 Net New System Trips			326	44	60	294	55	47
Existing to 2040 Net New System Trips			326	44	60	294	55	47

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

Table 4
Land Use Trip Generation - TAZ 471E
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<i>Proposed/Planned Land Use</i> ⁽¹⁾⁽²⁾								
Apartment	220	100 DU	9	37	36	20	23	23
Retail	820	10 ksf	5	3	16	17	23	21
Existing to 2025 Net New System Trips			14	40	52	37	46	44
Year 2040								
<i>Proposed Land Use</i> ⁽¹⁾								
Apartment	220	50 DU	5	19	19	10	12	12
2025 to 2040 Net New System Trips			5	19	19	10	12	12
Existing to 2040 Net New System Trips			19	59	71	47	58	56

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

Table 5
Land Use Trip Generation - TAZ 471F
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<i>Proposed/Planned Land Use</i> ⁽¹⁾⁽²⁾								
Apartment	220	100 DU	9	37	36	20	23	23
Retail	820	10 ksf	5	3	16	17	23	21
Existing to 2025 Net New System Trips			14	40	52	37	46	44
Year 2040								
<i>Existing Land Use Removed</i> ⁽³⁾								
Park-N-Fly	N/A	N/A	21	12	11	28	16	17
<i>Proposed Land Use</i> ⁽¹⁾⁽²⁾								
Office	710	220 ksf	272	37	50	245	46	40
Retail	820	20 ksf	11	7	32	35	45	41
Apartment	220	350 DU	32	129	127	68	82	82
2025 to 2040 Net New System Trips			294	161	198	320	157	146
Existing to 2040 Net New System Trips			308	201	250	357	203	190

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Existing driveway counts.

Table 6
Land Use Trip Generation - TAZ 472C
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Proposed/Planned Land Use</u>								
None								
Existing to 2025 Net New System Trips			0	0	0	0	0	0
Year 2040								
<u>Existing Land Use Removed</u> ⁽³⁾								
Park-N-Go	N/A	N/A	22	9	6	13	11	8
<u>Proposed Land Use</u> ⁽¹⁾⁽²⁾								
Hotel ⁽⁴⁾	310	700 Rooms	164	114	161	154	212	167
Retail	820	30 ksf	16	10	48	52	68	62
Apartment	220	500 DU	46	184	181	98	117	117
2025 to 2040 Net New System Trips			204	299	384	291	386	338
Existing to 2040 Net New System Trips			204	299	384	291	386	338

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Existing driveway counts.

⁽⁴⁾ A 15% hotel reduction was applied to ITE Trip Generation based on driveway counts collected by SRF and Spack Consulting's Open Source Trip Generation Data.

Table 7
Land Use Trip Generation - TAZ 472D
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Proposed/Planned Land Use</u>								
Apartment ⁽²⁾⁽³⁾	220	395 DU	32	129	127	69	82	82
Apartment ⁽²⁾⁽³⁾	220	445 DU	36	145	143	77	93	93
Retail ⁽²⁾⁽³⁾	820	34 ksf	16	10	48	52	68	63
Office ⁽¹⁾	710	356 ksf	464	63	86	418	79	67
Retail ⁽¹⁾	820	2.35 ksf	1	1	4	4	6	5
Existing to 2025 Net New System Trips			549	348	408	620	328	310
Year 2040								
<u>Proposed Land Use ⁽¹⁾</u>								
Office	710	335.1 ksf	437	60	81	394	74	63
Retail	820	24.4 ksf	14	8	41	45	58	53
Office	710	145 ksf	189	26	35	170	32	28
Office	710	300.2 ksf	392	53	72	353	67	56
2025 to 2040 Net New System Trips			1032	147	229	962	231	200
Existing to 2040 Net New System Trips			1581	495	637	1582	559	510

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Light rail reductions consistent with *Bloomington Central Station Residential Development Traffic Study*, November, 2013 (15%).

Table 8
Land Use Trip Generation - TAZ 472E
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Existing Land Use Increase</u> ⁽³⁾								
28th Station Park-n-Ride	N/A	N/A	118	6	16	166	15	18
<u>Proposed/Planned Land Use</u> ⁽¹⁾								
Hotel ⁽⁵⁾	310	164 Rooms	41	29	40	39	53	42
Retail	820	7.3 ksf	4	3	12	13	17	16
Existing to 2025 Net New System Trips			163	38	68	218	85	76
Year 2040								
<u>Existing Land Use Increase</u> ⁽³⁾								
28th Station Park-n-Ride	N/A	N/A	118	6	16	166	15	18
<u>Proposed Land Use</u> ⁽¹⁾								
Hotel ⁽⁴⁾	310	100 Rooms	25	17	24	24	32	26
2025 to 2040 Net New System Trips			143	23	40	190	47	44
Existing to 2040 Net New System Trips			306	61	108	408	132	120

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Increase based on existing 28th Station Park-n-Ride driveway counts (assumed to be ~35% full under existing, ~67% full under 2025, and 100% full by 2040).

⁽⁴⁾ A 15% hotel reduction was applied to ITE Trip Generation based on driveway counts collected by SRF and Spack Consulting's Open Source Trip Generation Data.

Table 9
Land Use Trip Generation - TAZ 472F
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<u>Proposed/Planned Land Use</u>								
Waterpark Hotel ^{(1) (3)}	N/A	1,000 Rooms	130	212	257	257	303	229
Hotel Banquet Space ⁽⁴⁾	N/A	100 ksf	836	114	155	756	363	141
Entertainment Theater ⁽⁴⁾	N/A	3,000 Seats	0	0	287	0	638	0
Existing to 2025 Net New System Trips			966	326	699	1013	1304	370
Year 2040								
<u>Proposed Land Use</u>								
None								
2025 to 2040 Net New System Trips			0	0	0	0	0	0
Existing to 2040 Net New System Trips			966	326	699	1013	1304	370

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Trip generation estimates developed from driveway counts at the Waterpark of America.

⁽⁴⁾ Custom trip rate was developed for these unique land uses per discussion with city staff.

Table 10
Land Use Trip Generation - TAZ 472G
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour		P.M. Peak Hour		P.M. Peak Hour	
			In	Out	In	Out	In	Out
Year 2025								
<i>Existing Land Use Removed</i> ⁽³⁾								
Interstate Diesel Office	710	10.744 ksf	12	2	3	11	2	2
Interstate Diesel Industrial	110	52.087 ksf	34	6	7	36	3	4
Interstate Diesel Office	710	18.924 ksf	21	4	6	19	3	4
Interstate Diesel Industrial	110	28.201 ksf	18	3	4	19	2	2
Interstate Diesel Office	710	12.152 ksf	13	3	4	12	3	2
Interstate Diesel Industrial	110	17.608 ksf	11	2	2	12	1	1
Alpha Business Office ⁽⁵⁾	770	8.719 ksf	8	2	3	7	2	2
Alpha Business Industrial	130	70.601 ksf	38	11	15	38	7	15
<i>Proposed/Planned Land Use</i> ⁽¹⁾								
Office	710	200 ksf	260	36	48	234	44	38
Hotel ⁽⁴⁾	310	148 Rooms	37	26	36	35	48	38
Retail	820	26 ksf	15	9	44	48	62	57
Existing to 2025 Net New System Trips			157	38	84	163	131	101
Year 2040								
<i>Proposed Land Use</i> ⁽¹⁾								
Office	710	200 ksf	260	36	48	234	44	38
2025 to 2040 Net New System Trips			260	36	48	234	44	38
Existing to 2040 Net New System Trips			417	74	132	397	175	139

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Existing conditions reduction applied to ITE Trip Generation based on driveway counts.

⁽⁴⁾ A 15% hotel reduction was applied to ITE Trip Generation based on driveway counts collected by SRF and Spack Consulting's Open Source Trip Generation Data.

⁽⁵⁾ ITE code 710 used to generate Saturday peak hour trips (ITE code 770 Saturday peak hour trip rate not available.)

Table 111
Land Use Trip Generation - TAZ 473A
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<i>Existing Land Use Removed</i> ⁽³⁾								
Ramada Inn	310	258 Rooms	24	20	36	27	26	16
<i>Proposed/Planned Land Use</i> ⁽⁴⁾								
Hotel	310	325 Rooms	86	60	74	72	99	76
Retail/Restaurant ⁽⁵⁾⁽⁶⁾	820/932	130 ksf	0	0	248	230	462	421
Existing to 2025 Net New System Trips			62	40	286	275	535	481
Year 2040								
<i>Proposed Land Use</i>								
None								
2025 to 2040 Net New System Trips			0	0	0	0	0	0
Existing to 2040 Net New System Trips			62	40	286	275	535	481

⁽¹⁾ A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

⁽²⁾ A multi-use reduction of 5% was applied to the ITE Trip Generation.

⁽³⁾ Existing conditions reduction applied to ITE Trip Generation based on driveway counts.

⁽⁴⁾ A 15% hotel reduction was applied to ITE Trip Generation AM peak hour Volumes. Reduction based on driveway counts and Spack Consulting's Open Source Trip Generation Data. Retail assumed not to be open during AM peak hour.

⁽⁵⁾ ITE code 820 was used to develop trip generation estimates along with information provided by Bass Pro Shops. ITE code 861 (sporting goods superstore) was considered, but limited data was available so it was not used.

⁽⁶⁾ Restaurant assumed to include a hotel restaurant and a Fishbowl restaurant (includes 300 seats and an 80 seat meeting room).

* All reductions and methodology is consistent with Bass Pro Shops Development Traffic Study, August, 2014 .

Table 12
Land Use Trip Generation - TAZ 473B
South Loop District Traffic Study

Land Use	ITE Code	Size	Weekday				Saturday	
			A.M. Peak Hour In	A.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour In	P.M. Peak Hour Out
Year 2025								
<i>Proposed/Planned Land Use</i>								
MOA Phase 1C - Mayo/Office ⁽³⁾	720	244 ksf	461	122	167	452	126	107
MOA Phase 1C - Retail ⁽⁴⁾	820	131 ksf	0	0	108	112	140	130
MOA Phase 1C - Restaurant ⁽⁵⁾	932	20 ksf	0	0	101	70	114	79
MOA Phase 2B - Retail ⁽⁶⁾	820	579 ksf	133	82	443	480	818	755
MOA Phase 2B - Hotel ⁽⁷⁾	310	180 Rooms	39	27	39	37	36	29
MOA Phase 2B - Office	710	168 ksf	231	31	43	208	39	33
MOA Phase 2B - Apartment	220	120 DU	12	49	48	26	31	31
Existing to 2025 Net New System Trips			877	311	949	1386	1304	1164
Year 2040								
<i>Proposed Land Use</i>								
MOA Phase 2C - Retail ⁽⁶⁾	820	340.1 ksf	78	48	260	282	480	443
MOA Phase 2C - Hotel ⁽⁷⁾	310	720 Rooms	158	110	154	148	145	114
MOA Phase 2C - Office	710	200 ksf	275	37	51	247	46	40
Hotel ⁽⁷⁾	310	300 Rooms	66	46	64	62	60	48
Retail ⁽⁶⁾	820	170 ksf	39	24	130	141	240	222
2025 to 2040 Net New System Trips			615	265	660	880	972	866
Existing to 2040 Net New System Trips			1492	576	1609	2266	2276	2030

(1) A light rail reduction of 5% was applied to the ITE Trip Generation for all developments within a 1/4 mile of a light rail station.

(2) A multi-use reduction of 5% was applied to the ITE Trip Generation.

(3) Saturday trip generation estimates were determined using information from ITE Code 710 (General Office) due to insufficient Saturday data for ITE Code 720 (Medical-Dental Office).

(4) Trip generation estimates for retail and restaurant land uses are based on the additional square footage being considered as an extension of the current MOA. This results in a 23 percent reduction of multi-use during AM peak conditions and 40 percent for Saturday conditions. Retail assumed to be closed during AM peak hour.

(5) Saturday trip generation estimates were determined using information from ITE Code 931 (Quality Restaurant) due to insufficient Saturday data for ITE Code 932 (High-Turnover Sit-Down Restaurant). Restaurant assumed to be closed during AM peak hour.

(6) Shopping Center trip generation estimates were developed using a combination of the existing MOA trip rate and ITE fitted curve rate.

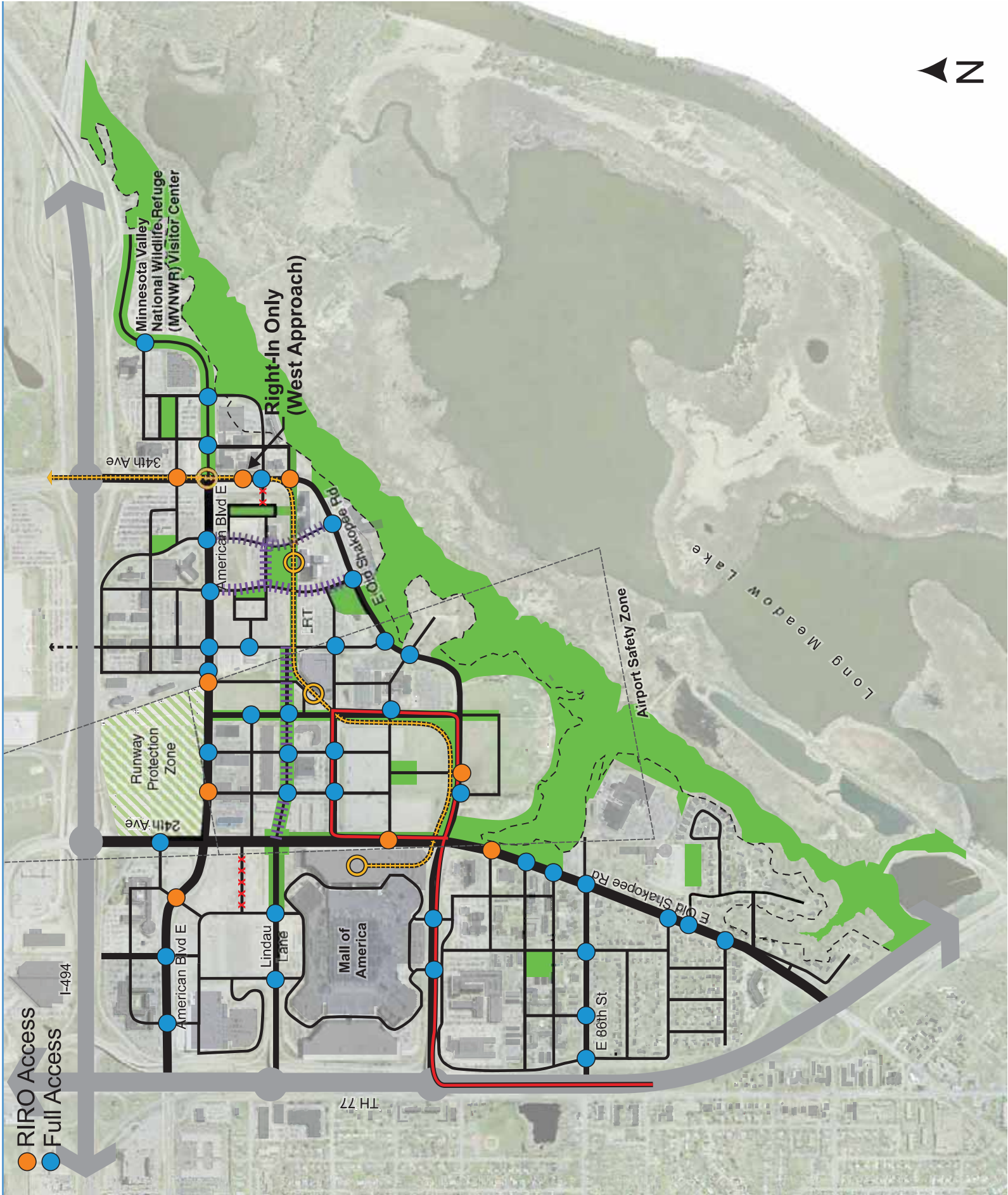
(7) A 30 percent multi-use reduction was assumed for weekday conditions and a 50 percent multi-use reduction was assumed for Saturday conditions.

* Reducations and methodology for MOA Phase 1C land uses consistent with *Mall of America Phase 1C Traffic Operations Analysis, June, 2012*.

** Reducations and methodology for MOA Phase 2B and 2C land uses consistent with *Mall of America Phase 2B Traffic Operations Analysis, November, 2015*.

Appendix H
TAZ Directional Distribution Figures

DRAFT



- RIRO Access
- Full Access

Minnesota Valley
National Wildlife Refuge
(MNVNR) Visitor Center

Right-In Only
(West Approach)

34th Ave

American Blvd E

24th Ave

American Blvd E

Lindau Lane

Mall of America

E 66th St

E Old Shakopee Rd

E Old Shakopee Rd

Runway Protection Zone

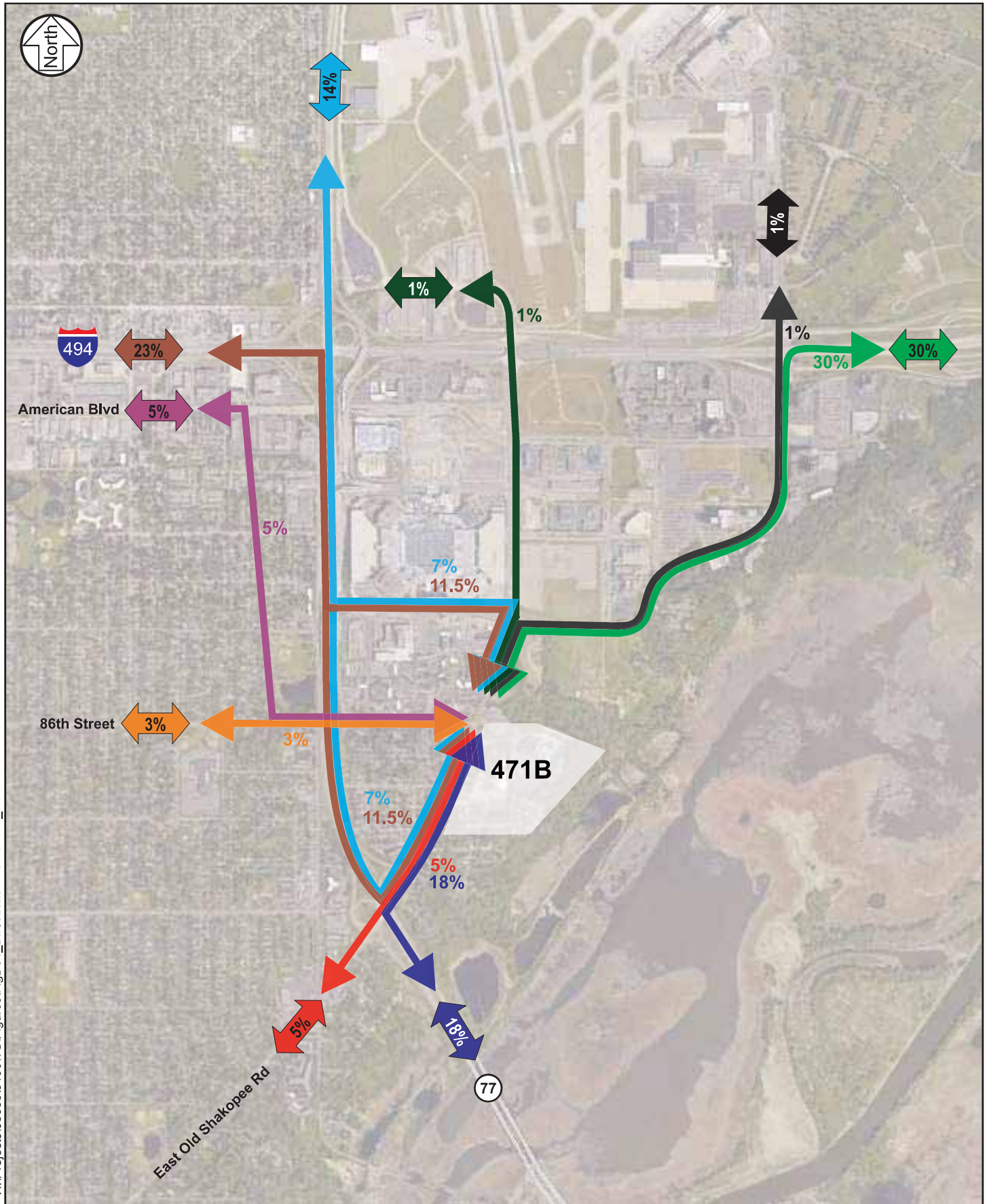
Airport Safety Zone

Long Meadow Lake

I-494

TH 77

H:\Projects\090000\9190\TTS\Figures\FigD01_Directional Distribution_471B.cdr

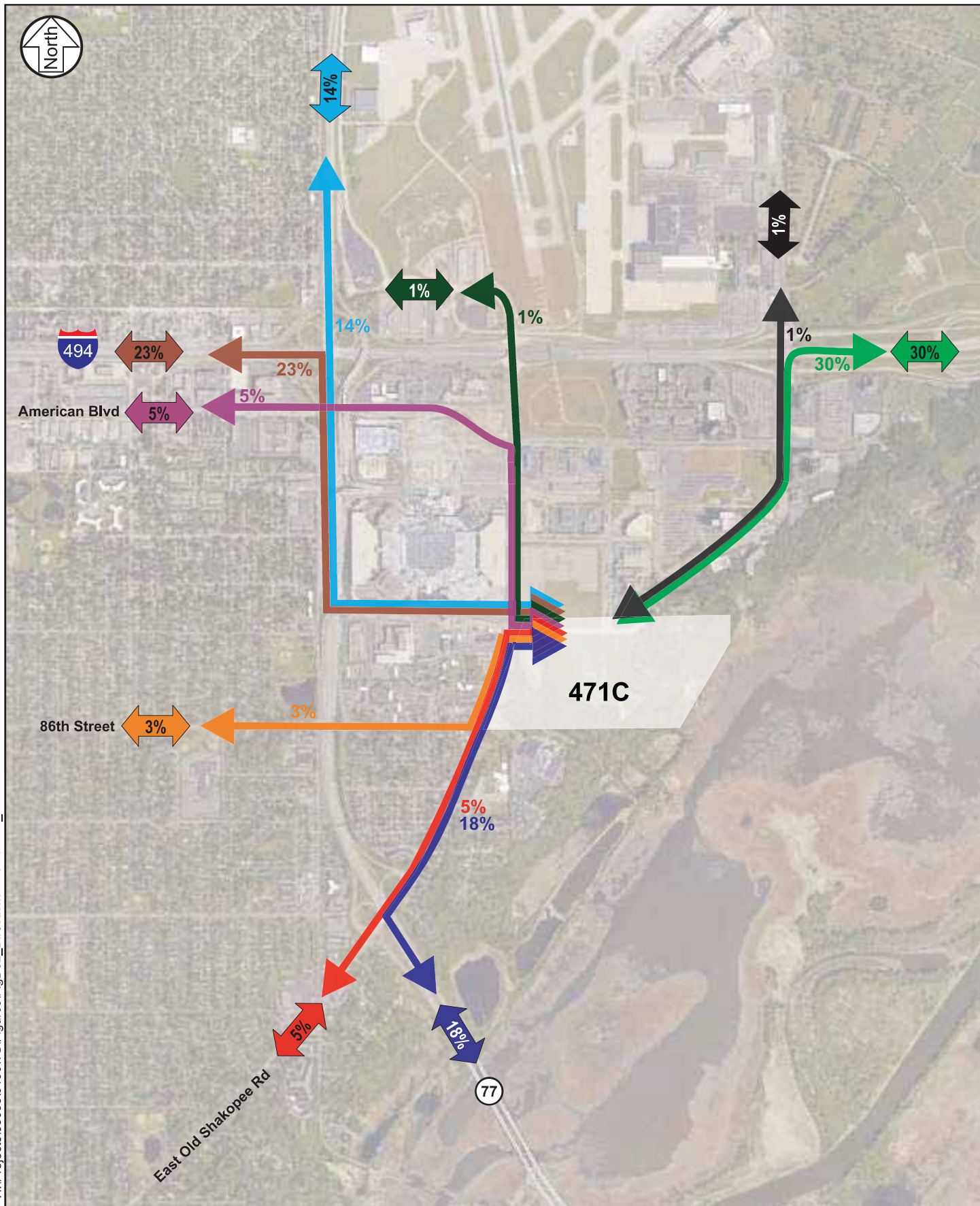


Directional Distribution (TAZ 471B)

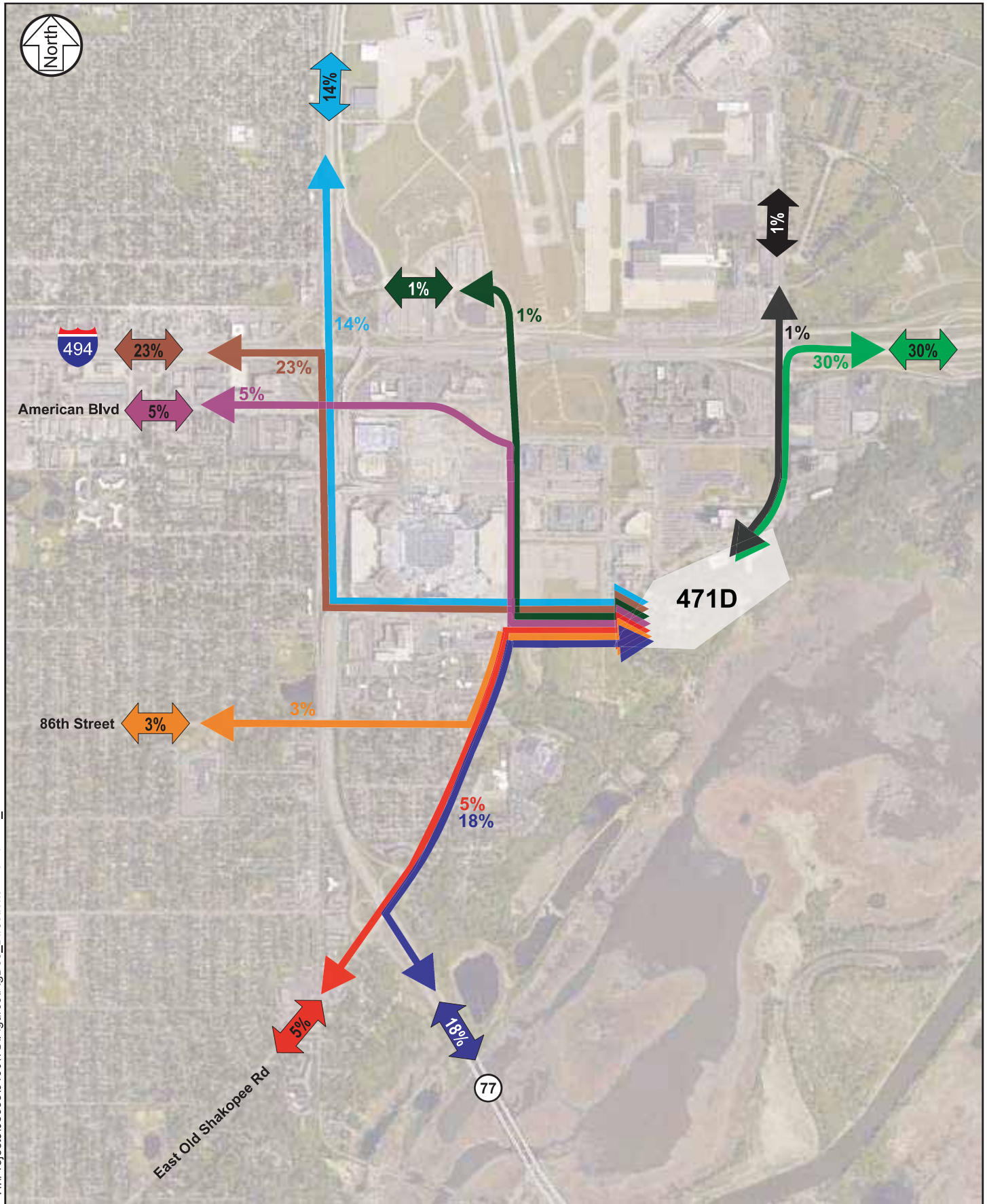
South Loop District Traffic Study
City of Bloomington

Figure 1

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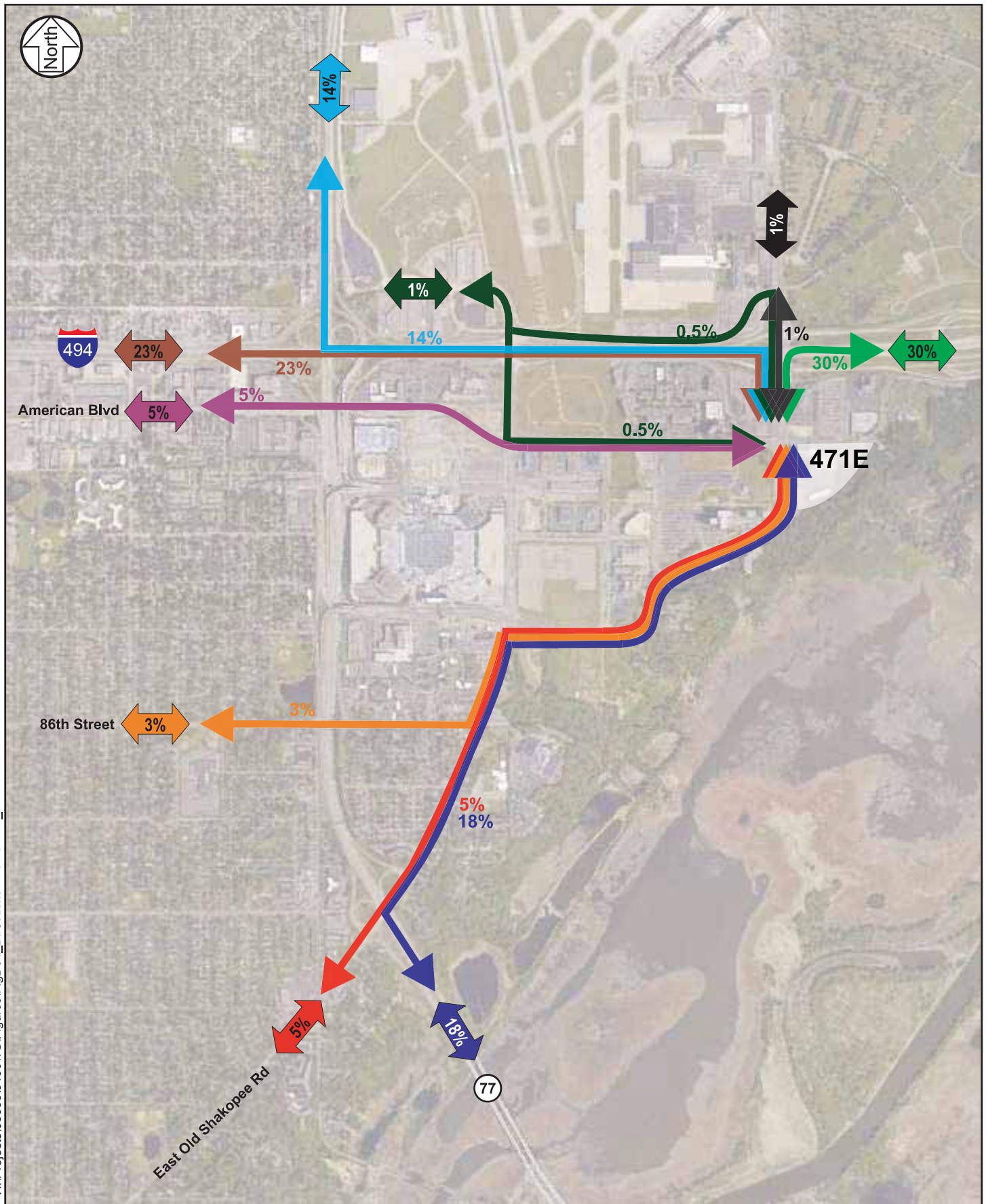
Directional Distribution (TAZ 471D)

South Loop District Traffic Study
City of Bloomington

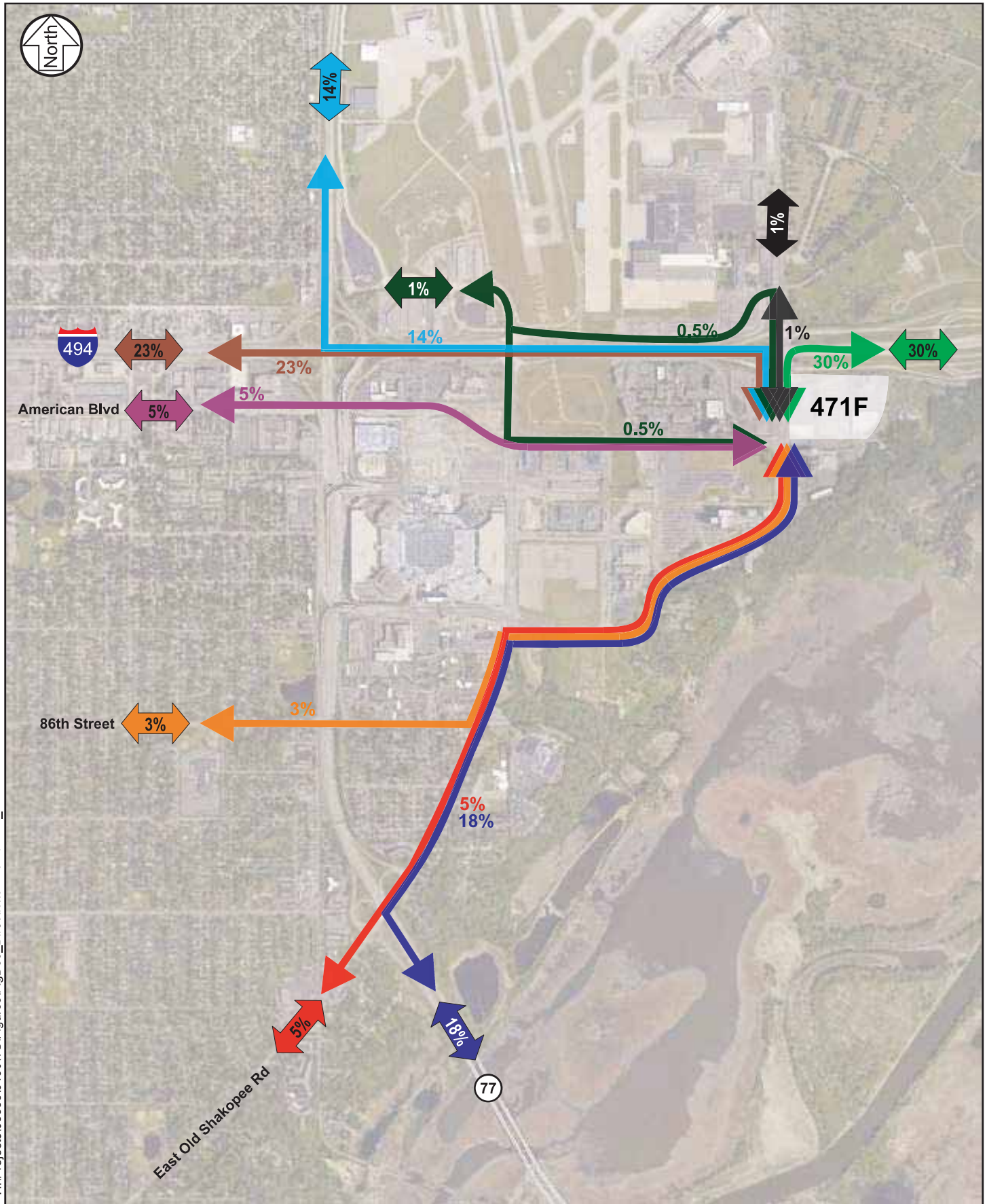
00169190
August 2016

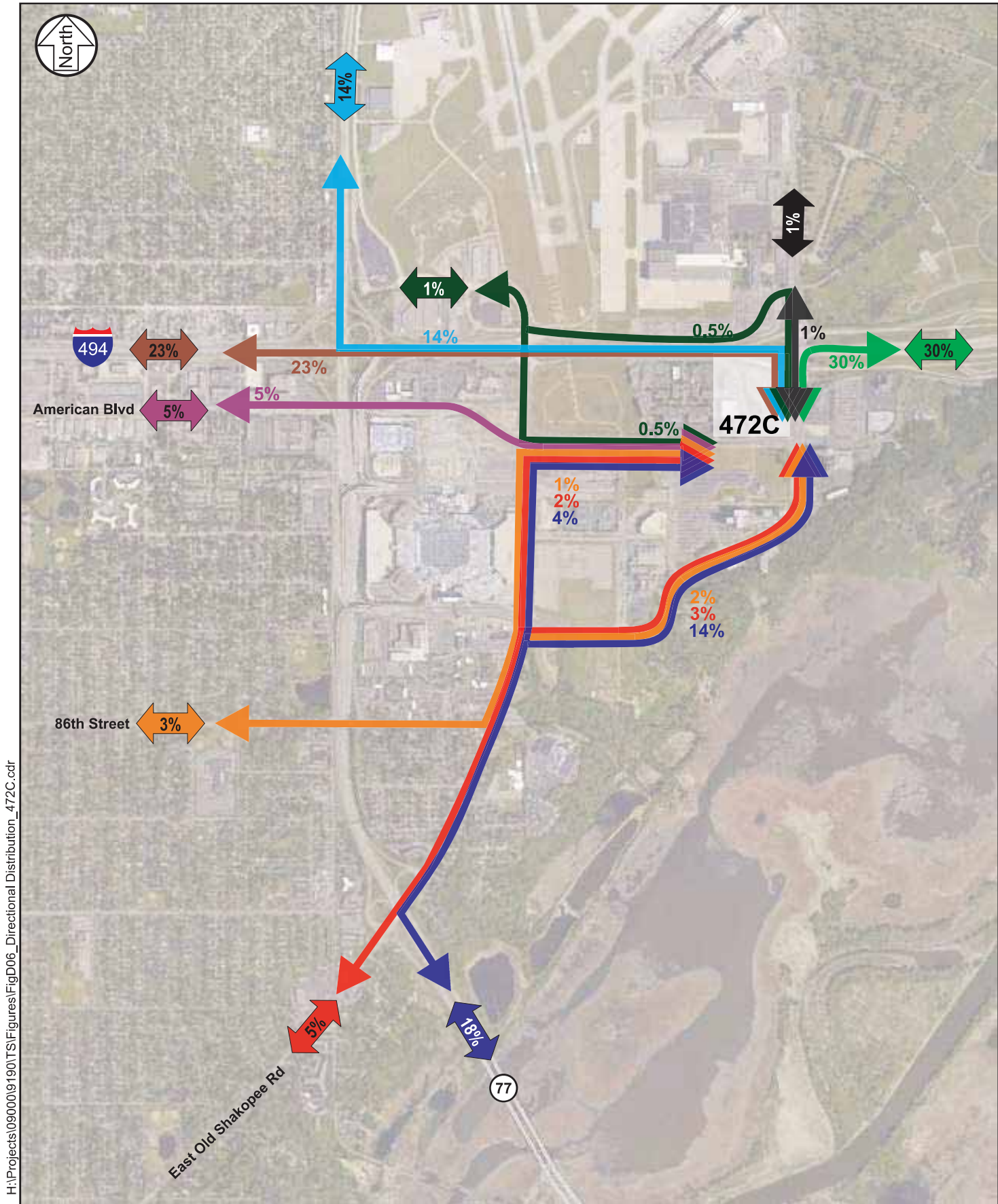
Figure 3

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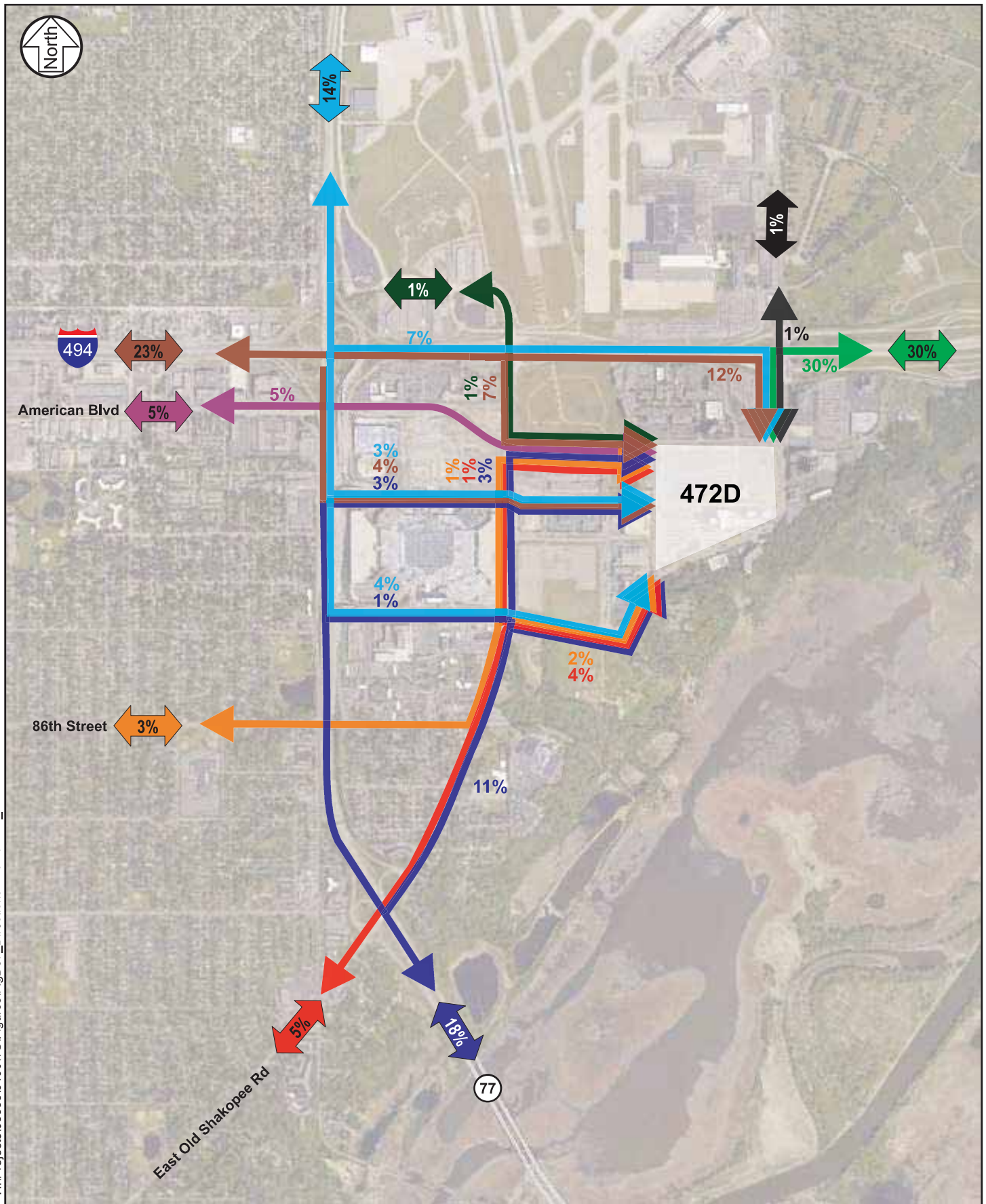
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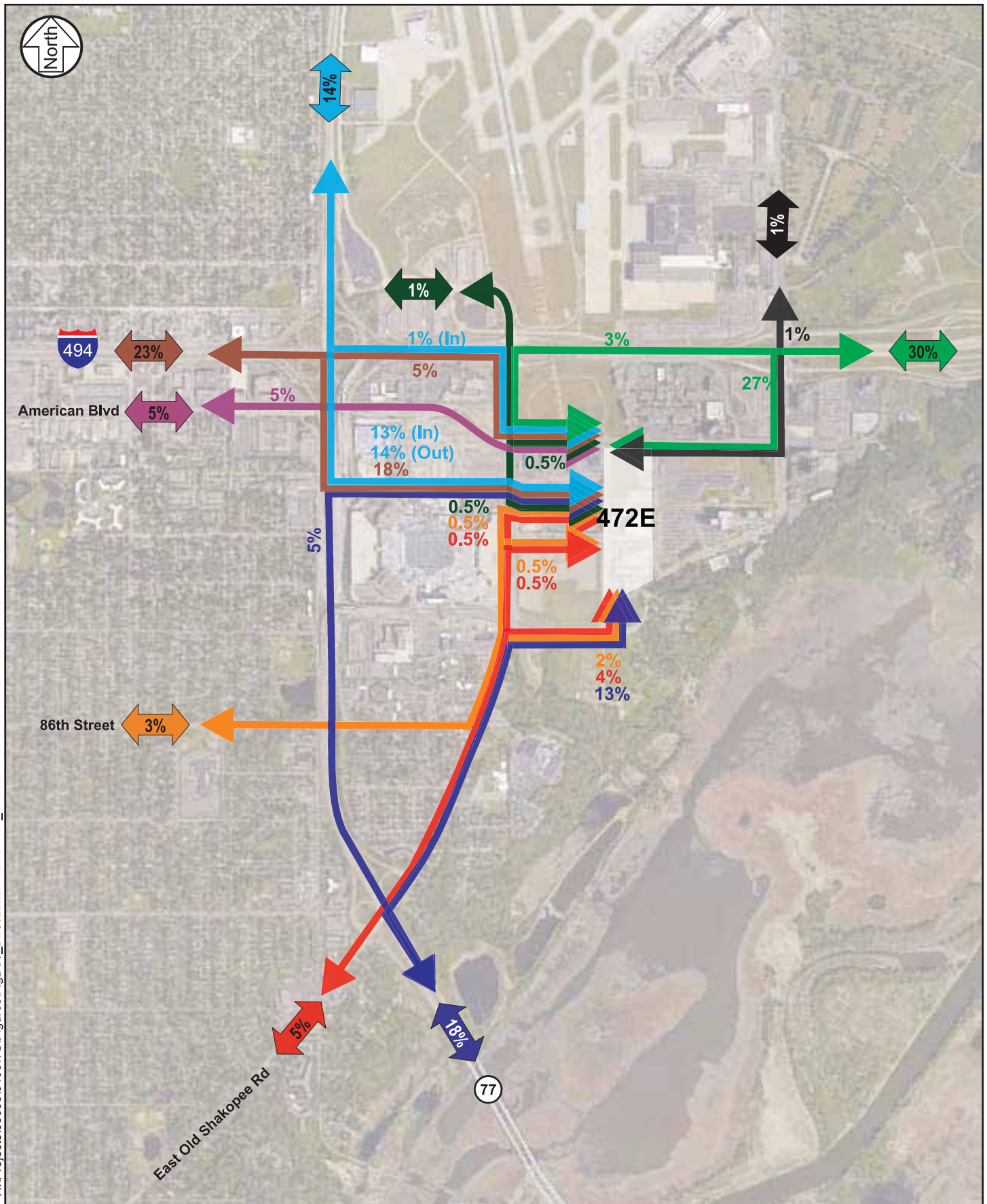


Directional Distribution (TAZ 472D)

South Loop District Traffic Study
City of Bloomington

Figure 7

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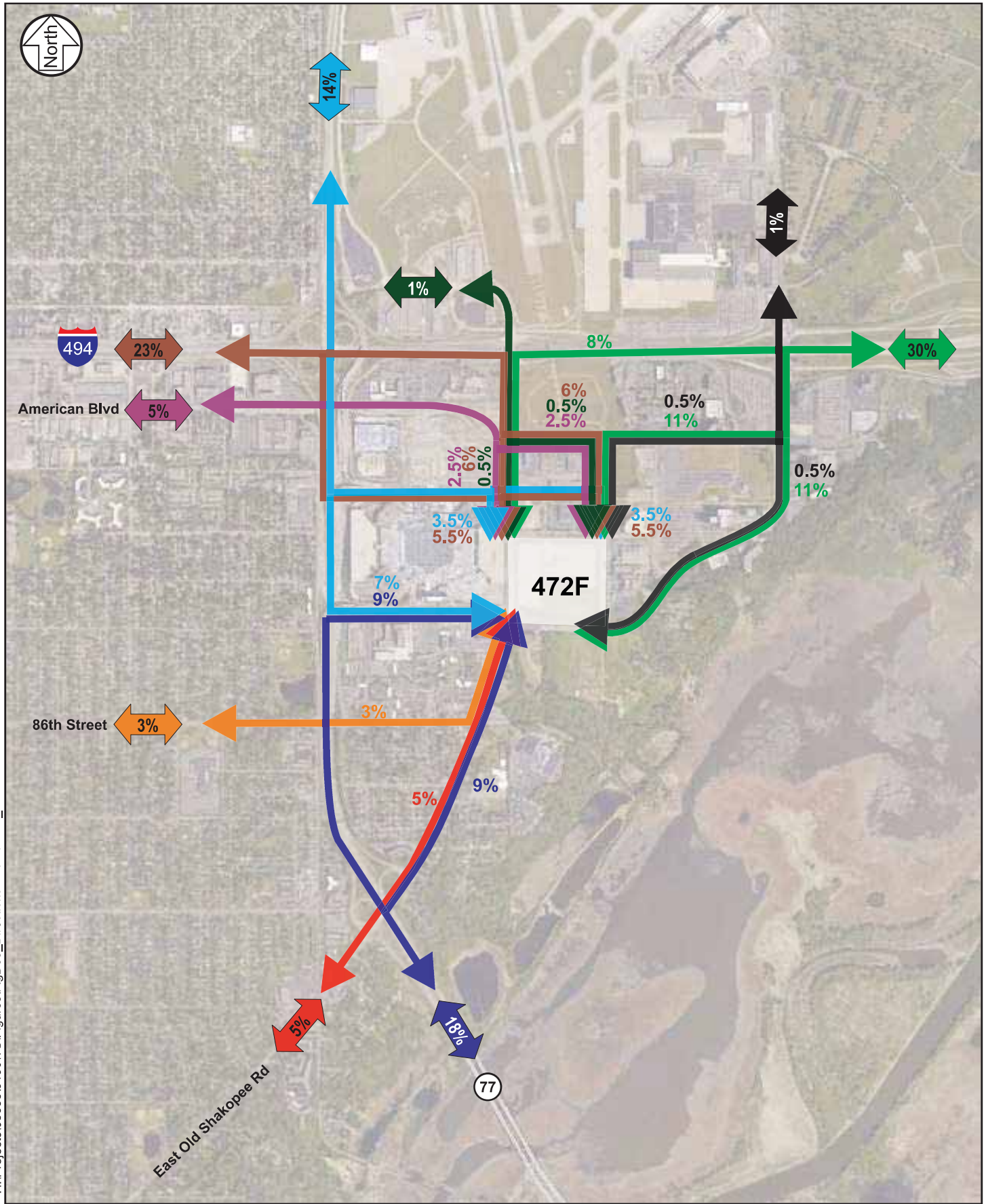


Directional Distribution (TAZ 472E)

South Loop District Traffic Study
City of Bloomington

Figure 8

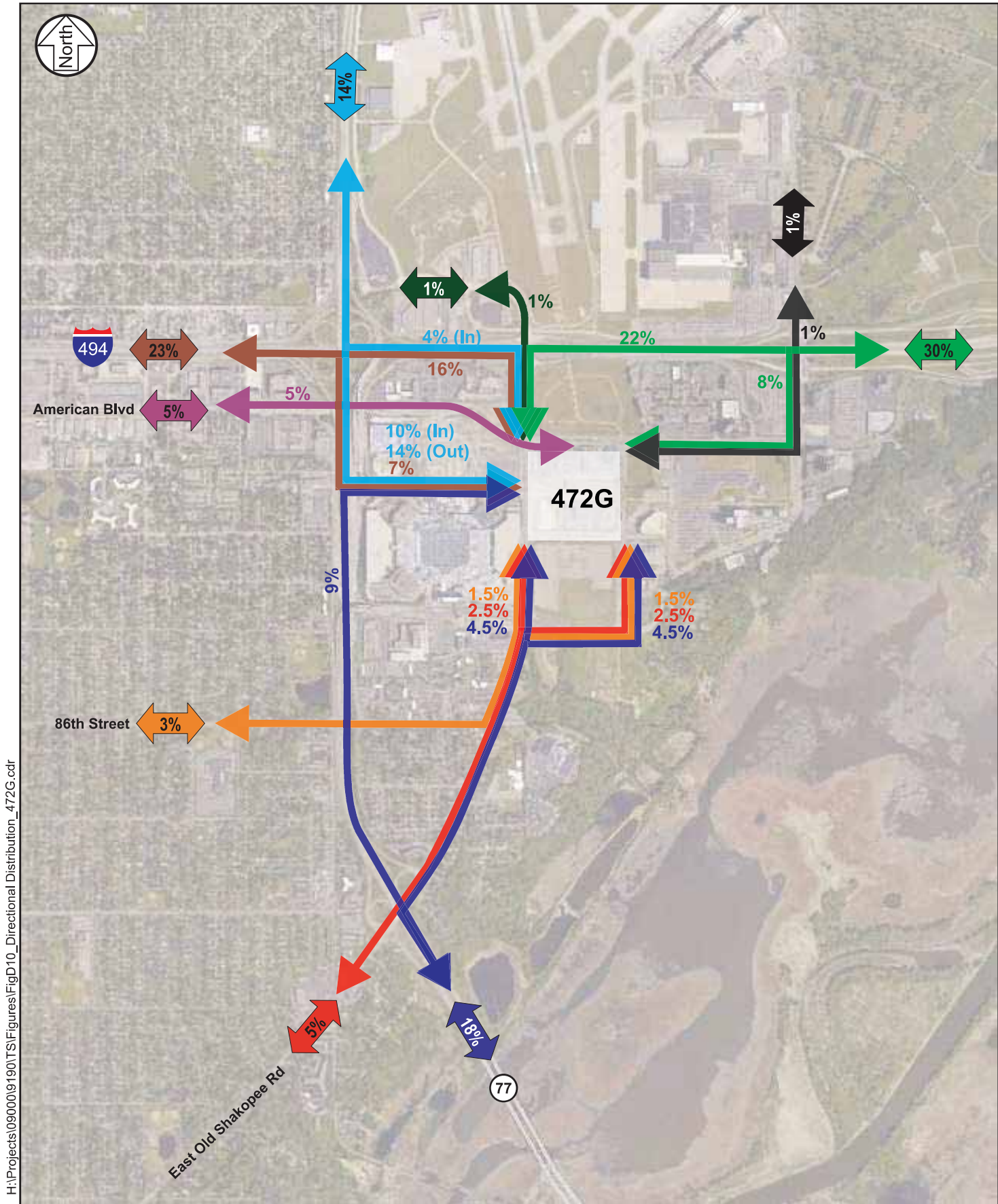
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Directional Distribution (TAZ 472F)

South Loop District Traffic Study
City of Bloomington

Figure 9



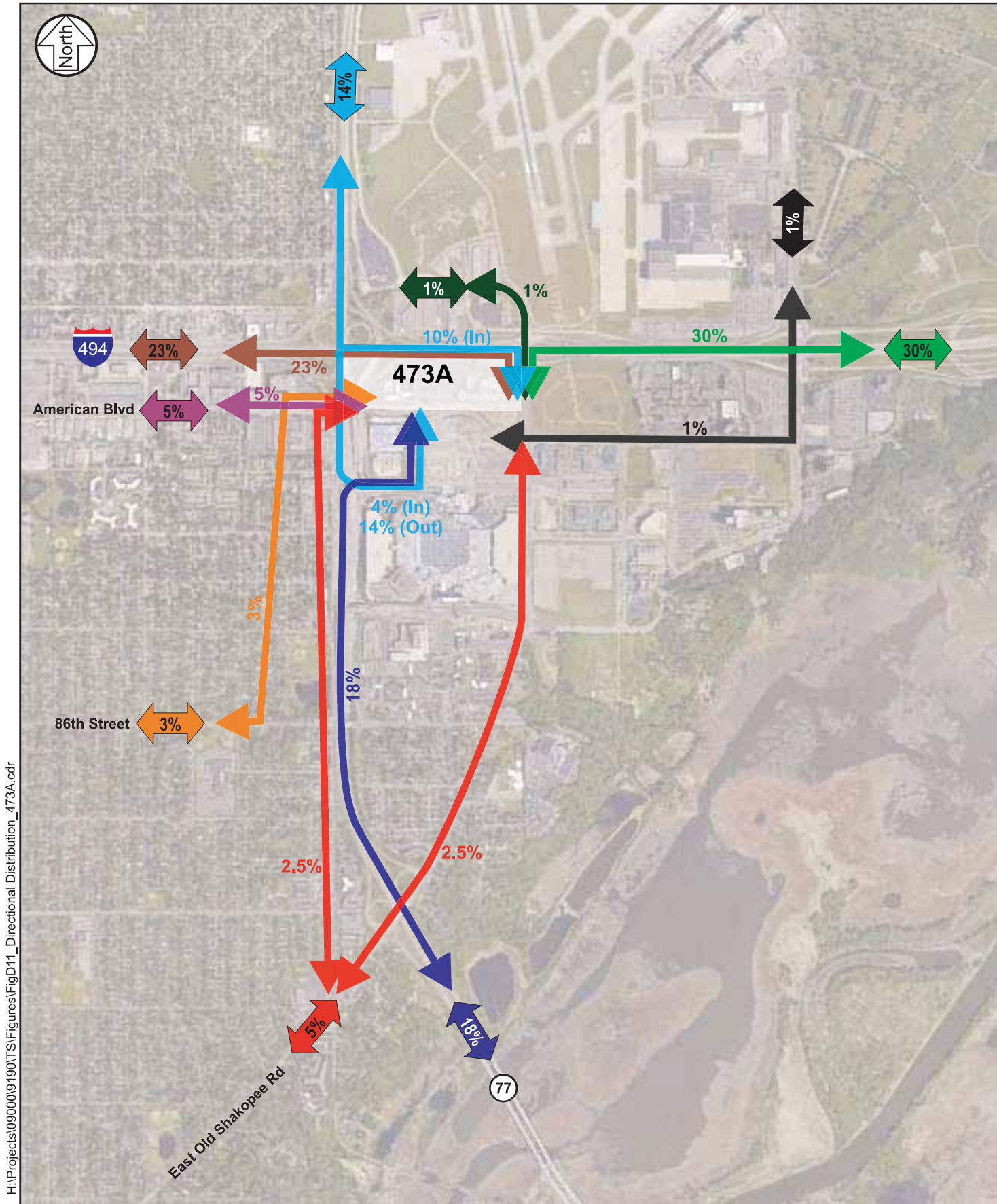
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Directional Distribution (TAZ 472G)

South Loop District Traffic Study
City of Bloomington

Figure 10



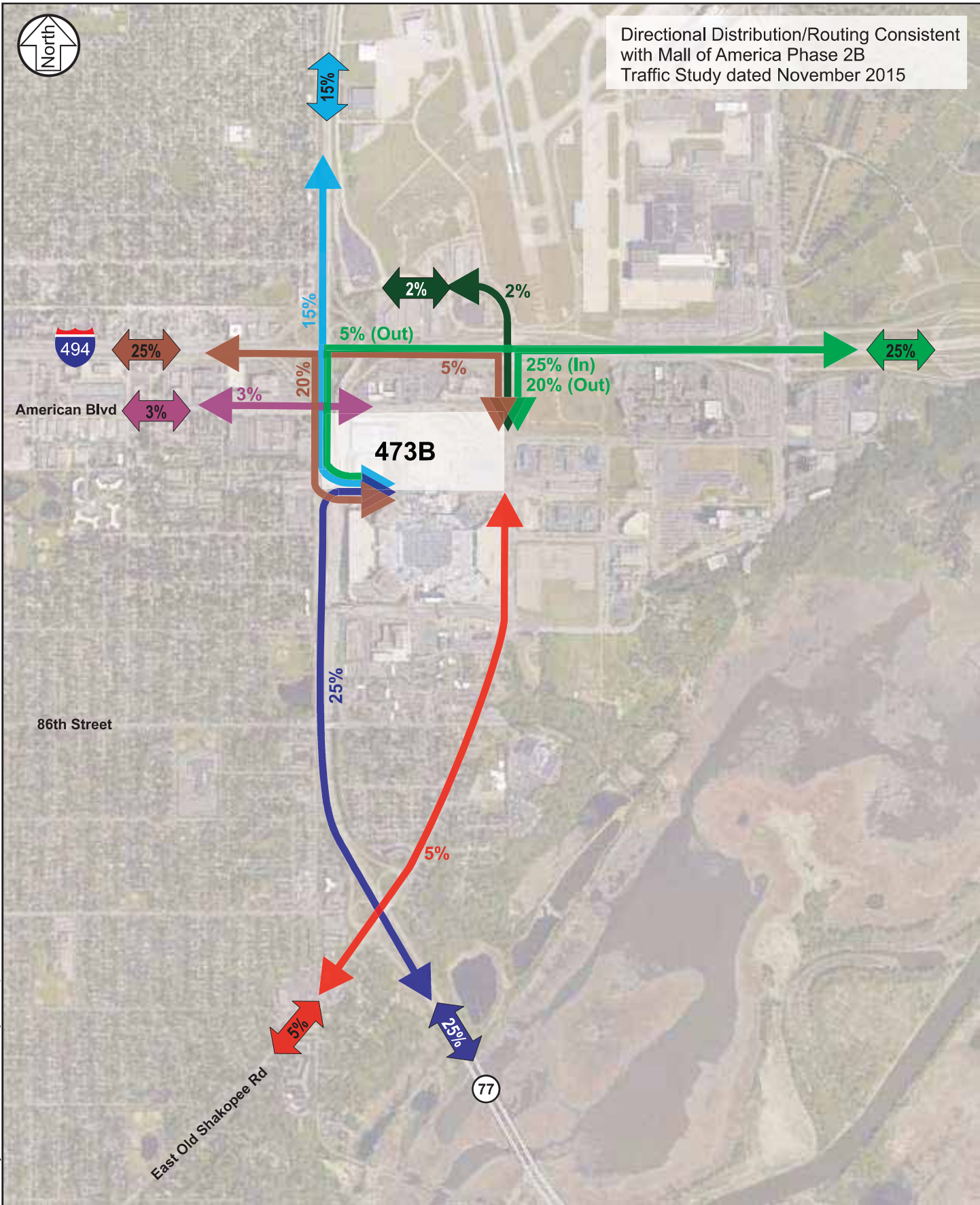
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Directional Distribution (TAZ 473A)

South Loop District Traffic Study
City of Bloomington

Figure 11



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Directional Distribution (TAZ 473B)

South Loop District Traffic Study
City of Bloomington

Figure 12

Appendix I
Year 2025 MOE

DRAFT

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	3	54	16.2	C	16.2	C	0.8	A
	Right	0	-	-	-	A				
Eastbound	Thru	357	0	0	0.2	A	0.2	A		
	Right	13	0	0	0.4	A				
Westbound	Left	8	0	9	2.6	A	0.5	A		
	Thru	947	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
0	0	0
359	357	-2
12	13	1
8	8	0
969	947	-22

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	664	0	0	0.0	A	0.3	A	0.3	A
	-	278	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
672	664	-8
274	278	4

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.6	A	3.3	A
	Right	13	1	69	7.6	A				
Eastbound	Left	24	0	22	4.0	A	1.2	A		
	Thru	180	0	0	0.8	A				
Westbound	Thru	238	0	0	4.8	A	4.8	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
15	13	-2
25	24	-1
181	180	-1
243	238	-5
1	0	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	614	0	0	0.2	A	0.2	A	1.4	A
	Thru	1,217	0	12	0.5	A				
Southbound	Right	124	0	12	0.8	A	0.5	A		
	Left	10	3	29	52.6	F				
Eastbound	Left	10	3	29	52.6	F	6.5	A		
	Right	359	0	0	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
615	614	-1
1,247	1,217	-30
133	124	-9
10	10	0
361	359	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	124	15	77	31.3	C	26.0	C	17.2	B
	Thru	16	2	33	26.8	C				
	Right	29	0	0	2.7	A				
Southbound	Left	39	8	90	33.8	C	25.2	C		
	Thru	8	8	90	28.4	C				
	Right	20	1	37	7.2	A				
Eastbound	Left	24	5	33	41.9	D	14.0	B		
	Thru	288	11	92	13.7	B				
	Right	45	0	5	1.0	A				
Westbound	Left	92	15	77	37.9	D	16.2	B		
	Thru	810	21	186	13.8	B				
	Right	27	19	189	12.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
124	124	0
16	16	0
32	29	-3
40	39	-1
8	8	0
22	20	-2
22	24	2
291	288	-3
45	45	0
93	92	-1
831	810	-21
28	27	-1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	78	12	81	31.2	C	26.0	C	16.0	B
	Thru	24	2	42	22.5	C				
	Right	18	1	51	8.0	A				
Southbound	Left	13	1	25	17.5	B	18.7	B		
	Thru	13	2	30	33.1	C				
	Right	71	6	61	16.2	B				
Eastbound	Left	227	23	102	27.5	C	14.5	B		
	Thru	1,080	28	176	12.6	B				
	Right	100	44	216	6.1	A				
Westbound	Left	36	6	44	33.5	C	17.6	B		
	Thru	286	16	123	16.1	B				
	Right	10	0	36	3.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
80	78	-2
25	24	-1
18	18	0
12	13	1
12	13	1
73	71	-2
217	227	10
1,096	1,080	-16
102	100	-2
35	36	1
294	286	-8
8	10	2

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	27	2	31	20.9	C	7.6	A	3.4	A
	Right	78	0	30	3.0	A				
Eastbound	Left	119	5	68	10.6	B	2.5	A		
	Thru	821	5	68	1.3	A				
Westbound	Thru	231	4	69	5.9	A	5.0	A		
	Right	47	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	27	2
81	78	-3
122	119	-3
824	821	-3
237	231	-6
49	47	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	237	10	125	10.9	B	8.5	A	17.8	B
	Thru	380	7	82	6.9	A				
	Right	6	7	82	7.0	A				
Southbound	Left	0	-	-	-	A	13.6	B		
	Thru	410	17	125	15.1	B				
	Right	47	0	0	0.5	A				
Eastbound	Left	598	78	678	35.7	D	22.8	C		
	Thru	13	77	670	36.1	D				
	Right	932	28	561	14.4	B				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
240	237	-3
380	380	0
5	6	1
0	0	0
435	410	-25
50	47	-3
600	598	-2
11	13	2
945	932	-13
0	0	0
2	0	-2
0	0	0

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	68	8	55	27.4	C	20.6	C	15.4	B
	Thru	12	1	26	25.0	C				
	Right	34	1	60	5.4	A				
Southbound	Left	39	3	46	17.6	B	15.5	B		
	Thru	14	2	31	24.6	C				
	Right	89	6	57	13.1	B				
Eastbound	Left	172	16	89	23.6	C	14.2	B		
	Thru	530	20	166	13.6	B				
	Right	406	17	218	11.1	B				
Westbound	Left	91	10	61	31.3	C	17.3	B		
	Thru	175	8	65	16.4	B				
	Right	97	3	74	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
71	68	-3
11	12	1
33	34	1
40	39	-1
15	14	-1
86	89	3
168	172	4
536	530	-6
422	406	-16
93	91	-2
180	175	-5
99	97	-2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	32	5	41	31.7	C	19.1	B	6.0	A
	Thru	0	-	-	-	A				
	Right	22	0	4	0.8	A				
Southbound	Left	3	1	24	18.7	B	10.2	B		
	Thru	5	1	24	24.5	C				
	Right	12	0	5	2.1	A				
Eastbound	Left	81	4	49	12.7	B	4.7	A		
	Thru	648	6	89	4.4	A				
	Right	118	0	21	1.0	A				
Westbound	Left	43	2	51	15.8	B	6.9	A		
	Thru	234	3	65	5.6	A				
	Right	15	0	6	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	32	-2
0	0	0
22	22	0
4	3	-1
4	5	1
13	12	-1
78	81	3
657	648	-9
114	118	4
44	43	-1
239	234	-5
16	15	-1

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	107	20	95	47.4	D	17.7	B	15.0	B
	Thru	45	8	52	41.9	D				
	Right	273	0	0	2.2	A				
Southbound	Left	69	15	91	41.9	D	34.5	C		
	Thru	99	18	87	42.5	D				
	Right	39	0	0	0.8	A				
Eastbound	Left	74	4	58	11.9	B	3.5	A		
	Right	571	0	0	2.5	A				
Westbound	Left	1,175	61	375	16.2	B	16.5	B		
	Right	366	37	187	17.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
111	107	-4
46	45	-1
283	273	-10
70	69	-1
99	99	0
38	39	1
71	74	3
576	571	-5
1,180	1,175	-5
368	366	-2

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	1	1	9	50.3	D	1.6	A	2.8	A
	Thru	417	1	70	1.5	A				
Southbound	Thru	1,788	1	76	2.8	A	2.8	A		
	Right	51	2	113	2.2	A				
Eastbound	Left	13	3	42	48.0	D	48.0	D		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	1	0
426	417	-9
1,794	1,788	-6
54	51	-3
14	13	-1
1	0	-1

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	65	17	84	54.0	D	37.1	D	25.6	C
	Thru	252	29	127	42.0	D				
	Right	69	0	21	3.4	A				
Southbound	Left	456	55	263	33.6	C	20.2	C		
	Thru	751	45	241	24.6	C				
	Right	580	0	40	4.2	A				
Eastbound	Left	88	30	118	67.1	E	31.5	C		
	Thru	135	17	100	36.2	D				
	Right	133	0	17	3.2	A				
Westbound	Left	47	12	58	58.5	E	38.4	D		
	Thru	119	22	101	47.5	D				
	Right	79	27	108	12.8	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
67	65	-2
253	252	-1
68	69	1
449	456	7
753	751	-2
593	580	-13
92	88	-4
143	135	-8
128	133	5
49	47	-2
118	119	1
81	79	-2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	73	12	71	41.4	D	22.1	C	17.7	B
	Thru	187	12	107	17.9	B				
	Right	30	0	3	1.1	A				
Southbound	Left	114	21	135	36.1	D	15.6	B		
	Thru	569	26	199	17.4	B				
	Right	246	0	23	2.1	A				
Eastbound	Left	159	19	114	28.6	C	18.2	B		
	Thru	272	32	235	22.3	C				
	Right	171	0	30	2.1	A				
Westbound	Left	8	2	48	57.1	E	20.8	C		
	Thru	47	7	62	30.4	C				
	Right	39	0	5	1.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
77	73	-4
195	187	-8
32	30	-2
105	114	9
574	569	-5
249	246	-3
159	159	0
278	272	-6
173	171	-2
8	8	0
47	47	0
35	39	4

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	1	25	32.4	C	15.4	B	17.3	B
	Thru	206	11	96	16.6	B				
	Right	30	0	14	2.7	A				
Southbound	Left	298	32	164	31.6	C	18.6	B		
	Thru	383	14	169	11.3	B				
	Right	64	0	4	1.5	A				
Eastbound	Left	9	2	23	38.7	D	29.3	C		
	Thru	0	-	-	-	A				
	Right	4	0	18	8.1	A				
Westbound	Left	27	6	57	40.4	D	11.5	B		
	Thru	1	0	6	24.4	C				
	Right	79	0	9	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	8	0
211	206	-5
30	30	0
296	298	2
394	383	-11
64	64	0
11	9	-2
1	0	-1
4	4	0
29	27	-2
1	1	0
81	79	-2

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	163	2	80	2.4	A	3.2	A	4.8	A
	Right	131	2	80	4.1	A				
Southbound	Thru	386	2	99	3.2	A	3.2	A		
Eastbound	Left	15	1	51	29.2	C	18.1	B		
	Right	56	3	57	15.1	B				
Westbound	Right	66	3	70	6.9	A	6.9	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
166	163	-3
126	131	5
401	386	-15
16	15	-1
57	56	-1
67	66	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	34	15	56	101.3	F	19.5	B	26.4	C
	Thru	223	32	171	50.8	D				
	Right	769	1	87	6.8	A				
Southbound	Left	28	6	43	52.9	D	21.1	C		
	Thru	211	22	163	26.5	C				
	Right	205	15	203	11.2	B				
Eastbound	Left	62	23	83	74.2	E	35.9	D		
	Thru	552	62	258	34.9	C				
	Right	52	0	6	1.2	A				
Westbound	Left	206	35	127	45.4	D	34.9	C		
	Thru	158	12	81	22.8	C				
	Right	10	0	11	10.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	34	-1
217	223	6
783	769	-14
29	28	-1
216	211	-5
214	205	-9
66	62	-4
566	552	-14
51	52	1
226	206	-20
160	158	-2
8	10	2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	75	13	150	11.9	B	7.1	A	9.0	A
	Thru	842	13	150	6.8	A				
	Right	29	20	178	4.7	A				
Southbound	Left	37	6	102	17.0	B	7.6	A		
	Thru	289	6	103	6.3	A				
	Right	109	12	133	7.8	A				
Eastbound	Left	182	16	159	21.8	C	20.2	C		
	Thru	5	16	162	22.9	C				
	Right	26	19	186	8.6	A				
Westbound	Left	4	0	20	14.6	B	13.3	B		
	Thru	3	0	20	17.4	B				
	Right	2	0	6	4.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
75	75	0
846	842	-4
28	29	1
37	37	0
313	289	-24
112	109	-3
182	182	0
6	5	-1
28	26	-2
4	4	0
2	3	1
2	2	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	17	2	33	26.0	C	5.5	A	5.8	A
	Thru	0	-	-	-	A				
	Right	85	0	0	1.4	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	5.6	A		
	Thru	496	5	122	6.2	A				
	Right	111	0	24	3.2	A				
Westbound	Left	159	10	74	15.8	B	6.0	A		
	Thru	298	1	39	0.8	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
17	17	0
0	0	0
84	85	1
0	0	0
0	0	0
0	0	0
0	0	0
499	496	-3
106	111	5
161	159	-2
301	298	-3
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	16	0	11	3.5	A	2.7	A	4.2	A
	Thru	94	0	11	2.6	A				
	Right	7	0	10	1.7	A				
Southbound	Left	3	0	9	2.8	A	2.0	A		
	Thru	196	0	9	2.1	A				
	Right	54	0	9	1.9	A				
Eastbound	Left	48	0	43	7.9	A	6.8	A		
	Thru	98	0	44	7.5	A				
	Right	99	0	44	5.7	A				
Westbound	Left	1	0	4	4.1	A	7.7	A		
	Thru	12	0	3	9.4	A				
	Right	4	0	0	3.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
16	16	0
90	94	4
6	7	1
2	3	1
202	196	-6
49	54	5
50	48	-2
98	98	0
98	99	1
1	1	0
15	12	-3
4	4	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	15	5	50	47.1	D	13.3	B	18.4	B
	Thru	81	6	53	18.1	B				
	Right	121	2	74	6.0	A				
Southbound	Left	17	4	40	44.3	D	17.4	B		
	Thru	135	16	138	18.7	B				
	Right	145	23	156	13.1	B				
Eastbound	Left	36	10	73	52.8	D	45.2	D		
	Thru	13	1	31	24.0	C				
	Right	0	-	-	-	A				
Westbound	Left	3	1	15	45.3	D	37.4	D		
	Thru	0	-	-	-	A				
	Right	1	0	12	13.4	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	15	0
83	81	-2
123	121	-2
16	17	1
136	135	-1
149	145	-4
32	36	4
12	13	1
1	0	-1
4	3	-1
1	0	-1
2	1	-1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	42	16	86	61.7	F	24.4	C	4.1	A
	Right	68	0	0	1.3	A				
Eastbound	Left	446	5	138	6.9	A	3.3	A		
	Thru	852	0	0	1.4	A				
Westbound	Thru	298	0	2	0.9	A	1.0	A		
	Right	73	0	2	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
42	42	0
71	68	-3
456	446	-10
868	852	-16
308	298	-10
77	73	-4

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	24	5	64	24.0	C	14.3	B	2.1	A
	Right	45	5	80	9.1	A				
Eastbound	Left	163	3	82	5.5	A	2.0	A		
	Thru	418	0	0	0.6	A				
Westbound	Thru	412	0	0	0.2	A	0.2	A		
	Right	21	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	24	-1
44	45	1
162	163	1
420	418	-2
418	412	-6
22	21	-1

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	21	4	50	35.5	E	19.4	C	2.4	A
	Right	27	0	44	6.8	A				
Eastbound	Thru	259	0	3	0.4	A	0.8	A		
	Right	182	0	1	1.3	A				
Westbound	Left	292	3	73	4.7	A	2.3	A		
	Thru	413	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
22	21	-1
26	27	1
263	259	-4
183	182	-1
298	292	-6
418	413	-5

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	0	15	13.5	B	9.6	A	11.1	B
	Thru	63	4	56	9.1	A				
Southbound	Thru	438	17	148	11.4	B	11.3	B		
	Right	4	0	24	4.4	A				
Eastbound	Left	7	1	40	23.9	C	11.1	B		
	Right	94	3	63	10.1	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
9	8	-1
63	63	0
448	438	-10
6	4	-2
7	7	0
98	94	-4

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	0	9	1.3	A	0.8	A	2.8	A
	Thru	35	0	17	0.3	A				
	Right	129	0	16	0.8	A				
Southbound	Left	361	1	84	3.4	A	2.7	A		
	Thru	113	0	19	1.1	A				
	Right	58	0	19	1.1	A				
Eastbound	Left	4	0	38	26.6	D	26.6	D		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	9	2	54	24.1	C	11.1	B		
	Thru	0	-	-	-	A				
	Right	33	1	47	7.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
29	28	-1
34	35	1
131	129	-2
380	361	-19
111	113	2
56	58	2
3	4	1
0	0	0
2	0	-2
10	9	-1
0	0	0
35	33	-2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.5	A	1.5	A
	Thru	181	0	0	0.4	A				
	Right	109	0	0	0.7	A				
Southbound	Left	108	1	46	3.0	A	2.6	A		
	Thru	16	0	0	0.0	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	1	45	21.4	C	11.4	B		
	Thru	0	-	-	-	A				
	Right	9	1	59	6.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
185	181	-4
112	109	-3
108	108	0
14	16	2
0	0	0
0	0	0
0	0	0
0	0	0
6	4	-2
0	0	0
9	9	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	294	0	0	0.3	A	0.4	A	0.5	A
	Right	103	0	0	0.7	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	20	0	0	0.1	A				
Eastbound	Left	4	0	36	10.1	B	10.1	B		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
298	294	-4
104	103	-1
1	0	-1
19	20	1
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	3	0	24	34.0	D	10.2	B	3.4	A
	Right	21	1	69	6.8	A				
Eastbound	Left	390	8	169	6.9	A	4.2	A		
	Thru	502	5	140	2.2	A				
Westbound	Thru	352	0	0	0.8	A	0.8	A		
	Right	10	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	3	0
22	21	-1
394	390	-4
516	502	-14
365	352	-13
9	10	1

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	6	1	40	31.0	D	17.5	C	1.2	A
	Right	8	1	46	7.4	A				
Eastbound	Left	67	3	57	8.4	A	2.4	A		
	Thru	219	0	0	0.5	A				
Westbound	Thru	764	0	0	0.5	A	0.5	A		
	Right	86	0	17	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	6	-1
9	8	-1
65	67	2
223	219	-4
773	764	-9
83	86	3

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.9	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	12	2	55	23.0	C	14.4	B		
	Thru	0	-	-	-	A				
	Right	13	1	57	6.4	A				
Eastbound	Left	111	4	82	8.5	A	2.1	A		
	Thru	314	0	0	0.2	A				
	Right	78	0	0	0.8	A				
Westbound	Left	46	1	39	4.8	A	1.2	A		
	Thru	349	0	8	0.3	A				
	Right	179	0	8	2.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
1	0	-1
12	12	0
0	0	0
14	13	-1
111	111	0
326	314	-12
82	78	-4
47	46	-1
360	349	-11
181	179	-2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	69	8	83	20.8	C	12.0	B	4.2	A
	Thru	2	4	69	23.0	C				
	Right	183	8	95	8.5	A				
Southbound	Left	33	10	67	54.7	F	32.2	D		
	Thru	3	6	63	37.6	E				
	Right	24	0	5	0.6	A				
Eastbound	Left	29	2	40	15.0	B	2.6	A		
	Thru	172	0	0	0.8	A				
	Right	25	0	0	0.4	A				
Westbound	Left	82	1	36	5.1	A	0.9	A		
	Thru	761	0	1	0.4	A				
	Right	166	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
71	69	-2
2	2	0
184	183	-1
32	33	1
2	3	1
24	24	0
25	29	4
181	172	-9
24	25	1
84	82	-2
761	761	0
168	166	-2

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	5.3	A	1.6	A
	Thru	0	-	-	-	A				
	Right	4	0	46	5.3	A				
Southbound	Left	57	4	68	14.0	B	7.3	A		
	Thru	0	-	-	-	A				
	Right	67	0	26	1.6	A				
Eastbound	Left	27	0	22	3.7	A	0.4	A		
	Thru	283	0	0	0.0	A				
	Right	15	0	0	0.4	A				
Westbound	Left	7	0	10	3.1	A	1.0	A		
	Thru	503	0	0	1.0	A				
	Right	36	0	8	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
4	4	0
54	57	3
1	0	-1
70	67	-3
31	27	-4
293	283	-10
15	15	0
7	7	0
516	503	-13
36	36	0

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	191	31	123	46.4	D	23.4	C	45.5	D
	Thru	81	31	123	81.5	F				
	Right	441	0	0	2.7	A				
Southbound	Left	389	61	218	59.7	E	28.2	C		
	Thru	76	61	219	66.8	E				
	Right	577	0	0	1.9	A				
Eastbound	Left	681	17	159	25.2	C	27.5	C		
	Right	438	48	208	31.1	C				
Westbound	Left	1,403	308	928	84.0	F	69.3	E		
	Right	856	328	959	45.0	D				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
195	191	-4
79	81	2
459	441	-18
395	389	-6
75	76	1
578	577	-1
691	681	-10
437	438	1
1,419	1,403	-16
873	856	-17

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	1	22	28.3	C	22.1	C	24.8	C
	Thru	240	24	158	25.1	C				
	Right	48	0	5	6.0	A				
Southbound	Left	335	55	198	47.7	D	21.7	C		
	Thru	598	35	239	18.9	B				
	Right	979	11	343	14.5	B				
Eastbound	Left	348	73	272	46.2	D	44.8	D		
	Thru	30	6	40	40.8	D				
	Right	8	0	3	0.8	A				
Westbound	Left	26	7	50	53.2	D	18.3	B		
	Thru	25	6	41	52.9	D				
	Right	104	0	23	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	8	0
249	240	-9
47	48	1
342	335	-7
606	598	-8
983	979	-4
356	348	-8
32	30	-2
9	8	-1
27	26	-1
22	25	3
106	104	-2

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	289	3	66	3.6	A	3.6	A	4.9	A
	Right	52	1	50	3.4	A				
Southbound	Left	61	4	63	14.4	B	5.5	A		
	Thru	543	6	110	4.5	A				
Westbound	Left	6	1	19	24.1	C	13.9	B		
	Right	7	0	41	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
296	289	-7
54	52	-2
62	61	-1
551	543	-8
7	6	-1
8	7	-1

Note: Results are the average of ten (10) simulation runs

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	31	4	56	25.0	C	15.4	C	1.1	A
	Right	20	0	6	0.7	A				
Eastbound	Thru	819	0	1	0.5	A	0.6	A		
	Right	39	0	0	0.9	A				
Westbound	Left	11	0	21	8.8	A	0.6	A		
	Thru	628	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	31	-1
19	20	1
824	819	-5
40	39	-1
10	11	1
708	628	-80

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	590	0	0	0.3	A	0.6	A	0.6	A
	-	289	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
596	590	-6
286	289	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.7	A	3.3	A
	Right	21	1	71	7.7	A				
Eastbound	Left	40	1	31	5.3	A	1.5	A		
	Thru	278	0	0	0.9	A				
Westbound	Thru	277	0	0	5.1	A	5.1	A		
	Right	4	0	0	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	21	-1
42	40	-2
279	278	-1
308	277	-31
5	4	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	617	0	0	0.3	A	0.3	A	2.0	A
	Thru	880	0	19	0.7	A				
Southbound	Right	449	0	19	2.0	A	1.2	A		
	Left	44	4	49	24.5	C				
Eastbound	Left	44	4	49	24.5	C	7.4	A		
	Right	359	0	2	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
617	617	0
931	880	-51
496	449	-47
45	44	-1
361	359	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	130	22	92	42.6	D	24.2	C	25.3	C
	Thru	58	9	83	29.4	C				
	Right	128	0	10	3.2	A				
Southbound	Left	109	47	197	55.7	E	44.2	D		
	Thru	46	46	196	36.2	D				
	Right	33	35	203	17.5	B				
Eastbound	Left	55	11	59	49.4	D	20.2	C		
	Thru	519	44	206	26.1	C				
	Right	259	0	26	2.2	A				
Westbound	Left	149	27	103	49.1	D	26.8	C		
	Thru	475	24	141	20.3	C				
	Right	22	21	143	16.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
127	130	3
58	58	0
133	128	-5
109	109	0
48	46	-2
35	33	-2
53	55	2
538	519	-19
253	259	6
175	149	-26
556	475	-81
27	22	-5

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	629	296	699	78.5	E	66.9	E	80.3	F
	Thru	54	7	62	31.4	C				
	Right	101	4	66	14.0	B				
Southbound	Left	35	5	58	28.7	C	48.8	D		
	Thru	87	36	150	70.4	E				
	Right	434	119	534	46.1	D				
Eastbound	Left	287	58	183	57.1	E	39.4	D		
	Thru	859	89	339	41.4	D				
	Right	244	117	379	11.6	B				
Westbound	Left	65	20	83	123.5	F	176.1	F		
	Thru	799	608	746	183.5	F				
	Right	21	1	51	57.4	E				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
643	629	-14
52	54	2
96	101	5
38	35	-3
87	87	0
439	434	-5
275	287	12
875	859	-16
255	244	-11
93	65	-28
1,164	799	-365
26	21	-5

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	71	9	60	29.4	C	12.2	B	10.9	B
	Right	454	14	219	9.5	A				
Eastbound	Left	378	22	123	17.0	B	8.6	A		
	Thru	500	22	123	2.3	A				
Westbound	Thru	1,035	36	286	13.0	B	11.9	B		
	Right	99	0	0	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	71	-1
455	454	-1
384	378	-6
498	500	2
1,122	1,035	-87
108	99	-9

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	338	20	171	15.4	B	9.8	A	13.3	B
	Thru	313	3	60	3.8	A				
	Right	7	3	59	2.4	A				
Southbound	Left	0	-	-	-	A	14.2	B		
	Thru	926	38	299	15.1	B				
	Right	62	0	0	1.3	A				
Eastbound	Left	275	31	145	32.3	C	15.5	B		
	Thru	9	31	149	31.0	C				
	Right	406	0	31	3.8	A				
Westbound	Left	1	0	11	5.9	A	4.7	A		
	Thru	0	-	-	-	A				
	Right	4	0	33	4.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
344	338	-6
313	313	0
5	7	2
1	0	-1
1,026	926	-100
70	62	-8
286	275	-11
9	9	0
400	406	6
1	1	0
0	0	0
3	4	1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	241	253	389	261.4	F	199.7	F	135.6	F
	Thru	30	2	37	72.0	E				
	Right	81	2	83	63.4	E				
Southbound	Left	141	141	446	80.2	F	165.8	F		
	Thru	28	7	53	92.1	F				
	Right	273	340	538	217.6	F				
Eastbound	Left	240	38	159	46.8	D	30.0	C		
	Thru	369	37	223	29.9	C				
	Right	388	38	372	19.9	B				
Westbound	Left	111	24	102	96.1	F	245.8	F		
	Thru	403	404	573	347.0	F				
	Right	115	5	88	35.9	D				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
322	241	-81
33	30	-3
103	81	-22
165	141	-24
32	28	-4
349	273	-76
235	240	5
373	369	-4
401	388	-13
163	111	-52
611	403	-208
158	115	-43

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	126	18	105	30.1	C	22.6	C	15.0	B
	Thru	12	18	104	27.1	C				
	Right	49	0	6	2.0	A				
Southbound	Left	50	8	87	28.8	C	10.5	B		
	Thru	6	8	90	33.0	C				
	Right	231	2	63	6.0	A				
Eastbound	Left	128	14	78	26.9	C	13.4	B		
	Thru	335	12	88	12.1	B				
	Right	106	0	23	1.3	A				
Westbound	Left	65	11	88	33.1	C	15.9	B		
	Thru	778	30	233	15.6	B				
	Right	67	0	20	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
127	126	-1
12	12	0
49	49	0
50	50	0
7	6	-1
233	231	-2
126	128	2
342	335	-7
102	106	4
67	65	-2
870	778	-92
72	67	-5

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	565	82	298	74.1	E	29.6	C	41.2	D
	Thru	176	19	98	32.2	C				
	Right	1,087	0	3	6.0	A				
Southbound	Left	153	42	184	49.6	D	45.8	D		
	Thru	59	14	69	86.9	F				
	Right	67	0	0	1.0	A				
Eastbound	Left	22	2	29	24.9	C	49.9	D		
	Right	294	76	189	51.8	D				
Westbound	Left	999	286	784	61.1	E	55.3	E		
	Right	211	15	117	27.5	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
610	565	-45
181	176	-5
1,148	1,087	-61
155	153	-2
61	59	-2
67	67	0
21	22	1
341	294	-47
1,180	999	-181
245	211	-34

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	3.4	A	16.9	B
	Thru	1,777	8	161	3.4	A				
Southbound	Thru	1,149	137	331	31.9	C	32.4	C		
	Right	177	121	336	35.7	D				
Eastbound	Left	78	26	121	50.8	D	55.2	E		
	Right	8	31	149	97.6	F				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
1,857	1,777	-80
1,359	1,149	-210
223	177	-46
81	78	-3
11	8	-3

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	170	25	116	35.9	D	18.8	B	46.1	D
	Thru	952	39	273	16.9	B				
	Right	67	0	6	2.3	A				
Southbound	Left	105	26	94	55.8	E	62.4	E		
	Thru	797	152	326	76.3	E				
	Right	210	0	21	13.3	B				
Eastbound	Left	410	186	573	83.8	F	74.1	E		
	Thru	186	20	105	31.8	C				
	Right	128	98	220	104.6	F				
Westbound	Left	135	38	130	60.2	E	38.4	D		
	Thru	220	59	215	41.1	D				
	Right	419	65	222	29.9	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
183	170	-13
993	952	-41
68	67	-1
117	105	-12
975	797	-178
279	210	-69
430	410	-20
191	186	-5
160	128	-32
150	135	-15
247	220	-27
437	419	-18

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	224	76	209	137.7	F	48.5	D	62.3	E
	Thru	722	56	254	21.4	C				
	Right	9	0	0	1.7	A				
Southbound	Left	46	9	90	38.3	D	62.5	E		
	Thru	648	67	217	30.9	C				
	Right	316	215	350	130.9	F				
Eastbound	Left	340	60	254	46.0	D	34.6	C		
	Thru	124	24	159	34.8	C				
	Right	119	0	20	1.7	A				
Westbound	Left	31	14	78	159.5	F	153.6	F		
	Thru	165	280	515	223.7	F				
	Right	122	42	123	57.3	E				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
239	224	-15
739	722	-17
11	9	-2
61	46	-15
750	648	-102
475	316	-159
371	340	-31
138	124	-14
132	119	-13
38	31	-7
219	165	-54
133	122	-11

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	18	6	39	64.3	E	25.1	C	19.0	B
	Thru	437	27	153	24.7	C				
	Right	22	0	6	2.1	A				
Southbound	Left	182	26	131	35.9	D	11.5	B		
	Thru	418	7	85	4.9	A				
	Right	199	0	23	2.8	A				
Eastbound	Left	284	39	195	35.9	D	32.6	C		
	Thru	4	1	31	28.5	C				
	Right	38	1	35	8.0	A				
Westbound	Left	48	15	77	51.3	D	14.2	B		
	Thru	5	5	30	72.0	E				
	Right	239	3	41	5.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
19	18	-1
447	437	-10
23	22	-1
205	182	-23
482	418	-64
234	199	-35
291	284	-7
5	4	-1
36	38	2
50	48	-2
6	5	-1
251	239	-12

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	251	2	71	2.5	A	2.6	A	5.6	A
	Right	89	2	71	3.0	A				
Southbound	Thru	480	2	69	2.1	A	2.1	A		
Eastbound	Left	17	4	58	45.2	D	32.1	C		
	Right	54	7	72	27.9	C				
Westbound	Right	207	11	105	9.3	A	9.3	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
264	251	-13
91	89	-2
543	480	-63
17	17	0
55	54	-1
208	207	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	69	25	90	99.1	F	40.7	D	64.3	E
	Thru	212	25	120	52.8	D				
	Right	340	44	77	21.3	C				
Southbound	Left	28	7	40	66.3	E	22.6	C		
	Thru	237	28	201	29.3	C				
	Right	268	19	212	12.1	B				
Eastbound	Left	103	35	117	84.7	F	51.9	D		
	Thru	228	45	158	57.8	E				
	Right	94	0	11	1.4	A				
Westbound	Left	714	599	1,232	133.7	F	95.9	F		
	Thru	596	59	226	53.9	D				
	Right	27	1	26	22.8	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
70	69	-1
223	212	-11
360	340	-20
31	28	-3
263	237	-26
303	268	-35
106	103	-3
242	228	-14
92	94	2
822	714	-108
660	596	-64
26	27	1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	35	17	128	19.5	B	8.5	A	10.5	B
	Thru	510	19	131	7.8	A				
	Right	5	25	159	3.9	A				
Southbound	Left	9	17	223	10.9	B	9.4	A		
	Thru	863	18	224	8.9	A				
	Right	243	25	255	10.9	B				
Eastbound	Left	153	18	141	25.0	C	21.7	C		
	Thru	7	19	142	21.3	C				
	Right	46	22	168	10.7	B				
Westbound	Left	27	3	47	17.4	B	12.0	B		
	Thru	9	3	47	16.5	B				
	Right	19	1	13	2.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	35	-3
525	510	-15
5	5	0
11	9	-2
966	863	-103
270	243	-27
159	153	-6
7	7	0
48	46	-2
28	27	-1
10	9	-1
19	19	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	47	7	65	28.5	C	7.7	A	5.2	A
	Thru	0	-	-	-	A				
	Right	159	0	0	1.6	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	5.9	A		
	Thru	299	4	87	6.8	A				
	Right	72	0	19	2.2	A				
Westbound	Left	131	10	75	17.8	B	4.2	A		
	Thru	723	3	68	1.8	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
54	47	-7
0	0	0
173	159	-14
0	0	0
0	0	0
1	0	-1
0	0	0
311	299	-12
77	72	-5
135	131	-4
766	723	-43
1	0	-1

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	44	0	3	4.3	A	2.6	A	4.7	A
	Thru	149	0	3	2.2	A				
	Right	1	0	2	0.4	A				
Southbound	Left	0	-	-	-	A	4.3	A		
	Thru	169	0	15	3.6	A				
	Right	60	1	15	6.4	A				
Eastbound	Left	41	0	20	6.0	A	5.6	A		
	Thru	20	0	20	9.5	A				
	Right	66	0	20	4.2	A				
Westbound	Left	17	0	37	7.3	A	7.9	A		
	Thru	85	0	36	8.8	A				
	Right	14	0	1	3.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
46	44	-2
159	149	-10
1	1	0
0	0	0
182	169	-13
56	60	4
49	41	-8
22	20	-2
75	66	-9
15	17	2
95	85	-10
13	14	1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	21	4	52	29.1	C	17.4	B	28.2	C
	Thru	91	6	59	16.6	B				
	Right	12	0	43	3.6	A				
Southbound	Left	5	1	16	30.8	C	30.4	C		
	Thru	141	22	133	40.8	D				
	Right	99	30	150	15.6	B				
Eastbound	Left	81	12	116	28.2	C	27.3	C		
	Thru	0	-	-	-	A				
	Right	4	0	3	7.4	A				
Westbound	Left	95	12	79	40.3	D	34.6	C		
	Thru	24	5	51	23.2	C				
	Right	21	5	51	21.7	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	21	0
100	91	-9
16	12	-4
5	5	0
159	141	-18
108	99	-9
91	81	-10
1	0	-1
4	4	0
101	95	-6
23	24	1
21	21	0

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	39	599	779	970.9	F	301.9	F	71.5	F
	Right	239	14	33	192.8	F				
Eastbound	Left	192	157	370	141.1	F	62.7	F		
	Thru	333	0	0	17.5	C				
Westbound	Left	2	0	2	12.2	B	11.6	B		
	Thru	942	21	120	12.0	B				
	Right	47	21	123	4.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
135	39	-96
339	239	-100
209	192	-17
356	333	-23
2	2	0
964	942	-22
49	47	-2

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	18	12	107	32.6	D	15.3	C	2.4	A
	Right	145	16	123	13.1	B				
Eastbound	Left	53	1	44	7.0	A	1.0	A		
	Thru	407	0	0	0.2	A				
Westbound	Thru	711	0	0	0.3	A	0.3	A		
	Right	9	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	18	0
146	145	-1
55	53	-2
429	407	-22
757	711	-46
10	9	-1

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	235	135	340	79.8	F	45.9	E	16.8	C
	Right	267	8	124	16.0	C				
Eastbound	Thru	402	0	30	0.7	A	0.7	A		
	Right	22	0	0	0.6	A				
Westbound	Left	43	0	32	6.8	A	2.0	A		
	Thru	484	0	0	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
245	235	-10
272	267	-5
422	402	-20
24	22	-2
42	43	1
521	484	-37

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	77	0	38	9.4	A	8.3	A	9.1	A
	Thru	392	15	127	8.1	A				
Southbound	Thru	73	3	48	12.9	B	11.5	B		
	Right	16	0	45	5.1	A				
Eastbound	Left	10	1	43	23.3	C	16.9	B		
	Right	10	0	24	10.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	77	-5
398	392	-6
77	73	-4
16	16	0
14	10	-4
13	10	-3

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.7	A	8.5	A
	Thru	107	0	10	0.7	A				
	Right	14	0	10	0.6	A				
Southbound	Left	36	0	3	0.9	A	0.6	A		
	Thru	37	0	4	0.3	A				
	Right	10	0	4	0.8	A				
Eastbound	Left	48	7	89	12.3	B	9.5	A		
	Thru	1	6	84	14.2	B				
	Right	137	7	88	8.5	A				
Westbound	Left	110	6	79	12.1	B	11.8	B		
	Thru	0	-	-	-	A				
	Right	315	13	117	11.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
109	107	-2
12	14	2
41	36	-5
40	37	-3
9	10	1
51	48	-3
1	1	0
135	137	2
108	110	2
0	0	0
319	315	-4

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.2	A	3.6	A
	Thru	22	0	0	0.1	A				
	Right	6	0	0	0.4	A				
Southbound	Left	15	0	0	0.5	A	0.3	A		
	Thru	269	0	0	0.3	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	77	8	90	11.1	B	9.5	A		
	Thru	0	-	-	-	A				
	Right	101	10	103	8.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
24	22	-2
7	6	-1
13	15	2
270	269	-1
0	0	0
1	0	-1
0	0	0
1	0	-1
81	77	-4
0	0	0
99	101	2

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	24	0	0	0.1	A	0.2	A	2.5	A
	Right	5	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	1.2	A		
	Thru	345	0	1	1.2	A				
Eastbound	Left	66	3	62	10.2	B	10.0	A		
	Right	3	3	69	5.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
28	24	-4
7	5	-2
0	0	0
352	345	-7
69	66	-3
3	3	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	46	8	72	29.3	D	17.3	C	5.9	A
	Right	366	47	219	15.7	C				
Eastbound	Left	21	0	27	5.7	A	1.2	A		
	Thru	348	0	5	1.0	A				
Westbound	Thru	633	0	4	1.3	A	1.3	A		
	Right	8	0	4	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
48	46	-2
372	366	-6
28	21	-7
461	348	-113
643	633	-10
7	8	1

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	89	14	109	23.2	C	18.2	C	3.1	A
	Right	76	15	115	12.3	B				
Eastbound	Left	11	0	13	3.5	A	0.9	A		
	Thru	656	0	0	0.9	A				
Westbound	Thru	372	0	0	0.5	A	0.5	A		
	Right	14	0	1	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
90	89	-1
77	76	-1
12	11	-1
682	656	-26
404	372	-32
16	14	-2

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	89	10	86	20.8	C	15.5	C	4.9	A
	Thru	0	-	-	-	A				
	Right	56	2	57	7.0	A				
Southbound	Left	134	15	115	19.7	C	14.2	B		
	Thru	0	-	-	-	A				
	Right	118	6	87	8.0	A				
Eastbound	Left	18	0	19	3.9	A	0.4	A		
	Thru	376	0	0	0.2	A				
	Right	2	0	0	0.6	A				
Westbound	Left	0	-	-	-	A	0.4	A		
	Thru	436	0	0	0.3	A				
	Right	25	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	89	0
1	0	-1
55	56	1
135	134	-1
0	0	0
120	118	-2
22	18	-4
484	376	-108
3	2	-1
0	0	0
441	436	-5
25	25	0

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	27	414	557	979.8	F	335.9	F	104.3	F
	Thru	0	-	-	-	A				
	Right	138	138	355	209.9	F				
Southbound	Left	48	542	690	940.0	F	516.0	F		
	Thru	0	-	-	-	A				
	Right	66	6	29	207.7	F				
Eastbound	Left	10	0	13	4.7	A	25.3	D		
	Thru	667	46	302	27.4	D				
	Right	59	46	301	4.9	A				
Westbound	Left	119	151	354	172.3	F	47.4	E		
	Thru	293	0	0	5.9	A				
	Right	63	0	0	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
45	27	-18
0	0	0
166	138	-28
102	48	-54
0	0	0
81	66	-15
11	10	-1
699	667	-32
62	59	-3
127	119	-8
294	293	-1
65	63	-2

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	41	17.0	C	11.2	B	1.5	A
	Thru	0	-	-	-	A				
	Right	4	0	47	5.4	A				
Southbound	Left	64	6	78	15.5	C	9.0	A		
	Thru	0	-	-	-	A				
	Right	53	0	18	1.2	A				
Eastbound	Left	50	0	26	2.4	A	0.3	A		
	Thru	502	0	0	0.1	A				
	Right	11	0	0	0.5	A				
Westbound	Left	6	0	10	6.1	A	0.9	A		
	Thru	403	0	0	0.7	A				
	Right	22	0	5	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
0	0	0
5	4	-1
63	64	1
0	0	0
55	53	-2
61	50	-11
601	502	-99
13	11	-2
5	6	1
406	403	-3
23	22	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	312	42	192	43.5	D	21.9	C	40.8	D
	Thru	148	42	192	74.5	E				
	Right	1,306	0	0	10.8	B				
Southbound	Left	982	715	1,534	90.8	F	60.0	E		
	Thru	53	701	1,514	83.0	F				
	Right	1,578	41	169	40.1	D				
Eastbound	Left	1,159	63	341	37.8	D	36.5	D		
	Right	249	24	138	30.2	C				
Westbound	Left	743	39	218	39.1	D	32.6	C		
	Right	556	53	231	24.0	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
351	312	-39
168	148	-20
1,467	1,306	-161
1,050	982	-68
58	53	-5
1,650	1,578	-72
1,177	1,159	-18
245	249	4
739	743	4
561	556	-5

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	3	1	12	45.0	D	51.5	D	42.6	D
	Thru	574	168	526	52.1	D				
	Right	35	0	3	41.2	D				
Southbound	Left	192	53	161	76.8	E	43.4	D		
	Thru	424	58	246	40.9	D				
	Right	425	89	380	30.7	C				
Eastbound	Left	789	346	601	48.5	D	47.8	D		
	Thru	41	7	47	46.1	D				
	Right	11	0	6	3.1	A				
Westbound	Left	60	26	115	76.9	E	20.8	C		
	Thru	55	18	68	84.5	F				
	Right	374	1	48	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	3	-2
673	574	-99
37	35	-2
192	192	0
423	424	1
426	425	-1
910	789	-121
47	41	-6
10	11	1
59	60	1
55	55	0
375	374	-1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	589	11	129	8.1	A	8.1	A	9.2	A
	Right	9	7	114	8.0	A				
Southbound	Left	14	2	36	24.3	C	8.2	A		
	Thru	368	7	110	7.6	A				
Westbound	Left	65	8	74	24.9	C	20.9	C		
	Right	27	2	59	11.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
689	589	-100
10	9	-1
15	14	-1
369	368	-1
65	65	0
26	27	1

Note: Results are the average of ten (10) simulation runs

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	59	6	74	19.8	C	10.7	B	1.4	A
	Right	54	0	10	0.7	A				
Eastbound	Thru	510	0	0	0.3	A	0.4	A		
	Right	55	0	0	0.7	A				
Westbound	Left	16	0	24	5.8	A	0.5	A		
	Thru	426	0	0	0.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
61	59	-2
52	54	2
516	510	-6
55	55	0
17	16	-1
478	426	-52

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	720	0	0	0.9	A	1.1	A	1.1	A
	-	548	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
724	720	-4
548	548	0

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	6.6	A	1.8	A
	Right	20	1	71	6.6	A				
Eastbound	Left	30	0	20	3.3	A	1.1	A		
	Thru	174	0	0	0.7	A				
Westbound	Thru	171	0	0	2.1	A	2.1	A		
	Right	10	0	0	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
21	20	-1
31	30	-1
175	174	-1
185	171	-14
13	10	-3

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	440	0	0	0.2	A	0.2	A	2.0	A
Southbound	Thru	491	0	11	0.3	A	0.6	A		
	Right	274	0	11	1.2	A				
Eastbound	Left	69	4	59	17.6	C	7.3	A		
	Right	290	0	2	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
442	440	-2
510	491	-19
290	274	-16
70	69	-1
290	290	0

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	152	37	136	54.2	D	28.6	C	45.2	D
	Thru	105	26	136	42.5	D				
	Right	216	0	15	3.8	A				
Southbound	Left	137	280	481	192.9	F	172.8	F		
	Thru	72	281	481	154.2	F				
	Right	35	272	484	132.1	F				
Eastbound	Left	70	16	69	59.2	E	29.1	C		
	Thru	313	38	153	38.1	D				
	Right	182	0	21	2.0	A				
Westbound	Left	284	25	142	25.4	C	19.2	B		
	Thru	254	10	81	12.8	B				
	Right	12	7	84	9.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
151	152	1
105	105	0
222	216	-6
149	137	-12
80	72	-8
38	35	-3
69	70	1
322	313	-9
177	182	5
346	284	-62
306	254	-52
15	12	-3

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



Lindau Ln & IKEA Way

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	745	411	820	89.4	F	72.8	E	108.0	F	760	745	-15
	Thru	111	12	136	32.6	C					110	111	1
	Right	162	7	93	24.1	C					158	162	4
Southbound	Left	81	1	15	50.5	D	99.8	F			107	81	-26
	Thru	141	48	206	104.0	F					187	141	-46
	Right	597	540	853	105.4	F					823	597	-226
Eastbound	Left	495	85	265	59.2	E	79.1	E			514	495	-19
	Thru	994	488	1,539	99.0	F					1,101	994	-107
	Right	493	525	1,573	59.0	E					549	493	-56
Westbound	Left	91	28	109	150.7	F	257.4	F			154	91	-63
	Thru	536	692	762	287.2	F					917	536	-381
	Right	41	3	74	104.8	F					76	41	-35

Killebrew Dr & 20th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Southbound	Left	95	29	190	70.1	E	44.1	D	23.4	C	93	95	2
	Right	696	206	708	40.6	D					701	696	-5
Eastbound	Left	564	86	283	41.1	D	21.9	C			577	564	-13
	Thru	696	85	282	6.3	A					695	696	1
Westbound	Thru	1,097	37	278	13.5	B	12.0	B			1,137	1,097	-40
	Right	164	0	0	1.7	A					171	164	-7

E Old Shakopee Rd & TH 77 N Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	247	7	102	9.1	A	6.5	A	10.3	B	253	247	-6
	Thru	255	2	48	3.9	A					254	255	1
	Right	6	2	48	4.1	A					5	6	1
Southbound	Left	2	0	5	8.0	A	9.2	A			3	2	-1
	Thru	486	13	148	10.1	B					524	486	-38
	Right	45	0	0	0.3	A					48	45	-3
Eastbound	Left	287	24	116	25.7	C	14.6	B			292	287	-5
	Thru	0	-	-	-	A					0	0	0
	Right	276	0	11	3.1	A					274	276	2
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!			1	0	-1
	Thru	0	-	-	-	A					1	0	-1
	Right	0	-	-	-	A					1	0	-1

Lindau Ln & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	187	247	400	333.9	F	209.7	F	135.4	F	236	187	-49
	Thru	44	18	127	95.5	F					50	44	-6
	Right	122	8	113	60.5	E					143	122	-21
Southbound	Left	119	36	240	112.7	F	264.6	F			208	119	-89
	Thru	24	9	56	148.8	F					43	24	-19
	Right	215	456	686	361.6	F					423	215	-208
Eastbound	Left	367	48	218	39.8	D	18.6	B			392	367	-25
	Thru	441	14	93	9.8	A					479	441	-38
	Right	438	16	191	9.7	A					495	438	-57
Westbound	Left	181	45	160	108.5	F	242.7	F			262	181	-81
	Thru	301	412	591	456.8	F					487	301	-186
	Right	198	99	261	40.0	D					274	198	-76

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



Killebrew Dr & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	124	41	194	61.4	E	41.5	D	31.3	C	122	124	2
	Thru	4	41	194	51.1	D					4	4	0
	Right	82	0	14	10.9	B					84	82	-2
Southbound	Left	226	141	670	54.8	D	37.4	D			229	226	-3
	Thru	6	135	654	65.6	E					6	6	0
	Right	610	43	450	30.7	C					615	610	-5
Eastbound	Left	275	51	174	54.2	D	26.7	C			274	275	1
	Thru	376	19	130	16.1	B					377	376	-1
	Right	140	0	17	1.1	A					137	140	3
Westbound	Left	49	14	82	54.7	D	25.7	C	51	49	-2		
	Thru	538	37	190	26.4	C			571	538	-33		
	Right	83	1	45	3.9	A			90	83	-7		

24th Ave & I-494 Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	516	44	244	27.7	C	14.5	B	59.6	E	551	516	-35
	Thru	113	9	73	21.6	C					120	113	-7
	Right	1,082	0	3	7.5	A					1,171	1,082	-89
Southbound	Left	70	21	107	56.7	E	61.7	E			74	70	-4
	Thru	68	19	87	100.0	F					71	68	-3
	Right	37	0	0	0.8	A					38	37	-1
Eastbound	Left	17	1	28	42.0	D	97.1	F			19	17	-2
	Right	489	336	567	99.0	F					609	489	-120
Westbound	Left	1,064	557	1,131	114.4	F	111.4	F			1,433	1,064	-369
	Right	55	3	78	53.8	D			75	55	-20		

24th Ave & 79th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	1	0	11	33.9	C	4.7	A	24.9	C	1	1	0
	Thru	1,583	17	272	4.7	A					1,707	1,583	-124
Southbound	Thru	1,299	223	504	40.2	D	40.8	D			1,713	1,299	-414
	Right	278	233	532	43.7	D					393	278	-115
Eastbound	Left	137	51	187	55.6	E	67.3	E			135	137	2
	Right	23	67	217	137.0	F					26	23	-3

American Blvd & 24th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	178	31	135	48.8	D	25.4	C	62.0	E	197	178	-19
	Thru	1,087	64	433	22.9	C					1,188	1,087	-101
	Right	69	0	12	3.8	A					69	69	0
Southbound	Left	101	29	106	64.3	E	70.7	E			128	101	-27
	Thru	973	185	419	83.5	F					1,306	973	-333
	Right	212	0	25	14.8	B					304	212	-92
Eastbound	Left	413	384	814	141.2	F	128.3	F			431	413	-18
	Thru	89	11	75	38.2	D					91	89	-2
	Right	145	154	291	146.6	F					170	145	-25
Westbound	Left	76	21	83	62.1	E	41.3	D	84	76	-8		
	Thru	82	18	79	43.5	D			84	82	-2		
	Right	85	22	86	20.5	C			90	85	-5		

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	255	71	241	116.9	F	40.6	D	52.9	D
	Thru	884	55	307	19.5	B				
	Right	20	0	2	1.4	A				
Southbound	Left	62	21	120	60.3	E	76.5	E		
	Thru	663	281	533	49.4	D				
	Right	418	251	465	121.9	F				
Eastbound	Left	386	60	234	39.3	D	27.4	C		
	Thru	121	18	120	27.3	C				
	Right	178	0	26	1.6	A				
Westbound	Left	14	6	57	74.6	E	79.2	E		
	Thru	88	42	150	138.5	F				
	Right	72	0	23	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
274	255	-19
924	884	-40
22	20	-2
77	62	-15
836	663	-173
648	418	-230
462	386	-76
151	121	-30
217	178	-39
14	14	0
103	88	-15
68	72	4

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	135	24	107	46.6	D	23.0	C	22.1	C
	Thru	567	26	180	18.4	B				
	Right	25	0	6	1.8	A				
Southbound	Left	158	30	138	48.9	D	15.1	B		
	Thru	329	11	123	9.1	A				
	Right	365	1	62	5.8	A				
Eastbound	Left	411	77	379	43.8	D	36.3	D		
	Thru	4	4	72	42.6	D				
	Right	140	5	79	14.1	B				
Westbound	Left	29	10	64	59.7	E	11.3	B		
	Thru	4	1	19	66.1	E				
	Right	201	0	31	3.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
137	135	-2
586	567	-19
26	25	-1
191	158	-33
408	329	-79
468	365	-103
418	411	-7
4	4	0
135	140	5
30	29	-1
5	4	-1
218	201	-17

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	513	3	100	3.6	A	3.5	A	5.7	A
	Right	85	3	100	3.0	A				
Southbound	Thru	480	2	84	2.5	A	2.5	A		
Eastbound	Left	11	3	57	45.3	D	30.5	C		
	Right	67	10	80	28.1	C				
Westbound	Right	206	10	106	10.0	A	10.0	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
530	513	-17
87	85	-2
556	480	-76
11	11	0
68	67	-1
207	206	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	95	25	103	61.7	E	32.6	C	32.0	C
	Thru	284	41	208	51.7	D				
	Right	285	0	11	3.9	A				
Southbound	Left	38	6	49	39.2	D	20.2	C		
	Thru	199	27	218	29.5	C				
	Right	310	21	277	11.9	B				
Eastbound	Left	285	71	263	71.9	E	42.7	D		
	Thru	293	26	117	28.9	C				
	Right	105	0	19	1.7	A				
Westbound	Left	338	36	164	32.9	C	30.3	C		
	Thru	303	24	118	29.2	C				
	Right	27	1	19	10.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	95	2
295	284	-11
289	285	-4
43	38	-5
226	199	-27
356	310	-46
295	285	-10
288	293	5
107	105	-2
361	338	-23
311	303	-8
27	27	0

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	5	87	9.3	A	4.6	A	6.3	A
	Thru	495	5	87	4.3	A				
	Right	3	9	114	3.6	A				
Southbound	Left	3	6	128	12.6	B	5.7	A		
	Thru	506	6	127	5.3	A				
	Right	157	10	158	6.8	A				
Eastbound	Left	111	9	102	17.9	B	15.0	B		
	Thru	0	-	-	-	A				
	Right	38	9	128	6.6	A				
Westbound	Left	3	0	17	16.7	B	9.6	A		
	Thru	4	0	18	12.7	B				
	Right	4	0	1	1.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
31	28	-3
499	495	-4
3	3	0
3	3	0
543	506	-37
173	157	-16
114	111	-3
0	0	0
41	38	-3
2	3	1
4	4	0
3	4	1

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	26	3	41	21.6	C	4.9	A	4.8	A
	Thru	0	-	-	-	A				
	Right	123	0	0	1.4	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	3.9	A		
	Thru	144	2	51	4.9	A				
	Right	65	0	12	1.7	A				
Westbound	Left	105	6	55	13.2	B	5.3	A		
	Thru	192	0	30	1.0	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
28	26	-2
0	0	0
139	123	-16
0	0	0
0	0	0
0	0	0
160	144	-16
73	65	-8
110	105	-5
199	192	-7
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	0	1	2.8	A	2.1	A	2.9	A
	Thru	122	0	1	1.9	A				
	Right	4	0	1	1.0	A				
Southbound	Left	0	-	-	-	A	1.8	A		
	Thru	117	0	5	1.8	A				
	Right	43	0	5	1.8	A				
Eastbound	Left	31	0	10	4.8	A	5.0	A		
	Thru	14	0	10	10.2	B				
	Right	51	0	10	3.8	A				
Westbound	Left	0	-	-	-	A	7.9	A		
	Thru	13	0	5	8.9	A				
	Right	2	0	0	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
133	122	-11
2	4	2
0	0	0
132	117	-15
42	43	1
38	31	-7
17	14	-3
62	51	-11
1	0	-1
16	13	-3
2	2	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	6	2	45	27.8	C	13.6	B	15.8	B
	Thru	87	4	47	13.7	B				
	Right	10	0	31	3.9	A				
Southbound	Left	4	0	13	26.2	C	10.9	B		
	Thru	80	6	75	14.3	B				
	Right	86	10	92	7.0	A				
Eastbound	Left	74	12	123	29.5	C	27.9	C		
	Thru	4	0	15	21.4	C				
	Right	4	0	1	4.7	A				
Westbound	Left	11	1	23	20.5	C	19.7	B		
	Thru	4	1	19	19.2	B				
	Right	3	0	20	17.5	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	6	-1
89	87	-2
10	10	0
4	4	0
95	80	-15
101	86	-15
87	74	-13
5	4	-1
3	4	1
13	11	-2
3	4	1
3	3	0

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 28th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	114	16	102	29.4	D	15.7	C	5.1	A
	Right	183	0	0	7.1	A				
Eastbound	Left	177	1	69	3.9	A	1.7	A		
	Thru	327	0	0	0.5	A				
Westbound	Thru	284	0	0	0.8	A	0.9	A		
	Right	39	0	0	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
122	114	-8
196	183	-13
179	177	-2
332	327	-5
298	284	-14
41	39	-2

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	3	1	43	9.8	A	6.8	A	0.5	A
	Right	17	1	62	6.3	A				
Eastbound	Left	21	0	18	2.4	A	0.3	A		
	Thru	245	0	0	0.2	A				
Westbound	Thru	277	0	0	0.2	A	0.2	A		
	Right	9	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	3	-1
20	17	-3
22	21	-1
277	245	-32
288	277	-11
7	9	2

American Blvd & 30th Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	22	1	49	11.1	B	8.8	A	1.2	A
	Right	23	0	42	6.6	A				
Eastbound	Thru	231	0	3	0.2	A	0.2	A		
	Right	18	0	0	0.4	A				
Westbound	Left	26	0	17	4.6	A	0.8	A		
	Thru	264	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	22	-3
25	23	-2
260	231	-29
21	18	-3
27	26	-1
271	264	-7

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	12	0	3	8.8	A	7.1	A	8.5	A
	Thru	42	2	48	6.6	A				
Southbound	Thru	37	1	30	7.3	A	6.9	A		
	Right	5	0	22	4.4	A				
Eastbound	Left	14	1	41	18.0	B	15.3	B		
	Right	7	0	21	10.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
13	12	-1
43	42	-1
41	37	-4
5	5	0
19	14	-5
11	7	-4

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	0	0.9	A	0.4	A	3.1	A
	Thru	17	0	1	0.3	A				
	Right	12	0	1	0.5	A				
Southbound	Left	27	0	1	0.5	A	0.5	A		
	Thru	11	0	2	0.4	A				
	Right	7	0	1	0.3	A				
Eastbound	Left	6	1	45	7.9	A	6.4	A		
	Thru	0	-	-	-	A				
	Right	13	0	44	5.7	A				
Westbound	Left	11	1	51	7.8	A	6.4	A		
	Thru	0	-	-	-	A				
	Right	33	1	43	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
16	17	1
13	12	-1
34	27	-7
12	11	-1
7	7	0
6	6	0
0	0	0
12	13	1
12	11	-1
0	0	0
34	33	-1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	1.1	A
	Thru	24	0	0	0.1	A				
	Right	7	0	0	0.3	A				
Southbound	Left	9	0	1	0.6	A	0.2	A		
	Thru	25	0	0	0.1	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	0	45	7.2	A	6.0	A		
	Thru	0	-	-	-	A				
	Right	9	1	59	5.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	24	2
7	7	0
10	9	-1
28	25	-3
0	0	0
0	0	0
0	0	0
5	4	-1
0	0	0
11	9	-2

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	31	0	0	0.1	A	0.2	A	0.5	A
	Right	6	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	29	0	0	0.1	A				
Eastbound	Left	4	0	36	7.5	A	7.5	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
29	31	2
7	6	-1
0	0	0
33	29	-4
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	5	1	38	16.8	C	8.4	A	1.2	A
	Right	27	2	72	6.9	A				
Eastbound	Left	32	0	18	2.5	A	1.0	A		
	Thru	409	0	2	0.9	A				
Westbound	Thru	299	0	0	0.8	A	0.8	A		
	Right	4	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	5	-2
32	27	-5
32	32	0
422	409	-13
309	299	-10
4	4	0

American Blvd & Metro Drive E

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.5	A
	Right	0	-	-	-	A				
Eastbound	Left	2	0	3	1.8	A	0.5	A		
	Thru	252	0	0	0.5	A				
Westbound	Thru	288	0	0	0.4	A	0.4	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
2	0	-2
3	2	-1
282	252	-30
294	288	-6
0	0	0

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.5	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	12	1	54	13.8	B	9.9	A		
	Thru	0	-	-	-	A				
	Right	12	1	55	6.1	A				
Eastbound	Left	16	0	12	2.5	A	0.2	A		
	Thru	399	0	0	0.2	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.2	A		
	Thru	292	0	0	0.2	A				
	Right	14	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
0	0	0
15	12	-3
0	0	0
13	12	-1
16	16	0
412	399	-13
1	0	-1
0	0	0
297	292	-5
13	14	1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	45	3	56	14.7	B	9.3	A	3.8	A
	Thru	0	-	-	-	A				
	Right	150	6	87	7.6	A				
Southbound	Left	35	2	51	15.6	C	10.1	B		
	Thru	0	-	-	-	A				
	Right	20	0	1	0.4	A				
Eastbound	Left	2	0	1	1.0	A	1.0	A		
	Thru	208	0	0	1.1	A				
	Right	42	0	0	0.5	A				
Westbound	Left	94	1	39	5.7	A	1.9	A		
	Thru	225	0	0	0.4	A				
	Right	28	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
47	45	-2
0	0	0
148	150	2
34	35	1
0	0	0
21	20	-1
3	2	-1
233	208	-25
46	42	-4
92	94	2
226	225	-1
28	28	0

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.2	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	55	3	61	11.5	B	6.7	A		
	Thru	0	-	-	-	A				
	Right	44	0	12	0.7	A				
Eastbound	Left	43	0	20	1.8	A	0.2	A		
	Thru	369	0	0	0.1	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.6	A		
	Thru	260	0	0	0.6	A				
	Right	12	0	3	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
54	55	1
0	0	0
46	44	-2
47	43	-4
379	369	-10
0	0	0
0	0	0
265	260	-5
13	12	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	230	25	117	37.3	D	15.0	B	20.5	C
	Thru	40	25	118	69.0	E				
	Right	599	0	0	2.8	A				
Southbound	Left	556	68	264	37.3	D	16.2	B		
	Thru	84	68	264	38.8	D				
	Right	1,206	0	0	4.9	A				
Eastbound	Left	976	32	233	30.3	C	28.6	C		
	Right	252	19	114	22.0	C				
Westbound	Left	500	17	140	25.9	C	23.1	C		
	Right	494	34	171	20.2	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
241	230	-11
38	40	2
628	599	-29
566	556	-10
86	84	-2
1,208	1,206	-2
988	976	-12
246	252	6
499	500	1
498	494	-4

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	2	1	13	35.2	D	22.4	C	24.6	C
	Thru	370	39	220	23.9	C				
	Right	42	0	13	8.6	A				
Southbound	Left	187	32	115	44.9	D	19.6	B		
	Thru	330	22	140	19.4	B				
	Right	316	1	56	4.7	A				
Eastbound	Left	364	73	300	40.8	D	40.4	D		
	Thru	23	4	36	36.8	D				
	Right	2	0	1	0.8	A				
Westbound	Left	31	9	61	50.3	D	18.5	B		
	Thru	29	7	46	52.9	D				
	Right	116	0	26	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	2	-1
386	370	-16
44	42	-2
188	187	-1
329	330	1
314	316	2
388	364	-24
24	23	-1
3	2	-1
34	31	-3
29	29	0
117	116	-1

2025 VISSIM Model: No Build
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	415	1	43	1.2	A	1.2	A	2.5	A
	Right	7	0	29	1.4	A				
Southbound	Left	7	0	24	14.2	B	4.3	A		
	Thru	272	3	72	4.1	A				
Westbound	Left	1	0	7	15.8	B	7.3	A		
	Right	5	0	35	5.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
428	415	-13
5	7	2
7	7	0
276	272	-4
2	1	-1
5	5	0

Note: Results are the average of ten (10) simulation runs

Appendix J
Year 2025 Concepts and Preliminary Cost Estimates

DRAFT

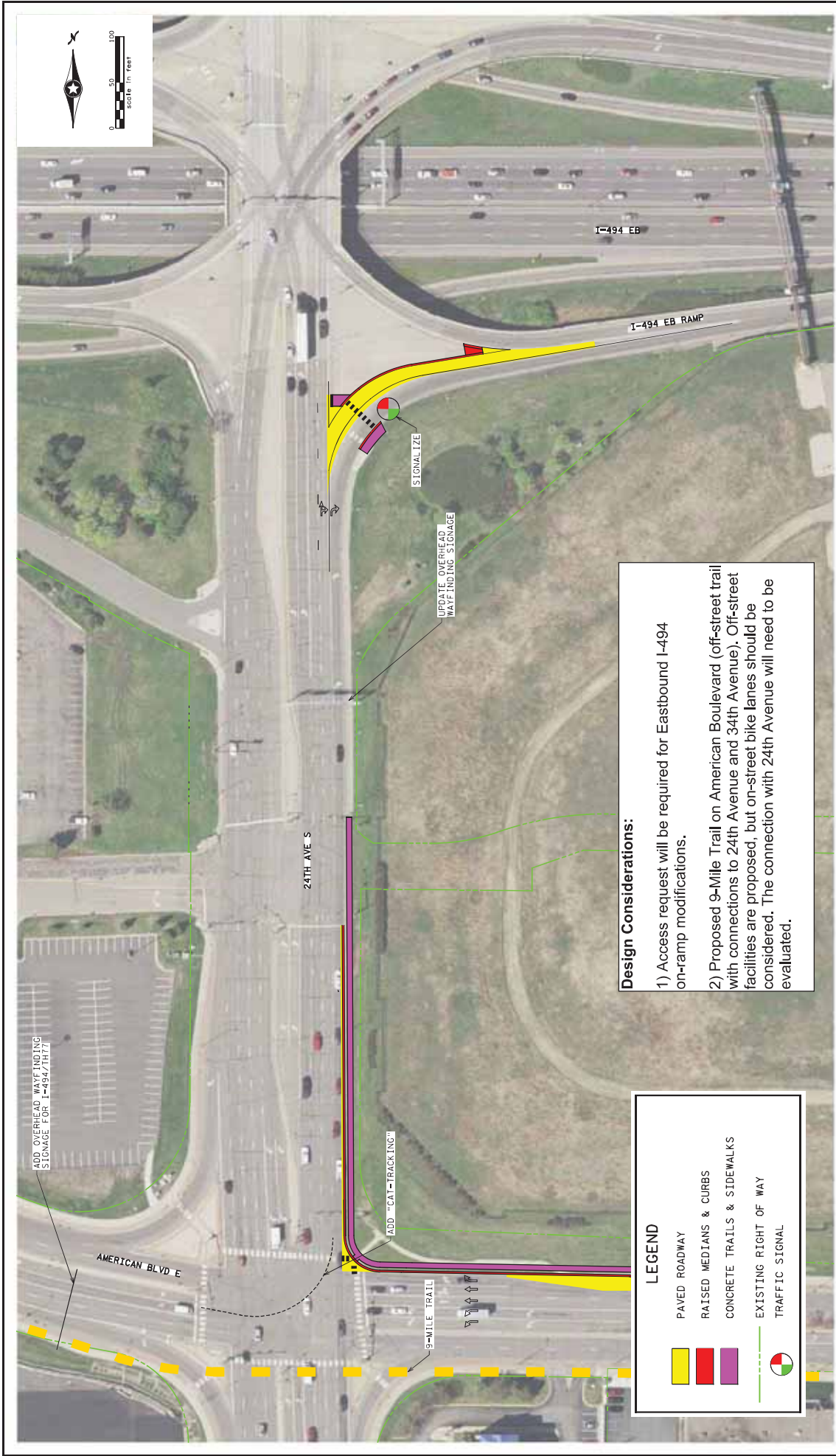







Figure 1

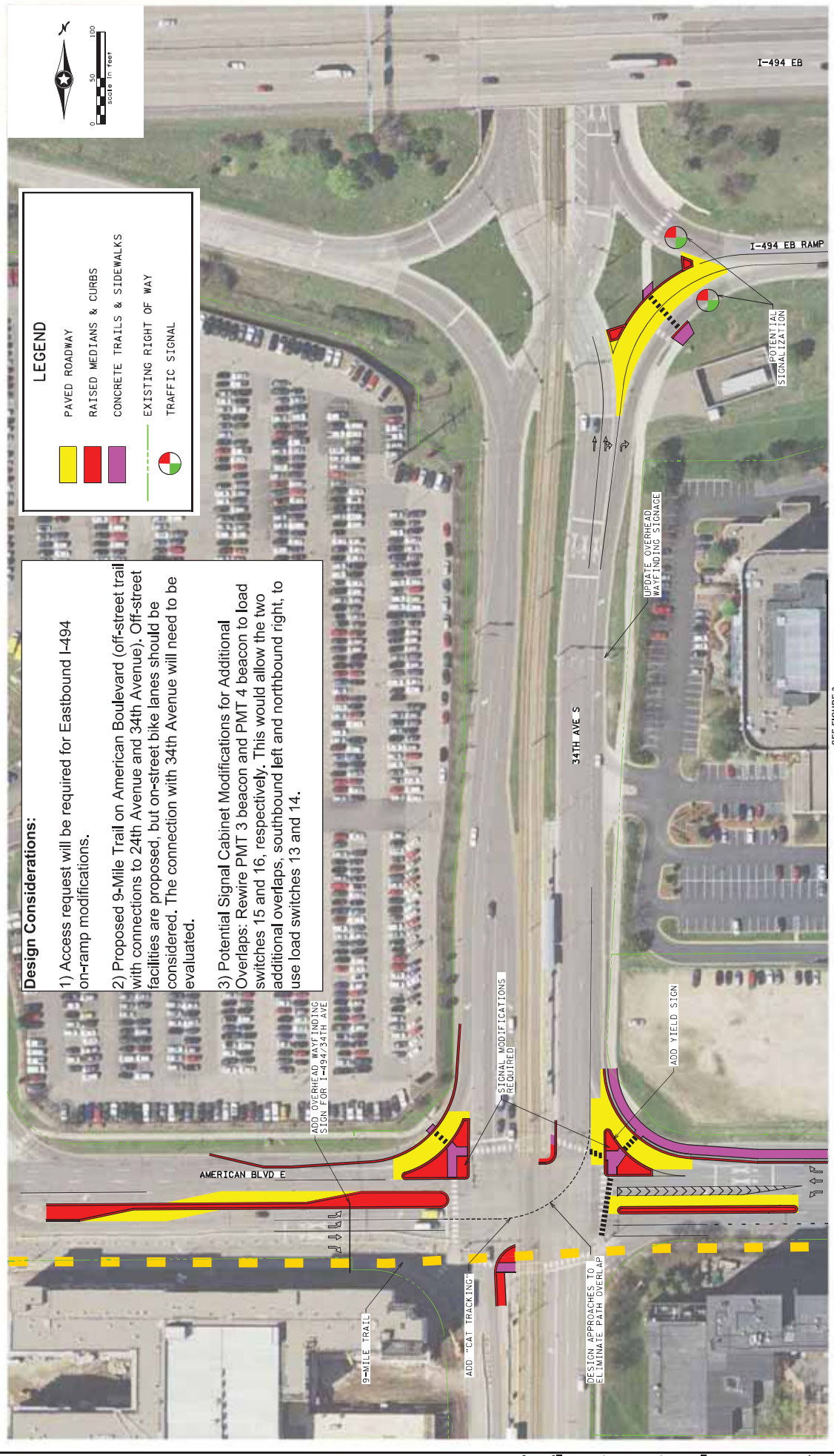
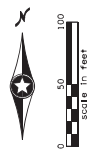
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Design Considerations:

- 1) Access request will be required for Eastbound I-494 on-ramp modifications.
- 2) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered. The connection with 34th Avenue will need to be evaluated.
- 3) Potential Signal Cabinet Modifications for Additional Overlaps: Rewire PMT 3 beacon and PMT 4 beacon to load switches 15 and 16, respectively. This would allow the two additional overlaps, southbound left and northbound right, to use load switches 13 and 14.

LEGEND

	PAVED ROADWAY
	RAISED MEDIANS & CURBS
	CONCRETE TRAILS & SIDEWALKS
	EXISTING RIGHT OF WAY
	TRAFFIC SIGNAL

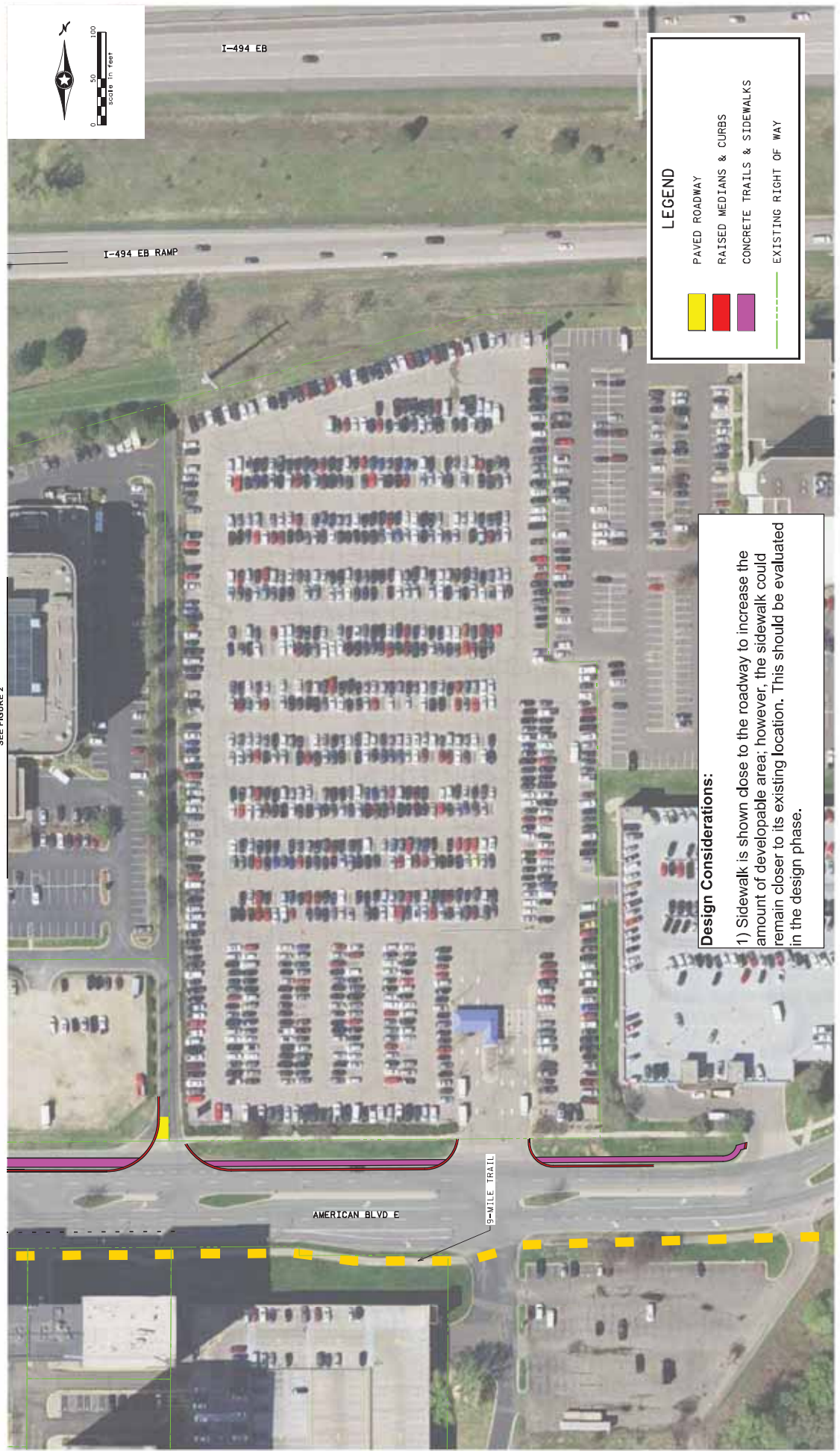


SEE FIGURE 3

Figure 2

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SEE FIGURE 2



LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- CONCRETE TRAILS & SIDEWALKS
- EXISTING RIGHT OF WAY

Design Considerations:

1) Sidewalk is shown close to the roadway to increase the amount of developable area; however, the sidewalk could remain closer to its existing location. This should be evaluated in the design phase.

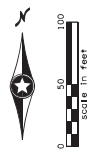


Figure 3

SRF Consulting Group, Inc.
 34TH AVE / I-494 EB NORTHBOUND DUAL RIGHT-TURN CONCEPT
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN

Job #5150
 2/26/2017



Design Considerations:

- 1) Evaluate converting eastbound through lane of Mall of America circulatory roadway to a shared through/right-turn lane. This would eliminate the hatched out pavement area as this would become a traffic lane. The triangular median between the circulatory roadway and the Mall of America entrance could be expanded to the east to reduce the southbound approach to one lane and eliminate the need for additional traffic control.
- 2) The southbound right-turn porkchop could be removed to create a standard 90 degree turn. The western curb line would be shifted to the east with this option.

SRI KILLBREW DR / 20TH AVE SOUTHBOUND DUAL RIGHT-TURN CONCEPT
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN

Figure 4

Design Considerations:

- 1) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered.
- 2) Evaluate channelization at International Boulevard in the design phase.
- 3) Roundabout should be designed to accommodate a northbound approach once development occurs to the south of American Boulevard.

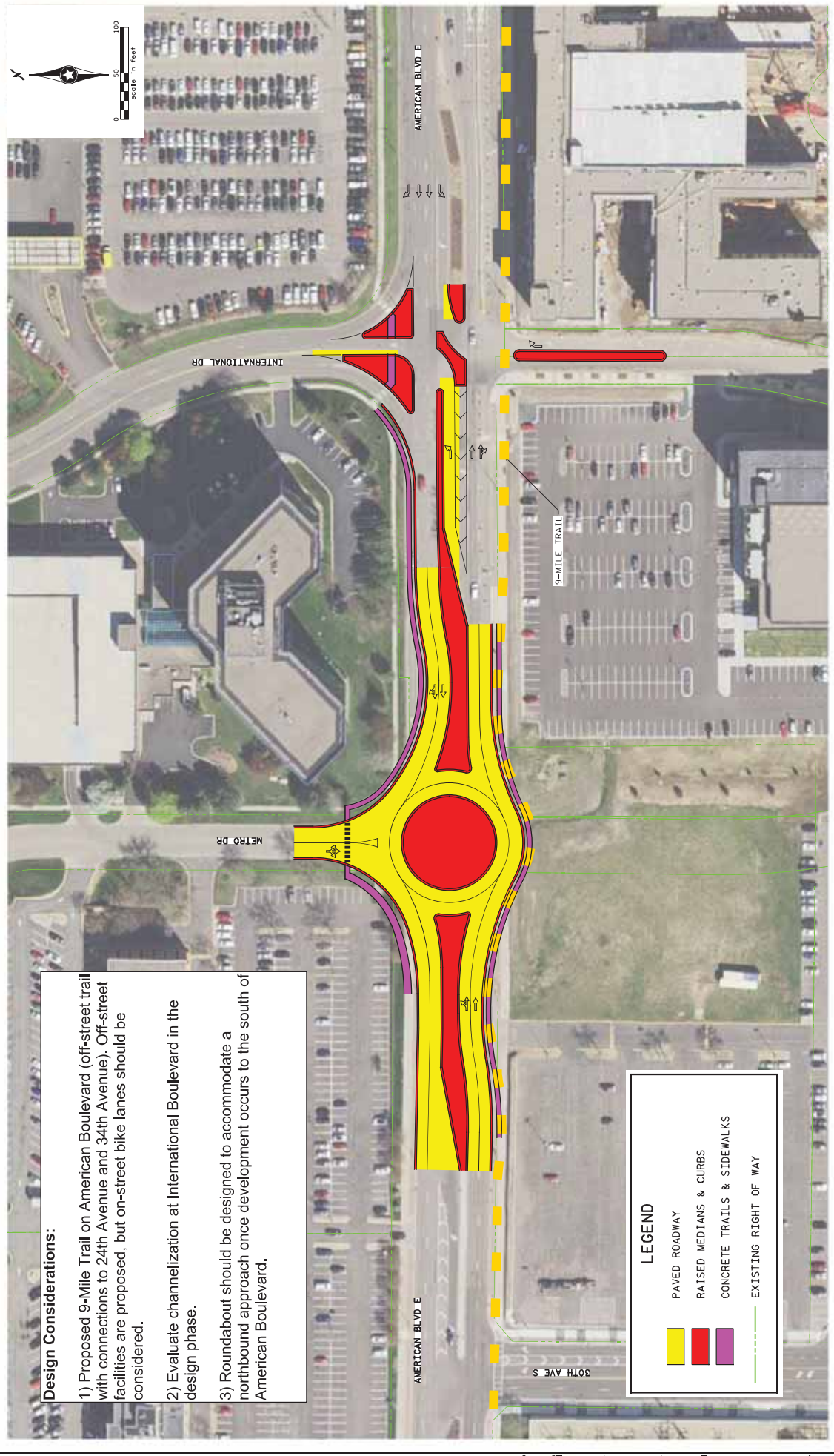
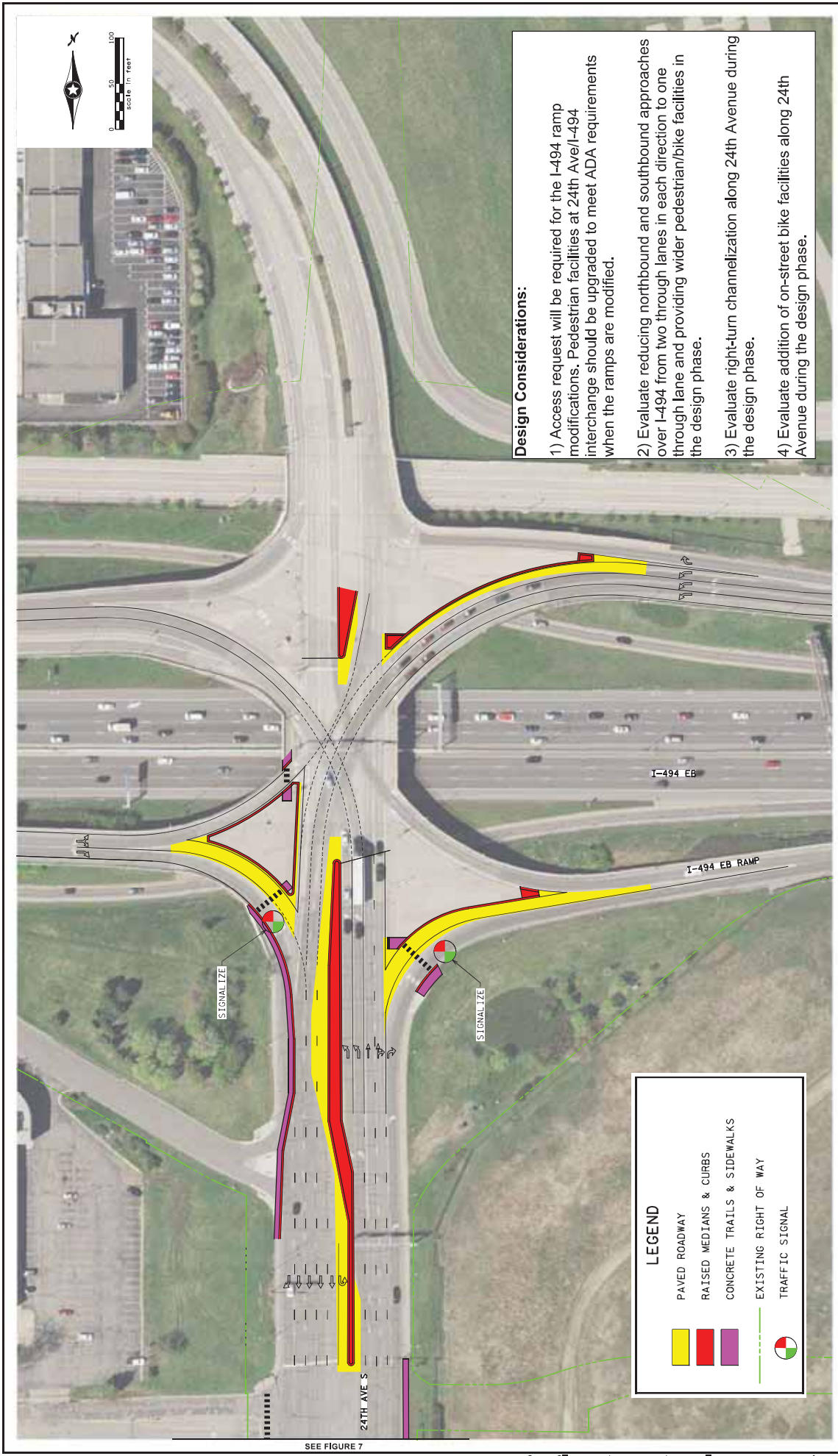


Figure 5

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Design Considerations:

- 1) Access request will be required for the I-494 ramp modifications. Pedestrian facilities at 24th Ave/I-494 interchange should be upgraded to meet ADA requirements when the ramps are modified.
- 2) Evaluate reducing northbound and southbound approaches over I-494 from two through lanes in each direction to one through lane and providing wider pedestrian/bike facilities in the design phase.
- 3) Evaluate right-turn channelization along 24th Avenue during the design phase.
- 4) Evaluate addition of on-street bike facilities along 24th Avenue during the design phase.

LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- CONCRETE TRAILS & SIDEWALKS
- EXISTING RIGHT OF WAY
- TRAFFIC SIGNAL

SRF 24TH AVE CORRIDOR CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#9190
 1/26/2017

SEE FIGURE 7

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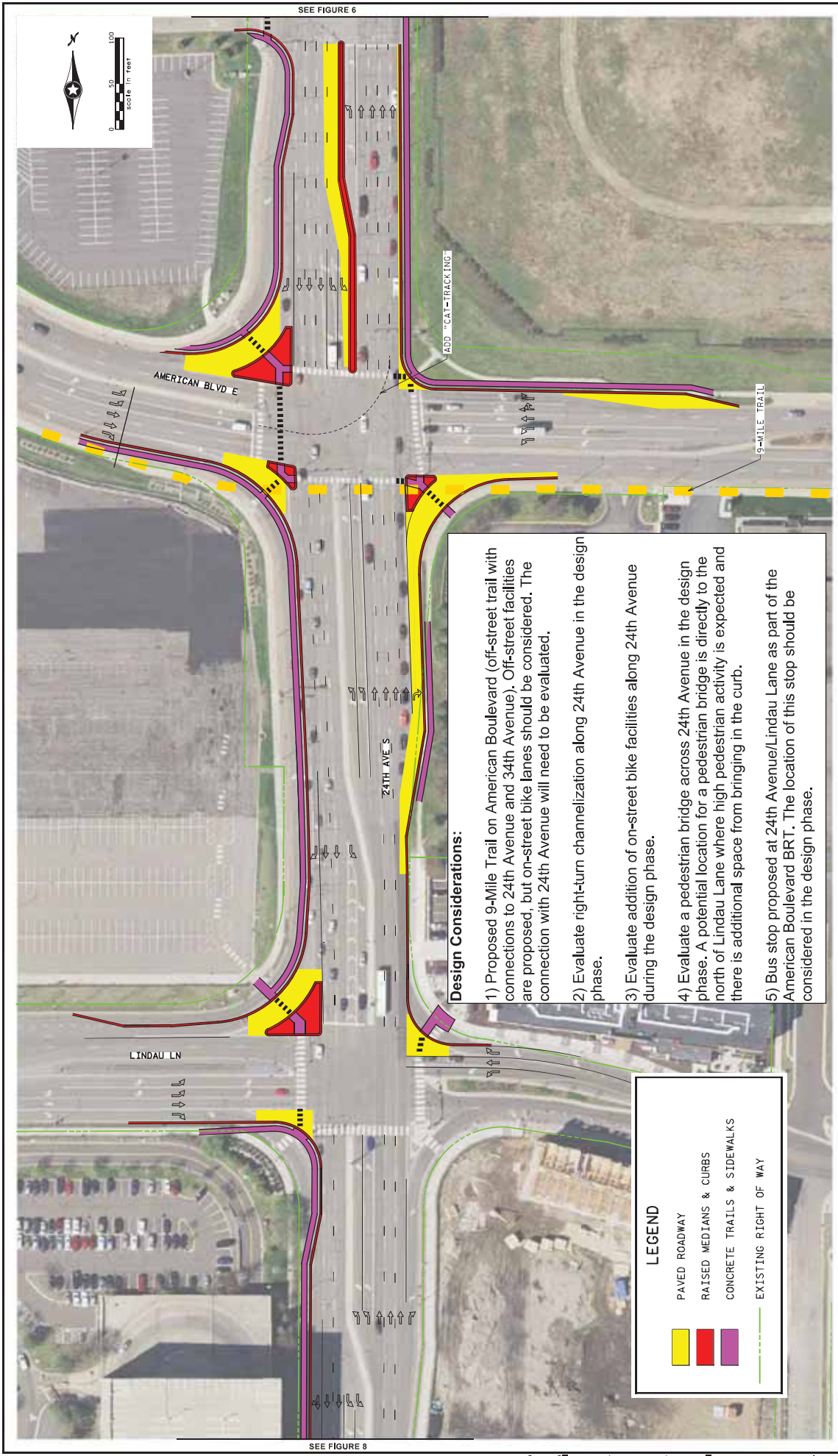


Figure 7

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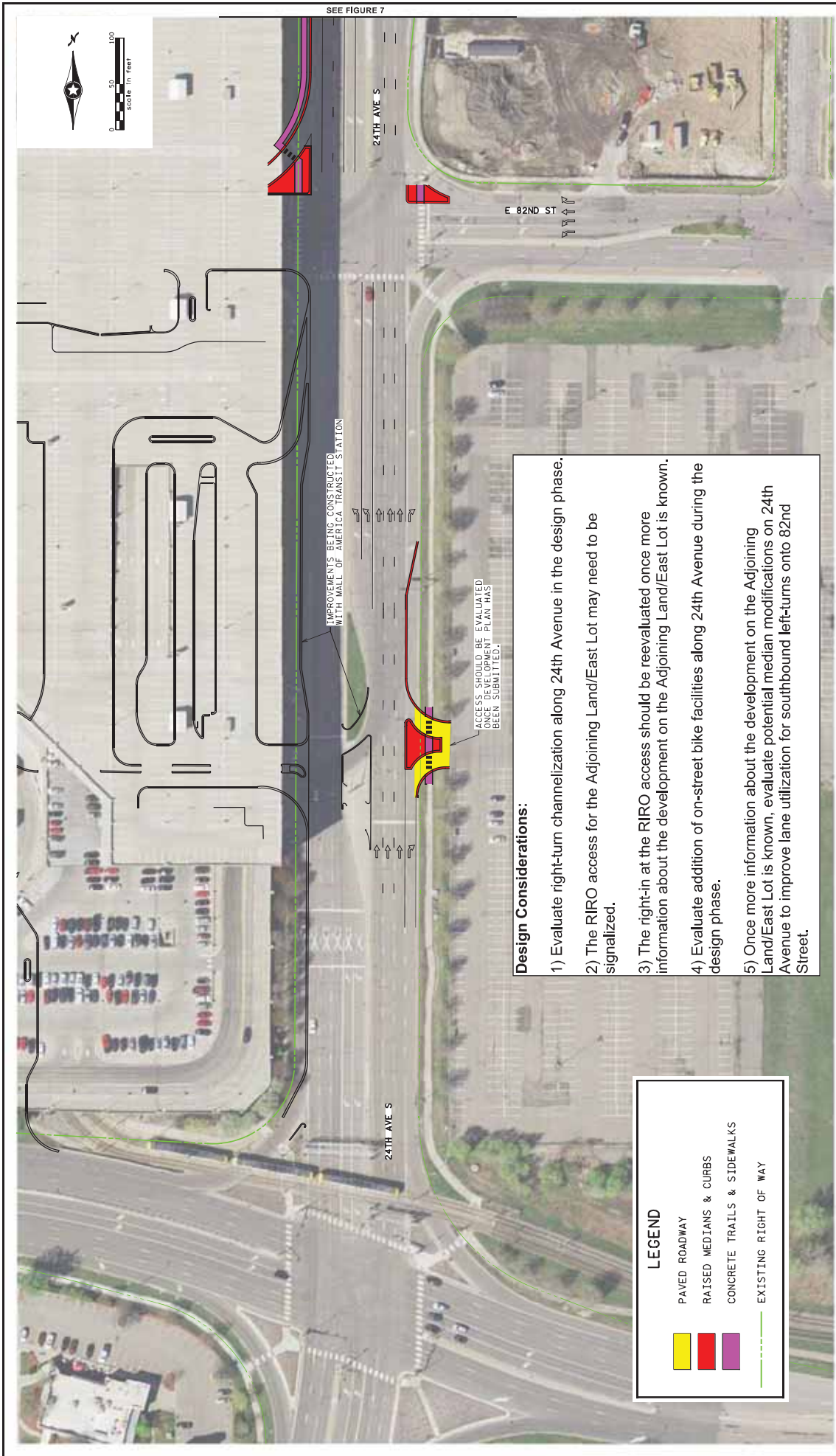
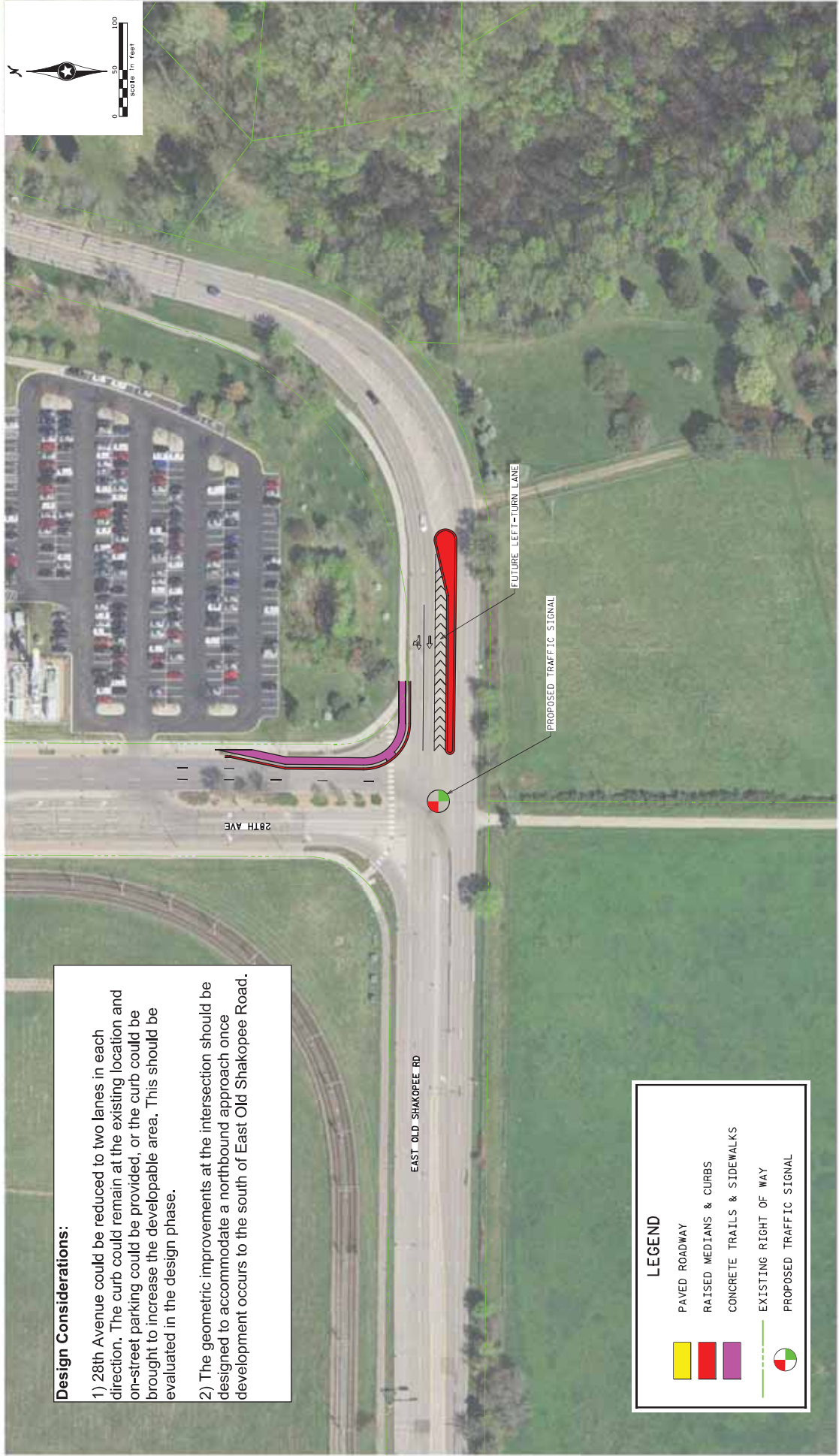


Figure 8



Figure 9

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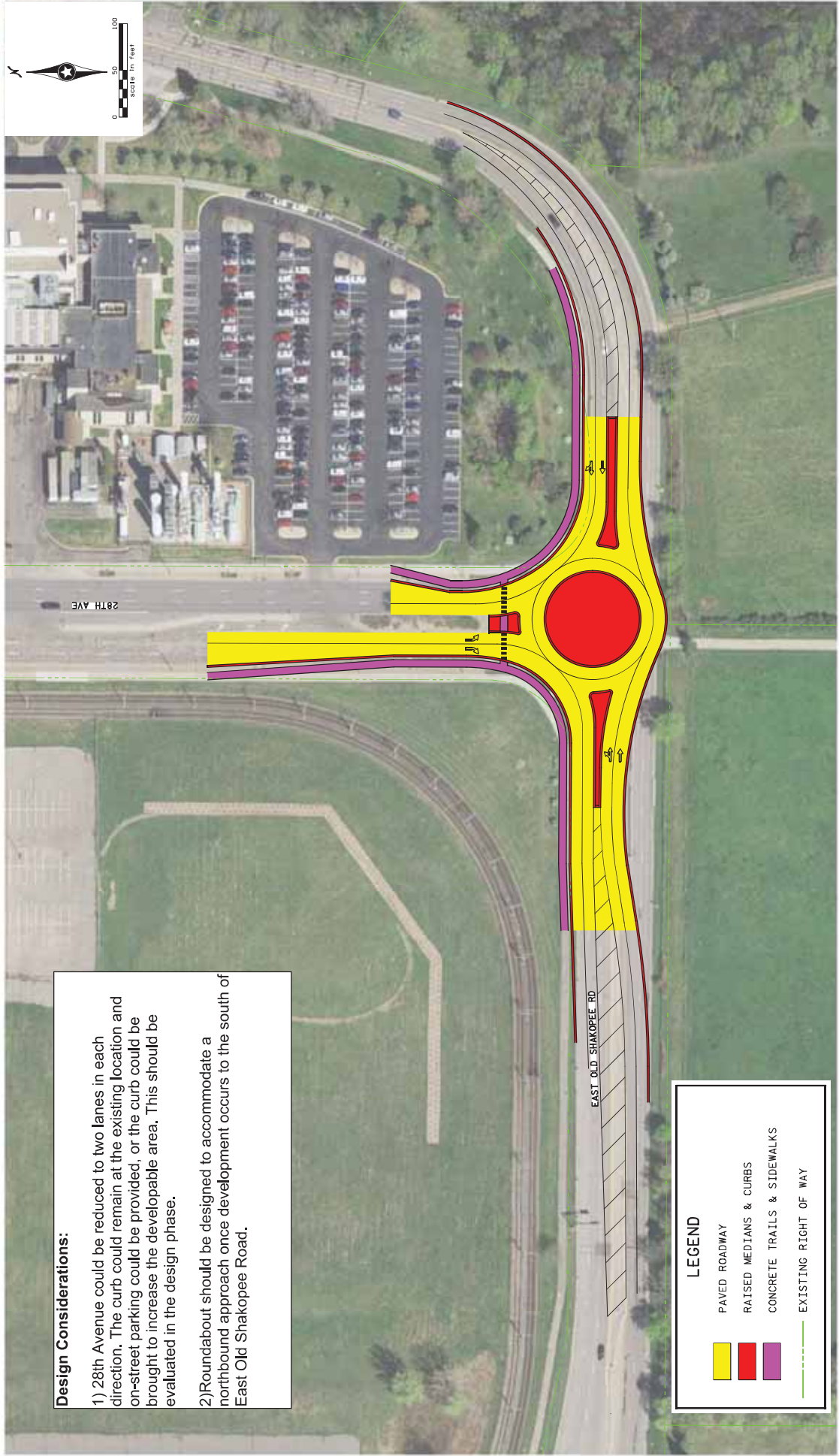


Design Considerations:

- 1) 28th Avenue could be reduced to two lanes in each direction. The curb could remain at the existing location and on-street parking could be provided, or the curb could be brought to increase the developable area. This should be evaluated in the design phase.
- 2) The geometric improvements at the intersection should be designed to accommodate a northbound approach once development occurs to the south of East Old Shakopee Road.

Figure 10

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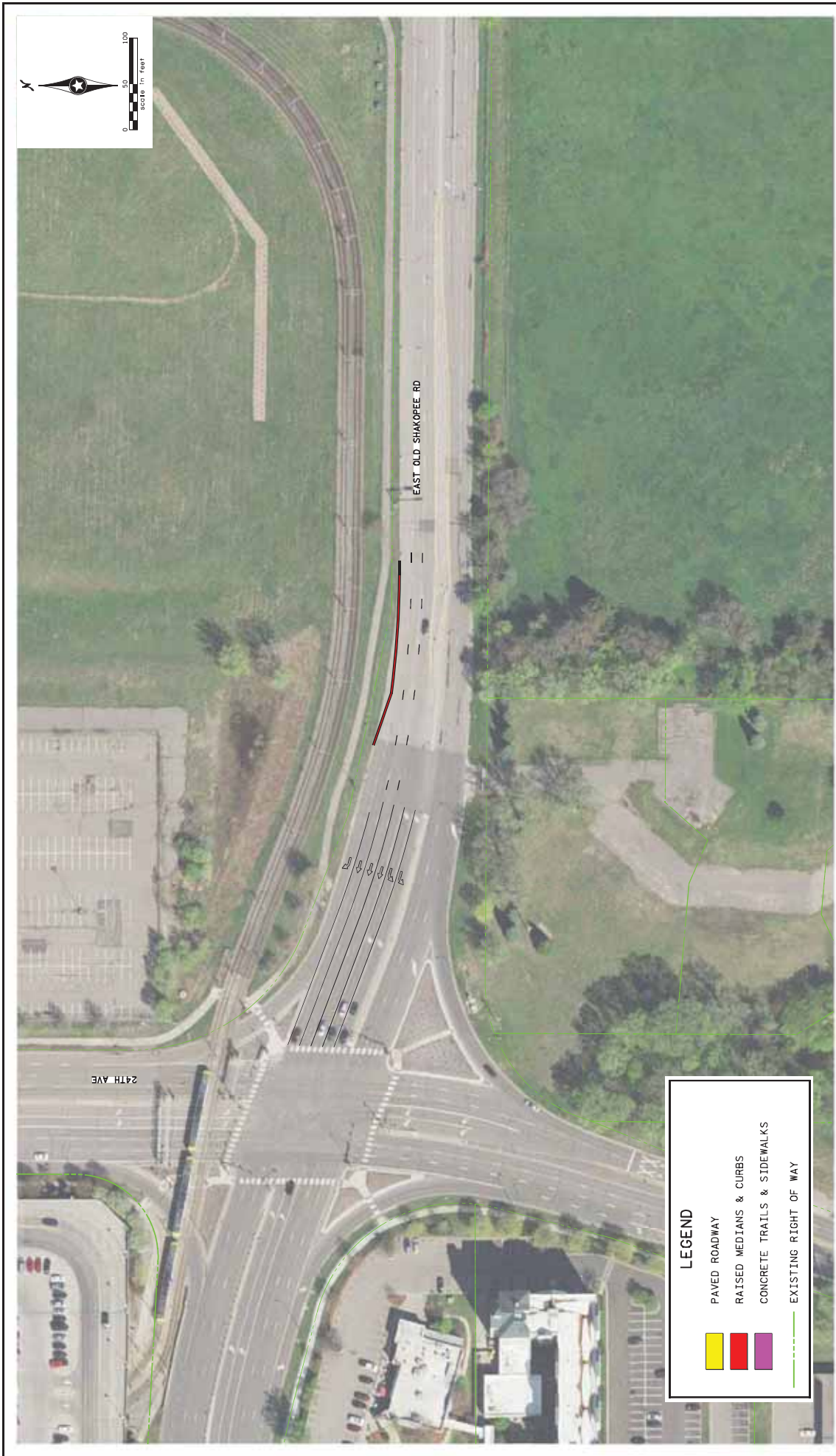
Design Considerations:

- 1) 28th Avenue could be reduced to two lanes in each direction. The curb could remain at the existing location and on-street parking could be provided, or the curb could be brought to increase the developable area. This should be evaluated in the design phase.
- 2) Roundabout should be designed to accommodate a northbound approach once development occurs to the south of East Old Shakopee Road.

SRI EAST OLD SHAKOPEE RD / 28TH AVE ROUNDABOUT CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 100-#5150
 11/7/2017
 CITY OF BLOOMINGTON, MN

Figure 11

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SRI EAST OLD SHAKOPEE ROAD / 24TH AVENUE WESTBOUND APPROACH CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#5150
 11/1/2017

Figure 12



Figure 13

SRI EAST OLD SHAKOPEE ROAD / 33RD AVENUE CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 JOB #5150
 1/12/2017
 CITY OF BLOOMINGTON, MN

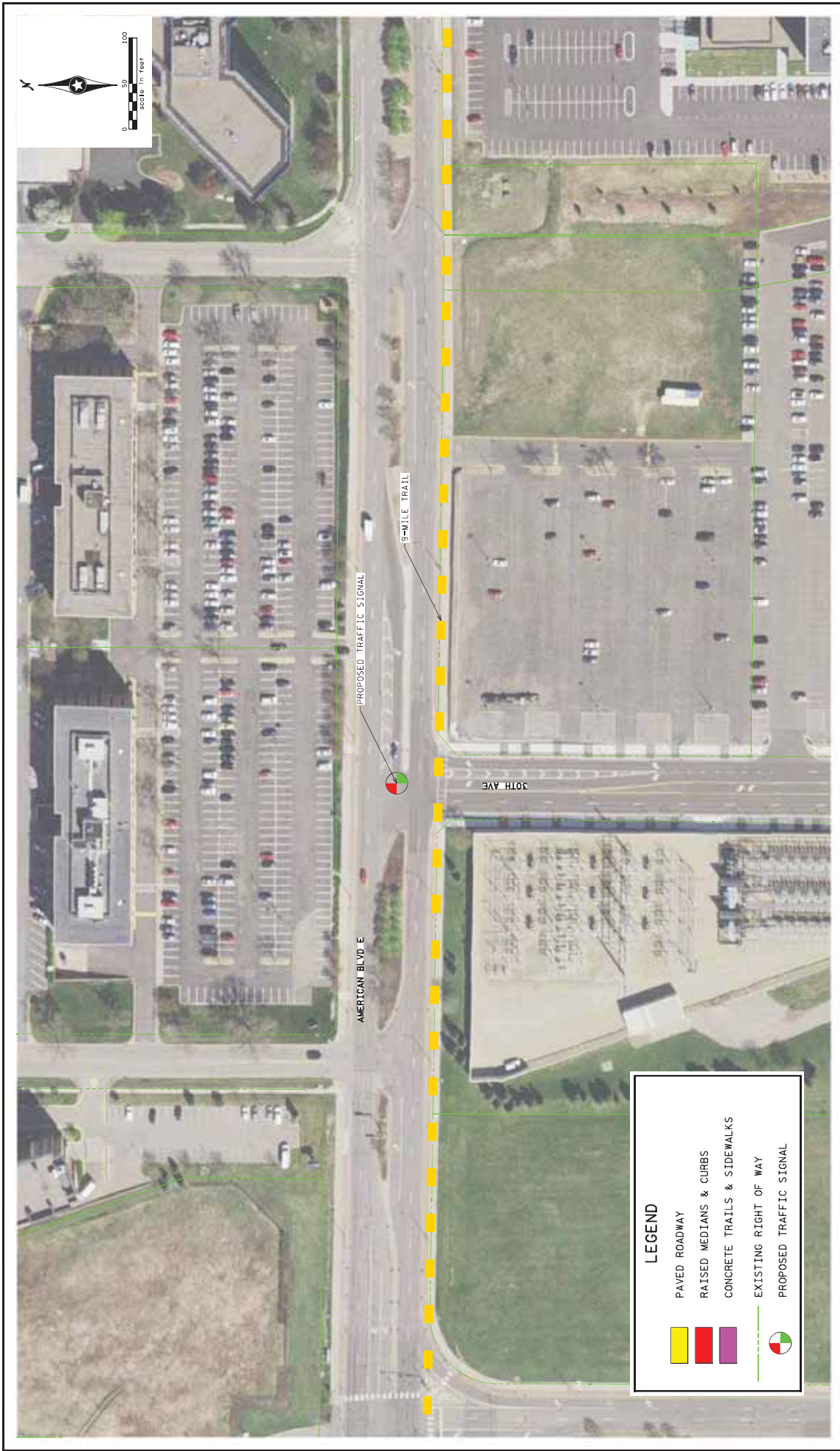
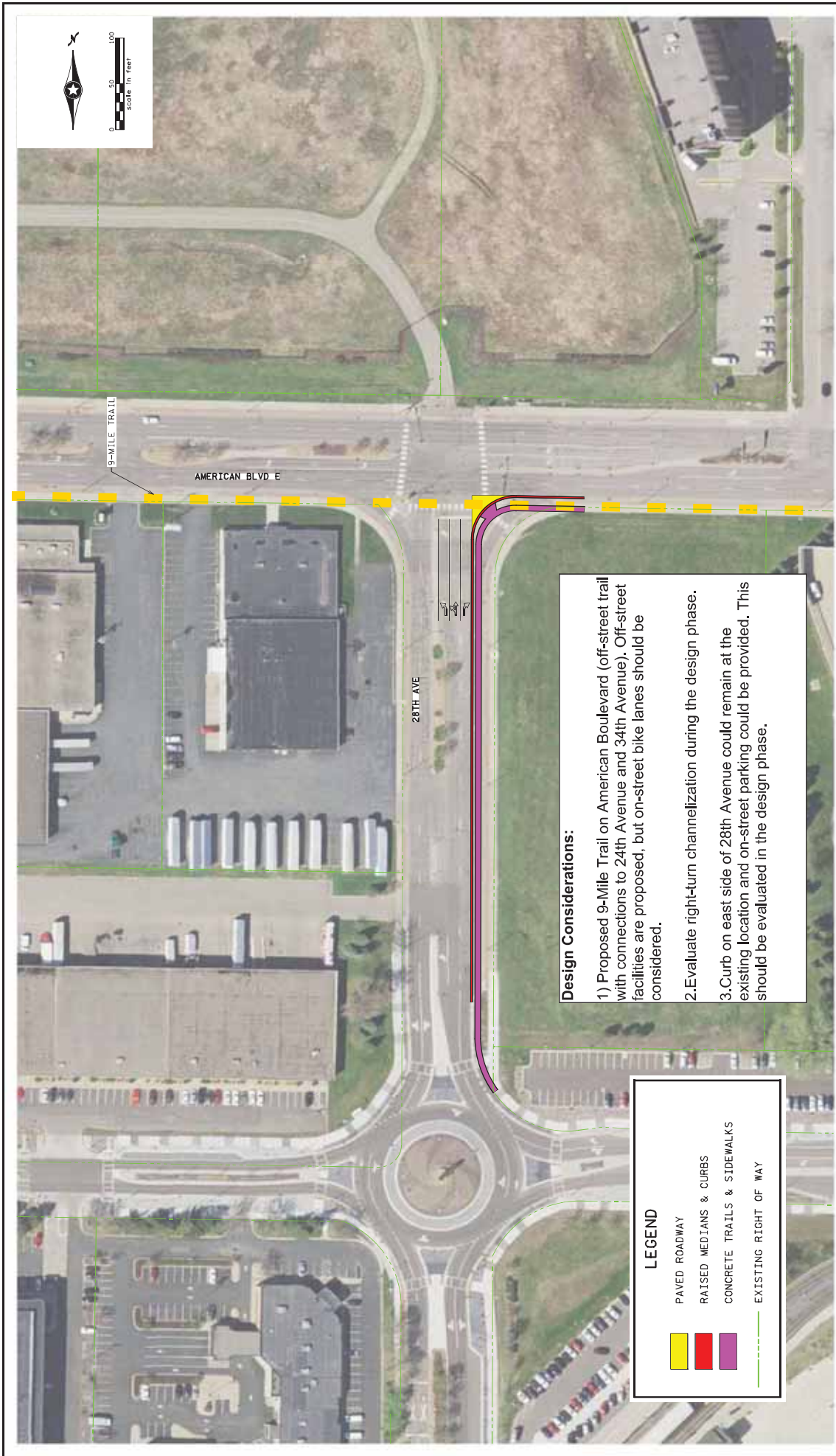


Figure 14

SRI Consulting Group, Inc.
 AMERICAN BLVD/30TH AVE INSTALL TRAFFIC SIGNAL CONCEPT
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN

Job #5150
 1/17/2017



Design Considerations:

- 1) Proposed 9-Mile Trail on American Boulevard (off-street trail with connections to 24th Avenue and 34th Avenue). Off-street facilities are proposed, but on-street bike lanes should be considered.
2. Evaluate right-turn channelization during the design phase.
3. Curb on east side of 28th Avenue could remain at the existing location and on-street parking could be provided. This should be evaluated in the design phase.

LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- CONCRETE TRAILS & SIDEWALKS
- EXISTING RIGHT OF WAY

SRH AMERICAN BLVD / 28TH AVE CONCEPT
 Consulting Group, Inc.
 SOUTH LOOP ROADWAY INFRASTRUCTURE IMPROVEMENTS STUDY
 CITY OF BLOOMINGTON, MN
 100-#5150
 11/7/2017

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Priority	Improvement	Figure Number	Concept	Details	Cost ^{(1) (2)}
1	I-494/24th Avenue	1	Yes	Construct dual northbound right turn lanes onto eastbound I-494 ramps. This improvement also consists of restriping at the eastbound left-turn lanes at the American Boulevard/24th Avenue intersection to "cat track" into the easternmost northbound through lanes. Signal timing improvements and ramp signalization are also included.	\$500,000
2	I-494/34th Avenue	2, 3	Yes	Construct dual northbound right turn lanes onto eastbound I-494 ramps. This improvement also consists of restriping at the eastbound left-turn lanes at the American Boulevard/34th Avenue intersection to "cat track" into the easternmost northbound through lanes. Eliminate the eastbound free right at American Boulevard/34th Avenue by either adding a Yield sign to this movement or bringing the turn lane into the intersection at 90 degrees. Signal timing improvements and ramp signalization are also included.	\$1,175,000
3	Killebrew Drive/20th Avenue	4	Yes	Reconstruct the southbound approach to repurpose lanes and provide dual southbound right-turn lanes	\$275,000
4	Signal Timing	-	No	American Avenue/Thunderbird Road and 34th Avenue/Appletree Square	\$45,000
5	Lindau Lane/IKEA Way and Lindau Lane/22nd Avenue	-	No	Modify "cat-tracking" southbound right at Lindau Lane/IKEA Way into the two south lanes. Add "cat-tracking" southbound right at Lindau Lane/22nd Avenue. This improvement also includes updated signal cycle lengths/splits and modification to wayfinding signage.	<\$100,000
6	American Boulevard/International Boulevard	5	Yes	Modify the American Boulevard/International Drive intersection to three-quarter access and construct a roundabout at the American Boulevard/Metro Drive East intersection.	\$1,350,000
7	24th Avenue (I-494 to 82nd Street)	6, 7, 8	Yes	Develop a concept layout to better utilize the existing roadway width. Concept may include restriping/median work, removal of channelized right-turns, removal of add-in lanes, access control, pedestrian refuge islands, etc.	\$4,750,000
8	Killebrew Drive/22nd Avenue	9	Yes	Modify striping to single southbound and northbound left-turn lane and modify signal timing to eliminate split phasing.	\$50,000
9	East Old Shakopee Road/28th Avenue	10,11	Yes	Develop concepts for two traffic control options (signal and multi-lane roundabout). Assume no south approach under year 2025 conditions, but design intersection for future south approach. (Both traffic controls will be tested under year 2040 conditions to determine if both options provide sufficient capacity with year 2040 forecasts).	Traffic Signal: \$825,000 Roundabout: \$1,175,000
10	Killebrew Drive/East Old Shakopee Road/24th Avenue	12	Yes	Restripe to remove the westbound trap right-turn, this turn lane could be developed. The three westbound through lanes east of the intersection would then align with the three westbound through lanes at the intersection.	\$75,000
11	East Old Shakopee Road/33rd Avenue	13	Yes	Add a marked pedestrian crossing across East Old Shakopee Road between 33rd Avenue and 31st Avenue to better accommodate pedestrians.	\$250,000
12	American Boulevard/30th Avenue	14	No	Install a signal once warranted	\$625,000
13	American Boulevard/28th Avenue	15	Yes	Modify south approach	\$475,000

(1) Construction cost do not include any mill and overlay. The pavement costs included are for where new pavement would be located.

(2) ROW cost are not included.

9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

24th Ave /I-494 EB Northbound Dual Right-Turn Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$11,080.00	1	\$11,080.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	1330	\$5,320.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	2280	\$6,840.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	5670	\$17,010.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	210	\$1,050.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	460	\$2,760.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	460	\$7,820.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	270	\$6,750.00
2360.501/13200	Wearing Course	Ton	\$65.00	230	\$14,950.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	350	\$22,750.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	5650	\$28,250.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	1050	\$18,900.00
2531.503/00010	Concrete Median	SY	\$36.00	20	\$720.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	3	\$15,000.00
	Signal Modification	LS	\$60,000.00	1	\$60,000.00
2563.601/00010	Traffic Control	LS	\$7,020.00	1	\$7,020.00
2575.555/00010	Turf Establishment	LS	\$2,810.00	1	\$2,810.00
	Drainage	LS	\$16,000.00	1	\$16,000.00
	Lighting Modifications	LS	\$9,600.00	1	\$9,600.00
	Signing and Striping	LS	\$70,000.00	1	\$70,000.00
Subtotal					\$324,630.00
Contingency & Minor Items (20%)					\$64,926.00
Total Construction Cost					\$389,556.00
Project Delivery (26%)					\$101,285.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$490,841.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

34th Ave /I-494 EB Northbound Dual Right-Turn Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$30,200.00	1	\$30,200.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	2180	\$8,720.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	5230	\$15,690.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	9760	\$29,280.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	2230	\$11,150.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	1310	\$7,860.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	1310	\$22,270.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	700	\$17,500.00
2360.501/13200	Wearing Course	Ton	\$65.00	570	\$37,050.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	850	\$55,250.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	9060	\$45,300.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	4060	\$73,080.00
2531.503/00010	Concrete Median	SY	\$36.00	850	\$30,600.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	17	\$85,000.00
	Signal Modification	LS	\$115,000.00	1	\$115,000.00
2563.601/00010	Traffic Control	LS	\$19,110.00	1	\$19,110.00
2575.555/00010	Turf Establishment	LS	\$7,650.00	1	\$7,650.00
	Drainage	LS	\$72,000.00	1	\$72,000.00
	Lighting Modifications	LS	\$11,200.00	1	\$11,200.00
	Signing and Striping	LS	\$75,000.00	1	\$75,000.00
Subtotal					\$768,910.00
Contingency & Minor Items (20%)					\$153,782.00
Total Construction Cost					\$922,692.00
Project Delivery (26%)					\$239,900.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$1,162,592.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

Killebrew Dr/20th Ave Southbound Dual Right-Turn Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$13,450.00	1	\$13,450.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	130	\$520.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	0	\$0.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	580	\$1,740.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	80	\$400.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	50	\$300.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	50	\$850.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	30	\$750.00
2360.501/13200	Wearing Course	Ton	\$65.00	30	\$1,950.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	40	\$2,600.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	0	\$0.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	90	\$1,620.00
2531.503/00010	Concrete Median	SY	\$36.00	30	\$1,080.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	0	\$0.00
	Signal Modification	LS	\$80,000.00	1	\$80,000.00
2563.601/00010	Traffic Control	LS	\$1,000.00	1	\$1,000.00
2575.555/00010	Turf Establishment	LS	\$1,110.00	1	\$1,110.00
	Signing and Striping	LS	\$25,000.00	1	\$25,000.00
Subtotal					\$167,290.00
Contingency & Minor Items (20%)					\$33,458.00
Total Construction Cost					\$200,748.00
Project Delivery (26%)					\$52,195.00
Right of Way Cost		SQ.FT.	\$0.00	306	\$0.00
Total Improvement Cost					\$252,943.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

American Blvd E/ Metro Dr Roundabout Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$38,200.00	1	\$38,200.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	3870	\$15,480.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	15500	\$46,500.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	17840	\$53,520.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	6930	\$34,650.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	2410	\$14,460.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	2410	\$40,970.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	1500	\$37,500.00
2360.501/13200	Wearing Course	Ton	\$65.00	1320	\$85,800.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	1980	\$128,700.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	7400	\$37,000.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	4490	\$80,820.00
2531.503/00010	Concrete Median	SY	\$36.00	2720	\$97,920.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	6	\$30,000.00
	Signal Modification	LS	\$0.00	0	\$0.00
2563.601/00010	Traffic Control	LS	\$24,180.00	1	\$24,180.00
2575.555/00010	Turf Establishment	LS	\$9,670.00	1	\$9,670.00
	Drainage	LS	\$88,000.00	1	\$88,000.00
	Lighting Modifications	LS	\$14,400.00	1	\$14,400.00
	Signing and Striping	LS	\$15,000.00	1	\$15,000.00
Subtotal					\$892,770.00
Contingency & Minor Items (20%)					\$178,554.00
Total Construction Cost					\$1,071,324.00
Project Delivery (26%)					\$278,545.00
Right of Way Cost		SQ.FT.	\$0.00	7539	\$0.00
Total Improvement Cost					\$1,349,869.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

24th Ave Corridor Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$135,870.00	1	\$135,870.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	10620	\$42,480.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	31210	\$93,630.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	40070	\$120,210.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	10320	\$51,600.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	3240	\$19,440.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	3240	\$55,080.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	1740	\$43,500.00
2360.501/13200	Wearing Course	Ton	\$65.00	1440	\$93,600.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	2160	\$140,400.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	26630	\$133,150.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	9500	\$171,000.00
2531.503/00010	Concrete Median	SY	\$36.00	1530	\$55,080.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	35	\$175,000.00
	Signal Modification	LS	\$1,565,000.00	1	\$1,565,000.00
2563.601/00010	Traffic Control	LS	\$86,000.00	1	\$86,000.00
2575.555/00010	Turf Establishment	LS	\$34,400.00	1	\$34,400.00
	Drainage	LS	\$96,000.00	1	\$96,000.00
	Lighting Modifications	LS	\$11,200.00	1	\$11,200.00
	Signing and Striping	LS	\$15,000.00	1	\$15,000.00
Subtotal					\$3,137,640.00
Contingency & Minor Items (20%)					\$627,528.00
Total Construction Cost					\$3,765,168.00
Project Delivery (26%)					\$978,944.00
Right of Way Cost		SQ.FT.	\$0.00	4957	\$0.00
Total Improvement Cost					\$4,744,112.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

Killebrew Dr/22nd Ave Lane Use Assignment Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$3,900.00	1	\$3,900.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	0	\$0.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	0	\$0.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	0	\$0.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	0	\$0.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	0	\$0.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	0	\$0.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	0	\$0.00
2360.501/13200	Wearing Course	Ton	\$65.00	0	\$0.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	0	\$0.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	0	\$0.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	0	\$0.00
2531.503/00010	Concrete Median	SY	\$36.00	0	\$0.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	0	\$0.00
	Signal Modification	LS	\$25,000.00	1	\$25,000.00
2563.601/00010	Traffic Control	LS	\$500.00	1	\$500.00
2575.555/00010	Turf Establishment	LS	\$300.00	1	\$300.00
	Signing and Striping	LS	\$25,000.00	1	\$25,000.00
Subtotal					\$32,100.00
Contingency & Minor Items (20%)					\$6,420.00
Total Construction Cost					\$38,520.00
Project Delivery (26%)					\$10,016.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$48,536.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

East Old Shakopee Road/28th Avenue Traffic Signal Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$18,900.00	1	\$18,900.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	260	\$1,040.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	2470	\$7,410.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	0	\$0.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	470	\$2,350.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	170	\$1,020.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	170	\$2,890.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	120	\$3,000.00
2360.501/13200	Wearing Course	Ton	\$65.00	50	\$3,250.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	70	\$4,550.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	2150	\$10,750.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	820	\$14,760.00
2531.503/00010	Concrete Median	SY	\$36.00	240	\$8,640.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	1	\$5,000.00
	Signal Modification	LS	\$300,000.00	1	\$300,000.00
	Signal Interconnect	LS	\$100,000.00	1	\$100,000.00
2563.601/00010	Traffic Control	LS	\$14,360.00	1	\$14,360.00
2575.555/00010	Turf Establishment	LS	\$25,000.00	1	\$25,000.00
	Drainage	LS	\$9,000.00	1	\$9,000.00
	Lighting Modifications	LS	\$4,800.00	1	\$4,800.00
	Signing and Striping	LS	\$5,000.00	1	\$5,000.00
Subtotal					\$541,720.00
Contingency & Minor Items (20%)					\$108,344.00
Total Construction Cost					\$650,064.00
Project Delivery (26%)					\$169,017.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$819,081.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

East Old Shakopee Road/28th Roundabout Avenue Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$33,190.00	1	\$33,190.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	3190	\$12,760.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	13360	\$40,080.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	3650	\$10,950.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	8360	\$41,800.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	2360	\$14,160.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	2360	\$40,120.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	1310	\$32,750.00
2360.501/13200	Wearing Course	Ton	\$65.00	1370	\$89,050.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	2060	\$133,900.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	9630	\$48,150.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	3650	\$65,700.00
2531.503/00010	Concrete Median	SY	\$36.00	1210	\$43,560.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	4	\$20,000.00
	Signal Modification	LS	\$0.00	0	\$0.00
2563.601/00010	Traffic Control	LS	\$21,010.00	1	\$21,010.00
2575.555/00010	Turf Establishment	LS	\$8,410.00	1	\$8,410.00
	Drainage	LS	\$96,000.00	1	\$96,000.00
	Lighting Modifications	LS	\$11,200.00	1	\$11,200.00
	Signing and Striping	LS	\$10,000.00	1	\$10,000.00
Subtotal					\$772,790.00
Contingency & Minor Items (20%)					\$154,558.00
Total Construction Cost					\$927,348.00
Project Delivery (26%)					\$241,111.00
Right of Way Cost		SQ.FT.	\$0.00	6600	\$0.00
Total Improvement Cost					\$1,168,459.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

East Old Shakopee Road/24th Ave Westbound Approach Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$2,000.00	1	\$2,000.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	220	\$880.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	0	\$0.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	0	\$0.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	150	\$750.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	30	\$180.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	30	\$510.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	0	\$0.00
2360.501/13200	Wearing Course	Ton	\$65.00	0	\$0.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	0	\$0.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	0	\$0.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	220	\$3,960.00
2531.503/00010	Concrete Median	SY	\$36.00	0	\$0.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	0	\$0.00
	Signal Modification	LS	\$0.00	0	\$0.00
2563.601/00010	Traffic Control	LS	\$500.00	1	\$500.00
2575.555/00010	Turf Establishment	LS	\$80.00	1	\$80.00
	Signing and Striping	LS	\$25,000.00	1	\$25,000.00
Subtotal					\$33,860.00
Contingency & Minor Items (20%)					\$6,772.00
Total Construction Cost					\$40,632.00
Project Delivery (26%)					\$10,565.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$51,197.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

East Old Shakopee Road/33rd Avenue Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$15,000.00	1	\$15,000.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	240	\$960.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	120	\$360.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	120	\$360.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	260	\$1,300.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	50	\$300.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	50	\$850.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	50	\$1,250.00
2360.501/13200	Wearing Course	Ton	\$65.00	20	\$1,300.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	20	\$1,300.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	90	\$450.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	240	\$4,320.00
2531.503/00010	Concrete Median	SY	\$36.00	170	\$6,120.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	4	\$20,000.00
	Signal Modification	LS	\$100,000.00	1	\$100,000.00
2563.601/00010	Traffic Control	LS	\$4,170.00	1	\$4,170.00
2575.555/00010	Turf Establishment	LS	\$1,670.00	1	\$1,670.00
	Signing and Striping	LS	\$25,000.00	1	\$25,000.00
Subtotal					\$152,730.00
Contingency & Minor Items (20%)					\$30,546.00
Total Construction Cost					\$183,276.00
Project Delivery (26%)					\$47,652.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$230,928.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

American Blvd/30th Ave Install Traffic Signal Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$15,460.00	1	\$15,460.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	0	\$0.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	0	\$0.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	0	\$0.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	0	\$0.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	0	\$0.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	0	\$0.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	0	\$0.00
2360.501/13200	Wearing Course	Ton	\$65.00	0	\$0.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	0	\$0.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	0	\$0.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	0	\$0.00
2531.503/00010	Concrete Median	SY	\$36.00	0	\$0.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	0	\$0.00
	Signal Modification	LS	\$300,000.00	1	\$300,000.00
	Signal Interconnect	LS	\$50,000.00	1	\$50,000.00
2563.601/00010	Traffic Control	LS	\$9,000.00	1	\$9,000.00
2575.555/00010	Turf Establishment	LS	\$25,000.00	1	\$25,000.00
	Signing and Striping	LS	\$1,000.00	1	\$1,000.00
Subtotal					\$400,460.00
Contingency & Minor Items (20%)					\$80,092.00
Total Construction Cost					\$480,552.00
Project Delivery (26%)					\$124,944.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$605,496.00



9190: South Loop Roadway Infrastructure Improvements Study
Preliminary Cost Estimate

American Blvd/28th Ave Concept

MnDOT Item #	Item Description	Unit	Unit Cost	Total	
				Quantities	Amount
2021.501/00010	Mobilization	LS	\$12,960.00	1	\$12,960.00
2104.501/00022	Remove Curb and Gutter	LF	\$4.00	820	\$3,280.00
2104.503/00021	Remove Concrete Walk	SF	\$3.00	9510	\$28,530.00
2104.503/00115	Remove Concrete Median	SF	\$3.00	1050	\$3,150.00
2104.505/00120	Remove Bituminous Pavement	SY	\$5.00	1180	\$5,900.00
2106.507/00020	Subgrade Excavation	CY	\$6.00	160	\$960.00
2106.522/00080	Select Granular (CV)	CY	\$17.00	160	\$2,720.00
2211.503/00050	Aggregate Base, Class 5	CY	\$25.00	130	\$3,250.00
2360.501/13200	Wearing Course	Ton	\$65.00	50	\$3,250.00
2360.502/24200	Non Wearing Course	Ton	\$65.00	70	\$4,550.00
2521.501/00040	4" Concrete Walk	SF	\$5.00	4800	\$24,000.00
2531.501/02320	Concrete Curb & Gutter B624	LF	\$18.00	690	\$12,420.00
2531.503/00010	Concrete Median	SY	\$36.00	0	\$0.00
2531.602/00050	Pedestrian Ramp	Each	\$5,000.00	1	\$5,000.00
	Signal Modification	LS	\$150,000.00	1	\$150,000.00
2563.601/00010	Traffic Control	LS	\$8,210.00	1	\$8,210.00
2575.555/00010	Turf Establishment	LS	\$3,290.00	1	\$3,290.00
	Drainage	LS	\$20,000.00	1	\$20,000.00
	Lighting Modifications	LS	\$6,400.00	1	\$6,400.00
	Signing and Striping	LS	\$2,500.00	1	\$2,500.00
Subtotal					\$300,370.00
Contingency & Minor Items (20%)					\$60,074.00
Total Construction Cost					\$360,444.00
Project Delivery (26%)					\$93,716.00
Right of Way Cost		SQ.FT.	-	-	
Total Improvement Cost					\$454,160.00



Appendix K
Year 2025 with Improvements MOE

DRAFT

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	3	54	14.2	B	14.2	B	0.8	A
	Right	0	-	-	-	A				
Eastbound	Thru	357	0	0	0.2	A	0.2	A		
	Right	13	0	0	0.4	A				
Westbound	Left	8	0	11	2.5	A	0.5	A		
	Thru	787	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
0	0	0
358	357	-1
12	13	1
8	8	0
805	787	-18

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	664	0	0	0.1	A	0.4	A	0.4	A
	-	278	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
671	664	-7
274	278	4

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.7	A	3.3	A
	Right	13	1	69	7.7	A				
Eastbound	Left	24	0	19	3.7	A	1.2	A		
	Thru	179	0	0	0.9	A				
Westbound	Thru	238	0	0	4.7	A	4.7	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
15	13	-2
25	24	-1
181	179	-2
243	238	-5
1	0	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	614	0	0	0.2	A	0.2	A	1.4	A
	Thru	1,218	0	10	0.5	A				
Southbound	Right	123	0	10	0.8	A	0.6	A		
	Left	10	2	27	54.8	F				
Eastbound	Left	10	2	27	54.8	F	6.5	A		
	Right	359	0	0	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
615	614	-1
1,247	1,218	-29
133	123	-10
10	10	0
361	359	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	124	14	75	30.1	C	25.1	C	15.6	B
	Thru	16	2	38	26.4	C				
	Right	29	0	1	2.8	A				
Southbound	Left	39	7	59	30.9	C	22.3	C		
	Thru	7	7	58	32.2	C				
	Right	20	0	7	2.0	A				
Eastbound	Left	24	4	33	40.5	D	13.8	B		
	Thru	288	11	90	13.5	B				
	Right	45	0	3	1.0	A				
Westbound	Left	89	13	70	34.2	C	13.7	B		
	Thru	654	17	139	11.2	B				
	Right	26	14	142	8.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
124	124	0
16	16	0
32	29	-3
40	39	-1
8	7	-1
22	20	-2
22	24	2
290	288	-2
45	45	0
93	89	-4
667	654	-13
28	26	-2

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	78	13	81	33.9	C	27.4	C	16.2	B
	Thru	24	2	40	21.9	C				
	Right	19	1	51	7.4	A				
Southbound	Left	12	1	26	18.7	B	19.2	B		
	Thru	13	2	30	32.5	C				
	Right	71	6	59	16.8	B				
Eastbound	Left	227	23	102	28.4	C	14.9	B		
	Thru	1,083	29	179	12.8	B				
	Right	100	46	219	6.2	A				
Westbound	Left	36	6	47	36.5	D	17.2	B		
	Thru	286	15	113	15.2	B				
	Right	10	0	40	4.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
80	78	-2
25	24	-1
18	19	1
12	12	0
12	13	1
73	71	-2
217	227	10
1,096	1,083	-13
102	100	-2
35	36	1
294	286	-8
8	10	2

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	27	2	33	18.7	B	12.4	B	5.8	A
	Right	79	3	50	10.2	B				
Eastbound	Left	120	10	81	14.6	B	4.7	A		
	Thru	820	10	81	3.3	A				
Westbound	Thru	234	5	78	8.4	A	7.1	A		
	Right	47	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	27	2
81	79	-2
122	120	-2
823	820	-3
237	234	-3
49	47	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	236	10	116	10.9	B	8.3	A	17.7	B
	Thru	381	7	74	6.7	A				
	Right	6	6	75	5.3	A				
Southbound	Left	0	-	-	-	A	13.4	B		
	Thru	411	17	125	14.9	B				
	Right	47	0	0	0.6	A				
Eastbound	Left	599	84	694	35.6	D	22.8	C		
	Thru	12	81	682	36.1	D				
	Right	933	35	580	14.4	B				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
240	236	-4
380	381	1
5	6	1
0	0	0
435	411	-24
50	47	-3
600	599	-1
11	12	1
945	933	-12
0	0	0
2	0	-2
0	0	0

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	67	8	59	27.2	C	19.5	B	15.3	B
	Thru	12	1	28	17.8	B				
	Right	34	1	61	5.0	A				
Southbound	Left	38	3	46	17.1	B	16.2	B		
	Thru	14	2	31	22.7	C				
	Right	89	6	55	14.8	B				
Eastbound	Left	172	16	87	24.9	C	14.3	B		
	Thru	528	20	162	13.4	B				
	Right	405	18	217	11.1	B				
Westbound	Left	90	10	62	31.2	C	16.7	B		
	Thru	175	8	67	15.1	B				
	Right	94	3	72	5.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
71	67	-4
11	12	1
33	34	1
40	38	-2
15	14	-1
86	89	3
168	172	4
536	528	-8
422	405	-17
93	90	-3
180	175	-5
99	94	-5

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	33	3	42	19.2	B	11.7	B	5.4	A
	Thru	0	-	-	-	A				
	Right	22	0	3	0.5	A				
Southbound	Left	3	1	23	20.4	C	9.5	A		
	Thru	5	1	23	21.0	C				
	Right	12	0	3	1.9	A				
Eastbound	Left	81	3	51	12.1	B	4.6	A		
	Thru	647	6	91	4.2	A				
	Right	118	0	16	1.2	A				
Westbound	Left	43	2	50	15.2	B	6.5	A		
	Thru	235	3	67	5.2	A				
	Right	14	0	5	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	33	-1
0	0	0
22	22	0
4	3	-1
4	5	1
13	12	-1
78	81	3
656	647	-9
114	118	4
44	43	-1
239	235	-4
16	14	-2

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	107	18	84	41.4	D	15.2	B	23.1	C
	Thru	44	5	49	26.8	C				
	Right	273	2	68	3.1	A				
Southbound	Left	68	17	98	48.0	D	30.5	C		
	Thru	98	12	81	30.1	C				
	Right	39	0	0	0.8	A				
Eastbound	Left	74	6	62	16.6	B	28.4	C		
	Right	569	110	479	29.9	C				
Westbound	Left	1,176	97	428	23.5	C	22.1	C		
	Right	366	37	188	17.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
111	107	-4
46	44	-2
283	273	-10
70	68	-2
99	98	-1
38	39	1
71	74	3
577	569	-8
1,180	1,176	-4
368	366	-2

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	1.2	A	2.5	A
	Thru	412	1	49	1.2	A				
Southbound	Thru	1,786	3	124	2.5	A	2.5	A		
	Right	50	4	164	1.8	A				
Eastbound	Left	13	3	43	47.5	D	47.5	D		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
426	412	-14
1,795	1,786	-9
54	50	-4
14	13	-1
1	0	-1

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	65	18	82	55.7	E	37.2	D	26.7	C
	Thru	245	27	107	42.0	D				
	Right	69	0	25	2.7	A				
Southbound	Left	455	63	301	37.6	D	22.4	C		
	Thru	751	51	269	27.6	C				
	Right	578	0	36	3.7	A				
Eastbound	Left	88	25	95	61.4	E	29.3	C		
	Thru	135	17	93	34.1	C				
	Right	133	0	17	3.1	A				
Westbound	Left	47	13	63	59.7	E	37.5	D		
	Thru	121	23	101	43.1	D				
	Right	79	27	107	15.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
67	65	-2
253	245	-8
68	69	1
449	455	6
754	751	-3
593	578	-15
92	88	-4
143	135	-8
128	133	5
49	47	-2
118	121	3
81	79	-2

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	70	11	65	38.7	D	21.5	C	17.6	B
	Thru	183	10	89	18.2	B				
	Right	29	0	3	1.1	A				
Southbound	Left	113	22	141	36.9	D	15.9	B		
	Thru	573	26	205	17.6	B				
	Right	245	0	25	2.1	A				
Eastbound	Left	158	16	94	27.7	C	18.0	B		
	Thru	271	32	222	22.4	C				
	Right	171	0	29	2.1	A				
Westbound	Left	8	2	46	54.5	D	20.5	C		
	Thru	46	7	69	30.5	C				
	Right	39	0	5	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
77	70	-7
195	183	-12
32	29	-3
105	113	8
576	573	-3
249	245	-4
159	158	-1
278	271	-7
173	171	-2
8	8	0
47	46	-1
35	39	4

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	6	1	21	35.6	D	15.0	B	16.6	B
	Thru	197	10	88	16.2	B				
	Right	29	0	10	2.7	A				
Southbound	Left	297	33	163	31.6	C	17.6	B		
	Thru	385	12	155	9.6	A				
	Right	66	0	2	1.4	A				
Eastbound	Left	9	2	24	37.9	D	28.4	C		
	Thru	0	-	-	-	A				
	Right	4	0	18	7.0	A				
Westbound	Left	26	6	59	41.5	D	11.5	B		
	Thru	1	0	7	23.6	C				
	Right	79	0	11	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	6	-2
211	197	-14
30	29	-1
296	297	1
395	385	-10
64	66	2
11	9	-2
1	0	-1
4	4	0
29	26	-3
1	1	0
81	79	-2

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	154	2	78	2.5	A	3.3	A	4.8	A
	Right	141	2	78	4.2	A				
Southbound	Thru	388	2	84	3.1	A	3.1	A		
Eastbound	Left	15	1	47	29.1	C	18.2	B		
	Right	56	3	58	15.3	B				
Westbound	Right	66	3	70	6.7	A	6.7	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
142	154	12
126	141	15
403	388	-15
16	15	-1
57	56	-1
67	66	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	35	15	60	99.2	F	19.6	B	26.5	C
	Thru	223	33	180	51.4	D				
	Right	770	1	95	6.8	A				
Southbound	Left	28	6	42	54.1	D	21.9	C		
	Thru	212	23	178	27.0	C				
	Right	205	16	206	12.2	B				
Eastbound	Left	62	22	85	71.1	E	34.2	C		
	Thru	552	59	241	33.2	C				
	Right	52	0	6	1.2	A				
Westbound	Left	207	36	140	48.0	D	37.1	D		
	Thru	160	13	82	24.6	C				
	Right	10	1	14	10.2	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	35	0
217	223	6
783	770	-13
30	28	-2
216	212	-4
214	205	-9
66	62	-4
565	552	-13
51	52	1
226	207	-19
160	160	0
8	10	2

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	74	13	150	11.6	B	7.3	A	9.2	A
	Thru	842	13	150	7.1	A				
	Right	29	21	178	4.8	A				
Southbound	Left	38	6	95	14.9	B	7.6	A		
	Thru	292	6	95	6.4	A				
	Right	112	11	124	8.1	A				
Eastbound	Left	181	17	163	22.4	C	20.6	C		
	Thru	5	17	165	18.8	B				
	Right	26	19	188	8.5	A				
Westbound	Left	4	0	18	13.9	B	11.6	B		
	Thru	3	0	18	13.9	B				
	Right	2	0	3	3.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
75	74	-1
846	842	-4
28	29	1
37	38	1
313	292	-21
112	112	0
182	181	-1
6	5	-1
28	26	-2
4	4	0
2	3	1
2	2	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	17	0	1	0.6	A	5.5	A	5.7	A
	Thru	0	-	-	-	A				
	Right	84	0	1	6.5	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	5.5	A		
	Thru	493	6	139	5.9	A				
	Right	110	0	24	3.4	A				
Westbound	Left	160	10	70	15.7	B	6.1	A		
	Thru	299	1	35	0.9	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
17	17	0
0	0	0
84	84	0
0	1	1
0	0	0
0	0	0
0	0	0
499	493	-6
106	110	4
161	160	-1
301	299	-2
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	15	0	7	3.5	A	2.6	A	4.2	A
	Thru	94	0	7	2.6	A				
	Right	8	0	7	1.1	A				
Southbound	Left	3	0	10	2.4	A	2.0	A		
	Thru	197	0	12	2.0	A				
	Right	55	0	12	2.1	A				
Eastbound	Left	48	0	42	7.9	A	6.9	A		
	Thru	98	0	42	7.6	A				
	Right	98	0	42	5.8	A				
Westbound	Left	1	0	13	4.5	A	9.2	A		
	Thru	12	0	6	10.7	B				
	Right	4	0	0	5.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
16	15	-1
90	94	4
6	8	2
2	3	1
202	197	-5
49	55	6
50	48	-2
98	98	0
98	98	0
1	1	0
15	12	-3
4	4	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	14	6	54	49.7	D	15.0	B	18.5	B
	Thru	81	7	58	19.9	B				
	Right	122	3	75	7.8	A				
Southbound	Left	16	4	39	41.7	D	16.6	B		
	Thru	135	16	141	17.8	B				
	Right	146	22	158	12.8	B				
Eastbound	Left	36	10	68	52.4	D	45.3	D		
	Thru	12	1	27	24.0	C				
	Right	0	-	-	-	A				
Westbound	Left	3	1	14	30.1	C	26.9	C		
	Thru	0	-	-	-	A				
	Right	1	0	13	17.4	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	14	-1
83	81	-2
123	122	-1
16	16	0
136	135	-1
149	146	-3
32	36	4
12	12	0
1	0	-1
4	3	-1
1	0	-1
2	1	-1

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E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	42	6	63	27.2	C	11.1	B	9.5	A
	Right	69	0	0	1.4	A				
Eastbound	Left	447	35	284	18.1	B	8.4	A		
	Thru	851	3	105	3.3	A				
Westbound	Thru	300	14	149	12.4	B	12.5	B		
	Right	74	14	148	12.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
42	42	0
71	69	-2
456	447	-9
868	851	-17
308	300	-8
77	74	-3

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	24	5	66	20.9	C	13.4	B	2.2	A
	Right	45	5	82	9.4	A				
Eastbound	Left	163	3	76	4.9	A	2.3	A		
	Thru	417	0	0	1.3	A				
Westbound	Thru	415	0	0	0.3	A	0.3	A		
	Right	21	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	24	-1
44	45	1
162	163	1
420	417	-3
418	415	-3
22	21	-1

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	90	13	89	32.1	C	25.9	C	12.1	B
	Right	28	0	42	6.1	A				
Eastbound	Thru	259	11	129	9.5	A	8.1	A		
	Right	181	3	85	6.0	A				
Westbound	Left	296	37	215	23.2	C	12.3	B		
	Thru	349	2	58	3.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	90	-3
26	28	2
263	259	-4
183	181	-2
298	296	-2
347	349	2

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	0	17	14.0	B	9.4	A	10.9	B
	Thru	63	4	56	8.8	A				
Southbound	Thru	443	16	141	11.1	B	11.0	B		
	Right	4	0	18	3.7	A				
Eastbound	Left	7	1	37	21.0	C	11.4	B		
	Right	93	3	61	10.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
9	8	-1
63	63	0
448	443	-5
6	4	-2
7	7	0
98	93	-5

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	0	13	1.8	A	1.0	A	2.9	A
	Thru	35	0	25	0.5	A				
	Right	129	0	25	0.9	A				
Southbound	Left	363	2	88	3.8	A	2.9	A		
	Thru	113	0	12	1.2	A				
	Right	59	0	12	1.0	A				
Eastbound	Left	4	0	38	25.1	D	25.1	D		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	10	2	54	19.7	C	9.8	A		
	Thru	0	-	-	-	A				
	Right	33	1	46	6.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
29	28	-1
34	35	1
131	129	-2
380	363	-17
111	113	2
56	59	3
3	4	1
0	0	0
2	0	-2
10	10	0
0	0	0
35	33	-2

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30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.5	A	1.4	A
	Thru	183	0	0	0.4	A				
	Right	109	0	0	0.7	A				
Southbound	Left	108	1	52	2.9	A	2.5	A		
	Thru	16	0	0	0.0	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	1	45	20.2	C	10.8	B		
	Thru	0	-	-	-	A				
	Right	9	1	59	6.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
185	183	-2
112	109	-3
108	108	0
14	16	2
0	0	0
0	0	0
0	0	0
0	0	0
6	4	-2
0	0	0
9	9	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	294	0	0	0.3	A	0.4	A	0.5	A
	Right	104	0	0	0.7	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	19	0	0	0.1	A				
Eastbound	Left	4	0	36	10.4	B	10.4	B		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
298	294	-4
104	104	0
1	0	-1
19	19	0
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	3	1	26	48.9	E	12.3	B	3.7	A
	Right	21	1	68	7.1	A				
Eastbound	Left	389	9	177	7.4	A	4.7	A		
	Thru	501	5	149	2.6	A				
Westbound	Thru	354	0	0	0.8	A	0.8	A		
	Right	10	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	3	0
22	21	-1
394	389	-5
516	501	-15
365	354	-11
9	10	1

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	5	0	22	12.9	B	7.2	A	3.4	A
	Right	8	0	21	3.6	A				
Eastbound	Left	66	1	45	4.6	A	3.4	A		
	Thru	218	1	44	3.0	A				
Westbound	U-turn	33	1	65	5.1	A	3.3	A		
	Thru	706	1	65	3.3	A				
	Right	86	1	65	2.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	5	-2
9	8	-1
65	66	1
223	218	-5
32	33	1
702	706	4
83	86	3

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.8	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	12	1	54	20.3	C	13.0	B		
	Thru	0	-	-	-	A				
	Right	13	1	57	6.3	A				
Eastbound	Left	112	4	68	7.7	A	2.0	A		
	Thru	313	0	0	0.2	A				
	Right	78	0	0	0.9	A				
Westbound	Left	46	1	36	4.3	A	1.2	A		
	Thru	350	0	12	0.3	A				
	Right	180	0	12	2.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
1	0	-1
12	12	0
0	0	0
14	13	-1
111	112	1
326	313	-13
82	78	-4
47	46	-1
360	350	-10
181	180	-1

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American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	183	8	96	8.0	A	8.0	A	2.1	A
Southbound	Right	57	0	30	2.4	A	2.4	A		
Eastbound	Left	29	2	38	13.7	B	2.3	A		
	Thru	204	0	0	0.9	A				
	Right	25	0	0	0.7	A				
Westbound	Left	84	0	27	2.7	A	1.0	A		
	Thru	769	0	0	0.8	A				
	Right	166	0	1	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
184	183	-1
56	57	1
25	29	4
213	204	-9
24	25	1
84	84	0
761	769	8
168	166	-2

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	5.3	A	1.6	A
	Thru	0	-	-	-	A				
	Right	4	0	46	5.3	A				
Southbound	Left	57	4	67	14.1	B	7.3	A		
	Thru	0	-	-	-	A				
	Right	68	0	26	1.6	A				
Eastbound	Left	27	0	21	3.1	A	0.3	A		
	Thru	283	0	0	0.1	A				
	Right	14	0	0	0.4	A				
Westbound	Left	7	0	9	2.8	A	1.0	A		
	Thru	507	0	0	1.0	A				
	Right	37	0	9	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
4	4	0
54	57	3
1	0	-1
70	68	-2
31	27	-4
293	283	-10
15	14	-1
7	7	0
516	507	-9
36	37	1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	192	63	236	60.5	E	33.1	C	37.7	D
	Thru	81	63	235	66.4	B				
	Right	443	21	159	15.1	B				
Southbound	Left	389	64	203	69.6	E	31.7	C		
	Thru	76	65	204	64.0	E				
	Right	576	0	0	1.9	A				
Eastbound	Left	684	15	165	23.0	C	28.7	C		
	Right	438	58	230	37.4	D				
Westbound	Left	1,411	130	504	47.0	D	46.5	D		
	Right	862	179	532	45.6	D				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
195	192	-3
79	81	2
459	443	-16
395	389	-6
75	76	1
578	576	-2
691	684	-7
437	438	1
1,419	1,411	-8
873	862	-11

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	1	21	24.2	C	20.1	C	22.7	C
	Thru	241	20	126	23.1	C				
	Right	48	0	9	4.7	A				
Southbound	Left	337	53	193	45.6	D	19.2	B		
	Thru	602	32	235	17.6	B				
	Right	987	5	198	11.1	B				
Eastbound	Left	347	53	189	44.7	D	43.5	D		
	Thru	30	53	189	42.5	D				
	Right	9	0	4	0.8	A				
Westbound	Left	25	7	51	48.3	D	19.0	B		
	Thru	25	7	51	53.0	D				
	Right	103	0	30	3.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	7	-1
249	241	-8
47	48	1
342	337	-5
606	602	-4
983	987	4
356	347	-9
32	30	-2
9	9	0
27	25	-2
22	25	3
106	103	-3

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	290	2	58	3.3	A	3.3	A	4.8	A
	Right	53	1	43	3.1	A				
Southbound	Left	62	3	67	12.1	B	5.4	A		
	Thru	545	6	116	4.6	A				
Westbound	Left	6	1	20	26.8	C	15.2	B		
	Right	7	0	41	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
296	290	-6
54	53	-1
62	62	0
551	545	-6
7	6	-1
8	7	-1

Note: Results are the average of ten (10) simulation runs

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American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	31	4	56	26.0	D	16.0	C	1.1	A
	Right	20	0	5	0.6	A				
Eastbound	Thru	819	0	1	0.5	A	0.6	A		
	Right	39	0	0	0.9	A				
Westbound	Left	12	0	21	10.0	B	0.7	A		
	Thru	680	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	31	-1
19	20	1
824	819	-5
40	39	-1
10	12	2
708	680	-28

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	590	0	0	0.4	A	0.6	A	0.6	A
	-	289	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
596	590	-6
286	289	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.5	A	3.5	A
	Right	21	1	71	7.5	A				
Eastbound	Left	40	1	29	5.3	A	1.5	A		
	Thru	278	0	0	1.0	A				
Westbound	Thru	300	0	0	5.4	A	5.4	A		
	Right	4	0	0	6.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	21	-1
42	40	-2
279	278	-1
308	300	-8
5	4	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	617	0	0	0.3	A	0.3	A	2.1	A
	Thru	922	0	42	0.8	A				
Southbound	Right	477	0	42	2.3	A	1.3	A		
	Left	44	4	49	26.6	D				
Eastbound	Left	44	4	49	26.6	D	7.6	A		
	Right	359	0	1	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
617	617	0
931	922	-9
496	477	-19
45	44	-1
361	359	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	130	22	94	43.0	D	24.2	C	25.0	C
	Thru	59	9	82	28.2	C				
	Right	128	0	8	3.2	A				
Southbound	Left	110	43	189	52.4	D	40.9	D		
	Thru	46	43	189	33.2	C				
	Right	34	0	16	14.0	B				
Eastbound	Left	54	11	58	49.8	D	19.7	B		
	Thru	517	42	203	25.3	C				
	Right	259	0	26	2.3	A				
Westbound	Left	166	30	109	48.5	D	27.3	C		
	Thru	527	28	151	21.2	C				
	Right	25	25	154	14.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
127	130	3
58	59	1
133	128	-5
109	110	1
48	46	-2
35	34	-1
53	54	1
538	517	-21
253	259	6
175	166	-9
556	527	-29
27	25	-2

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Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	506	262	560	81.4	F	66.6	E	41.2	D
	Thru	52	7	65	29.0	C				
	Right	98	4	75	10.5	B				
Southbound	Left	36	4	48	20.8	C	41.5	D		
	Thru	89	29	121	55.4	E				
	Right	435	69	219	40.3	D				
Eastbound	Left	289	57	164	56.3	E	28.9	C		
	Thru	855	53	212	25.3	C				
	Right	247	77	251	9.0	A				
Westbound	Left	95	18	90	48.7	D	41.3	D		
	Thru	1,133	181	511	41.6	D				
	Right	29	1	51	5.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
518	506	-12
52	52	0
96	98	2
38	36	-2
87	89	2
439	435	-4
275	289	14
875	855	-20
255	247	-8
93	95	2
1,164	1,133	-31
26	29	3

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	72	9	73	25.2	C	16.1	B	15.6	B
	Right	577	29	244	14.9	B				
Eastbound	Left	378	32	139	23.3	C	13.1	B		
	Thru	500	32	139	5.3	A				
Westbound	Thru	1,097	60	331	18.7	B	17.2	B		
	Right	105	0	0	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	72	0
580	577	-3
384	378	-6
498	500	2
1,122	1,097	-25
108	105	-3

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	339	22	183	17.0	B	10.5	B	13.7	B
	Thru	315	3	58	3.6	A				
	Right	7	3	57	3.3	A				
Southbound	Left	0	-	-	-	A	14.0	B		
	Thru	996	40	295	14.8	B				
	Right	65	0	0	1.3	A				
Eastbound	Left	275	32	150	33.8	C	16.3	B		
	Thru	9	33	150	33.9	C				
	Right	405	1	33	4.0	A				
Westbound	Left	0	-	-	-	A	4.2	A		
	Thru	0	-	-	-	A				
	Right	4	0	37	4.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
344	339	-5
313	315	2
5	7	2
1	0	-1
1,026	996	-30
70	65	-5
286	275	-11
9	9	0
400	405	5
1	0	-1
0	0	0
3	4	1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	321	52	200	46.1	D	36.2	D	27.4	C
	Thru	34	5	49	30.7	C				
	Right	100	3	81	6.6	A				
Southbound	Left	168	22	149	24.5	C	26.9	C		
	Thru	34	7	55	36.8	D				
	Right	342	31	152	27.1	C				
Eastbound	Left	236	55	147	65.9	E	20.8	C		
	Thru	366	9	92	6.9	A				
	Right	387	6	130	6.6	A				
Westbound	Left	157	27	105	49.3	D	30.3	C		
	Thru	602	43	181	30.9	C				
	Right	147	5	88	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
322	321	-1
33	34	1
103	100	-3
165	168	3
32	34	2
349	342	-7
235	236	1
373	366	-7
401	387	-14
163	157	-6
611	602	-9
158	147	-11

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Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	127	13	80	21.5	C	16.0	B	11.6	B
	Thru	12	13	80	20.0	C				
	Right	49	0	6	0.8	A				
Southbound	Left	49	6	63	22.8	C	9.0	A		
	Thru	7	6	66	27.3	C				
	Right	231	2	60	5.5	A				
Eastbound	Left	127	12	74	23.9	C	10.9	B		
	Thru	338	8	83	9.0	A				
	Right	105	0	22	1.4	A				
Westbound	Left	71	9	80	26.7	C	11.9	B		
	Thru	846	21	190	11.4	B				
	Right	71	0	21	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
127	127	0
12	12	0
49	49	0
50	49	-1
7	7	0
233	231	-2
126	127	1
342	338	-4
102	105	3
67	71	4
870	846	-24
72	71	-1

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	601	59	267	30.8	C	18.0	B	21.2	C
	Thru	182	22	108	33.2	C				
	Right	1,120	25	276	8.6	A				
Southbound	Left	153	42	183	48.9	D	38.0	D		
	Thru	62	14	71	51.1	D				
	Right	67	0	0	0.9	A				
Eastbound	Left	23	1	29	13.6	B	27.5	C		
	Right	336	58	300	28.4	C				
Westbound	Left	1,167	100	461	22.5	C	20.6	C		
	Right	240	16	119	11.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
610	601	-9
181	182	1
1,148	1,120	-28
155	153	-2
61	62	1
67	67	0
21	23	2
341	336	-5
1,180	1,167	-13
245	240	-5

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	2.0	A	3.4	A
	Thru	1,837	5	97	2.0	A				
Southbound	Thru	1,357	3	84	2.9	A	2.9	A		
	Right	219	6	127	2.7	A				
Eastbound	Left	78	23	120	49.4	D	44.1	D		
	Right	11	25	145	6.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
1,857	1,837	-20
1,359	1,357	-2
223	219	-4
81	78	-3
11	11	0

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	177	26	123	37.0	D	19.4	B	29.9	C
	Thru	991	38	250	17.4	B				
	Right	70	0	14	2.1	A				
Southbound	Left	119	27	93	53.5	D	25.7	C		
	Thru	979	61	248	28.6	C				
	Right	274	0	24	3.1	A				
Eastbound	Left	411	112	342	71.9	E	47.1	D		
	Thru	185	18	96	28.0	C				
	Right	155	0	25	3.8	A				
Westbound	Left	147	34	121	52.4	D	37.1	D		
	Thru	229	63	229	43.3	D				
	Right	437	69	235	28.7	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
183	177	-6
993	991	-2
68	70	2
117	119	2
975	979	4
279	274	-5
430	411	-19
191	185	-6
160	155	-5
150	147	-3
247	229	-18
437	437	0

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24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	239	44	161	50.4	D	26.9	C	24.1	C
	Thru	732	37	199	19.6	B				
	Right	9	0	0	1.4	A				
Southbound	Left	55	10	93	35.5	D	11.7	B		
	Thru	756	29	169	14.5	B				
	Right	469	1	53	4.5	A				
Eastbound	Left	364	54	186	43.9	D	33.0	C		
	Thru	134	26	145	33.8	C				
	Right	129	0	20	1.4	A				
Westbound	Left	37	14	88	67.2	E	44.0	D		
	Thru	204	76	256	64.0	E				
	Right	136	0	19	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
239	239	0
739	732	-7
11	9	-2
61	55	-6
750	756	6
475	469	-6
371	364	-7
138	134	-4
132	129	-3
38	37	-1
219	204	-15
133	136	3

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	18	5	38	66.7	E	23.1	C	17.8	B
	Thru	441	26	153	22.3	C				
	Right	22	0	9	2.4	A				
Southbound	Left	208	31	143	37.6	D	11.8	B		
	Thru	481	8	90	5.0	A				
	Right	235	0	23	2.8	A				
Eastbound	Left	285	39	206	34.5	C	31.4	C		
	Thru	4	1	34	28.1	C				
	Right	38	2	37	8.7	A				
Westbound	Left	50	16	85	54.7	D	12.8	B		
	Thru	5	2	20	71.2	E				
	Right	245	0	31	3.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
19	18	-1
447	441	-6
23	22	-1
205	208	3
482	481	-1
234	235	1
291	285	-6
5	4	-1
36	38	2
50	50	0
6	5	-1
251	245	-6

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	258	2	77	2.5	A	2.7	A	5.4	A
	Right	92	2	77	3.2	A				
Southbound	Thru	540	2	73	2.0	A	2.0	A		
Eastbound	Left	17	4	57	44.5	D	32.2	C		
	Right	54	7	73	28.3	C				
Westbound	Right	207	11	106	9.4	A	9.4	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
264	258	-6
91	92	1
543	540	-3
17	17	0
55	54	-1
208	207	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	70	25	94	82.6	F	29.7	C	33.3	C
	Thru	217	33	134	54.6	D				
	Right	352	0	31	3.8	A				
Southbound	Left	29	7	43	53.9	D	25.2	C		
	Thru	259	38	235	35.7	D				
	Right	301	24	253	13.5	B				
Eastbound	Left	104	40	125	92.2	F	44.6	D		
	Thru	238	32	131	40.8	D				
	Right	94	0	11	1.4	A				
Westbound	Left	797	109	503	43.5	D	34.7	C		
	Thru	643	39	198	25.1	C				
	Right	30	1	25	8.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
70	70	0
223	217	-6
360	352	-8
31	29	-2
263	259	-4
303	301	-2
106	104	-2
242	238	-4
92	94	2
822	797	-25
660	643	-17
26	30	4

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E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	36	8	105	21.9	C	7.0	A	9.4	A
	Thru	519	8	105	6.0	A				
	Right	5	15	133	6.1	A				
Southbound	Left	10	13	242	10.1	B	8.4	A		
	Thru	944	13	241	7.8	A				
	Right	267	20	270	10.6	B				
Eastbound	Left	154	16	145	24.0	C	21.1	C		
	Thru	8	16	145	23.7	C				
	Right	47	19	171	11.0	B				
Westbound	Left	27	3	44	16.9	B	11.2	B		
	Thru	9	3	44	14.6	B				
	Right	19	0	12	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	36	-2
525	519	-6
5	5	0
11	10	-1
966	944	-22
270	267	-3
159	154	-5
7	8	1
48	47	-1
28	27	-1
10	9	-1
19	19	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	51	0	4	0.7	A	6.4	A	4.6	A
	Thru	0	-	-	-	A				
	Right	171	0	5	8.2	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	5.4	A		
	Thru	310	4	82	6.2	A				
	Right	75	0	23	2.1	A				
Westbound	Left	136	8	65	15.3	B	3.8	A		
	Thru	755	2	79	1.7	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
54	51	-3
0	0	0
173	171	-2
0	1	1
0	0	0
1	0	-1
0	0	0
311	310	-1
77	75	-2
135	136	1
766	755	-11
1	0	-1

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	47	0	5	3.3	A	2.4	A	3.9	A
	Thru	160	0	5	2.1	A				
	Right	1	0	2	0.6	A				
Southbound	Left	0	-	-	-	A	3.2	A		
	Thru	174	0	7	3.2	A				
	Right	63	0	7	3.0	A				
Eastbound	Left	46	0	19	5.8	A	5.5	A		
	Thru	22	0	19	8.8	A				
	Right	70	0	19	4.2	A				
Westbound	Left	18	0	31	5.6	A	6.4	A		
	Thru	87	0	30	7.1	A				
	Right	14	0	2	3.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
46	47	1
159	160	1
1	1	0
0	0	0
182	174	-8
56	63	7
49	46	-3
22	22	0
75	70	-5
15	18	3
95	87	-8
13	14	1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	22	5	58	32.5	C	18.4	B	22.4	C
	Thru	97	6	58	17.3	B				
	Right	15	0	45	4.8	A				
Southbound	Left	5	1	17	29.5	C	21.1	C		
	Thru	155	20	134	24.4	C				
	Right	104	27	151	15.8	B				
Eastbound	Left	89	15	116	33.2	C	32.0	C		
	Thru	0	-	-	-	A				
	Right	4	0	5	7.1	A				
Westbound	Left	100	9	72	22.4	C	22.3	C		
	Thru	24	5	50	22.7	C				
	Right	20	5	51	21.3	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	22	1
100	97	-3
16	15	-1
5	5	0
159	155	-4
108	104	-4
91	89	-2
1	0	-1
4	4	0
101	100	-1
23	24	1
21	20	-1

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E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	136	17	118	28.8	C	13.0	B	13.2	B
	Right	329	0	0	6.4	A				
Eastbound	Left	207	22	175	21.9	C	11.1	B		
	Thru	346	4	78	4.6	A				
Westbound	Thru	948	45	296	14.6	B	14.5	B		
	Right	46	45	297	13.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
135	136	1
339	329	-10
209	207	-2
356	346	-10
964	948	-16
49	46	-3

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	18	8	90	22.2	C	11.9	B	2.1	A
	Right	145	11	106	10.7	B				
Eastbound	Left	55	1	41	5.5	A	1.4	A		
	Thru	427	0	0	0.9	A				
Westbound	Thru	747	0	0	0.4	A	0.4	A		
	Right	9	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	18	0
146	145	-1
55	55	0
429	427	-2
757	747	-10
10	9	-1

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	283	30	210	23.4	C	18.0	B	13.6	B
	Right	268	4	96	12.3	B				
Eastbound	Thru	420	15	135	11.8	B	11.6	B		
	Right	22	4	92	7.8	A				
Westbound	Left	42	6	64	29.6	C	10.5	B		
	Thru	472	11	109	8.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
290	283	-7
272	268	-4
422	420	-2
24	22	-2
42	42	0
476	472	-4

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	78	0	33	8.4	A	8.3	A	8.9	A
	Thru	394	16	129	8.3	A				
Southbound	Thru	74	3	41	11.5	B	10.4	B		
	Right	16	0	47	5.2	A				
Eastbound	Left	12	1	42	22.4	C	16.9	B		
	Right	10	0	25	10.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	78	-4
398	394	-4
77	74	-3
16	16	0
14	12	-2
13	10	-3

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.7	A	8.4	A
	Thru	111	0	9	0.7	A				
	Right	14	0	8	0.8	A				
Southbound	Left	38	0	2	1.1	A	0.7	A		
	Thru	38	0	6	0.4	A				
	Right	10	0	6	0.6	A				
Eastbound	Left	48	8	91	12.7	B	9.7	A		
	Thru	1	6	86	17.6	C				
	Right	137	7	90	8.6	A				
Westbound	Left	110	7	83	11.6	B	11.7	B		
	Thru	0	-	-	-	A				
	Right	315	13	117	11.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	0	-1
109	111	2
12	14	2
41	38	-3
40	38	-2
9	10	1
51	48	-3
1	1	0
135	137	2
108	110	2
0	0	0
319	315	-4

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30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.2	A	3.7	A
	Thru	24	0	0	0.2	A				
	Right	8	0	0	0.4	A				
Southbound	Left	14	0	0	0.7	A	0.3	A		
	Thru	269	0	0	0.3	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	77	8	91	11.1	B	9.6	A		
	Thru	0	-	-	-	A				
	Right	101	10	104	8.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
24	24	0
7	8	1
13	14	1
270	269	-1
0	0	0
1	0	-1
0	0	0
1	0	-1
81	77	-4
0	0	0
99	101	2

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	28	0	0	0.1	A	0.2	A	2.4	A
	Right	7	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	1.1	A		
	Thru	346	0	0	1.1	A				
Eastbound	Left	66	3	62	10.3	B	10.1	B		
	Right	3	3	69	5.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
28	28	0
7	7	0
0	0	0
352	346	-6
69	66	-3
3	3	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	47	9	74	33.4	D	17.9	C	5.8	A
	Right	366	48	221	15.9	C				
Eastbound	Left	27	1	33	5.9	A	1.4	A		
	Thru	453	0	7	1.1	A				
Westbound	Thru	634	0	4	1.3	A	1.3	A		
	Right	8	0	4	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
48	47	-1
372	366	-6
28	27	-1
461	453	-8
643	634	-9
7	8	1

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	90	3	71	7.4	A	6.0	A	4.1	A
	Right	76	2	71	4.3	A				
Eastbound	Left	11	2	77	6.6	A	4.3	A		
	Thru	673	2	77	4.3	A				
Westbound	U-turn	100	0	25	4.6	A	3.0	A		
	Thru	362	0	25	2.6	A				
	Right	16	0	25	1.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
90	90	0
77	76	-1
12	11	-1
682	673	-9
102	100	-2
359	362	3
16	16	0

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	89	11	88	22.6	C	16.7	C	4.9	A
	Thru	0	-	-	-	A				
	Right	56	2	59	7.3	A				
Southbound	Left	134	18	121	22.3	C	15.6	C		
	Thru	0	-	-	-	A				
	Right	118	6	87	8.0	A				
Eastbound	Left	23	0	14	3.5	A	0.4	A		
	Thru	474	0	0	0.2	A				
	Right	4	0	0	0.7	A				
Westbound	Left	0	-	-	-	A	0.3	A		
	Thru	436	0	0	0.3	A				
	Right	24	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	89	0
1	0	-1
55	56	1
135	134	-1
0	0	0
120	118	-2
22	23	1
484	474	-10
3	4	1
0	0	0
441	436	-5
25	24	-1

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	167	8	94	8.2	A	8.2	A	4.8	A
Southbound	Right	183	0	36	1.7	A	1.7	A		
Eastbound	Left	11	0	12	3.1	A	5.0	A		
	Thru	787	6	145	5.2	A				
	Right	59	6	141	1.7	A				
Westbound	Left	127	10	93	15.5	C	4.6	A		
	Thru	295	0	0	0.6	A				
	Right	63	0	0	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
166	167	1
183	183	0
11	11	0
801	787	-14
62	59	-3
127	127	0
294	295	1
65	63	-2

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	41	17.8	C	11.8	B	1.6	A
	Thru	0	-	-	-	A				
	Right	4	0	47	5.8	A				
Southbound	Left	63	7	79	17.8	C	10.2	B		
	Thru	0	-	-	-	A				
	Right	53	0	18	1.1	A				
Eastbound	Left	58	1	29	3.2	A	0.4	A		
	Thru	590	0	0	0.1	A				
	Right	13	0	0	0.4	A				
Westbound	Left	6	0	11	6.1	A	0.8	A		
	Thru	404	0	0	0.7	A				
	Right	22	0	3	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
0	0	0
5	4	-1
63	63	0
0	0	0
55	53	-2
61	58	-3
601	590	-11
13	13	0
5	6	1
406	404	-2
23	22	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	342	165	591	59.2	E	39.8	D	39.6	D
	Thru	162	166	592	67.4	E				
	Right	1,434	222	684	32.1	C				
Southbound	Left	980	440	1,202	56.6	E	46.8	D		
	Thru	53	422	1,176	59.8	E				
	Right	1,545	499	1,439	40.0	D				
Eastbound	Left	1,158	50	314	36.2	D	35.8	D		
	Right	250	30	148	33.6	C				
Westbound	Left	741	28	211	29.3	C	29.2	C		
	Right	554	55	233	29.1	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
351	342	-9
168	162	-6
1,467	1,434	-33
1,050	980	-70
58	53	-5
1,650	1,545	-105
1,177	1,158	-19
245	250	5
739	741	2
561	554	-7

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	17	40.5	D	41.0	D	36.9	D
	Thru	655	112	372	41.7	D				
	Right	38	0	11	28.4	C				
Southbound	Left	191	46	153	65.2	E	29.4	C		
	Thru	426	54	254	37.9	D				
	Right	428	0	53	5.1	A				
Eastbound	Left	885	143	476	45.4	D	44.5	D		
	Thru	46	144	477	38.0	D				
	Right	11	0	3	0.8	A				
Westbound	Left	59	21	111	62.6	E	32.5	C		
	Thru	54	32	246	68.1	E				
	Right	373	39	277	22.6	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
673	655	-18
37	38	1
192	191	-1
423	426	3
426	428	2
910	885	-25
47	46	-1
10	11	1
59	59	0
55	54	-1
375	373	-2

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	676	7	95	5.3	A	5.3	A	7.6	A
	Right	10	3	81	4.7	A				
Southbound	Left	14	1	33	19.4	B	8.9	A		
	Thru	369	8	129	8.5	A				
Westbound	Left	65	8	72	24.0	C	18.7	B		
	Right	26	1	57	5.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
689	676	-13
10	10	0
15	14	-1
369	369	0
65	65	0
26	26	0

Note: Results are the average of ten (10) simulation runs

2025 VISSIM Model: Improvements
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American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	59	6	72	20.2	C	10.9	B	1.5	A
	Right	54	0	10	0.7	A				
Eastbound	Thru	510	0	0	0.3	A	0.4	A		
	Right	55	0	0	0.7	A				
Westbound	Left	18	0	24	5.1	A	0.5	A		
	Thru	469	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
61	59	-2
52	54	2
516	510	-6
55	55	0
17	18	1
478	469	-9

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	719	0	1	1.1	A	1.3	A	1.3	A
	-	548	0	0	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
724	719	-5
548	548	0

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	6.8	A	1.7	A
	Right	20	1	71	6.8	A				
Eastbound	Left	30	0	19	2.6	A	1.0	A		
	Thru	174	0	0	0.7	A				
Westbound	Thru	177	0	0	2.0	A	2.0	A		
	Right	11	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
21	20	-1
31	30	-1
175	174	-1
185	177	-8
13	11	-2

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	440	0	0	0.2	A	0.2	A	2.0	A
	Thru	500	0	11	0.4	A				
Southbound	Right	279	0	11	1.2	A	0.7	A		
	Left	69	4	59	17.2	C				
Eastbound	Left	69	4	59	17.2	C	7.2	A		
	Right	290	0	1	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
442	440	-2
510	500	-10
290	279	-11
70	69	-1
290	290	0

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	153	36	142	51.5	D	30.4	C	33.2	C
	Thru	105	33	142	54.1	D				
	Right	216	0	16	3.8	A				
Southbound	Left	149	62	282	49.7	D	44.7	D		
	Thru	77	62	282	47.7	D				
	Right	38	0	14	19.1	B				
Eastbound	Left	70	16	70	59.0	E	29.7	C		
	Thru	314	40	156	39.0	D				
	Right	181	0	19	2.2	A				
Westbound	Left	333	49	183	43.7	D	33.6	C		
	Thru	296	18	105	22.8	C				
	Right	13	15	108	20.5	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
151	153	2
105	105	0
222	216	-6
149	149	0
80	77	-3
38	38	0
69	70	1
322	314	-8
177	181	4
346	333	-13
306	296	-10
15	13	-2

2025 VISSIM Model: Improvements
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Lindau Ln & IKEA Way

(Signal)										
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	546	279	599	82.9	F	64.7	E	53.2	D
	Thru	109	29	197	47.6	D				
	Right	163	9	103	15.0	B				
Southbound	Left	108	17	114	49.0	D	67.5	E		
	Thru	186	77	403	75.2	E				
	Right	798	238	727	68.2	E				
Eastbound	Left	529	91	272	53.1	D	39.1	D		
	Thru	1,075	120	426	41.8	D				
	Right	534	151	468	19.6	B				
Westbound	Left	158	38	123	69.1	E	57.7	E		
	Thru	892	230	543	59.7	E				
	Right	71	3	68	7.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
560	546	-14
110	109	-1
158	163	5
107	108	1
187	186	-1
823	798	-25
514	529	15
1,101	1,075	-26
549	534	-15
154	158	4
917	892	-25
76	71	-5

Killebrew Dr & 20th Ave

(Signal)										
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	95	24	238	36.2	D	34.5	C	35.2	D
	Right	890	172	779	34.4	C				
Eastbound	Left	557	112	313	51.7	D	34.4	C		
	Thru	692	112	314	20.5	C				
Westbound	Thru	1,120	135	449	41.2	D	36.4	D		
	Right	169	0	0	5.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	95	2
901	890	-11
577	557	-20
695	692	-3
1,137	1,120	-17
171	169	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)										
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	248	7	97	9.0	A	6.5	A	10.5	B
	Thru	255	3	55	4.2	A				
	Right	6	3	55	2.2	A				
Southbound	Left	2	0	4	7.4	A	10.0	B		
	Thru	504	15	147	11.0	B				
	Right	47	0	0	0.3	A				
Eastbound	Left	288	23	120	25.3	C	14.5	B		
	Thru	0	-	-	-	A				
	Right	275	0	14	3.2	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
253	248	-5
254	255	1
5	6	1
3	2	-1
524	504	-20
48	47	-1
292	288	-4
0	0	0
274	275	1
1	0	-1
1	0	-1
1	0	-1

Lindau Ln & 22nd Ave

(Signal)										
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	233	51	205	61.1	E	41.8	D	23.7	C
	Thru	51	13	74	49.0	D				
	Right	141	5	86	7.4	A				
Southbound	Left	213	47	233	37.7	D	29.7	C		
	Thru	44	11	73	46.2	D				
	Right	414	31	150	23.9	C				
Eastbound	Left	391	30	143	22.8	C	13.2	B		
	Thru	475	16	94	9.4	A				
	Right	476	14	169	8.9	A				
Westbound	Left	255	42	155	51.3	D	26.2	C		
	Thru	478	23	155	22.6	C				
	Right	261	5	91	8.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
236	233	-3
50	51	1
143	141	-2
208	213	5
43	44	1
423	414	-9
392	391	-1
479	475	-4
495	476	-19
262	255	-7
487	478	-9
274	261	-13

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Killebrew Dr & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	120	24	106	39.4	D	24.1	C	22.3	C	122	120	-2
	Thru	4	24	105	26.2	C					4	4	0
	Right	82	0	6	1.5	A					84	82	-2
Southbound	Left	230	90	347	50.9	D	26.0	C			229	230	1
	Thru	6	89	347	42.0	D					6	6	0
	Right	611	67	359	16.4	B					615	611	-4
Eastbound	Left	274	25	139	27.9	C	12.9	B			274	274	0
	Thru	373	8	87	6.1	A					377	373	-4
	Right	139	0	17	1.6	A					137	139	2
Westbound	Left	52	16	100	58.2	E	27.8	C	51	52	1		
	Thru	572	39	203	28.8	C			571	572	1		
	Right	89	0	36	3.1	A			90	89	-1		

24th Ave & I-494 Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	539	102	307	56.8	E	24.4	C	28.7	C	551	539	-12
	Thru	119	19	88	41.3	D					120	119	-1
	Right	1,141	23	364	7.3	A					1,171	1,141	-30
Southbound	Left	70	20	101	55.0	D	39.1	D			74	70	-4
	Thru	72	14	79	43.3	D					71	72	1
	Right	37	0	0	0.8	A					38	37	-1
Eastbound	Left	21	2	30	16.9	B	42.1	D			19	21	2
	Right	604	176	645	43.0	D					609	604	-5
Westbound	Left	1,425	163	641	28.0	C	27.0	C			1,433	1,425	-8
	Right	72	4	80	8.4	A			75	72	-3		

24th Ave & 79th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	1	1	17	45.2	D	3.2	A	7.5	A	1	1	0
	Thru	1,678	8	166	3.2	A					1,707	1,678	-29
Southbound	Thru	1,715	39	396	7.8	A	7.9	A			1,713	1,715	2
	Right	378	51	438	8.7	A					393	378	-15
Eastbound	Left	137	43	184	54.1	D	47.1	D			135	137	2
	Right	25	53	212	8.3	A					26	25	-1

American Blvd & 24th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	186	43	147	59.5	E	30.7	C	31.0	C	197	186	-11
	Thru	1,162	74	391	27.9	C					1,188	1,162	-26
	Right	73	0	10	2.3	A					69	73	4
Southbound	Left	131	28	118	53.0	D	26.8	C			128	131	3
	Thru	1,312	91	398	29.4	C					1,306	1,312	6
	Right	301	0	22	4.1	A					304	301	-3
Eastbound	Left	432	86	269	58.1	E	39.6	D			431	432	1
	Thru	91	7	64	19.4	B					91	91	0
	Right	165	0	18	2.5	A					170	165	-5
Westbound	Left	77	21	86	56.2	E	38.2	D	84	77	-7		
	Thru	82	17	91	39.8	D			84	82	-2		
	Right	85	21	98	20.2	C			90	85	-5		

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	266	44	175	46.9	D	23.3	C	29.5	C
	Thru	886	38	246	16.7	B				
	Right	21	0	2	1.1	A				
Southbound	Left	76	34	140	72.7	E	28.4	C		
	Thru	827	100	397	40.0	D				
	Right	631	2	123	7.8	A				
Eastbound	Left	471	83	269	54.0	D	38.3	D		
	Thru	148	36	188	41.5	D				
	Right	218	0	32	2.1	A				
Westbound	Left	14	7	53	79.7	E	38.4	D		
	Thru	96	29	146	57.2	E				
	Right	73	0	14	5.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
274	266	-8
924	886	-38
22	21	-1
77	76	-1
836	827	-9
648	631	-17
462	471	9
151	148	-3
217	218	1
14	14	0
103	96	-7
68	73	5

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	135	23	105	44.3	D	23.8	C	22.2	C
	Thru	568	28	181	19.9	B				
	Right	25	0	10	2.5	A				
Southbound	Left	191	36	140	51.5	D	16.6	B		
	Thru	405	16	169	11.2	B				
	Right	459	1	78	6.9	A				
Eastbound	Left	411	75	375	42.9	D	35.5	D		
	Thru	4	4	72	42.2	D				
	Right	139	5	77	13.5	B				
Westbound	Left	30	10	64	57.6	E	10.9	B		
	Thru	4	1	21	56.8	E				
	Right	209	0	36	3.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
137	135	-2
586	568	-18
26	25	-1
191	191	0
408	405	-3
468	459	-9
418	411	-7
4	4	0
135	139	4
30	30	0
5	4	-1
218	209	-9

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	514	3	97	3.2	A	3.1	A	5.6	A
	Right	84	3	98	3.0	A				
Southbound	Thru	558	3	108	3.0	A	3.0	A		
Eastbound	Left	11	3	55	45.9	D	30.8	C		
	Right	67	10	78	28.3	C				
Westbound	Right	206	10	105	10.2	B	10.2	B		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
530	514	-16
87	84	-3
556	558	2
11	11	0
68	67	-1
207	206	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	96	26	111	64.0	E	33.3	C	32.0	C
	Thru	285	41	192	52.3	D				
	Right	285	0	33	4.0	A				
Southbound	Left	42	7	49	41.9	D	20.9	C		
	Thru	228	32	273	31.2	C				
	Right	356	24	320	11.9	B				
Eastbound	Left	285	69	268	68.7	E	41.5	D		
	Thru	292	26	119	29.2	C				
	Right	104	0	13	1.4	A				
Westbound	Left	339	38	166	35.2	D	31.4	C		
	Thru	304	24	116	28.9	C				
	Right	28	1	19	11.4	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	96	3
295	285	-10
289	285	-4
43	42	-1
226	228	2
356	356	0
295	285	-10
288	292	4
107	104	-3
361	339	-22
311	304	-7
27	28	1

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	5	77	10.3	B	4.7	A	6.4	A
	Thru	496	5	77	4.4	A				
	Right	3	10	106	2.1	A				
Southbound	Left	3	5	122	5.7	A	5.7	A		
	Thru	526	6	125	5.4	A				
	Right	167	10	155	6.6	A				
Eastbound	Left	111	9	105	18.0	B	15.2	B		
	Thru	0	-	-	-	A				
	Right	38	9	131	6.8	A				
Westbound	Left	3	0	18	14.5	B	10.2	B		
	Thru	4	0	18	15.1	B				
	Right	4	0	2	2.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
31	28	-3
499	496	-3
3	3	0
3	3	0
543	526	-17
173	167	-6
114	111	-3
0	0	0
41	38	-3
2	3	1
4	4	0
3	4	1

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	27	0	3	0.6	A	6.2	A	5.6	A
	Thru	0	-	-	-	A				
	Right	138	0	3	7.3	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	4.5	A		
	Thru	163	2	56	5.7	A				
	Right	73	0	15	1.7	A				
Westbound	Left	106	6	55	14.1	B	6.3	A		
	Thru	191	1	41	1.9	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
28	27	-1
0	0	0
139	138	-1
0	1	1
0	0	0
0	0	0
0	0	0
160	163	3
73	73	0
110	106	-4
199	191	-8
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	40	0	3	2.9	A	2.3	A	3.4	A
	Thru	134	0	3	2.2	A				
	Right	4	0	3	1.2	A				
Southbound	Left	0	-	-	-	A	1.9	A		
	Thru	124	0	11	2.0	A				
	Right	45	0	11	1.7	A				
Eastbound	Left	37	0	15	6.3	A	6.4	A		
	Thru	18	0	15	10.5	B				
	Right	60	0	15	5.1	A				
Westbound	Left	0	-	-	-	A	8.8	A		
	Thru	13	0	13	9.8	A				
	Right	2	0	0	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	40	2
133	134	1
2	4	2
0	0	0
132	124	-8
42	45	3
38	37	-1
17	18	1
62	60	-2
1	0	-1
16	13	-3
2	2	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	6	1	48	24.9	C	15.0	B	15.8	B
	Thru	88	5	49	15.5	B				
	Right	10	0	34	4.3	A				
Southbound	Left	4	1	14	26.7	C	11.7	B		
	Thru	88	7	86	14.8	B				
	Right	92	11	102	8.1	A				
Eastbound	Left	87	10	108	24.4	C	23.7	C		
	Thru	5	1	17	24.0	C				
	Right	4	0	4	7.6	A				
Westbound	Left	10	1	23	19.4	B	19.0	B		
	Thru	4	1	21	18.4	B				
	Right	3	1	22	18.5	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	6	-1
89	88	-1
10	10	0
4	4	0
95	88	-7
101	92	-9
87	87	0
5	5	0
3	4	1
13	10	-3
3	4	1
3	3	0

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	119	12	95	26.2	C	14.5	B	11.1	B
	Right	187	0	0	7.1	A				
Eastbound	Left	179	16	138	19.0	B	9.3	A		
	Thru	331	3	71	4.1	A				
Westbound	Thru	283	10	121	10.8	B	10.8	B		
	Right	37	10	121	10.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
122	119	-3
196	187	-9
179	179	0
332	331	-1
298	283	-15
41	37	-4

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	3	1	41	8.9	A	6.5	A	0.6	A
	Right	17	1	58	6.0	A				
Eastbound	Left	24	0	18	1.8	A	0.5	A		
	Thru	276	0	0	0.4	A				
Westbound	Thru	278	0	0	0.2	A	0.2	A		
	Right	9	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	3	-1
20	17	-3
22	24	2
277	276	-1
288	278	-10
7	9	2

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	67	5	59	20.1	C	16.5	B	5.4	A
	Right	23	0	40	6.1	A				
Eastbound	Thru	258	2	58	3.3	A	3.2	A		
	Right	20	0	13	2.1	A				
Westbound	Left	26	2	47	15.1	B	3.7	A		
	Thru	218	1	39	2.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	67	-5
25	23	-2
260	258	-2
21	20	-1
27	26	-1
224	218	-6

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	12	0	3	9.6	A	7.2	A	8.9	A
	Thru	43	2	47	6.5	A				
Southbound	Thru	40	2	31	9.1	A	8.4	A		
	Right	5	0	14	3.2	A				
Eastbound	Left	14	1	41	16.2	B	14.2	B		
	Right	8	0	24	10.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
13	12	-1
43	43	0
41	40	-1
5	5	0
19	14	-5
11	8	-3

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	0	0	0.6	A	0.4	A	3.1	A
	Thru	17	0	2	0.2	A				
	Right	12	0	2	0.7	A				
Southbound	Left	30	0	1	0.6	A	0.5	A		
	Thru	12	0	2	0.1	A				
	Right	7	0	3	0.6	A				
Eastbound	Left	6	1	45	7.8	A	6.5	A		
	Thru	0	-	-	-	A				
	Right	13	0	44	5.8	A				
Westbound	Left	12	1	51	7.7	A	6.4	A		
	Thru	0	-	-	-	A				
	Right	33	1	43	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
16	17	1
13	12	-1
34	30	-4
12	12	0
7	7	0
6	6	0
0	0	0
12	13	1
12	12	0
0	0	0
34	33	-1

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	1.1	A
	Thru	24	0	0	0.1	A				
	Right	8	0	0	0.3	A				
Southbound	Left	9	0	1	0.5	A	0.2	A		
	Thru	27	0	0	0.1	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	0	45	7.4	A	6.1	A		
	Thru	0	-	-	-	A				
	Right	9	1	59	5.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	24	2
7	8	1
10	9	-1
28	27	-1
0	0	0
0	0	0
0	0	0
5	4	-1
0	0	0
11	9	-2

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	32	0	0	0.1	A	0.2	A	0.5	A
	Right	6	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	30	0	0	0.1	A				
Eastbound	Left	4	0	36	7.2	A	7.2	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
29	32	3
7	6	-1
0	0	0
33	30	-3
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	6	1	39	14.9	B	8.2	A	1.3	A
	Right	28	2	72	6.7	A				
Eastbound	Left	33	0	19	2.5	A	1.1	A		
	Thru	416	0	4	1.0	A				
Westbound	Thru	300	0	2	0.8	A	0.8	A		
	Right	4	0	2	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	6	-1
32	28	-4
32	33	1
422	416	-6
309	300	-9
4	4	0

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	2.4	A
	Right	0	-	-	-	A				
Eastbound	Left	3	0	14	3.6	A	2.5	A		
	Thru	280	0	16	2.4	A				
Westbound	U-turn	34	0	4	3.7	A	2.3	A		
	Thru	245	0	5	2.1	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
2	0	-2
3	3	0
282	280	-2
34	34	0
247	245	-2
0	0	0

E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.5	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	13	1	54	12.9	B	9.6	A		
	Thru	0	-	-	-	A				
	Right	12	1	55	6.1	A				
Eastbound	Left	16	0	12	2.0	A	0.2	A		
	Thru	403	0	0	0.2	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.2	A		
	Thru	294	0	0	0.2	A				
	Right	14	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
0	0	0
15	13	-2
0	0	0
13	12	-1
16	16	0
412	403	-9
1	0	-1
0	0	0
297	294	-3
13	14	1

2025 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	150	6	88	7.2	A	7.2	A	2.2	A
Southbound	Right	54	0	17	0.8	A	0.8	A		
Eastbound	Left	1	0	6	1.9	A	1.0	A		
	Thru	263	0	0	1.0	A				
	Right	49	0	0	0.9	A				
Westbound	Left	93	1	44	3.8	A	1.3	A		
	Thru	224	0	0	0.4	A				
	Right	28	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
148	150	2
55	54	-1
3	1	-2
267	263	-4
46	49	3
92	93	1
226	224	-2
28	28	0

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.2	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	54	4	62	12.3	B	7.1	A		
	Thru	0	-	-	-	A				
	Right	44	0	12	0.7	A				
Eastbound	Left	44	0	18	1.4	A	0.2	A		
	Thru	374	0	0	0.1	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.6	A		
	Thru	263	0	0	0.6	A				
	Right	12	0	7	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
54	54	0
0	0	0
46	44	-2
47	44	-3
379	374	-5
0	0	0
0	0	0
265	263	-2
13	12	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	236	61	243	47.7	D	28.4	C	24.6	C
	Thru	42	61	243	56.5	E				
	Right	615	39	224	19.1	B				
Southbound	Left	562	71	254	46.8	D	19.6	B		
	Thru	85	71	256	48.5	D				
	Right	1,205	1	28	4.9	A				
Eastbound	Left	972	27	213	27.9	C	28.0	C		
	Right	251	26	127	28.5	C				
Westbound	Left	498	14	144	26.6	C	26.1	C		
	Right	495	43	195	25.6	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
241	236	-5
38	42	4
628	615	-13
566	562	-4
86	85	-1
1,208	1,205	-3
988	972	-16
246	251	5
499	498	-1
498	495	-3

34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	2	1	11	49.7	D	20.0	B	25.1	C
	Thru	376	29	170	21.5	C				
	Right	44	0	14	6.0	A				
Southbound	Left	187	32	122	44.8	D	19.8	B		
	Thru	331	22	144	20.6	C				
	Right	314	0	47	4.2	A				
Eastbound	Left	387	57	207	43.3	D	42.9	D		
	Thru	24	57	206	39.7	D				
	Right	2	0	0	0.6	A				
Westbound	Left	32	9	60	50.7	D	20.7	C		
	Thru	28	8	56	49.8	D				
	Right	117	1	44	5.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
3	2	-1
386	376	-10
44	44	0
188	187	-1
329	331	2
314	314	0
388	387	-1
24	24	0
3	2	-1
34	32	-2
29	28	-1
117	117	0

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	422	1	38	1.0	A	1.0	A	2.7	A
	Right	7	0	19	1.3	A				
Southbound	Left	7	0	24	12.0	B	5.1	A		
	Thru	273	4	78	4.9	A				
Westbound	Left	1	0	7	16.3	B	7.1	A		
	Right	5	0	35	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
428	422	-6
5	7	2
7	7	0
276	273	-3
2	1	-1
5	5	0

Note: Results are the average of ten (10) simulation runs

Appendix L
Year 2040 MOE

DRAFT

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	3	55	19.1	C	19.1	C	0.9	A
	Right	0	-	-	-	A				
Eastbound	Thru	521	0	0	0.3	A	0.3	A		
	Right	14	0	0	0.5	A				
Westbound	Left	6	0	13	4.2	A	0.5	A		
	Thru	830	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
0	0	0
523	521	-2
12	14	2
8	6	-2
918	830	-88

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	1,033	0	0	0.3	A	0.4	A	0.4	A
	-	277	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1,041	1,033	-8
274	277	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.0	A	3.2	A
	Right	13	1	69	7.0	A				
Eastbound	Left	24	0	21	3.9	A	1.2	A		
	Thru	252	0	0	0.9	A				
Westbound	Thru	239	0	0	5.3	A	5.3	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
15	13	-2
25	24	-1
255	252	-3
266	239	-27
1	0	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	733	0	0	0.2	A	0.2	A	1.4	A
	Thru	1,107	0	21	0.7	A				
Southbound	Right	201	0	22	1.1	A	0.7	A		
	Left	10	2	27	35.5	E				
Eastbound	Left	10	2	27	35.5	E	6.0	A		
	Right	358	0	0	5.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
736	733	-3
1,286	1,107	-179
251	201	-50
10	10	0
361	358	-3

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	133	17	83	33.0	C	18.7	B	19.2	B
	Thru	16	2	34	30.0	C				
	Right	134	0	8	3.1	A				
Southbound	Left	41	8	60	34.6	C	24.3	C		
	Thru	8	8	60	32.5	C				
	Right	21	0	8	1.0	A				
Eastbound	Left	23	4	33	43.9	D	18.4	B		
	Thru	433	24	140	19.3	B				
	Right	59	0	6	1.8	A				
Westbound	Left	341	40	172	34.7	C	19.4	B		
	Thru	682	19	151	12.1	B				
	Right	25	17	155	9.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
130	133	3
16	16	0
139	134	-5
40	41	1
8	8	0
22	21	-1
22	23	1
440	433	-7
60	59	-1
374	341	-33
774	682	-92
28	25	-3

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	79	14	86	37.4	D	31.5	C	17.7	B
	Thru	25	4	46	30.4	C				
	Right	19	1	53	8.5	A				
Southbound	Left	15	2	29	25.8	C	21.8	C		
	Thru	12	2	30	36.0	D				
	Right	92	9	68	19.3	B				
Eastbound	Left	278	32	136	32.9	C	16.6	B		
	Thru	1,453	41	231	14.1	B				
	Right	98	58	271	7.1	A				
Westbound	Left	34	7	46	40.5	D	17.1	B		
	Thru	376	19	143	15.6	B				
	Right	15	0	43	4.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
80	79	-1
25	25	0
18	19	1
14	15	1
12	12	0
93	92	-1
268	278	10
1,471	1,453	-18
102	98	-4
35	34	-1
400	376	-24
13	15	2

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	26	3	40	20.3	C	14.0	B	5.5	A
	Right	80	4	51	12.0	B				
Eastbound	Left	120	11	92	14.7	B	4.5	A		
	Thru	1,186	11	93	3.4	A				
Westbound	Thru	260	6	86	8.1	A	7.1	A		
	Right	42	0	0	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	26	1
81	80	-1
122	120	-2
1,193	1,186	-7
290	260	-30
49	42	-7

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	239	14	141	14.3	B	10.4	B	25.0	C
	Thru	497	11	107	8.6	A				
	Right	7	11	106	5.5	A				
Southbound	Left	0	-	-	-	A	17.3	B		
	Thru	527	29	180	18.8	B				
	Right	50	0	0	0.7	A				
Eastbound	Left	745	242	1,693	46.3	D	35.0	D		
	Thru	11	240	1,707	49.5	D				
	Right	784	174	1,576	24.1	C				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
240	239	-1
501	497	-4
5	7	2
0	0	0
592	527	-65
55	50	-5
898	745	-153
11	11	0
945	784	-161
0	0	0
2	0	-2
0	0	0

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	68	9	62	29.6	C	21.8	C	16.5	B
	Thru	12	1	24	23.8	C				
	Right	34	1	61	5.6	A				
Southbound	Left	52	5	59	20.2	C	15.7	B		
	Thru	14	2	31	27.3	C				
	Right	135	7	62	12.7	B				
Eastbound	Left	303	25	138	24.8	C	15.6	B		
	Thru	769	33	244	14.7	B				
	Right	409	16	199	10.5	B				
Westbound	Left	90	12	72	35.9	D	18.7	B		
	Thru	221	11	75	18.0	B				
	Right	119	4	87	6.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
71	68	-3
11	12	1
33	34	1
52	52	0
15	14	-1
135	135	0
296	303	7
785	769	-16
422	409	-13
93	90	-3
242	221	-21
130	119	-11

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	33	4	48	23.7	C	15.0	B	5.5	A
	Thru	0	-	-	-	A				
	Right	20	0	3	0.6	A				
Southbound	Left	4	1	21	25.4	C	12.0	B		
	Thru	5	1	22	22.8	C				
	Right	11	0	3	2.3	A				
Eastbound	Left	81	4	53	13.7	B	4.7	A		
	Thru	1,019	9	143	4.4	A				
	Right	114	0	14	1.1	A				
Westbound	Left	41	3	52	18.2	B	6.5	A		
	Thru	259	3	67	4.9	A				
	Right	14	0	5	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	33	-1
0	0	0
22	20	-2
4	4	0
4	5	1
13	11	-2
78	81	3
1,026	1,019	-7
114	114	0
44	41	-3
292	259	-33
16	14	-2

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	195	29	124	40.5	D	17.4	B	48.9	D
	Thru	59	7	48	27.7	C				
	Right	351	2	53	2.8	A				
Southbound	Left	73	18	96	47.7	D	32.1	C		
	Thru	134	17	93	33.4	C				
	Right	42	0	0	0.8	A				
Eastbound	Left	63	3	37	57.3	E	138.2	F		
	Right	686	1,729	2,100	145.7	F				
Westbound	Left	1,410	135	556	26.3	C	24.5	C		
	Right	375	39	206	18.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
205	195	-10
58	59	1
366	351	-15
74	73	-1
134	134	0
41	42	1
76	63	-13
898	686	-212
1,414	1,410	-4
377	375	-2

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	34	8	47	48.3	D	4.7	A	11.7	B
	Thru	557	2	81	2.0	A				
Southbound	Thru	2,108	63	459	12.6	B	12.6	B		
	Right	114	76	501	12.6	B				
Eastbound	Left	51	13	83	48.3	D	37.1	D		
	Right	28	14	112	16.8	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	34	0
578	557	-21
2,312	2,108	-204
126	114	-12
52	51	-1
28	28	0

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	83	18	90	48.4	D	32.1	C	28.6	C
	Thru	289	32	147	39.9	D				
	Right	132	1	57	4.7	A				
Southbound	Left	543	86	379	42.2	D	23.8	C		
	Thru	793	64	335	30.1	C				
	Right	797	0	46	5.1	A				
Eastbound	Left	211	58	174	69.2	E	37.1	D		
	Thru	231	25	128	32.3	C				
	Right	170	0	26	3.6	A				
Westbound	Left	69	16	75	55.3	E	37.9	D		
	Thru	168	29	132	41.5	D				
	Right	92	34	140	18.2	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
87	83	-4
296	289	-7
136	132	-4
586	543	-43
863	793	-70
892	797	-95
213	211	-2
237	231	-6
171	170	-1
78	69	-9
182	168	-14
101	92	-9

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



24th Ave & Lindau Ln

										(Signal)
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	82	15	81	42.5	D	24.9	C	21.1	C
	Thru	236	16	125	23.6	C				
	Right	49	0	5	1.2	A				
Southbound	Left	140	33	169	42.3	D	19.0	B		
	Thru	611	33	215	21.3	C				
	Right	280	0	31	2.3	A				
Eastbound	Left	218	25	133	31.9	C	21.8	C		
	Thru	459	63	401	24.5	C				
	Right	176	0	23	2.4	A				
Westbound	Left	10	3	44	52.2	D	21.6	C		
	Thru	69	10	78	30.4	C				
	Right	46	0	2	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
88	82	-6
258	236	-22
54	49	-5
150	140	-10
658	611	-47
305	280	-25
220	218	-2
468	459	-9
182	176	-6
11	10	-1
73	69	-4
42	46	4

24th Ave & 82nd St

										(Signal)
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	1	23	34.1	C	16.3	B	17.3	B
	Thru	283	13	128	17.1	B				
	Right	27	0	7	3.0	A				
Southbound	Left	287	33	161	33.6	C	18.3	B		
	Thru	445	14	168	10.7	B				
	Right	61	0	6	1.5	A				
Eastbound	Left	12	2	26	33.9	C	27.4	C		
	Thru	1	0	19	29.9	C				
	Right	4	0	19	7.3	A				
Westbound	Left	25	6	54	38.8	D	10.8	B		
	Thru	0	-	-	-	A				
	Right	76	0	15	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	7	-1
307	283	-24
30	27	-3
303	287	-16
482	445	-37
64	61	-3
11	12	1
1	1	0
4	4	0
29	25	-4
1	0	-1
82	76	-6

24th Ave & Transit Station

										(Signal)
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	241	2	78	2.4	A	2.8	A	4.3	A
	Right	123	2	77	3.6	A				
Southbound	Thru	448	2	97	2.9	A	2.9	A		
Eastbound	Left	15	1	47	29.2	C	18.2	B		
	Right	55	3	58	15.3	B				
Westbound	Right	65	3	70	6.7	A	6.7	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
262	241	-21
126	123	-3
490	448	-42
16	15	-1
57	55	-2
67	65	-2

24th Ave & Killebrew Dr/E Old Shakopee Rd

										(Signal)
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	36	15	63	99.1	F	26.6	C	34.3	C
	Thru	285	52	282	61.1	E				
	Right	1,043	7	247	14.7	B				
Southbound	Left	70	13	68	47.8	D	25.0	C		
	Thru	244	26	188	27.9	C				
	Right	192	16	202	13.0	B				
Eastbound	Left	61	23	85	81.5	F	44.4	D		
	Thru	914	137	474	44.7	D				
	Right	58	0	10	1.3	A				
Westbound	Left	309	61	213	56.2	E	43.5	D		
	Thru	185	14	89	25.7	C				
	Right	18	1	18	9.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
36	36	0
303	285	-18
1,176	1,043	-133
75	70	-5
258	244	-14
214	192	-22
66	61	-5
929	914	-15
57	58	1
378	309	-69
212	185	-27
18	18	0

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	64	22	209	16.6	B	9.3	A	11.7	B
	Thru	1,112	22	209	9.0	A				
	Right	37	32	238	7.4	A				
Southbound	Left	50	15	158	25.4	C	11.5	B		
	Thru	409	15	158	9.8	A				
	Right	121	24	188	11.3	B				
Eastbound	Left	248	25	209	24.0	C	22.5	C		
	Thru	7	25	210	19.3	B				
	Right	26	30	233	9.1	A				
Westbound	Left	7	1	20	14.6	B	10.7	B		
	Thru	4	1	20	12.7	B				
	Right	6	0	10	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
75	64	-11
1,252	1,112	-140
42	37	-5
54	50	-4
473	409	-64
134	121	-13
254	248	-6
9	7	-2
28	26	-2
7	7	0
3	4	1
6	6	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	23	0	0	0.6	A	5.6	A	5.9	A
	Thru	0	-	-	-	A				
	Right	92	0	0	6.9	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	6.0	A		
	Thru	664	7	145	6.5	A				
	Right	129	0	24	3.8	A				
Westbound	Left	171	11	77	16.8	B	5.9	A		
	Thru	373	1	41	0.9	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
22	23	1
0	0	0
88	92	4
0	1	1
0	0	0
0	0	0
0	0	0
706	664	-42
132	129	-3
186	171	-15
417	373	-44
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	21	0	26	4.7	A	4.0	A	6.5	A
	Thru	130	0	25	3.9	A				
	Right	6	0	24	4.2	A				
Southbound	Left	3	0	12	3.5	A	2.1	A		
	Thru	199	0	13	2.1	A				
	Right	71	0	13	2.0	A				
Eastbound	Left	71	1	69	11.4	B	10.5	B		
	Thru	221	1	69	10.9	B				
	Right	108	1	69	9.0	A				
Westbound	Left	0	-	-	-	A	6.0	A		
	Thru	26	0	5	6.4	A				
	Right	4	0	0	3.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	21	3
115	130	15
6	6	0
2	3	1
222	199	-23
69	71	2
75	71	-4
226	221	-5
108	108	0
1	0	-1
32	26	-6
4	4	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	14	6	51	52.9	D	16.5	B	19.9	B
	Thru	122	10	78	21.7	C				
	Right	159	4	82	9.2	A				
Southbound	Left	23	6	50	51.8	D	18.5	B		
	Thru	146	16	128	18.8	B				
	Right	139	22	144	12.8	B				
Eastbound	Left	31	9	65	52.5	D	43.4	D		
	Thru	18	2	37	27.8	C				
	Right	0	-	-	-	A				
Westbound	Left	11	2	26	43.1	D	34.6	C		
	Thru	2	0	17	17.0	B				
	Right	5	1	17	23.0	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	14	-1
131	122	-9
168	159	-9
23	23	0
155	146	-9
149	139	-10
32	31	-1
19	18	-1
1	0	-1
11	11	0
2	2	0
3	5	2

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	46	7	64	30.5	C	25.3	C	15.2	B
	Thru	2	1	30	27.4	C				
	Right	16	1	46	10.2	B				
Southbound	Left	40	6	59	28.3	C	13.0	B		
	Thru	14	2	33	32.3	C				
	Right	76	0	0	1.4	A				
Eastbound	Left	518	73	421	27.8	C	14.8	B		
	Thru	1,364	25	308	10.2	B				
	Right	89	8	226	10.2	B				
Westbound	Left	51	7	75	30.7	C	17.6	B		
	Thru	374	23	204	16.1	B				
	Right	67	22	204	15.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
45	46	1
3	2	-1
18	16	-2
42	40	-2
15	14	-1
82	76	-6
545	518	-27
1,476	1,364	-112
98	89	-9
67	51	-16
458	374	-84
77	67	-10

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	23	5	64	27.3	D	15.2	C	2.2	A
	Right	45	5	81	9.1	A				
Eastbound	Left	155	3	81	6.1	A	2.3	A		
	Thru	600	0	2	1.3	A				
Westbound	Thru	498	0	0	0.2	A	0.2	A		
	Right	20	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	23	-2
44	45	1
162	155	-7
630	600	-30
559	498	-61
22	20	-2

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	29	4	47	27.4	C	14.8	B	5.1	A
	Right	44	0	47	6.5	A				
Eastbound	Thru	382	6	130	4.5	A	4.4	A		
	Right	241	2	85	4.1	A				
Westbound	Left	111	10	92	18.6	B	4.7	A		
	Thru	488	1	50	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	29	-3
46	44	-2
401	382	-19
255	241	-14
149	111	-38
549	488	-61

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	0	11	20.8	C	12.4	B	11.7	B
	Thru	122	10	82	11.9	B				
Southbound	Thru	162	9	85	13.2	B	12.3	B		
	Right	19	0	44	4.4	A				
Eastbound	Left	130	6	91	11.4	B	10.8	B		
	Right	97	3	60	9.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
9	7	-2
137	122	-15
187	162	-25
23	19	-4
135	130	-5
98	97	-1

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	129	0	15	1.0	A	0.7	A	2.2	A
	Thru	88	0	17	0.3	A				
	Right	114	0	17	0.8	A				
Southbound	Left	190	0	31	2.5	A	2.0	A		
	Thru	70	0	6	0.6	A				
	Right	0	-	-	-	A				
Eastbound	Left	7	1	42	15.9	C	11.3	B		
	Thru	0	-	-	-	A				
	Right	9	0	41	7.8	A				
Westbound	Left	10	2	54	21.2	C	10.6	B		
	Thru	0	-	-	-	A				
	Right	34	1	47	7.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
141	129	-12
105	88	-17
131	114	-17
215	190	-25
71	70	-1
0	0	0
7	7	0
0	0	0
10	9	-1
10	10	0
0	0	0
35	34	-1

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	1	0	0	0.3	A	0.6	A	1.3	A
	Thru	323	0	0	0.4	A				
	Right	192	0	0	1.0	A				
Southbound	Left	59	1	44	5.6	A	3.7	A		
	Thru	29	0	0	0.0	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	1	45	24.6	C	13.2	B		
	Thru	0	-	-	-	A				
	Right	9	1	59	8.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1	1	0
368	323	-45
212	192	-20
58	59	1
31	29	-2
0	0	0
0	0	0
0	0	0
0	0	0
6	4	-2
0	0	0
9	9	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	515	0	0	0.4	A	0.4	A	0.5	A
	Right	100	0	0	0.7	A				
Southbound	Left	1	0	4	7.2	A	0.3	A		
	Thru	33	0	0	0.1	A				
Eastbound	Left	4	0	36	17.7	C	17.7	C		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
581	515	-66
104	100	-4
1	1	0
36	33	-3
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	4	1	32	40.2	E	11.0	B	6.6	A
	Right	33	2	73	7.4	A				
Eastbound	Left	446	36	375	15.3	C	9.4	A		
	Thru	769	27	348	6.0	A				
Westbound	Thru	519	0	6	1.2	A	1.4	A		
	Right	168	0	6	2.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
6	4	-2
36	33	-3
477	446	-31
848	769	-79
638	519	-119
209	168	-41

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	83	1	50	6.5	A	5.3	A	7.6	A
	Thru	0	-	-	-	A				
	Right	35	1	50	2.6	A				
Southbound	Left	7	1	27	23.4	C	13.1	B		
	Thru	0	-	-	-	A				
	Right	8	1	27	4.1	A				
Eastbound	Left	62	16	146	15.1	C	10.6	B		
	Thru	282	16	144	10.7	B				
	Right	78	16	145	7.1	A				
Westbound	U-turn	231	10	178	9.3	A	6.7	A		
	Left	253	10	178	7.4	A				
	Thru	552	10	178	5.5	A				
	Right	72	10	178	4.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
84	83	-1
0	0	0
37	35	-2
7	7	0
0	0	0
9	8	-1
65	62	-3
295	282	-13
86	78	-8
235	231	-4
307	253	-54
671	552	-119
83	72	-11

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	3.5	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	15	5	59	49.5	E	23.6	C		
	Thru	0	-	-	-	A				
	Right	24	1	64	7.4	A				
Eastbound	Left	176	16	130	17.1	C	4.2	A		
	Thru	521	0	0	0.4	A				
	Right	75	0	0	0.9	A				
Westbound	Left	36	1	40	7.6	A	2.1	A		
	Thru	667	0	23	1.1	A				
	Right	270	0	22	3.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
1	0	-1
16	15	-1
0	0	0
25	24	-1
189	176	-13
583	521	-62
82	75	-7
47	36	-11
822	667	-155
325	270	-55

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	192	9	99	8.1	A	8.1	A	3.0	A
Southbound	Right	279	3	90	4.7	A	4.7	A		
Eastbound	Left	48	5	57	18.7	C	2.9	A		
	Thru	483	0	0	1.5	A				
	Right	24	0	0	0.7	A				
Westbound	Left	68	1	38	5.6	A	1.6	A		
	Thru	828	0	0	1.4	A				
	Right	160	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
194	192	-2
281	279	-2
46	48	2
504	483	-21
24	24	0
84	68	-16
1,015	828	-187
197	160	-37

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	5.3	A	2.8	A
	Thru	0	-	-	-	A				
	Right	4	0	46	5.3	A				
Southbound	Left	57	10	87	29.1	D	14.2	B		
	Thru	2	8	85	29.3	D				
	Right	83	1	43	3.6	A				
Eastbound	Left	126	5	82	9.1	A	2.2	A		
	Thru	397	0	0	0.1	A				
	Right	13	0	0	0.3	A				
Westbound	Left	6	0	11	4.2	A	1.5	A		
	Thru	889	0	0	1.4	A				
	Right	54	0	16	2.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
4	4	0
58	57	-1
1	2	1
86	83	-3
141	126	-15
444	397	-47
15	13	-2
7	6	-1
1,107	889	-218
66	54	-12

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	373	144	384	75.3	E	37.8	D	69.2	E
	Thru	6	7	234	44.3	D				
	Right	649	54	321	16.2	B				
Southbound	Left	533	104	297	121.6	F	63.9	E		
	Thru	6	14	281	42.9	D				
	Right	493	0	0	1.8	A				
Eastbound	Left	860	47	432	27.9	C	38.6	D		
	Right	786	142	529	50.3	D				
Westbound	Left	1,513	5,602	7,161	128.9	F	109.1	F		
	Right	699	5,646	7,204	66.3	E				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
397	373	-24
96	6	-90
680	649	-31
547	533	-14
132	6	-126
492	493	1
870	860	-10
790	786	-4
2,096	1,513	-583
955	699	-256

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	50	25	109	79.2	E	32.7	C	34.4	C
	Thru	265	36	186	33.4	C				
	Right	111	0	29	10.0	A				
Southbound	Left	434	97	359	66.1	E	31.0	C		
	Thru	936	142	726	38.8	D				
	Right	973	2	109	7.9	A				
Eastbound	Left	619	113	359	52.7	D	51.4	D		
	Thru	46	114	363	45.3	D				
	Right	10	0	2	0.6	A				
Westbound	Left	66	25	118	64.1	E	25.3	C		
	Thru	33	13	77	65.6	E				
	Right	213	3	87	7.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
53	50	-3
295	265	-30
124	111	-13
544	434	-110
1,182	936	-246
1,212	973	-239
640	619	-21
48	46	-2
10	10	0
69	66	-3
31	33	2
217	213	-4

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	414	3	70	3.6	A	3.5	A	4.8	A
	Right	47	1	53	3.4	A				
Southbound	Left	53	4	65	17.5	B	5.1	A		
	Thru	935	9	183	4.3	A				
Westbound	Left	12	2	30	26.6	C	15.3	B		
	Right	14	0	49	5.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
457	414	-43
55	47	-8
66	53	-13
1,166	935	-231
12	12	0
15	14	-1

Note: Results are the average of ten (10) simulation runs

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	24	24	83	54.2	F	38.0	E	28.7	D
	Right	15	8	26	12.1	B				
Eastbound	Thru	867	91	233	55.4	F	54.3	F		
	Right	40	0	0	29.3	D				
Westbound	Left	7	4	25	14.9	B	0.7	A		
	Thru	830	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	24	-8
19	15	-4
950	867	-83
40	40	0
10	7	-3
911	830	-81

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	667	0	0	0.4	A	0.6	A	0.6	A
	-	289	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
674	667	-7
286	289	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.3	A	3.2	A
	Right	20	1	71	7.3	A				
Eastbound	Left	42	1	33	6.1	A	1.6	A		
	Thru	308	0	0	1.0	A				
Westbound	Thru	337	0	0	4.7	A	4.6	A		
	Right	4	0	0	2.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	20	-2
42	42	0
309	308	-1
383	337	-46
5	4	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	668	0	0	0.3	A	0.3	A	2.7	A
	Thru	952	1	88	1.2	A				
Southbound	Right	690	1	88	4.0	A	2.4	A		
	Left	45	5	57	29.2	D				
Eastbound	Right	358	0	4	5.3	A	7.9	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
671	668	-3
1,056	952	-104
782	690	-92
45	45	0
361	358	-3

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	146	219	471	79.2	E	76.1	E	81.6	F
	Thru	58	180	414	89.2	F				
	Right	463	205	449	73.5	E				
Southbound	Left	101	140	297	201.2	F	152.3	F		
	Thru	44	141	298	97.5	F				
	Right	33	0	10	75.8	E				
Eastbound	Left	48	105	210	109.0	F	136.7	F		
	Thru	520	329	509	200.5	F				
	Right	257	82	228	12.9	B				
Westbound	Left	398	66	225	50.1	D	31.2	C		
	Thru	659	31	174	20.4	C				
	Right	25	30	179	16.1	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
147	146	-1
58	58	0
506	463	-43
109	101	-8
48	44	-4
35	33	-2
53	48	-5
650	520	-130
267	257	-10
431	398	-33
739	659	-80
27	25	-2

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	505	280	582	86.4	F	70.7	E	56.6	E
	Thru	51	7	65	30.0	C				
	Right	99	4	73	11.5	B				
Southbound	Left	43	5	55	21.6	C	46.7	D		
	Thru	90	32	121	59.6	E				
	Right	504	91	263	46.6	D				
Eastbound	Left	336	88	210	75.7	E	34.1	C		
	Thru	936	59	239	25.6	C				
	Right	247	83	278	9.5	A				
Westbound	Left	84	16	77	67.4	E	77.5	E		
	Thru	1,377	479	717	79.5	E				
	Right	29	1	57	14.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
518	505	-13
52	51	-1
96	99	3
45	43	-2
87	90	3
507	504	-3
322	336	14
961	936	-25
255	247	-8
93	84	-9
1,627	1,377	-250
31	29	-2

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	72	9	83	26.4	C	17.6	B	16.3	B
	Right	576	32	266	16.4	B				
Eastbound	Left	376	33	138	24.4	C	12.7	B		
	Thru	578	33	138	5.1	A				
Westbound	Thru	1,298	75	387	19.3	B	18.1	B		
	Right	99	0	0	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	72	0
580	576	-4
384	376	-8
576	578	2
1,471	1,298	-173
108	99	-9

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	338	39	247	25.1	C	14.6	B	19.7	B
	Thru	365	5	76	5.1	A				
	Right	7	5	77	4.4	A				
Southbound	Left	0	-	-	-	A	18.4	B		
	Thru	1,239	74	418	19.6	B				
	Right	95	0	0	2.1	A				
Eastbound	Left	449	71	368	41.9	D	26.2	C		
	Thru	10	69	361	47.8	D				
	Right	402	14	249	8.1	A				
Westbound	Left	0	-	-	-	A	4.3	A		
	Thru	0	-	-	-	A				
	Right	4	0	32	4.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
344	338	-6
367	365	-2
5	7	2
1	0	-1
1,437	1,239	-198
110	95	-15
459	449	-10
9	10	1
400	402	2
1	0	-1
0	0	0
3	4	1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	317	57	219	67.6	E	51.4	D	59.1	E
	Thru	35	5	50	30.1	C				
	Right	98	3	81	6.8	A				
Southbound	Left	174	93	447	60.0	E	123.0	F		
	Thru	28	6	57	76.2	E				
	Right	409	336	584	152.9	F				
Eastbound	Left	318	72	185	66.5	E	24.7	C		
	Thru	413	10	111	7.9	A				
	Right	348	4	122	6.4	A				
Westbound	Left	140	25	100	50.5	D	60.7	E		
	Thru	786	125	321	72.3	E				
	Right	154	6	101	10.5	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
322	317	-5
33	35	2
103	98	-5
206	174	-32
32	28	-4
519	409	-110
351	318	-33
461	413	-48
401	348	-53
163	140	-23
909	786	-123
186	154	-32

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



Killebrew Dr & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	128	14	78	21.8	C	16.5	B	11.7	B	127	128	1
	Thru	12	14	78	24.7	C					12	12	0
	Right	49	0	6	0.9	A					49	49	0
Southbound	Left	49	6	66	22.8	C	9.4	A			50	49	-1
	Thru	7	6	66	22.8	C					7	7	0
	Right	232	3	71	6.2	A					233	232	-1
Eastbound	Left	125	12	66	23.7	C	10.4	B			126	125	-1
	Thru	421	9	89	8.7	A					420	421	1
	Right	104	0	34	1.5	A					102	104	2
Westbound	Left	60	8	74	29.4	C	12.1	B	67	60	-7		
	Thru	1,039	26	246	11.7	B			1,219	1,039	-180		
	Right	60	0	15	2.3	A			72	60	-12		

24th Ave & I-494 Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	942	123	453	39.4	D	22.2	C	41.3	D	1,097	942	-155
	Thru	194	21	109	30.9	C					222	194	-28
	Right	1,275	25	288	8.1	A					1,483	1,275	-208
Southbound	Left	157	43	181	48.7	D	41.2	D			160	157	-3
	Thru	84	18	87	62.0	E					82	84	2
	Right	73	0	0	0.9	A					72	73	1
Eastbound	Left	23	2	36	24.8	C	71.8	E			23	23	0
	Right	562	283	730	73.7	E					577	562	-15
Westbound	Left	1,325	547	1,313	66.0	E	59.2	E			1,381	1,325	-56
	Right	246	19	135	22.6	C			257	246	-11		

24th Ave & 79th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	56	11	62	43.2	D	4.9	A	17.5	B	61	56	-5
	Thru	2,249	14	204	3.9	A					2,564	2,249	-315
Southbound	Thru	1,632	275	699	27.6	C	28.8	C			1,684	1,632	-52
	Right	330	305	739	34.7	C					356	330	-26
Eastbound	Left	187	64	235	55.8	E	42.4	D			192	187	-5
	Right	87	78	262	13.6	B					88	87	-1

American Blvd & 24th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	210	30	129	38.6	D	20.0	B	71.9	E	232	210	-22
	Thru	1,046	50	371	17.9	B					1,130	1,046	-84
	Right	102	0	21	2.5	A					107	102	-5
Southbound	Left	147	30	102	50.5	D	26.0	C			148	147	-1
	Thru	1,050	91	355	32.9	C					1,078	1,050	-28
	Right	516	0	34	4.8	A					547	516	-31
Eastbound	Left	643	1,056	1,297	261.6	F	209.7	F			824	643	-181
	Thru	204	24	161	154.4	F					255	204	-51
	Right	158	0	21	70.2	E					188	158	-30
Westbound	Left	211	50	173	64.8	E	81.4	F	241	211	-30		
	Thru	302	338	780	77.8	E			355	302	-53		
	Right	607	346	788	89.0	F			691	607	-84		

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	253	43	163	48.7	D	26.8	C	46.8	D
	Thru	822	44	236	20.5	C				
	Right	13	0	3	1.4	A				
Southbound	Left	63	11	101	35.2	D	14.4	B		
	Thru	796	37	189	18.3	B				
	Right	557	3	99	6.6	A				
Eastbound	Left	399	61	212	44.8	D	33.9	C		
	Thru	151	29	161	33.2	C				
	Right	129	0	17	1.4	A				
Westbound	Left	43	23	98	244.2	F	214.6	F		
	Thru	277	795	962	257.4	F				
	Right	134	51	113	116.7	F				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
255	253	-2
845	822	-23
15	13	-2
70	63	-7
827	796	-31
611	557	-54
449	399	-50
173	151	-22
147	129	-18
58	43	-15
392	277	-115
175	134	-41

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	17	6	38	68.9	E	23.5	C	17.6	B
	Thru	553	32	199	23.0	C				
	Right	22	0	8	2.2	A				
Southbound	Left	199	28	137	36.8	D	10.7	B		
	Thru	551	8	96	4.5	A				
	Right	219	0	23	2.6	A				
Eastbound	Left	284	38	190	34.4	C	31.3	C		
	Thru	4	1	35	32.8	C				
	Right	39	2	38	8.7	A				
Westbound	Left	50	15	75	54.6	D	13.3	B		
	Thru	7	2	24	63.5	E				
	Right	244	0	39	3.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
19	17	-2
564	553	-11
23	22	-1
207	199	-8
592	551	-41
234	219	-15
291	284	-7
5	4	-1
36	39	3
50	50	0
6	7	1
260	244	-16

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	371	2	89	2.8	A	2.9	A	5.0	A
	Right	89	2	89	3.3	A				
Southbound	Thru	612	2	73	1.9	A	1.9	A		
Eastbound	Left	17	4	57	44.5	D	32.2	C		
	Right	54	7	73	28.3	C				
Westbound	Right	207	11	105	9.3	A	9.3	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
381	371	-10
91	89	-2
653	612	-41
17	17	0
55	54	-1
208	207	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	76	27	93	84.2	F	30.6	C	45.3	D
	Thru	287	52	213	63.2	E				
	Right	541	0	55	5.8	A				
Southbound	Left	37	10	54	54.7	D	29.4	C		
	Thru	346	48	234	39.3	D				
	Right	282	28	242	13.9	B				
Eastbound	Left	107	36	115	81.8	F	42.8	D		
	Thru	315	42	168	42.2	D				
	Right	96	0	10	1.4	A				
Westbound	Left	1,002	447	1,179	80.7	F	58.6	E		
	Thru	824	50	246	35.2	D				
	Right	68	3	53	15.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
76	76	0
289	287	-2
557	541	-16
40	37	-3
365	346	-19
303	282	-21
106	107	1
318	315	-3
94	96	2
1,233	1,002	-231
1,002	824	-178
76	68	-8

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	34	15	156	31.5	C	8.9	A	11.3	B
	Thru	736	15	155	7.9	A				
	Right	11	24	184	5.0	A				
Southbound	Left	12	25	304	12.1	B	10.5	B		
	Thru	1,199	25	302	9.9	A				
	Right	301	35	331	13.0	B				
Eastbound	Left	185	22	173	27.3	C	23.7	C		
	Thru	10	22	173	22.6	C				
	Right	47	27	196	10.0	B				
Westbound	Left	42	5	58	18.4	B	12.6	B		
	Thru	13	5	58	20.1	C				
	Right	36	0	31	3.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	34	-4
749	736	-13
9	11	2
16	12	-4
1,403	1,199	-204
342	301	-41
188	185	-3
8	10	2
48	47	-1
42	42	0
13	13	0
36	36	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	75	0	0	1.2	A	3.9	A	3.0	A
	Thru	0	-	-	-	A				
	Right	72	0	0	6.8	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	4.1	A		
	Thru	396	3	95	4.5	A				
	Right	74	0	11	2.4	A				
Westbound	Left	91	5	54	13.6	B	2.3	A		
	Thru	999	2	79	1.3	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
81	75	-6
0	0	0
78	72	-6
0	1	1
0	0	0
1	0	-1
0	0	0
442	396	-46
83	74	-9
103	91	-12
1,134	999	-135
1	0	-1

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	59	0	3	3.4	A	2.7	A	4.7	A
	Thru	65	0	3	2.1	A				
	Right	1	0	2	0.4	A				
Southbound	Left	0	-	-	-	A	4.5	A		
	Thru	148	0	14	4.6	A				
	Right	78	0	14	4.5	A				
Eastbound	Left	59	0	29	5.9	A	5.3	A		
	Thru	39	0	29	6.8	A				
	Right	69	0	29	4.0	A				
Westbound	Left	13	0	36	6.3	A	5.7	A		
	Thru	149	0	36	5.8	A				
	Right	9	0	1	2.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
58	59	1
63	65	2
1	1	0
0	0	0
169	148	-21
80	78	-2
68	59	-9
46	39	-7
78	69	-9
15	13	-2
210	149	-61
13	9	-4

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	23	5	59	32.0	C	22.0	C	24.0	C
	Thru	70	7	57	24.8	C				
	Right	27	1	54	6.0	A				
Southbound	Left	6	1	21	32.2	C	27.1	C		
	Thru	151	22	125	30.5	C				
	Right	72	30	142	19.4	B				
Eastbound	Left	26	4	50	29.4	C	19.8	B		
	Thru	3	0	13	24.4	C				
	Right	58	4	63	15.2	B				
Westbound	Left	162	16	96	26.1	C	23.5	C		
	Thru	31	5	60	16.3	B				
	Right	28	5	59	16.8	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	23	2
70	70	0
29	27	-2
7	6	-1
177	151	-26
86	72	-14
28	26	-2
3	3	0
64	58	-6
161	162	1
32	31	-1
30	28	-2

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	157	25	139	34.2	C	26.6	C	30.8	C
	Thru	14	3	57	27.9	C				
	Right	64	4	76	7.9	A				
Southbound	Left	238	41	208	36.3	D	18.4	B		
	Thru	4	0	12	28.0	C				
	Right	407	0	1	7.9	A				
Eastbound	Left	232	45	230	34.5	C	18.0	B		
	Thru	541	17	162	11.3	B				
	Right	31	2	80	10.7	B				
Westbound	Left	51	10	78	59.5	E	45.1	D		
	Thru	1,177	218	688	44.8	D				
	Right	49	216	686	38.5	D				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
159	157	-2
15	14	-1
63	64	1
252	238	-14
4	4	0
428	407	-21
232	232	0
560	541	-19
32	31	-1
67	51	-16
1,552	1,177	-375
66	49	-17

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	18	9	97	25.9	D	13.8	B	2.1	A
	Right	145	13	113	12.3	B				
Eastbound	Left	50	2	51	8.7	A	1.7	A		
	Thru	418	0	0	0.8	A				
Westbound	Thru	946	0	0	0.3	A	0.3	A		
	Right	9	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	18	0
146	145	-1
55	50	-5
464	418	-46
1,091	946	-145
10	9	-1

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	185	25	165	29.5	C	24.2	C	10.4	B
	Right	74	0	55	10.9	B				
Eastbound	Thru	404	10	137	8.6	A	8.4	A		
	Right	30	3	92	6.0	A				
Westbound	Left	55	8	74	27.9	C	7.1	A		
	Thru	771	9	116	5.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
310	185	-125
122	74	-48
445	404	-41
37	30	-7
59	55	-4
791	771	-20

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	22	0	28	12.5	B	8.8	A	12.5	B
	Thru	73	5	66	7.7	A				
Southbound	Thru	153	6	67	17.5	B	13.6	B		
	Right	127	2	59	9.0	A				
Eastbound	Left	31	2	48	14.5	B	13.3	B		
	Right	9	0	21	9.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	22	-60
239	73	-166
162	153	-9
131	127	-4
38	31	-7
13	9	-4

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	5	0	4	185.7	F	21.5	C	301.4	F
	Thru	33	0	5	0.4	A				
	Right	6	0	3	0.8	A				
Southbound	Left	30	0	1	11.6	B	133.0	F		
	Thru	115	28	120	173.5	F				
	Right	13	26	115	55.4	F				
Eastbound	Left	9	261	321	516.4	F	530.2	F		
	Thru	0	-	-	-	A				
	Right	65	257	321	532.1	F				
Westbound	Left	50	432	560	915.0	F	512.9	F		
	Thru	0	-	-	-	A				
	Right	54	3	63	140.6	F				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
14	5	-9
93	33	-60
12	6	-6
34	30	-4
130	115	-15
12	13	1
33	9	-24
1	0	-1
249	65	-184
227	50	-177
0	0	0
195	54	-141

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	259.0	F
	Thru	42	0	0	0.1	A				
	Right	7	0	0	0.3	A				
Southbound	Left	5	0	1	1.6	A	320.4	F		
	Thru	213	176	226	327.9	F				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	4	292	408	183.8	F	141.7	F		
	Thru	0	-	-	-	A				
	Right	2	304	421	57.5	F				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
50	42	-8
7	7	0
12	5	-7
594	213	-381
0	0	0
1	0	-1
0	0	0
1	0	-1
110	4	-106
0	0	0
70	2	-68

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	49	0	0	0.2	A	0.2	A	184.6	F
	Right	6	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	219.3	F		
	Thru	213	301	339	219.3	F				
Eastbound	Left	2	312	361	1,570.2	F	1,570.2	F		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
54	49	-5
7	6	-1
0	0	0
705	213	-492
69	2	-67
3	0	-3

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	75	296	326	441.8	F	176.3	F	19.7	C
	Right	135	305	348	28.8	D				
Eastbound	Left	39	3	87	11.8	B	2.6	A		
	Thru	853	1	58	2.2	A				
Westbound	Thru	977	0	17	1.9	A	1.9	A		
	Right	16	0	17	0.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
302	75	-227
472	135	-337
44	39	-5
880	853	-27
1,028	977	-51
15	16	1

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	218	140	346	55.7	F	49.6	E	17.7	C
	Thru	0	-	-	-	A				
	Right	156	140	348	40.9	E				
Southbound	Left	88	56	245	67.7	F	56.7	F		
	Thru	0	-	-	-	A				
	Right	75	56	246	43.8	E				
Eastbound	Left	10	42	193	22.0	C	23.7	C		
	Thru	501	39	197	23.9	C				
	Right	21	36	195	19.1	C				
Westbound	U-turn	246	13	168	18.9	C	11.1	B		
	Left	78	13	169	11.8	B				
	Thru	450	13	168	7.0	A				
	Right	15	14	172	6.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
226	218	-8
0	0	0
161	156	-5
90	88	-2
0	0	0
77	75	-2
12	10	-2
591	501	-90
23	21	-2
251	246	-5
83	78	-5
532	450	-82
16	15	-1

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	86	51	165	82.9	F	57.3	F	15.0	B
	Thru	0	-	-	-	A				
	Right	55	9	104	17.2	C				
Southbound	Left	158	154	315	109.9	F	68.1	F		
	Thru	0	-	-	-	A				
	Right	186	16	178	32.6	D				
Eastbound	Left	29	1	29	7.5	A	0.5	A		
	Thru	899	0	0	0.3	A				
	Right	1	0	0	0.9	A				
Westbound	Left	0	-	-	-	A	0.6	A		
	Thru	721	0	3	0.6	A				
	Right	36	0	3	0.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	86	-3
1	0	-1
55	55	0
165	158	-7
0	0	0
191	186	-5
37	29	-8
1,140	899	-241
3	1	-2
0	0	0
763	721	-42
38	36	-2

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	195	16	134	17.1	C	17.1	C	16.2	C
Southbound	Right	399	2	75	3.3	A	3.3	A		
Eastbound	Left	56	1	39	8.4	A	20.9	C		
	Thru	874	96	486	22.5	C				
	Right	53	95	482	6.9	A				
Westbound	Left	121	66	208	82.7	F	16.7	C		
	Thru	394	0	0	1.5	A				
	Right	131	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
203	195	-8
402	399	-3
58	56	-2
973	874	-99
62	53	-9
127	121	-6
414	394	-20
137	131	-6

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	41	28.4	D	17.2	C	2.4	A
	Thru	0	-	-	-	A				
	Right	4	0	47	5.9	A				
Southbound	Left	92	19	108	33.2	D	13.9	B		
	Thru	0	-	-	-	A				
	Right	157	1	51	2.6	A				
Eastbound	Left	71	1	43	4.6	A	0.5	A		
	Thru	1,028	0	0	0.2	A				
	Right	11	0	0	0.5	A				
Westbound	Left	5	0	14	10.0	B	1.0	A		
	Thru	596	0	0	0.9	A				
	Right	29	0	7	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
0	0	0
5	4	-1
95	92	-3
0	0	0
157	157	0
85	71	-14
1,263	1,028	-235
13	11	-2
5	5	0
638	596	-42
30	29	-1

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	477	527	994	109.1	F	69.5	E	57.2	E
	Thru	168	522	994	85.7	F				
	Right	1,750	621	1,090	57.2	E				
Southbound	Left	1,046	793	1,861	67.6	E	59.7	E		
	Thru	74	792	1,861	78.1	E				
	Right	1,443	966	1,963	53.0	D				
Eastbound	Left	1,291	173	983	59.1	E	56.2	E		
	Right	511	88	418	48.8	D				
Westbound	Left	1,034	60	329	42.8	D	37.4	D		
	Right	685	73	307	29.3	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
598	477	-121
215	168	-47
2,158	1,750	-408
1,244	1,046	-198
88	74	-14
1,732	1,443	-289
1,347	1,291	-56
513	511	-2
1,034	1,034	0
699	685	-14

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	67	46	178	108.3	F	73.8	E	93.7	F
	Thru	1,014	267	554	72.2	E				
	Right	74	0	13	64.0	E				
Southbound	Left	317	118	361	102.6	F	55.9	E		
	Thru	587	155	666	71.1	E				
	Right	526	34	145	10.9	B				
Eastbound	Left	990	260	546	74.9	E	73.1	E		
	Thru	52	261	546	54.8	D				
	Right	11	0	2	2.6	A				
Westbound	Left	98	409	649	177.5	F	282.1	F		
	Thru	52	1,064	1,475	221.9	F				
	Right	374	1,178	1,520	317.9	F				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	67	-15
1,241	1,014	-227
88	74	-14
327	317	-10
589	587	-2
524	526	2
1,107	990	-117
57	52	-5
11	11	0
142	98	-44
72	52	-20
594	374	-220

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	1,140	24	201	13.2	B	13.1	B	12.8	B
	Right	12	18	185	10.1	B				
Southbound	Left	27	4	60	28.7	C	9.8	A		
	Thru	566	12	231	8.9	A				
Westbound	Left	67	11	76	31.4	C	27.6	C		
	Right	31	4	66	19.5	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1,382	1,140	-242
15	12	-3
29	27	-2
606	566	-40
68	67	-1
30	31	1

Note: Results are the average of ten (10) simulation runs

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	57	7	71	23.6	C	12.6	B	1.5	A
	Right	53	0	8	0.7	A				
Eastbound	Thru	629	0	0	0.4	A	0.5	A		
	Right	56	0	0	0.8	A				
Westbound	Left	16	0	24	6.8	A	0.5	A		
	Thru	503	0	0	0.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
61	57	-4
52	53	1
634	629	-5
55	56	1
17	16	-1
582	503	-79

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	783	0	0	1.2	A	1.4	A	1.4	A
	-	548	0	0	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
791	783	-8
548	548	0

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	6.9	A	1.7	A
	Right	20	1	71	6.9	A				
Eastbound	Left	30	0	23	3.9	A	1.1	A		
	Thru	203	0	0	0.6	A				
Westbound	Thru	196	0	0	1.9	A	1.8	A		
	Right	11	0	0	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
21	20	-1
31	30	-1
204	203	-1
211	196	-15
13	11	-2

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	493	0	0	0.2	A	0.2	A	2.1	A
	Thru	539	0	16	0.5	A				
Southbound	Right	406	0	16	1.9	A	1.1	A		
	Left	68	4	59	19.1	C				
Eastbound	Left	68	4	59	19.1	C	7.5	A		
	Right	288	0	1	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
495	493	-2
559	539	-20
438	406	-32
70	68	-2
290	288	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	173	61	294	51.8	D	27.6	C	40.0	D
	Thru	107	56	291	58.9	E				
	Right	540	28	215	13.6	B				
Southbound	Left	145	92	314	86.6	F	72.1	E		
	Thru	76	91	314	62.6	E				
	Right	37	0	19	34.3	C				
Eastbound	Left	67	17	70	64.8	E	52.7	D		
	Thru	400	84	236	75.4	E				
	Right	203	1	37	3.8	A				
Westbound	Left	559	72	309	41.4	D	32.7	C		
	Thru	311	16	107	17.8	B				
	Right	12	14	109	14.2	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
169	173	4
105	107	2
550	540	-10
149	145	-4
80	76	-4
38	37	-1
69	67	-2
420	400	-20
197	203	6
716	559	-157
392	311	-81
15	12	-3

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	494	957	1,176	193.8	F	183.6	F	78.2	E
	Thru	92	93	240	177.3	F				
	Right	141	5	86	151.9	F				
Southbound	Left	107	13	105	46.2	D	74.9	E		
	Thru	177	63	303	76.1	E				
	Right	812	298	784	78.5	E				
Eastbound	Left	560	98	288	56.0	E	44.7	D		
	Thru	1,260	162	547	48.1	D				
	Right	504	195	587	23.9	C				
Westbound	Left	141	40	115	93.5	F	82.0	F		
	Thru	1,045	465	716	85.5	F				
	Right	73	3	65	9.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
560	494	-66
110	92	-18
158	141	-17
113	107	-6
187	177	-10
883	812	-71
581	560	-21
1,367	1,260	-107
549	504	-45
154	141	-13
1,193	1,045	-148
83	73	-10

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	93	21	231	34.5	C	36.9	D	36.4	D
	Right	890	193	804	37.1	D				
Eastbound	Left	555	117	325	52.1	D	34.4	C		
	Thru	759	117	325	21.5	C				
Westbound	Thru	1,140	143	454	42.4	D	37.9	D		
	Right	163	0	0	6.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	93	0
901	890	-11
577	555	-22
762	759	-3
1,199	1,140	-59
171	163	-8

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	251	11	126	12.3	B	8.5	A	13.7	B
	Thru	305	4	63	5.5	A				
	Right	6	4	63	4.8	A				
Southbound	Left	3	0	5	6.9	A	12.0	B		
	Thru	668	24	212	13.0	B				
	Right	54	0	0	0.6	A				
Eastbound	Left	459	40	183	28.4	C	19.3	B		
	Thru	0	-	-	-	A				
	Right	278	2	64	4.3	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
253	251	-2
307	305	-2
5	6	1
3	3	0
722	668	-54
58	54	-4
467	459	-8
0	0	0
274	278	4
1	0	-1
1	0	-1
1	0	-1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	231	69	310	83.1	F	53.8	D	35.6	D
	Thru	50	11	80	43.7	D				
	Right	142	5	90	9.8	A				
Southbound	Left	248	57	334	40.5	D	50.7	D		
	Thru	45	10	77	46.6	D				
	Right	551	136	427	55.6	E				
Eastbound	Left	519	49	233	29.2	C	15.8	B		
	Thru	541	18	97	9.6	A				
	Right	446	10	146	7.6	A				
Westbound	Left	213	37	142	52.1	D	45.4	D		
	Thru	494	70	218	59.1	E				
	Right	243	12	151	11.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
236	231	-5
50	50	0
143	142	-1
244	248	4
43	45	2
572	551	-21
560	519	-41
583	541	-42
495	446	-49
262	213	-49
621	494	-127
314	243	-71

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	120	25	108	39.8	D	24.4	C	21.3	C
	Thru	4	24	107	25.8	C				
	Right	82	0	5	1.9	A				
Southbound	Left	230	88	387	50.4	D	27.0	C		
	Thru	6	87	385	47.5	D				
	Right	609	72	411	18.0	B				
Eastbound	Left	274	25	146	27.5	C	11.9	B		
	Thru	437	8	111	5.4	A				
	Right	141	0	13	1.7	A				
Westbound	Left	46	14	82	56.9	E	24.8	C		
	Thru	587	35	206	25.2	C				
	Right	81	0	30	3.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
122	120	-2
4	4	0
84	82	-2
229	230	1
6	6	0
615	609	-6
274	274	0
444	437	-7
137	141	4
51	46	-5
633	587	-46
90	81	-9

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	789	57	295	24.4	C	12.9	B	82.2	F
	Thru	140	10	75	20.6	C				
	Right	1,345	12	232	5.3	A				
Southbound	Left	74	22	119	54.0	D	53.9	D		
	Thru	98	26	101	76.0	E				
	Right	41	0	0	0.9	A				
Eastbound	Left	12	1	10	100.7	F	254.2	F		
	Right	503	1,970	2,100	257.9	F				
Westbound	Left	1,195	1,531	2,443	146.0	F	142.4	F		
	Right	51	3	80	60.2	E				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
823	789	-34
145	140	-5
1,147	1,345	198
78	74	-4
98	98	0
41	41	0
20	12	-8
947	503	-444
1,705	1,195	-510
78	51	-27

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	92	17	79	41.8	D	4.0	A	24.2	C
	Thru	1,998	5	97	2.2	A				
Southbound	Thru	1,409	408	830	39.8	D	41.8	D		
	Right	380	448	872	49.2	D				
Eastbound	Left	280	116	327	66.3	E	50.3	D		
	Right	130	136	355	15.8	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
94	92	-2
2,101	1,998	-103
2,143	1,409	-734
599	380	-219
283	280	-3
129	130	1

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	211	35	140	45.2	D	19.9	B	52.6	D
	Thru	1,260	57	389	17.2	B				
	Right	108	0	11	2.2	A				
Southbound	Left	112	28	96	54.6	D	23.7	C		
	Thru	977	79	304	29.0	C				
	Right	449	0	34	4.4	A				
Eastbound	Left	718	761	1,157	186.7	F	148.6	F		
	Thru	133	16	106	104.8	F				
	Right	185	0	21	32.5	C				
Westbound	Left	118	30	114	57.3	E	43.8	D		
	Thru	132	30	122	45.2	D				
	Right	113	34	129	28.0	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
224	211	-13
1,300	1,260	-40
109	108	-1
166	112	-54
1,435	977	-458
670	449	-221
783	718	-65
141	133	-8
195	185	-10
122	118	-4
129	132	3
113	113	0

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	286	61	225	60.6	E	26.6	C	27.1	C
	Thru	957	41	275	17.1	B				
	Right	24	0	3	1.2	A				
Southbound	Left	65	15	101	45.0	D	15.4	B		
	Thru	659	38	302	21.0	C				
	Right	558	1	101	5.4	A				
Eastbound	Left	530	102	284	57.6	E	41.5	D		
	Thru	179	44	201	42.7	D				
	Right	221	0	23	1.7	A				
Westbound	Left	16	6	54	70.1	E	37.1	D		
	Thru	120	36	161	55.7	E				
	Right	90	0	24	6.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
289	286	-3
992	957	-35
26	24	-2
87	65	-22
886	659	-227
779	558	-221
556	530	-26
184	179	-5
231	221	-10
17	16	-1
131	120	-11
85	90	5

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	133	32	122	61.2	E	31.6	C	22.6	C
	Thru	654	43	239	26.7	C				
	Right	25	0	7	2.2	A				
Southbound	Left	156	15	112	26.6	C	9.1	A		
	Thru	377	8	84	5.8	A				
	Right	365	0	40	5.1	A				
Eastbound	Left	407	75	366	43.9	D	36.0	D		
	Thru	4	3	69	40.8	D				
	Right	139	5	73	12.8	B				
Westbound	Left	29	10	60	59.2	E	11.5	B		
	Thru	5	2	28	64.9	E				
	Right	206	0	39	3.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
137	133	-4
672	654	-18
26	25	-1
193	156	-37
473	377	-96
468	365	-103
418	407	-11
4	4	0
135	139	4
30	29	-1
5	5	0
220	206	-14

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	606	4	105	3.5	A	3.5	A	5.3	A
	Right	87	4	105	3.2	A				
Southbound	Thru	527	2	62	2.0	A	2.0	A		
Eastbound	Left	11	3	52	46.2	D	32.6	C		
	Right	66	10	87	30.4	C				
Westbound	Right	204	10	104	9.9	A	9.9	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
616	606	-10
87	87	0
621	527	-94
11	11	0
68	66	-2
207	204	-3

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	92	29	112	70.2	E	34.7	C	35.5	D
	Thru	368	68	364	59.7	E				
	Right	458	0	42	7.5	A				
Southbound	Left	37	7	49	45.3	D	23.9	C		
	Thru	249	37	227	34.5	C				
	Right	306	23	247	12.8	B				
Eastbound	Left	288	78	295	79.0	E	47.6	D		
	Thru	348	42	170	36.0	D				
	Right	109	0	10	1.4	A				
Westbound	Left	505	62	286	38.8	D	33.9	C		
	Thru	352	28	131	29.7	C				
	Right	37	1	24	7.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
95	92	-3
371	368	-3
471	458	-13
42	37	-5
292	249	-43
356	306	-50
295	288	-7
354	348	-6
108	109	1
526	505	-21
370	352	-18
37	37	0

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	8	125	14.1	B	6.0	A	7.4	A
	Thru	710	8	125	5.7	A				
	Right	5	13	149	4.6	A				
Southbound	Left	5	8	165	7.6	A	6.7	A		
	Thru	692	8	166	6.2	A				
	Right	186	14	196	8.7	A				
Eastbound	Left	139	12	121	19.5	B	16.8	B		
	Thru	0	-	-	-	A				
	Right	39	13	145	7.0	A				
Westbound	Left	7	1	26	14.9	B	9.7	A		
	Thru	4	1	26	16.6	B				
	Right	9	0	9	2.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
31	28	-3
724	710	-14
5	5	0
6	5	-1
746	692	-54
199	186	-13
142	139	-3
0	0	0
41	39	-2
7	7	0
5	4	-1
9	9	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	35	0	1	0.6	A	6.0	A	5.5	A
	Thru	0	-	-	-	A				
	Right	138	0	1	7.3	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	5.1	A		
	Thru	225	3	68	6.1	A				
	Right	74	0	16	1.8	A				
Westbound	Left	115	7	63	15.0	B	5.6	A		
	Thru	297	1	48	1.9	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	35	0
0	0	0
143	138	-5
0	1	1
0	0	0
0	0	0
0	0	0
265	225	-40
87	74	-13
114	115	1
291	297	6
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	52	0	3	3.2	A	2.5	A	3.4	A
	Thru	143	0	4	2.2	A				
	Right	4	0	3	0.9	A				
Southbound	Left	0	-	-	-	A	2.0	A		
	Thru	134	0	13	2.1	A				
	Right	49	0	13	1.9	A				
Eastbound	Left	39	0	21	6.6	A	6.3	A		
	Thru	35	0	21	7.7	A				
	Right	58	0	21	5.2	A				
Westbound	Left	0	-	-	-	A	5.8	A		
	Thru	28	0	7	5.9	A				
	Right	1	0	0	0.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
51	52	1
142	143	1
2	4	2
0	0	0
148	134	-14
48	49	1
44	39	-5
39	35	-4
67	58	-9
1	0	-1
34	28	-6
2	1	-1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	2	48	26.7	C	13.3	B	15.5	B
	Thru	122	6	71	14.3	B				
	Right	26	0	46	4.5	A				
Southbound	Left	7	1	19	23.8	C	11.5	B		
	Thru	99	7	81	14.2	B				
	Right	86	11	98	7.4	A				
Eastbound	Left	69	10	92	28.4	C	26.7	C		
	Thru	6	1	21	20.3	C				
	Right	4	0	2	7.0	A				
Westbound	Left	26	3	38	22.8	C	21.8	C		
	Thru	6	1	23	20.9	C				
	Right	5	1	23	18.2	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	8	1
115	122	7
25	26	1
6	7	1
114	99	-15
101	86	-15
87	69	-18
7	6	-1
3	4	1
27	26	-1
5	6	1
5	5	0

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	176	19	134	21.6	C	17.1	B	14.9	B
	Thru	14	2	60	18.9	B				
	Right	83	4	75	7.2	A				
Southbound	Left	116	12	97	26.6	C	14.5	B		
	Thru	13	1	26	25.6	C				
	Right	198	0	0	6.7	A				
Eastbound	Left	205	27	181	25.9	C	13.6	B		
	Thru	457	15	165	10.0	B				
	Right	179	2	82	8.7	A				
Westbound	Left	79	12	107	31.4	C	17.2	B		
	Thru	398	20	219	14.9	B				
	Right	42	20	219	13.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
177	176	-1
15	14	-1
81	83	2
122	116	-6
14	13	-1
215	198	-17
205	205	0
477	457	-20
184	179	-5
86	79	-7
415	398	-17
41	42	1

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	4	1	42	11.8	B	7.1	A	0.6	A
	Right	20	1	58	6.2	A				
Eastbound	Left	21	0	20	3.3	A	0.7	A		
	Thru	343	0	0	0.5	A				
Westbound	Thru	391	0	0	0.2	A	0.2	A		
	Right	7	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
20	20	0
22	21	-1
385	343	-42
384	391	7
7	7	0

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	33	3	45	19.4	B	11.5	B	4.3	A
	Right	46	0	43	5.8	A				
Eastbound	Thru	319	3	73	3.9	A	3.7	A		
	Right	29	0	25	2.3	A				
Westbound	Left	55	4	59	14.5	B	3.4	A		
	Thru	365	1	48	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	33	-2
49	46	-3
356	319	-37
33	29	-4
62	55	-7
357	365	8

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	11	0	4	11.0	B	8.7	A	8.7	A
	Thru	64	4	56	8.4	A				
Southbound	Thru	59	2	37	8.3	A	7.1	A		
	Right	19	0	36	3.1	A				
Eastbound	Left	34	1	43	12.3	B	11.4	B		
	Right	10	0	22	8.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
13	11	-2
62	64	2
66	59	-7
23	19	-4
41	34	-7
11	10	-1

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	0	1	1.1	A	0.4	A	3.1	A
	Thru	30	0	4	0.2	A				
	Right	12	0	4	0.4	A				
Southbound	Left	29	0	1	0.8	A	0.6	A		
	Thru	18	0	5	0.3	A				
	Right	20	0	5	0.7	A				
Eastbound	Left	11	1	51	8.0	A	6.8	A		
	Thru	0	-	-	-	A				
	Right	27	1	50	6.3	A				
Westbound	Left	12	1	52	8.7	A	6.7	A		
	Thru	0	-	-	-	A				
	Right	33	1	45	6.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	7	-1
28	30	2
13	12	-1
34	29	-5
22	18	-4
22	20	-2
13	11	-2
0	0	0
27	27	0
12	12	0
0	0	0
34	33	-1

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	1.0	A
	Thru	38	0	0	0.1	A				
	Right	9	0	0	0.4	A				
Southbound	Left	8	0	2	0.6	A	0.2	A		
	Thru	48	0	0	0.1	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	5	1	44	7.4	A	6.3	A		
	Thru	0	-	-	-	A				
	Right	11	1	58	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
38	38	0
7	9	2
10	8	-2
53	48	-5
0	0	0
0	0	0
0	0	0
0	0	0
5	5	0
0	0	0
11	11	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	47	0	0	0.1	A	0.2	A	0.4	A
	Right	6	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	53	0	0	0.1	A				
Eastbound	Left	4	0	36	7.5	A	7.5	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
45	47	2
7	6	-1
0	0	0
58	53	-5
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	12	2	46	23.8	C	11.2	B	2.0	A
	Right	45	3	78	7.8	A				
Eastbound	Left	48	1	47	5.2	A	1.6	A		
	Thru	582	0	23	1.3	A				
Westbound	Thru	466	0	4	1.4	A	1.4	A		
	Right	5	0	3	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
14	12	-2
51	45	-6
48	48	0
609	582	-27
476	466	-10
4	5	1

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	69	1	45	6.5	A	4.7	A	5.0	A
	Thru	0	-	-	-	A				
	Right	63	1	44	2.6	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	2	4	82	9.9	A	5.9	A		
	Thru	338	4	83	6.0	A				
	Right	22	4	83	3.9	A				
Westbound	U-turn	261	1	86	6.0	A	4.5	A		
	Left	91	1	86	4.8	A				
	Thru	349	1	87	3.4	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
69	69	0
0	0	0
63	63	0
0	0	0
0	0	0
2	0	-2
3	2	-1
377	338	-39
25	22	-3
264	261	-3
90	91	1
393	349	-44
0	0	0

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



E Old Shakopee Rd & 31st Ave

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	0.8	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	19	2	56	16.1	C	10.6	B		
	Thru	0	-	-	-	A				
	Right	25	1	65	6.4	A				
Eastbound	Left	30	0	25	3.6	A	0.4	A		
	Thru	565	0	0	0.3	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.4	A		
	Thru	446	0	0	0.4	A				
	Right	18	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
0	0	0
19	19	0
0	0	0
26	25	-1
31	30	-1
591	565	-26
1	0	-1
0	0	0
451	446	-5
18	18	0

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	163	7	91	7.5	A	7.5	A	2.6	A
Southbound	Right	309	1	61	2.4	A	2.4	A		
Eastbound	Left	49	1	37	4.9	A	2.0	A		
	Thru	571	0	16	1.9	A				
	Right	43	0	17	0.9	A				
Westbound	Left	90	3	57	7.9	A	2.0	A		
	Thru	392	0	0	0.9	A				
	Right	97	0	0	0.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
164	163	-1
310	309	-1
49	49	0
608	571	-37
46	43	-3
92	90	-2
389	392	3
98	97	-1

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.4	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	59	5	65	16.7	C	8.7	A		
	Thru	0	-	-	-	A				
	Right	64	0	22	1.3	A				
Eastbound	Left	67	1	32	2.5	A	0.4	A		
	Thru	516	0	0	0.1	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.8	A		
	Thru	401	0	0	0.8	A				
	Right	16	0	6	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
58	59	1
0	0	0
67	64	-3
71	67	-4
538	516	-22
0	0	0
0	0	0
402	401	-1
18	16	-2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	441	136	426	60.5	E	35.7	D	31.0	C
	Thru	52	137	426	49.4	D				
	Right	846	109	469	22.0	C				
Southbound	Left	695	95	313	52.1	D	24.4	C		
	Thru	101	95	313	53.6	D				
	Right	1,206	1	60	6.0	A				
Eastbound	Left	1,145	60	385	36.9	D	35.7	D		
	Right	509	57	251	33.0	C				
Westbound	Left	774	24	205	32.1	C	30.3	C		
	Right	483	45	213	27.4	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
468	441	-27
56	52	-4
882	846	-36
702	695	-7
103	101	-2
1,206	1,206	0
1,172	1,145	-27
500	509	9
778	774	-4
486	483	-3

2040 VISSIM Model: No Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour)



34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	78	23	118	47.1	D	34.8	C	37.9	D
	Thru	408	58	260	35.9	D				
	Right	81	1	22	17.4	B				
Southbound	Left	292	61	205	59.3	E	37.8	D		
	Thru	443	87	332	56.8	E				
	Right	465	0	56	6.1	A				
Eastbound	Left	699	109	378	45.8	D	45.2	D		
	Thru	32	110	378	37.1	D				
	Right	3	0	0	0.5	A				
Westbound	Left	72	25	115	62.1	E	27.3	C		
	Thru	39	13	85	60.2	E				
	Right	215	6	104	9.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
81	78	-3
436	408	-28
85	81	-4
296	292	-4
438	443	5
461	465	4
737	699	-38
33	32	-1
4	3	-1
72	72	0
37	39	2
217	215	-2

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	570	2	59	1.8	A	1.8	A	2.9	A
	Right	8	1	43	2.3	A				
Southbound	Left	16	1	35	14.4	B	4.1	A		
	Thru	416	4	84	3.7	A				
Westbound	Left	5	1	16	25.9	C	13.3	B		
	Right	8	0	43	5.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
593	570	-23
8	8	0
16	16	0
415	416	1
5	5	0
9	8	-1

Note: Results are the average of ten (10) simulation runs

Appendix M
Year 2040 with Improvements MOE

DRAFT

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	3	55	18.3	C	18.3	C	0.9	A
	Right	0	-	-	-	A				
Eastbound	Thru	521	0	0	0.3	A	0.3	A		
	Right	14	0	0	0.5	A				
Westbound	Left	8	0	15	4.9	A	0.6	A		
	Thru	895	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	37	-1
0	0	0
523	521	-2
12	14	2
8	8	0
918	895	-23

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	1,032	0	0	0.3	A	0.4	A	0.4	A
	-	277	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1,041	1,032	-9
274	277	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.2	A	3.1	A
	Right	13	1	69	7.2	A				
Eastbound	Left	24	0	23	5.2	A	1.3	A		
	Thru	252	0	0	0.9	A				
Westbound	Thru	255	0	0	4.9	A	4.9	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
15	13	-2
25	24	-1
255	252	-3
266	255	-11
1	0	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	733	0	0	0.3	A	0.3	A	1.4	A
	Thru	1,260	0	28	0.8	A				
Southbound	Right	233	0	28	1.3	A	0.8	A		
	Left	9	3	30	45.3	E				
Eastbound	Right	358	0	0	5.2	A	6.2	A		
	Left	9	3	30	45.3	E				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
736	733	-3
1,286	1,260	-26
251	233	-18
10	9	-1
361	358	-3

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	131	24	102	39.6	D	25.2	C	24.6	C
	Thru	81	11	96	25.6	C				
	Right	79	0	4	1.1	A				
Southbound	Left	19	5	37	50.6	D	30.5	C		
	Thru	124	17	86	31.1	C				
	Right	21	20	94	8.8	A				
Eastbound	Left	49	11	56	45.5	D	23.5	C		
	Thru	408	28	143	23.9	C				
	Right	59	0	5	2.0	A				
Westbound	Left	372	50	188	39.6	D	24.1	C		
	Thru	749	28	168	16.8	B				
	Right	26	27	171	13.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
130	131	1
83	81	-2
81	79	-2
20	19	-1
122	124	2
22	21	-1
52	49	-3
410	408	-2
60	59	-1
374	372	-2
774	749	-25
28	26	-2

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	79	13	82	35.7	D	29.3	C	16.8	B
	Thru	26	3	45	23.5	C				
	Right	18	1	55	9.6	A				
Southbound	Left	14	2	31	25.5	C	21.0	C		
	Thru	13	2	31	31.7	C				
	Right	79	7	58	18.4	B				
Eastbound	Left	267	29	121	31.1	C	15.5	B		
	Thru	1,332	34	207	13.0	B				
	Right	99	50	247	6.3	A				
Westbound	Left	34	6	45	39.1	D	17.4	B		
	Thru	382	20	139	16.0	B				
	Right	15	0	42	3.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
80	79	-1
25	26	1
18	18	0
14	14	0
12	13	1
80	79	-1
253	267	14
1,357	1,332	-25
102	99	-3
35	34	-1
400	382	-18
13	15	2

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	26	3	38	20.9	C	13.8	B	5.5	A
	Right	79	4	53	11.4	B				
Eastbound	Left	120	11	94	14.6	B	4.5	A		
	Thru	1,187	11	94	3.5	A				
Westbound	Thru	283	6	86	8.1	A	7.1	A		
	Right	46	0	0	0.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	26	1
81	79	-2
122	120	-2
1,193	1,187	-6
290	283	-7
49	46	-3

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	240	20	157	18.5	B	14.3	B	23.4	C
	Thru	494	18	131	12.3	B				
	Right	7	17	131	10.8	B				
Southbound	Left	0	-	-	-	A	22.8	C		
	Thru	556	42	230	24.9	C				
	Right	54	0	0	0.8	A				
Eastbound	Left	891	181	848	36.4	D	27.3	C		
	Thru	13	182	849	41.0	D				
	Right	939	109	729	18.5	B				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
240	240	0
501	494	-7
5	7	2
0	0	0
592	556	-36
55	54	-1
898	891	-7
11	13	2
945	939	-6
0	0	0
2	0	-2
0	0	0

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	67	9	61	29.8	C	21.6	C	16.0	B
	Thru	12	1	24	21.5	C				
	Right	34	1	62	5.7	A				
Southbound	Left	52	5	54	18.7	B	16.7	B		
	Thru	14	2	27	27.5	C				
	Right	135	8	67	14.9	B				
Eastbound	Left	181	18	101	27.0	C	15.2	B		
	Thru	779	31	221	14.8	B				
	Right	404	16	190	10.6	B				
Westbound	Left	94	12	68	30.9	C	16.6	B		
	Thru	230	11	77	16.4	B				
	Right	126	4	85	6.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
71	67	-4
11	12	1
33	34	1
52	52	0
15	14	-1
135	135	0
182	181	-1
785	779	-6
422	404	-18
93	94	1
242	230	-12
130	126	-4

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



Killebrew Dr & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	32	4	46	22.8	C	14.2	B	5.6	A
	Thru	0	-	-	-	A				
	Right	20	0	3	0.6	A				
Southbound	Left	4	1	21	25.9	C	12.3	B		
	Thru	5	1	21	23.6	C				
	Right	11	0	5	2.2	A				
Eastbound	Left	81	4	50	13.0	B	4.8	A		
	Thru	1,018	9	140	4.6	A				
	Right	115	0	15	1.1	A				
Westbound	Left	44	3	62	18.2	B	6.6	A		
	Thru	283	3	73	5.0	A				
	Right	14	0	4	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	32	-2
0	0	0
22	20	-2
4	4	0
4	5	1
13	11	-2
78	81	3
1,026	1,018	-8
114	115	1
44	44	0
292	283	-9
16	14	-2

24th Ave & I-494 Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	215	18	107	23.8	C	12.4	B	29.0	C
	Thru	62	5	45	20.0	B				
	Right	299	2	62	2.7	A				
Southbound	Left	73	19	100	48.1	D	37.8	D		
	Thru	133	24	105	43.8	D				
	Right	42	0	0	0.8	A				
Eastbound	Left	81	9	89	27.4	C	29.1	C		
	Right	885	96	369	29.3	C				
Westbound	Left	1,400	165	547	36.3	D	33.2	C		
	Right	375	45	236	21.6	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
205	215	10
58	62	4
283	299	16
74	73	-1
134	133	-1
41	42	1
76	81	5
898	885	-13
1,414	1,400	-14
377	375	-2

24th Ave & 79th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	37	8	51	46.8	D	4.6	A	7.1	A
	Thru	536	2	73	1.7	A				
Southbound	Thru	2,296	38	350	7.0	A	6.8	A		
	Right	122	1	76	2.7	A				
Eastbound	Left	46	11	62	50.3	D	38.3	D		
	Right	27	3	64	17.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
34	37	3
500	536	36
2,312	2,296	-16
126	122	-4
47	46	-1
28	27	-1

American Blvd & 24th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	84	19	88	48.8	D	31.5	C	28.4	C
	Thru	299	35	163	40.1	D				
	Right	139	0	31	2.6	A				
Southbound	Left	584	118	448	47.3	D	24.3	C		
	Thru	862	82	427	27.2	C				
	Right	867	5	224	5.9	A				
Eastbound	Left	169	40	138	63.4	E	36.9	D		
	Thru	190	23	119	33.8	C				
	Right	144	5	99	10.0	B				
Westbound	Left	78	19	76	56.2	E	38.5	D		
	Thru	188	33	139	42.1	D				
	Right	104	36	142	18.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
87	84	-3
296	299	3
136	139	3
586	584	-2
863	862	-1
892	867	-25
213	169	-44
237	190	-47
171	144	-27
78	78	0
182	188	6
101	104	3

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	88	15	83	42.8	D	25.0	C	21.9	C
	Thru	248	17	122	23.6	C				
	Right	52	0	4	1.5	A				
Southbound	Left	148	39	196	46.6	D	18.4	B		
	Thru	638	40	273	19.6	B				
	Right	290	5	217	1.4	A				
Eastbound	Left	220	27	124	34.6	C	24.6	C		
	Thru	466	74	406	27.8	C				
	Right	178	0	43	3.7	A				
Westbound	Left	10	4	52	63.7	E	24.0	C		
	Thru	76	13	88	33.5	C				
	Right	50	0	14	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
88	88	0
258	248	-10
54	52	-2
150	148	-2
658	638	-20
305	290	-15
220	220	0
468	466	-2
182	178	-4
11	10	-1
73	76	3
42	50	8

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	1	25	29.8	C	17.8	B	17.7	B
	Thru	299	15	129	18.6	B				
	Right	30	1	42	7.1	A				
Southbound	Left	299	33	161	31.5	C	18.2	B		
	Thru	466	15	166	11.1	B				
	Right	63	16	191	8.1	A				
Eastbound	Left	12	2	27	36.6	D	29.1	C		
	Thru	1	0	17	27.6	C				
	Right	4	0	21	7.0	A				
Westbound	Left	26	7	58	41.9	D	11.1	B		
	Thru	0	-	-	-	A				
	Right	82	0	2	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	7	-1
307	299	-8
30	30	0
303	299	-4
482	466	-16
64	63	-1
11	12	1
1	1	0
4	4	0
29	26	-3
1	0	-1
82	82	0

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	257	2	89	2.5	A	2.9	A	4.2	A
	Right	130	2	89	3.9	A				
Southbound	Thru	469	2	94	2.9	A	2.9	A		
Eastbound	Left	15	1	49	29.4	C	18.5	B		
	Right	55	3	62	15.5	B				
Westbound	Right	65	3	81	6.5	A	6.5	A		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
262	257	-5
126	130	4
490	469	-21
16	15	-1
57	55	-2
67	65	-2

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	39	15	64	97.7	F	35.9	D	39.3	D
	Thru	308	82	537	68.7	E				
	Right	1,139	30	485	25.0	C				
Southbound	Left	73	13	70	45.6	D	25.1	C		
	Thru	251	29	173	29.2	C				
	Right	200	16	191	12.4	B				
Eastbound	Left	61	21	85	75.3	E	45.8	D		
	Thru	918	142	477	46.8	D				
	Right	59	0	5	1.2	A				
Westbound	Left	347	79	248	66.4	E	49.3	D		
	Thru	207	15	98	24.4	C				
	Right	20	1	19	11.0	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
36	39	3
303	308	5
1,176	1,139	-37
75	73	-2
258	251	-7
214	200	-14
66	61	-5
929	918	-11
57	59	2
378	347	-31
212	207	-5
18	20	2

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	72	31	275	19.6	B	11.2	B	13.6	B
	Thru	1,237	31	274	10.8	B				
	Right	40	42	303	8.0	A				
Southbound	Left	55	22	181	34.6	C	13.6	B		
	Thru	442	21	181	11.3	B				
	Right	127	33	213	12.2	B				
Eastbound	Left	248	30	218	27.1	C	25.4	C		
	Thru	7	30	221	24.4	C				
	Right	27	35	240	9.7	A				
Westbound	Left	7	1	23	21.1	C	14.9	B		
	Thru	4	1	23	16.4	B				
	Right	6	0	15	6.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
75	72	-3
1,252	1,237	-15
42	40	-2
54	55	1
473	442	-31
134	127	-7
254	248	-6
9	7	-2
28	27	-1
7	7	0
3	4	1
6	6	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	25	0	1	0.6	A	5.7	A	6.0	A
	Thru	0	-	-	-	A				
	Right	96	0	1	7.0	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	6.1	A		
	Thru	670	8	155	6.5	A				
	Right	131	0	46	3.9	A				
Westbound	Left	189	13	77	17.2	B	5.9	A		
	Thru	423	1	41	0.8	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
22	25	3
0	0	0
88	96	8
0	1	1
0	0	0
0	0	0
0	0	0
706	670	-36
132	131	-1
186	189	3
417	423	6
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	22	0	24	4.6	A	4.1	A	6.5	A
	Thru	138	0	23	4.1	A				
	Right	7	0	23	2.5	A				
Southbound	Left	3	0	14	3.1	A	2.2	A		
	Thru	213	0	14	2.2	A				
	Right	77	0	14	2.1	A				
Eastbound	Left	72	1	76	11.7	B	10.5	B		
	Thru	226	1	77	10.7	B				
	Right	109	1	77	9.3	A				
Westbound	Left	0	-	-	-	A	7.0	A		
	Thru	28	0	12	7.6	A				
	Right	4	0	0	3.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	22	4
115	138	23
6	7	1
2	3	1
222	213	-9
69	77	8
75	72	-3
226	226	0
108	109	1
1	0	-1
32	28	-4
4	4	0

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	14	6	53	50.1	D	15.2	B	20.0	C
	Thru	130	9	81	19.5	B				
	Right	165	4	90	8.9	A				
Southbound	Left	24	6	50	45.9	D	18.7	B		
	Thru	153	18	147	19.7	B				
	Right	147	24	163	13.3	B				
Eastbound	Left	32	11	65	62.7	E	50.2	D		
	Thru	20	2	34	30.1	C				
	Right	0	-	-	-	A				
Westbound	Left	11	3	27	44.6	D	39.7	D		
	Thru	2	1	18	28.4	C				
	Right	5	1	17	33.4	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
15	14	-1
131	130	-1
168	165	-3
23	24	1
155	153	-2
149	147	-2
32	32	0
19	20	1
1	0	-1
11	11	0
2	2	0
3	5	2

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	45	16	85	57.2	E	44.3	D	23.4	C
	Thru	2	0	31	29.8	C				
	Right	16	1	41	10.0	A				
Southbound	Left	41	10	56	49.0	D	18.6	B		
	Thru	16	2	29	23.5	C				
	Right	80	0	24	2.0	A				
Eastbound	Left	539	61	272	34.0	C	23.8	C		
	Thru	1,417	87	576	20.3	C				
	Right	90	96	593	19.0	B				
Westbound	Left	61	12	90	40.3	D	23.0	C		
	Thru	435	32	211	22.5	C				
	Right	76	11	147	11.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
45	45	0
3	2	-1
18	16	-2
42	41	-1
15	16	1
82	80	-2
545	539	-6
1,476	1,417	-59
98	90	-8
67	61	-6
458	435	-23
77	76	-1

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	23	7	73	34.3	D	19.6	C	2.6	A
	Right	46	8	90	12.3	B				
Eastbound	Left	156	6	105	8.4	A	2.8	A		
	Thru	607	0	0	1.4	A				
Westbound	Thru	570	0	0	0.3	A	0.3	A		
	Right	21	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
25	23	-2
44	46	2
162	156	-6
630	607	-23
559	570	11
22	21	-1

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	30	5	51	29.8	C	15.7	B	5.5	A
	Right	46	0	42	6.4	A				
Eastbound	Thru	388	7	128	4.8	A	4.6	A		
	Right	243	2	85	4.2	A				
Westbound	Left	133	14	112	20.3	C	5.2	A		
	Thru	563	1	52	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	30	-2
46	46	0
401	388	-13
255	243	-12
149	133	-16
549	563	14

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	0	12	15.8	B	12.2	B	11.6	B
	Thru	130	10	82	12.0	B				
Southbound	Thru	174	9	87	13.1	B	12.2	B		
	Right	21	0	48	4.7	A				
Eastbound	Left	134	7	97	11.8	B	10.9	B		
	Right	101	3	66	9.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
9	8	-1
137	130	-7
187	174	-13
23	21	-2
135	134	-1
98	101	3

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	139	0	17	1.1	A	0.8	A	2.3	A
	Thru	96	0	18	0.4	A				
	Right	124	0	18	0.7	A				
Southbound	Left	200	1	44	2.8	A	2.2	A		
	Thru	74	0	6	0.7	A				
	Right	0	-	-	-	A				
Eastbound	Left	7	1	42	21.1	C	13.8	B		
	Thru	0	-	-	-	A				
	Right	9	1	41	8.0	A				
Westbound	Left	9	3	54	23.7	C	11.3	B		
	Thru	0	-	-	-	A				
	Right	34	2	48	8.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
141	139	-2
105	96	-9
131	124	-7
215	200	-15
71	74	3
0	0	0
7	7	0
0	0	0
10	9	-1
10	9	-1
0	0	0
35	34	-1

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	1	0	0	0.3	A	0.8	A	1.5	A	1	1	0
	Thru	350	0	0	0.6	A					368	350	-18
	Right	209	0	0	1.2	A					212	209	-3
Southbound	Left	62	2	48	6.6	A	4.4	A			58	62	4
	Thru	30	0	0	0.0	A					31	30	-1
	Right	0	-	-	-	A					0	0	0
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!			0	0	0
	Thru	0	-	-	-	A					0	0	0
	Right	0	-	-	-	A					0	0	0
Westbound	Left	4	1	45	20.8	C	11.9	B	6	4	-2		
	Thru	0	-	-	-	A			0	0	0		
	Right	9	1	59	8.0	A			9	9	0		

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Thru	560	0	6	0.5	A	0.5	A	0.6	A	581	560	-21
	Right	107	0	7	0.8	A					104	107	3
Southbound	Left	1	0	4	4.1	A	0.2	A			1	1	0
	Thru	34	0	0	0.1	A					36	34	-2
Eastbound	Left	4	0	35	20.7	C	20.7	C			6	4	-2
	Right	0	-	-	-	A					0	0	0

30th Ave & E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Southbound	Left	4	2	17	87.4	F	15.7	B	6.9	A	6	4	-2
	Right	33	1	61	7.0	A					36	33	-3
Eastbound	Left	467	12	223	11.6	B	7.3	A			477	467	-10
	Thru	802	1	68	4.9	A					848	802	-46
Westbound	Thru	615	8	168	6.2	A	5.7	A			638	615	-23
	Right	200	8	168	4.2	A					209	200	-9

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	82	1	49	6.4	A	5.2	A	9.0	A	84	82	-2
	Thru	0	-	-	-	A					0	0	0
	Right	36	1	48	2.5	A					37	36	-1
Southbound	Left	7	1	30	26.7	D	14.1	B			7	7	0
	Thru	0	-	-	-	A					0	0	0
	Right	9	1	31	4.3	A					9	9	0
Eastbound	Left	63	18	151	19.3	C	12.5	B			65	63	-2
	Thru	284	18	151	11.9	B					295	284	-11
	Right	79	18	151	9.0	A					86	79	-7
Westbound	U-turn	231	17	245	10.8	B	6.7	A	235	231	-4		
	Left	305	17	246	9.7	A			307	305	-2		
	Thru	658	17	246	6.9	A			671	658	-13		
	Right	84	17	246	5.3	A			83	84	1		

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



E Old Shakopee Rd & 31st Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	5.8	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	15	2	35	28.6	C	15.4	B		
	Thru	0	-	-	-	A				
	Right	24	1	46	7.2	A				
Eastbound	Left	183	7	104	13.9	B	4.2	A		
	Thru	544	1	56	1.4	A				
	Right	79	0	32	1.4	A				
Westbound	Left	45	1	27	4.7	A	6.6	A		
	Thru	795	14	252	5.9	A				
	Right	320	17	285	8.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
1	0	-1
16	15	-1
0	0	0
25	24	-1
189	183	-6
583	544	-39
82	79	-3
47	45	-2
822	795	-27
325	320	-5

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	192	9	101	8.2	A	8.2	A	3.6	A
Southbound	Right	277	7	115	6.8	A	6.8	A		
Eastbound	Left	48	9	70	35.0	E	4.2	A		
	Thru	486	0	3	1.3	A				
	Right	24	0	2	0.7	A				
Westbound	Left	82	2	42	5.8	A	2.0	A		
	Thru	1,006	0	0	1.9	A				
	Right	192	0	1	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
194	192	-2
281	277	-4
46	48	2
504	486	-18
24	24	0
84	82	-2
1,015	1,006	-9
197	192	-5

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	5.3	A	3.2	A
	Thru	0	-	-	-	A				
	Right	4	0	46	5.3	A				
Southbound	Left	57	11	82	33.5	D	16.4	C		
	Thru	2	8	84	28.6	D				
	Right	83	2	47	4.4	A				
Eastbound	Left	131	8	106	12.0	B	2.9	A		
	Thru	414	0	0	0.1	A				
	Right	14	0	0	0.5	A				
Westbound	Left	8	0	9	4.8	A	1.7	A		
	Thru	1,073	0	0	1.6	A				
	Right	64	0	14	2.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
4	4	0
58	57	-1
1	2	1
86	83	-3
141	131	-10
444	414	-30
15	14	-1
7	8	1
1,107	1,073	-34
66	64	-2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	375	175	488	82.1	F	45.6	D	47.2	D
	Thru	90	175	488	94.1	F				
	Right	658	86	476	18.2	B				
Southbound	Left	531	120	356	77.5	E	44.7	D		
	Thru	127	120	356	77.7	E				
	Right	494	0	0	0.9	A				
Eastbound	Left	864	19	158	26.4	C	36.1	D		
	Right	781	86	285	46.7	D				
Westbound	Left	2,077	198	595	59.4	E	54.8	D		
	Right	933	232	621	44.6	D				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
397	375	-22
96	90	-6
680	658	-22
547	531	-16
132	127	-5
492	494	2
870	864	-6
790	781	-9
2,096	2,077	-19
955	933	-22

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (AM Peak Hour)



34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	51	26	115	83.5	F	30.7	C	36.5	D
	Thru	278	27	126	32.4	C				
	Right	114	1	55	3.0	A				
Southbound	Left	539	129	499	69.4	E	33.7	C		
	Thru	1,147	148	755	34.8	C				
	Right	1,197	9	273	16.5	B				
Eastbound	Left	620	87	292	55.8	E	54.2	D		
	Thru	46	88	293	44.8	D				
	Right	10	0	2	0.7	A				
Westbound	Left	67	18	75	56.3	E	33.1	C		
	Thru	33	12	90	60.5	E				
	Right	214	18	116	21.6	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
53	51	-2
295	278	-17
124	114	-10
544	539	-5
1,182	1,147	-35
1,212	1,197	-15
640	620	-20
48	46	-2
10	10	0
69	67	-2
31	33	2
217	214	-3

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	428	4	81	4.0	A	3.9	A	5.4	A
	Right	49	2	67	3.2	A				
Southbound	Left	61	6	80	21.0	C	5.8	A		
	Thru	1,135	12	224	4.9	A				
Westbound	Left	12	2	29	27.8	C	15.6	B		
	Right	14	0	49	5.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
457	428	-29
55	49	-6
66	61	-5
1,166	1,135	-31
12	12	0
15	14	-1

Note: Results are the average of ten (10) simulation runs

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	31	5	57	31.8	D	20.0	C	1.2	A
	Right	19	0	5	0.7	A				
Eastbound	Thru	943	0	3	0.7	A	0.7	A		
	Right	41	0	0	0.8	A				
Westbound	Left	9	0	20	9.3	A	0.7	A		
	Thru	880	0	0	0.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
32	31	-1
19	19	0
950	943	-7
40	41	1
10	9	-1
911	880	-31

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	667	0	0	0.4	A	0.6	A	0.6	A
	-	289	0	0	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
674	667	-7
286	289	3

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	7.3	A	3.4	A
	Right	20	1	71	7.3	A				
Eastbound	Left	41	1	34	8.0	A	1.8	A		
	Thru	308	0	0	1.0	A				
Westbound	Thru	378	0	0	4.7	A	4.7	A		
	Right	4	0	0	2.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
22	20	-2
42	41	-1
309	308	-1
383	378	-5
5	4	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	668	0	0	0.3	A	0.3	A	2.8	A
	Thru	1,029	1	101	1.3	A				
Southbound	Right	750	1	101	4.5	A	2.6	A		
	Left	45	5	55	29.0	D				
Eastbound	Left	45	5	55	29.0	D	7.9	A		
	Right	358	0	2	5.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
671	668	-3
1,056	1,029	-27
782	750	-32
45	45	0
361	358	-3

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	150	58	286	46.7	D	24.8	C	28.7	C
	Thru	269	58	286	35.2	D				
	Right	288	1	47	3.5	A				
Southbound	Left	45	11	59	52.4	D	33.7	C		
	Thru	164	23	104	33.1	C				
	Right	34	27	111	11.6	B				
Eastbound	Left	304	47	163	43.6	D	26.0	C		
	Thru	380	32	161	27.6	C				
	Right	275	1	67	4.2	A				
Westbound	Left	430	61	229	44.2	D	32.2	C		
	Thru	706	43	217	25.3	C				
	Right	26	41	220	21.6	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
147	150	3
265	269	4
298	288	-10
49	45	-4
163	164	1
35	34	-1
309	304	-5
394	380	-14
267	275	8
431	430	-1
739	706	-33
27	26	-1

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Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	384	251	514	102.3	F	79.1	E	43.4	D
	Thru	50	9	68	35.9	D				
	Right	99	4	68	10.7	B				
Southbound	Left	44	7	68	30.1	C	48.5	D		
	Thru	88	32	144	61.0	E				
	Right	431	83	230	47.8	D				
Eastbound	Left	276	58	172	59.9	E	27.5	C		
	Thru	941	51	231	23.0	C				
	Right	248	72	270	8.6	A				
Westbound	Left	94	25	91	72.9	E	44.2	D		
	Thru	1,587	285	691	43.3	D				
	Right	32	1	53	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
393	384	-9
52	50	-2
96	99	3
45	44	-1
87	88	1
435	431	-4
260	276	16
961	941	-20
255	248	-7
93	94	1
1,627	1,587	-40
31	32	1

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	73	16	108	42.6	D	27.7	C	22.8	C
	Right	701	73	345	26.1	C				
Eastbound	Left	374	52	167	39.8	D	19.0	B		
	Thru	579	52	167	5.6	A				
Westbound	Thru	1,425	114	451	24.2	C	22.6	C		
	Right	106	0	0	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
72	73	1
705	701	-4
384	374	-10
576	579	3
1,471	1,425	-46
108	106	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	339	49	263	29.3	C	16.5	B	21.1	C
	Thru	364	5	77	4.8	A				
	Right	7	5	76	5.6	A				
Southbound	Left	1	0	7	14.9	B	21.5	C		
	Thru	1,377	105	562	22.9	C				
	Right	105	0	0	4.0	A				
Eastbound	Left	450	65	295	40.0	D	24.0	C		
	Thru	9	64	291	45.1	D				
	Right	402	9	177	5.7	A				
Westbound	Left	0	-	-	-	A	5.7	A		
	Thru	0	-	-	-	A				
	Right	4	0	41	5.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
344	339	-5
367	364	-3
5	7	2
1	1	0
1,437	1,377	-60
110	105	-5
459	450	-9
9	9	0
400	402	2
1	0	-1
0	0	0
3	4	1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	316	59	228	52.5	D	41.5	D	35.0	D
	Thru	34	7	63	37.2	D				
	Right	98	4	86	7.6	A				
Southbound	Left	211	31	198	27.9	C	39.0	D		
	Thru	35	7	57	39.1	D				
	Right	509	81	415	43.6	D				
Eastbound	Left	244	40	141	46.5	D	26.8	C		
	Thru	452	40	223	26.3	C				
	Right	382	27	259	14.7	B				
Westbound	Left	159	30	107	48.5	D	37.5	D		
	Thru	905	79	277	41.5	D				
	Right	175	6	87	6.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
322	316	-6
33	34	1
103	98	-5
206	211	5
32	35	3
519	509	-10
240	244	4
461	452	-9
401	382	-19
163	159	-4
909	905	-4
186	175	-11

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Killebrew Dr & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	124	27	99	42.7	D	31.6	C	15.1	B	127	124	-3
	Thru	12	27	99	39.8	D					12	12	0
	Right	49	0	4	1.5	A					49	49	0
Southbound	Left	50	13	90	44.4	D	14.6	B			50	50	0
	Thru	7	13	89	46.7	D					7	7	0
	Right	231	4	90	7.2	A					233	231	-2
Eastbound	Left	126	21	89	41.0	D	12.5	B			126	126	0
	Thru	419	8	79	6.7	A					420	419	-1
	Right	105	0	18	1.3	A					102	105	3
Westbound	Left	68	19	100	53.9	D	14.2	B	67	68	1		
	Thru	1,176	34	302	12.5	B			1,219	1,176	-43		
	Right	69	0	21	2.5	A			72	69	-3		

24th Ave & I-494 Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	1,050	101	435	31.6	C	21.0	C	31.2	C	1,097	1,050	-47
	Thru	209	21	128	29.2	C					222	209	-13
	Right	932	17	251	7.3	A					973	932	-41
Southbound	Left	150	57	210	62.8	E	48.2	D			160	150	-10
	Thru	82	23	92	63.5	E					82	82	0
	Right	73	0	0	1.0	A					72	73	1
Eastbound	Left	24	4	43	34.6	C	26.4	C			23	24	1
	Right	568	59	263	26.1	C					577	568	-9
Westbound	Left	1,383	222	601	47.4	D	43.5	D			1,381	1,383	2
	Right	252	23	168	22.4	C			257	252	-5		

24th Ave & 79th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	62	19	71	69.4	E	5.6	A	7.1	A	61	62	1
	Thru	2,004	12	196	3.6	A					2,121	2,004	-117
Southbound	Thru	1,689	12	164	3.9	A	3.8	A			1,684	1,689	5
	Right	340	2	84	3.5	A					356	340	-16
Eastbound	Left	171	43	158	61.1	E	45.5	D			170	171	1
	Right	87	8	86	15.0	B					88	87	-1

American Blvd & 24th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	224	40	165	50.7	D	17.8	B	32.0	C	232	224	-8
	Thru	1,086	42	353	12.6	B					1,130	1,086	-44
	Right	107	0	13	2.3	A					107	107	0
Southbound	Left	152	44	110	74.8	E	22.4	C			148	152	4
	Thru	1,075	70	328	23.9	C					1,078	1,075	-3
	Right	533	2	145	4.3	A					547	533	-14
Eastbound	Left	291	78	226	75.9	E	50.0	D			300	291	-9
	Thru	245	41	152	48.1	D					255	245	-10
	Right	181	7	105	11.0	B					188	181	-7
Westbound	Left	240	48	179	51.3	D	50.8	D	241	240	-1		
	Thru	343	185	565	48.8	D			355	343	-12		
	Right	690	188	568	51.6	D			691	690	-1		

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24th Ave & Lindau Ln

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	255	51	193	59.4	E	40.3	D	32.3	C	255	255	0
	Thru	813	88	418	35.0	D					845	813	-32
	Right	14	0	1	1.8	A					15	14	-1
Southbound	Left	68	17	126	46.5	D	14.0	B			70	68	-2
	Thru	817	53	374	19.8	B					827	817	-10
	Right	593	6	235	2.4	A					611	593	-18
Eastbound	Left	449	92	297	59.0	E	42.2	D			449	449	0
	Thru	173	31	191	31.5	C					173	173	0
	Right	143	0	30	2.4	A					147	143	-4
Westbound	Left	57	28	114	96.4	F	49.7	D	58	57	-1		
	Thru	388	138	550	59.6	E			392	388	-4		
	Right	177	2	60	12.8	B			175	177	2		

24th Ave & 82nd St

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	17	6	40	66.0	E	22.7	C	20.0	B	19	17	-2
	Thru	562	31	222	22.0	C					564	562	-2
	Right	22	1	37	6.7	A					23	22	-1
Southbound	Left	212	28	158	36.7	D	12.1	B			207	212	5
	Thru	581	10	105	5.9	A					592	581	-11
	Right	230	9	127	5.1	A					234	230	-4
Eastbound	Left	289	55	259	48.2	D	43.9	D			291	289	-2
	Thru	4	2	40	54.1	D					5	4	-1
	Right	39	3	47	11.1	B					36	39	3
Westbound	Left	52	19	88	66.2	E	15.2	B	50	52	2		
	Thru	8	2	27	66.9	E			6	8	2		
	Right	252	0	19	3.0	A			260	252	-8		

24th Ave & Transit Station

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Thru	382	2	96	3.1	A	3.2	A	5.4	A	381	382	1
	Right	91	2	96	3.7	A					91	91	0
Southbound	Thru	642	2	70	2.0	A	2.0	A			653	642	-11
Eastbound	Left	17	5	62	46.0	D	38.7	D			17	17	0
	Right	54	10	82	36.4	D					55	54	-1
Westbound	Right	207	13	116	9.8	A	9.8	A			208	207	-1

24th Ave & Killebrew Dr/E Old Shakopee Rd

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	75	35	114	114.6	F	47.2	D	49.5	D	76	75	-1
	Thru	286	103	483	95.0	F					289	286	-3
	Right	543	0	62	12.8	B					557	543	-14
Southbound	Left	39	10	52	61.7	E	37.4	D			40	39	-1
	Thru	366	68	276	53.7	D					365	366	1
	Right	297	37	264	14.2	B					303	297	-6
Eastbound	Left	108	52	144	120.0	F	57.0	E			106	108	2
	Thru	308	53	193	52.3	D					318	308	-10
	Right	96	0	10	1.3	A					94	96	2
Westbound	Left	1,196	470	1,196	69.2	E	52.5	D	1,233	1,196	-37		
	Thru	973	52	293	34.4	C			1,002	973	-29		
	Right	79	4	61	21.7	C			76	79	3		

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E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	34	17	182	41.2	D	9.5	A	14.0	B
	Thru	738	17	181	8.1	A				
	Right	11	26	211	5.1	A				
Southbound	Left	14	52	484	16.5	B	14.4	B		
	Thru	1,345	51	483	13.6	B				
	Right	342	63	510	17.3	B				
Eastbound	Left	184	25	183	29.8	C	26.0	C		
	Thru	10	25	183	26.6	C				
	Right	47	31	207	10.8	B				
Westbound	Left	42	6	60	20.9	C	14.6	B		
	Thru	13	6	60	26.7	C				
	Right	36	0	28	3.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
38	34	-4
749	738	-11
9	11	2
16	14	-2
1,403	1,345	-58
342	342	0
188	184	-4
8	10	2
48	47	-1
42	42	0
13	13	0
36	36	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	80	0	1	1.1	A	3.9	A	3.1	A
	Thru	0	-	-	-	A				
	Right	76	0	1	6.9	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	4.7	A		
	Thru	429	4	100	5.1	A				
	Right	82	0	13	2.7	A				
Westbound	Left	102	6	52	14.2	B	2.3	A		
	Thru	1,124	2	107	1.2	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
81	80	-1
0	0	0
78	76	-2
0	1	1
0	0	0
1	0	-1
0	0	0
442	429	-13
83	82	-1
103	102	-1
1,134	1,124	-10
1	0	-1

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	61	0	10	3.5	A	2.9	A	5.0	A
	Thru	67	0	10	2.4	A				
	Right	1	0	8	1.3	A				
Southbound	Left	0	-	-	-	A	5.0	A		
	Thru	162	0	25	5.0	A				
	Right	84	0	25	5.0	A				
Eastbound	Left	65	0	40	6.5	A	6.1	A		
	Thru	44	0	41	7.8	A				
	Right	78	0	41	4.7	A				
Westbound	Left	15	0	47	5.3	A	5.3	A		
	Thru	199	0	46	5.4	A				
	Right	12	0	2	2.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
58	61	3
63	67	4
1	1	0
0	0	0
169	162	-7
80	84	4
68	65	-3
46	44	-2
78	78	0
15	15	0
210	199	-11
13	12	-1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	25	5	66	31.8	C	17.5	B	22.5	C
	Thru	74	5	55	17.3	B				
	Right	29	1	50	5.7	A				
Southbound	Left	7	1	25	32.4	C	25.6	C		
	Thru	167	22	134	29.2	C				
	Right	81	30	151	17.7	B				
Eastbound	Left	29	3	51	24.0	C	15.3	B		
	Thru	4	0	11	23.6	C				
	Right	64	3	57	10.9	B				
Westbound	Left	162	17	104	27.1	C	24.9	C		
	Thru	31	5	60	17.9	B				
	Right	28	5	60	19.7	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
21	25	4
70	74	4
29	29	0
7	7	0
177	167	-10
86	81	-5
28	29	1
3	4	1
64	64	0
161	162	1
32	31	-1
30	28	-2

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E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	160	67	239	73.1	E	56.7	E	32.0	C
	Thru	14	8	80	60.0	E				
	Right	64	10	94	15.0	B				
Southbound	Left	248	62	203	74.3	E	41.2	D		
	Thru	4	1	16	57.4	E				
	Right	419	37	275	21.5	C				
Eastbound	Left	233	72	241	68.4	E	26.7	C		
	Thru	546	16	187	9.8	A				
	Right	31	21	207	8.9	A				
Westbound	Left	65	28	121	85.7	F	30.9	C		
	Thru	1,505	107	485	29.0	C				
	Right	64	77	420	18.3	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
159	160	1
15	14	-1
63	64	1
252	248	-4
4	4	0
428	419	-9
232	233	1
560	546	-14
32	31	-1
67	65	-2
1,552	1,505	-47
66	64	-2

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	18	16	118	39.1	E	19.8	C	2.7	A
	Right	145	21	132	17.4	C				
Eastbound	Left	54	2	50	10.5	B	2.0	A		
	Thru	453	0	0	1.0	A				
Westbound	Thru	1,081	0	0	0.4	A	0.4	A		
	Right	11	0	0	0.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
18	18	0
146	145	-1
55	54	-1
464	453	-11
1,091	1,081	-10
10	11	1

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	299	42	237	28.6	C	23.1	C	12.8	B
	Right	120	0	55	9.4	A				
Eastbound	Thru	437	14	142	10.3	B	10.1	B		
	Right	36	4	96	6.8	A				
Westbound	Left	55	10	79	31.7	C	9.2	A		
	Thru	793	14	142	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
310	299	-11
122	120	-2
445	437	-8
37	36	-1
59	55	-4
791	793	2

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	76	1	63	13.4	B	9.8	A	11.8	B
	Thru	235	11	99	8.6	A				
Southbound	Thru	157	7	67	16.9	B	13.6	B		
	Right	129	2	62	9.5	A				
Eastbound	Left	33	2	53	16.4	B	14.9	B		
	Right	10	0	20	9.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	76	-6
239	235	-4
162	157	-5
131	129	-2
38	33	-5
13	10	-3

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	13	0	6	1.4	A	0.7	A	9.2	A
	Thru	90	0	13	0.7	A				
	Right	14	0	13	0.7	A				
Southbound	Left	30	0	1	1.1	A	0.6	A		
	Thru	123	0	12	0.4	A				
	Right	12	0	12	0.8	A				
Eastbound	Left	33	13	122	15.7	C	11.9	B		
	Thru	1	12	131	14.9	B				
	Right	249	13	118	11.3	B				
Westbound	Left	229	21	138	17.1	C	13.1	B		
	Thru	0	-	-	-	A				
	Right	190	6	81	8.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
14	13	-1
93	90	-3
12	14	2
34	30	-4
130	123	-7
12	12	0
33	33	0
1	1	0
249	249	0
227	229	2
0	0	0
195	190	-5

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.2	A	2.8	A
	Thru	46	0	0	0.2	A				
	Right	8	0	0	0.4	A				
Southbound	Left	12	0	4	0.9	A	0.3	A		
	Thru	589	0	0	0.3	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	109	10	96	13.6	B	12.0	B		
	Thru	0	-	-	-	A				
	Right	70	12	109	9.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
50	46	-4
7	8	1
12	12	0
594	589	-5
0	0	0
1	0	-1
0	0	0
1	0	-1
110	109	-1
0	0	0
70	70	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	50	0	0	0.2	A	0.2	A	2.2	A
	Right	6	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.9	A		
	Thru	697	0	1	0.9	A				
Eastbound	Left	66	5	63	17.7	C	17.2	C		
	Right	3	4	71	6.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
54	50	-4
7	6	-1
0	0	0
705	697	-8
69	66	-3
3	3	0

30th Ave & E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	295	25	118	21.9	C	13.0	B	9.2	A
	Right	468	16	102	7.3	A				
Eastbound	Left	39	1	35	11.6	B	8.1	A		
	Thru	867	18	212	8.0	A				
Westbound	Thru	1,013	15	179	7.3	A	7.3	A		
	Right	17	14	177	2.2	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
302	295	-7
472	468	-4
44	39	-5
880	867	-13
1,028	1,013	-15
15	17	2

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	224	73	308	38.6	E	33.1	D	18.0	C
	Thru	0	-	-	-	A				
	Right	157	74	309	25.4	D				
Southbound	Left	89	37	188	45.3	E	37.1	E		
	Thru	0	-	-	-	A				
	Right	76	36	189	27.5	D				
Eastbound	Left	11	23	176	21.0	C	15.5	C		
	Thru	576	23	177	15.5	C				
	Right	23	23	176	14.7	B				
Westbound	U-turn	246	12	169	13.2	B	6.7	A		
	Left	82	12	170	9.8	A				
	Thru	469	11	169	6.7	A				
	Right	16	12	170	5.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
226	224	-2
0	0	0
161	157	-4
90	89	-1
0	0	0
77	76	-1
12	11	-1
591	576	-15
23	23	0
251	246	-5
83	82	-1
466	469	3
16	16	0

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



E Old Shakopee Rd & 31st Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	87	15	99	24.3	C	17.5	B	7.6	A
	Thru	0	-	-	-	A				
	Right	54	2	59	6.5	A				
Southbound	Left	163	23	153	26.9	C	16.6	B		
	Thru	0	-	-	-	A				
	Right	190	4	76	7.7	A				
Eastbound	Left	36	1	26	11.2	B	4.4	A		
	Thru	1,124	9	124	4.2	A				
	Right	2	4	94	3.9	A				
Westbound	Left	0	-	-	-	A	6.5	A		
	Thru	758	11	190	6.6	A				
	Right	38	12	224	3.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
89	87	-2
1	0	-1
55	54	-1
165	163	-2
0	0	0
191	190	-1
37	36	-1
1,140	1,124	-16
3	2	-1
0	0	0
763	758	-5
38	38	0

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	204	12	114	12.4	B	12.4	B	11.7	B
Southbound	Right	398	2	80	3.4	A	3.4	A		
Eastbound	Left	59	1	42	7.7	A	14.7	B		
	Thru	945	60	405	15.8	C				
	Right	58	58	400	4.3	A				
Westbound	Left	129	45	182	56.3	F	11.7	B		
	Thru	418	0	0	1.5	A				
	Right	139	0	0	1.3	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
203	204	1
402	398	-4
58	59	1
973	945	-28
62	58	-4
127	129	2
414	418	4
137	139	2

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	4	1	41	31.1	D	18.5	C	2.0	A
	Thru	0	-	-	-	A				
	Right	4	0	47	5.8	A				
Southbound	Left	92	15	103	27.6	D	11.7	B		
	Thru	0	-	-	-	A				
	Right	158	1	45	2.4	A				
Eastbound	Left	83	1	44	4.1	A	0.6	A		
	Thru	1,242	0	0	0.3	A				
	Right	13	0	0	0.5	A				
Westbound	Left	5	0	9	8.5	A	1.1	A		
	Thru	631	0	0	1.0	A				
	Right	32	0	9	1.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
5	4	-1
0	0	0
5	4	-1
95	92	-3
0	0	0
157	158	1
85	83	-2
1,263	1,242	-21
13	13	0
5	5	0
638	631	-7
30	32	2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	578	358	804	84.4	F	52.3	D	52.1	D
	Thru	203	357	802	67.8	E				
	Right	2,087	438	901	41.9	D				
Southbound	Left	1,108	1,320	1,803	92.3	F	70.7	E		
	Thru	78	1,302	1,800	98.2	F				
	Right	1,569	0	0	54.1	D				
Eastbound	Left	1,321	54	273	40.1	D	38.3	D		
	Right	521	45	199	33.8	C				
Westbound	Left	1,035	40	234	39.6	D	36.5	D		
	Right	686	75	292	31.7	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
598	578	-20
215	203	-12
2,158	2,087	-71
1,244	1,108	-136
88	78	-10
1,732	1,569	-163
1,347	1,321	-26
513	521	8
1,034	1,035	1
699	686	-13

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (PM Peak Hour)



34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	81	41	171	85.0	F	54.6	D	52.2	D
	Thru	1,203	140	455	54.6	D				
	Right	88	0	11	26.8	C				
Southbound	Left	322	85	270	77.6	E	44.9	D		
	Thru	590	121	452	60.0	E				
	Right	531	2	71	8.2	A				
Eastbound	Left	1,066	219	510	68.9	E	67.4	E		
	Thru	57	219	510	53.7	D				
	Right	12	0	6	1.4	A				
Westbound	Left	141	38	131	68.2	E	40.1	D		
	Thru	72	39	282	63.7	E				
	Right	590	63	303	30.5	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
82	81	-1
1,241	1,203	-38
88	88	0
327	322	-5
589	590	1
524	531	7
1,107	1,066	-41
57	57	0
11	12	1
142	141	-1
72	72	0
594	590	-4

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	1,352	16	178	7.9	A	7.9	A	9.2	A
	Right	14	11	161	5.3	A				
Southbound	Left	28	4	49	26.3	C	9.9	A		
	Thru	601	13	175	9.1	A				
Westbound	Left	67	11	77	31.2	C	23.8	C		
	Right	31	1	59	7.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
1,382	1,352	-30
15	14	-1
29	28	-1
606	601	-5
68	67	-1
30	31	1

Note: Results are the average of ten (10) simulation runs

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



American Blvd & IKEA Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	57	8	72	24.6	C	13.1	B	1.5	A
	Right	53	0	8	0.7	A				
Eastbound	Thru	629	0	0	0.5	A	0.5	A		
	Right	56	0	0	0.7	A				
Westbound	Left	18	0	25	6.0	A	0.6	A		
	Thru	570	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
61	57	-4
52	53	1
634	629	-5
55	56	1
17	18	1
582	570	-12

SB 77 & NB 77 Merge at Killebrew Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Eastbound	Thru	783	0	0	0.7	A	1.1	A	1.1	A
	-	548	0	0	1.5	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
794	783	-11
548	548	0

E 86th St & E Service Rd

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	0	-	-	-	A	6.8	A	1.7	A
	Right	20	1	71	6.8	A				
Eastbound	Left	30	0	21	3.6	A	1.0	A		
	Thru	203	0	0	0.6	A				
Westbound	Thru	205	0	0	2.0	A	2.0	A		
	Right	12	0	0	2.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
21	20	-1
31	30	-1
204	203	-1
211	205	-6
13	12	-1

E Old Shakopee Rd & TH 77 S Ramps

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	493	0	0	0.2	A	0.2	A	2.2	A
	Thru	555	0	28	0.5	A				
Southbound	Right	420	0	28	2.0	A	1.2	A		
	Left	69	5	61	19.5	C				
Eastbound	Left	69	5	61	19.5	C	7.6	A		
	Right	288	0	4	4.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
495	493	-2
559	555	-4
438	420	-18
70	69	-1
290	288	-2

American Blvd & Thunderbird Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	170	88	415	56.0	E	29.6	C	35.3	D
	Thru	289	83	413	43.0	D				
	Right	350	1	59	5.6	A				
Southbound	Left	64	15	69	55.8	E	42.5	D		
	Thru	255	43	189	42.2	D				
	Right	38	47	196	21.7	C				
Eastbound	Left	244	51	167	57.0	E	35.0	C		
	Thru	237	28	126	37.4	D				
	Right	203	1	57	5.6	A				
Westbound	Left	698	99	346	44.5	D	37.4	D		
	Thru	383	26	120	25.2	C				
	Right	14	23	122	19.9	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
169	170	1
285	289	4
359	350	-9
65	64	-1
254	255	1
38	38	0
244	244	0
277	237	-40
197	203	6
716	698	-18
392	383	-9
15	14	-1

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



Lindau Ln & IKEA Way

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	355	139	384	67.4	E	47.8	D	41.1	D
	Thru	105	20	128	36.4	D				
	Right	162	8	90	12.4	B				
Southbound	Left	115	18	109	39.9	D	52.6	D		
	Thru	187	51	244	55.4	E				
	Right	764	168	540	53.8	D				
Eastbound	Left	484	82	238	52.6	D	32.6	C		
	Thru	1,179	92	341	31.9	C				
	Right	537	121	381	16.2	B				
Westbound	Left	156	29	105	49.7	D	42.8	D		
	Thru	1,161	215	549	44.3	D				
	Right	79	2	63	7.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
360	355	-5
110	105	-5
158	162	4
113	115	2
187	187	0
776	764	-12
471	484	13
1,257	1,179	-78
549	537	-12
154	156	2
1,193	1,161	-32
83	79	-4

Killebrew Dr & 20th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	94	19	155	39.6	D	25.2	C	20.2	C
	Right	1,095	128	608	24.0	C				
Eastbound	Left	566	60	218	27.2	C	15.9	B		
	Thru	760	60	218	7.5	A				
Westbound	Thru	1,171	70	280	22.6	C	19.9	B		
	Right	169	0	0	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
93	94	1
1,101	1,095	-6
577	566	-11
762	760	-2
1,199	1,171	-28
171	169	-2

E Old Shakopee Rd & TH 77 N Ramps

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	250	10	119	11.7	B	8.2	A	13.3	B
	Thru	304	4	62	5.4	A				
	Right	6	4	61	5.3	A				
Southbound	Left	3	0	9	10.3	B	12.0	B		
	Thru	701	24	224	12.9	B				
	Right	56	0	0	0.7	A				
Eastbound	Left	459	40	190	27.7	C	18.6	B		
	Thru	0	-	-	-	A				
	Right	276	1	72	3.6	A				
Westbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
253	250	-3
307	304	-3
5	6	1
3	3	0
722	701	-21
58	56	-2
467	459	-8
0	0	0
274	276	2
1	0	-1
1	0	-1
1	0	-1

Lindau Ln & 22nd Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	234	45	176	52.5	D	35.9	D	25.2	C
	Thru	50	10	74	38.2	D				
	Right	141	6	92	7.5	A				
Southbound	Left	250	39	235	30.1	C	33.4	C		
	Thru	46	9	69	38.5	D				
	Right	562	68	311	34.5	C				
Eastbound	Left	398	36	197	27.5	C	13.2	B		
	Thru	577	13	111	7.6	A				
	Right	477	8	134	8.1	A				
Westbound	Left	258	43	153	47.8	D	30.1	C		
	Thru	614	42	176	31.7	C				
	Right	299	15	156	11.6	B				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
236	234	-2
50	50	0
143	141	-2
244	250	6
43	46	3
572	562	-10
395	398	3
583	577	-6
495	477	-18
262	258	-4
621	614	-7
314	299	-15

2040 VISSIM Model: Improvements
 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



Killebrew Dr & 22nd Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	123	21	96	34.2	C	21.2	C	18.8	B	122	123	1
	Thru	4	21	96	31.6	C					4	4	0
	Right	82	0	7	1.2	A					84	82	-2
Southbound	Left	230	60	260	43.9	D	19.6	B			229	230	1
	Thru	6	58	255	35.5	D					6	6	0
	Right	609	33	280	10.2	B					615	609	-6
Eastbound	Left	275	32	132	33.8	C	15.0	B			274	275	1
	Thru	435	10	116	7.6	A					444	435	-9
	Right	141	0	25	1.4	A					137	141	4
Westbound	Left	49	14	83	56.0	E	21.6	C	51	49	-2		
	Thru	619	35	198	21.5	C			633	619	-14		
	Right	89	1	39	3.7	A			90	89	-1		

24th Ave & I-494 Ramps

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	806	113	453	42.9	D	24.6	C	39.8	D	820	806	-14
	Thru	148	22	117	39.4	D					145	148	3
	Right	911	12	194	6.0	A					930	911	-19
Southbound	Left	76	27	123	62.8	E	56.0	E			78	76	-2
	Thru	97	30	100	74.1	E					98	97	-1
	Right	41	0	0	0.9	A					41	41	0
Eastbound	Left	23	4	46	52.7	D	58.5	E			20	23	3
	Right	935	223	633	58.7	E					944	935	-9
Westbound	Left	1,689	243	656	44.6	D	43.6	D			1,705	1,689	-16
	Right	73	5	92	21.6	C			78	73	-5		

24th Ave & 79th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	93	31	91	80.6	F	7.8	A	13.5	B	94	93	-1
	Thru	1,613	8	151	3.6	A					1,648	1,613	-35
Southbound	Thru	2,137	109	615	12.2	B	11.3	B			2,143	2,137	-6
	Right	582	10	148	8.0	A					599	582	-17
Eastbound	Left	245	65	219	64.0	E	55.0	D			246	245	-1
	Right	129	29	157	37.8	D					129	129	0

American Blvd & 24th Ave

											(Signal)		
Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS	Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
Northbound	Left	212	69	176	87.9	F	23.6	C	28.3	C	224	212	-12
	Thru	1,266	63	551	14.7	B					1,298	1,266	-32
	Right	109	0	8	2.2	A					109	109	0
Southbound	Left	167	47	179	69.8	E	21.5	C			166	167	1
	Thru	1,426	109	490	23.3	C					1,435	1,426	-9
	Right	662	2	115	5.5	A					670	662	-8
Eastbound	Left	323	78	222	71.3	E	50.4	D			333	323	-10
	Thru	136	31	112	57.6	B					141	136	-5
	Right	192	7	101	10.2	B					195	192	-3
Westbound	Left	120	37	131	67.0	E	50.5	D	122	120	-2		
	Thru	137	37	140	52.2	D			129	137	8		
	Right	115	40	143	31.2	C			113	115	2		

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24th Ave & Lindau Ln

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	282	81	305	75.4	E	31.7	C	28.3	C
	Thru	946	51	317	19.5	B				
	Right	25	0	0	1.3	A				
Southbound	Left	91	23	145	43.4	D	15.4	B		
	Thru	896	68	421	22.0	C				
	Right	767	10	258	4.4	A				
Eastbound	Left	555	113	411	58.9	E	42.8	D		
	Thru	185	48	245	43.5	D				
	Right	230	0	41	3.3	A				
Westbound	Left	17	8	55	85.5	F	46.2	D		
	Thru	123	50	200	71.1	E				
	Right	94	1	42	6.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
289	282	-7
1,000	946	-54
26	25	-1
87	91	4
886	896	10
779	767	-12
556	555	-1
184	185	1
231	230	-1
17	17	0
131	123	-8
85	94	9

24th Ave & 82nd St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	132	38	124	73.3	E	36.3	D	29.1	C
	Thru	645	49	283	29.8	C				
	Right	24	1	35	6.7	A				
Southbound	Left	195	28	157	37.9	D	15.4	B		
	Thru	477	28	221	10.0	B				
	Right	467	25	241	11.6	B				
Eastbound	Left	410	127	425	64.9	E	54.0	D		
	Thru	4	5	78	65.0	E				
	Right	139	7	86	21.4	C				
Westbound	Left	29	15	72	76.6	E	13.3	B		
	Thru	5	2	25	83.3	F				
	Right	212	1	18	3.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
137	132	-5
679	645	-34
26	24	-2
193	195	2
473	477	4
468	467	-1
418	410	-8
4	4	0
135	139	4
30	29	-1
5	5	0
220	212	-8

24th Ave & Transit Station

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	605	3	112	3.3	A	3.2	A	6.1	A
	Right	87	3	112	3.0	A				
Southbound	Thru	629	4	115	3.6	A	3.6	A		
Eastbound	Left	11	4	61	54.0	D	40.7	D		
	Right	66	14	87	38.5	D				
Westbound	Right	204	14	119	10.2	B	10.2	B		

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
616	605	-11
87	87	0
621	629	8
11	11	0
68	66	-2
207	204	-3

24th Ave & Killebrew Dr/E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	93	28	107	70.9	E	32.0	C	34.4	C
	Thru	368	61	317	54.2	D				
	Right	459	0	44	6.4	A				
Southbound	Left	42	9	53	48.5	D	23.6	C		
	Thru	290	46	290	31.7	C				
	Right	361	30	290	14.3	B				
Eastbound	Left	288	81	285	80.3	F	48.2	D		
	Thru	350	42	170	36.1	D				
	Right	107	0	12	1.5	A				
Westbound	Left	510	60	252	38.6	D	33.8	C		
	Thru	356	29	135	29.7	C				
	Right	38	1	24	7.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
95	93	-2
371	368	-3
471	459	-12
42	42	0
292	290	-2
356	361	5
295	288	-7
354	350	-4
108	107	-1
526	510	-16
370	356	-14
37	38	1

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 South Loop Traffic Study
 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 86th St

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	28	8	127	14.4	B	5.8	A	7.7	A
	Thru	713	8	127	5.5	A				
	Right	5	13	151	3.4	A				
Southbound	Left	4	10	182	9.6	A	7.3	A		
	Thru	728	10	182	6.7	A				
	Right	195	16	213	9.3	A				
Eastbound	Left	140	12	123	20.5	C	17.5	B		
	Thru	0	-	-	-	A				
	Right	40	14	147	7.2	A				
Westbound	Left	7	1	25	12.9	B	8.0	A		
	Thru	4	1	24	13.7	B				
	Right	9	0	6	1.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
31	28	-3
724	713	-11
5	5	0
6	4	-2
746	728	-18
199	195	-4
142	140	-2
0	0	0
41	40	-1
7	7	0
5	4	-1
9	9	0

American Blvd & 28th Ave/Airport Access

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	39	0	4	0.7	A	6.5	A	5.3	A
	Thru	0	-	-	-	A				
	Right	153	0	4	8.0	A				
Southbound	Left	1	1	1	1.0	A	1.0	A		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	4.5	A		
	Thru	262	3	66	5.1	A				
	Right	86	0	26	2.7	A				
Westbound	Left	115	7	63	15.0	B	5.5	A		
	Thru	296	1	46	1.8	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	39	4
0	0	0
143	153	10
0	1	1
0	0	0
0	0	0
0	0	0
265	262	-3
87	86	-1
114	115	1
291	296	5
0	0	0

Lindau Ln & 28th Ave

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	57	0	9	3.5	A	2.7	A	3.8	A
	Thru	156	0	9	2.5	A				
	Right	4	0	9	2.1	A				
Southbound	Left	0	-	-	-	A	2.1	A		
	Thru	142	0	8	2.1	A				
	Right	51	0	8	1.8	A				
Eastbound	Left	44	0	31	7.4	A	7.1	A		
	Thru	40	0	31	8.7	A				
	Right	67	0	30	5.8	A				
Westbound	Left	0	-	-	-	A	7.2	A		
	Thru	28	0	15	7.2	A				
	Right	1	0	0	5.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
51	57	6
142	156	14
2	4	2
0	0	0
148	142	-6
48	51	3
44	44	0
39	40	1
67	67	0
1	0	-1
34	28	-6
2	1	-1

82nd St & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	8	2	47	30.7	C	14.0	B	15.4	B
	Thru	122	6	59	15.1	B				
	Right	27	0	47	4.2	A				
Southbound	Left	6	1	20	20.2	C	12.3	B		
	Thru	107	8	84	15.2	B				
	Right	93	12	102	8.4	A				
Eastbound	Left	87	9	122	22.5	C	21.4	C		
	Thru	7	0	18	17.0	B				
	Right	4	0	1	3.9	A				
Westbound	Left	25	3	41	23.8	C	22.5	C		
	Thru	6	1	22	18.9	B				
	Right	5	1	23	20.1	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
7	8	1
115	122	7
25	27	2
6	6	0
114	107	-7
101	93	-8
87	87	0
7	7	0
3	4	1
27	25	-2
5	6	1
5	5	0

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E Old Shakopee Rd & 28th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	176	28	181	29.4	C	22.0	C	16.8	B
	Thru	13	2	57	18.3	B				
	Right	83	4	70	6.8	A				
Southbound	Left	119	10	65	25.7	C	14.3	B		
	Thru	15	1	26	20.5	C				
	Right	205	0	37	7.3	A				
Eastbound	Left	207	22	118	26.8	C	16.6	B		
	Thru	460	24	193	13.9	B				
	Right	179	31	212	11.9	B				
Westbound	Left	81	13	113	32.3	C	18.6	B		
	Thru	401	20	169	16.8	B				
	Right	42	4	104	9.7	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
177	176	-1
15	13	-2
81	83	2
122	119	-3
14	15	1
215	205	-10
205	207	2
477	460	-17
184	179	-5
86	81	-5
415	401	-14
41	42	1

American Blvd & Metro Drive W

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	4	1	43	12.9	B	7.6	A	0.6	A
	Right	20	1	59	6.6	A				
Eastbound	Left	23	0	21	3.0	A	0.7	A		
	Thru	390	0	0	0.5	A				
Westbound	Thru	391	0	0	0.2	A	0.2	A		
	Right	7	0	0	0.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
4	4	0
20	20	0
22	23	1
385	390	5
384	391	7
7	7	0

American Blvd & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	33	3	47	20.6	C	12.0	B	4.3	A
	Right	47	0	45	5.9	A				
Eastbound	Thru	362	3	81	3.4	A	3.3	A		
	Right	31	0	36	2.4	A				
Westbound	Left	56	4	64	15.8	B	3.7	A		
	Thru	366	1	45	1.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
35	33	-2
49	47	-2
356	362	6
33	31	-2
62	56	-6
357	366	9

Lindau Ln & 30th Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	12	0	5	8.2	A	8.0	A	8.7	A
	Thru	63	4	56	8.0	A				
Southbound	Thru	61	2	33	8.5	A	7.3	A		
	Right	20	0	41	3.6	A				
Eastbound	Left	36	2	52	13.3	B	12.5	B		
	Right	10	0	22	9.6	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
13	12	-1
62	63	1
66	61	-5
23	20	-3
41	36	-5
11	10	-1

30th Ave & North HP Driveway/METRO Park-n-Ride

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	7	0	0	0.6	A	0.4	A	3.0	A
	Thru	30	0	2	0.4	A				
	Right	13	0	2	0.5	A				
Southbound	Left	30	0	1	0.9	A	0.6	A		
	Thru	20	0	4	0.4	A				
	Right	20	0	4	0.5	A				
Eastbound	Left	11	1	51	8.5	A	7.0	A		
	Thru	0	-	-	-	A				
	Right	27	1	50	6.3	A				
Westbound	Left	11	1	44	8.4	A	6.4	A		
	Thru	0	-	-	-	A				
	Right	33	1	39	5.8	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
8	7	-1
28	30	2
13	13	0
34	30	-4
22	20	-2
22	20	-2
13	11	-2
0	0	0
27	27	0
12	11	-1
0	0	0
34	33	-1

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 Arterial MOEs (SAT Peak Hour-After Event)



30th Ave & Central HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	0.1	A	1.0	A
	Thru	38	0	0	0.1	A				
	Right	9	0	0	0.4	A				
Southbound	Left	8	0	2	0.6	A	0.2	A		
	Thru	49	0	0	0.1	A				
	Right	0	-	-	-	A				
Eastbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Westbound	Left	5	1	44	8.0	A	6.6	A		
	Thru	0	-	-	-	A				
	Right	11	1	58	5.9	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
38	38	0
7	9	2
10	8	-2
53	49	-4
0	0	0
0	0	0
0	0	0
0	0	0
5	5	0
0	0	0
11	11	0

30th Ave & South HP Driveway

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	47	0	0	0.1	A	0.2	A	0.5	A
	Right	7	0	0	0.4	A				
Southbound	Left	0	-	-	-	A	0.1	A		
	Thru	54	0	0	0.1	A				
Eastbound	Left	4	0	35	9.6	A	9.6	A		
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
45	47	2
7	7	0
0	0	0
58	54	-4
6	4	-2
0	0	0

30th Ave & E Old Shakopee Rd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Southbound	Left	12	2	27	24.8	C	9.9	A	2.9	A
	Right	45	2	59	6.0	A				
Eastbound	Left	47	0	16	3.7	A	2.2	A		
	Thru	590	2	85	2.1	A				
Westbound	Thru	466	2	90	3.1	A	3.1	A		
	Right	5	2	92	1.1	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
14	12	-2
51	45	-6
48	47	-1
609	590	-19
476	466	-10
4	5	1

American Blvd & Metro Drive E

(Roundabout)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	69	1	52	7.0	A	5.1	A	5.1	A
	Thru	0	-	-	-	A				
	Right	62	1	51	2.9	A				
Southbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!		
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Eastbound	Left	4	4	91	8.6	A	6.2	A		
	Thru	380	4	92	6.3	A				
	Right	25	4	91	4.1	A				
Westbound	U-turn	261	2	87	6.1	A	3.3	A		
	Left	90	2	87	4.7	A				
	Thru	352	2	87	3.3	A				
	Right	0	-	-	-	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
69	69	0
0	0	0
63	62	-1
0	0	0
0	0	0
2	0	-2
3	4	1
377	380	3
25	25	0
264	261	-3
90	90	0
346	352	6
0	0	0

2040 VISSIM Model: Improvements
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 Arterial MOEs (SAT Peak Hour-After Event)



E Old Shakopee Rd & 31st Ave

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	2.0	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	19	3	36	29.5	C	16.3	B		
	Thru	0	-	-	-	A				
	Right	25	1	45	6.3	A				
Eastbound	Left	30	0	14	4.6	A	1.4	A		
	Thru	571	1	54	1.2	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	1.6	A		
	Thru	448	1	61	1.6	A				
	Right	19	1	67	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
2	0	-2
0	0	0
0	0	0
19	19	0
0	0	0
26	25	-1
31	30	-1
591	571	-20
1	0	-1
0	0	0
451	448	-3
18	19	1

American Blvd & International Dr

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Right	163	7	92	7.5	A	7.5	A	2.6	A
Southbound	Right	309	1	53	2.5	A	2.5	A		
Eastbound	Left	52	1	35	5.2	A	1.9	A		
	Thru	603	0	15	1.7	A				
	Right	46	0	16	0.9	A				
Westbound	Left	91	3	62	8.4	A	2.1	A		
	Thru	393	0	0	0.9	A				
	Right	98	0	0	1.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
164	163	-1
310	309	-1
49	52	3
608	603	-5
46	46	0
92	91	-1
389	393	4
98	98	0

E Old Shakopee Rd & 33rd Ave/Ceridian Access

(Unsignalized)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	0	-	-	-	A	#DIV/0!	#DIV/0!	1.4	A
	Thru	0	-	-	-	A				
	Right	0	-	-	-	A				
Southbound	Left	58	5	63	15.0	B	7.9	A		
	Thru	0	-	-	-	A				
	Right	64	0	27	1.6	A				
Eastbound	Left	68	1	35	3.0	A	0.5	A		
	Thru	522	0	0	0.1	A				
	Right	0	-	-	-	A				
Westbound	Left	0	-	-	-	A	0.8	A		
	Thru	402	0	0	0.8	A				
	Right	16	0	3	1.4	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
0	0	0
0	0	0
0	0	0
58	58	0
0	0	0
67	64	-3
71	68	-3
538	522	-16
0	0	0
0	0	0
402	402	0
18	16	-2

34th Ave & I-494

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	449	163	495	64.6	E	36.7	D	28.4	C
	Thru	53	165	495	60.1	E				
	Right	868	115	519	20.8	C				
Southbound	Left	687	123	393	55.1	E	22.7	C		
	Thru	101	123	393	49.5	D				
	Right	1,206	0	0	1.9	A				
Eastbound	Left	1,149	28	198	28.7	C	28.3	C		
	Right	507	36	160	27.5	C				
Westbound	Left	780	19	158	30.5	C	28.8	C		
	Right	480	42	193	26.1	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
468	449	-19
56	53	-3
882	868	-14
702	687	-15
103	101	-2
1,206	1,206	0
1,172	1,149	-23
500	507	7
778	780	2
486	480	-6

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34th Ave & American Blvd

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Left	80	23	143	47.6	D	28.9	C	37.5	D
	Thru	417	35	156	30.7	C				
	Right	84	0	33	2.2	A				
Southbound	Left	290	56	193	55.2	E	36.4	D		
	Thru	442	85	331	55.7	E				
	Right	465	0	52	6.2	A				
Eastbound	Left	728	89	312	49.1	D	48.5	D		
	Thru	34	90	312	40.5	D				
	Right	4	0	1	1.0	A				
Westbound	Left	70	15	76	45.1	D	30.8	C		
	Thru	39	12	84	54.5	D				
	Right	216	18	119	21.9	C				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
81	80	-1
436	417	-19
85	84	-1
296	290	-6
438	442	4
461	465	4
737	728	-9
33	34	1
4	4	0
72	70	-2
37	39	2
217	216	-1

34th Ave & Appletree Square

(Signal)

Approach	Movement	Volume (vph)	Average Queue (ft)	Maximum Queue (ft)	Movement Delay (sec/veh)	Movement LOS	Approach Delay (sec/veh)	Approach LOS	Overall Delay (sec/veh)	Overall LOS
Northbound	Thru	574	2	64	1.9	A	1.9	A	3.7	A
	Right	8	1	51	1.8	A				
Southbound	Left	16	1	35	17.9	B	5.9	A		
	Thru	416	6	88	5.4	A				
Westbound	Left	5	1	16	24.7	C	12.6	B		
	Right	8	0	43	5.0	A				

Target Volume (vph)	Simulated Volume (vph)	Difference (vph)
593	574	-19
8	8	0
16	16	0
415	416	1
5	5	0
9	8	-1

Note: Results are the average of ten (10) simulation runs

Appendix N
Wayfinding Signage

DRAFT

Freeway Sign Change Protocol

1. BPD and MOA work together to determine message request
2. BPD requests sign message change
 - BPD Patrol Supervisor places phone call to Bloomington Police Dispatch
 - BPD Dispatch makes call to MnDOT TMC requesting sign change
3. MnDOT TMC determines if sign change is appropriate
 - If appropriate, MnDOT TMC makes sign change

Additional Notes:

- Signs will reset to Plan 1 at 5:00 P.M. and 10:00 P.M. every day
- Sign changes will not occur more than one change per hour
- For information flow from MnDOT to BPD/MOA, MnDOT should call BPD Dispatch
 - Only for significant events that may impact signage plans



Local Wayfinding Sign Change Protocol

Monday – Friday, Sunday

1. BPD and MOA work together to determine plan request
2. MOA requests sign plan change
 - MOA Traffic Supervisor places phone call to Bloomington Traffic Engineering
3. Bloomington Traffic Engineering determines if sign plan change is appropriate
 - If appropriate, Bloomington Traffic Engineering makes sign change

Saturday, Special Events

1. BPD and MOA work together to determine plan request
2. MOA requests sign plan change
 - MOA Traffic Supervisor places phone call to Bloomington Patrol Supervisor
3. Bloomington Patrol Supervisor determines if sign plan change is appropriate
 - If appropriate, Bloomington Patrol Supervisor makes sign change

Additional Notes:

- Signs will not automatically reset
- Sign changes will not occur more than one change per 15 minutes
- For information flow from MnDOT or Hennepin County to BPD/MOA, MnDOT or Hennepin County should call BPD Dispatch
 - Only for significant events that may impact signage plans

