

TRAVEL DEMAND MANAGEMENT PLAN



STS

Swing Traffic Solutions

DRAFT

SONS OF NORWAY

in

MINNEAPOLIS, MN

November 7, 2017

DRAFT

Travel Demand Management Plan

For
Sons of Norway
Minneapolis, MN

Swing Traffic Solutions, LLC Project No. 2017011

November 7, 2017

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota:

Vernon E. Swing, PE

Date: November 7, 2017 Lic. No.: 41417

Travel Demand Management Plan

For
Sons of Norway
Minneapolis, MN

DRAFT

November 7, 2017

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1.0 INTRODUCTION

Weidner Investment Services, Inc. and Ryan Companies US, Inc. proposes to redevelop the existing property at 1455 W Lake Street in Minneapolis, MN (See Exhibit 1). Currently, the property is occupied by the Sons of Norway 67,000 square foot office building and at grade parking facility. The Ryan proposal is to redevelop the site into a mixed-use development with restaurant, office, and residential apartment components. The restaurant component is proposed to include approximately 4,750 square feet of quality sit-down restaurant and 2,250 square feet of coffee shop; and the office area is proposed to be approximately 16,000 square feet. The proposed residential apartments will contain 325 units.

Access to the site is planned as follows: An east to west one-way service drive for deliveries from Holmes Avenue; and a separate access to underground parking also from Holmes Avenue. There is an existing alley from W 31st Street that will be maintained up to the new Wells Fargo employee parking lot (a separate project), and the portion providing access to Humboldt Avenue S will be vacated; access to Humboldt will then be provided by means of public easement. This alley is not intended to provide access to the proposed redevelopment (See Site Plan, Exhibit 2).

The site is currently zoned R-4 Multi-Family Medium Density along Holmes Avenue and C3A Community Activity Center along W Lake Street. This redevelopment project proposes to rezone the R-4 to R-6 Multi-Family High Density. Table 1 summarizes the previous and proposed land uses.

Table 1
Land Use Changes with Proposed Redevelopment

Previous Land Uses	Proposed Land Uses
Sons of Norway 66,700 sq. ft. office building	Apartments - 325 Units
193 space surface parking	Restaurants – 4,750 sq. ft. & 2,250 Sq. ft.
	16,000 sq. ft. Sons of Norway office
	325 underground and 7 surface parking spaces

This TDMP will identify alternative transportation options in the vicinity of the site, will discuss the change in parking and site generated traffic, and will include strategies to encourage the use of these alternative modes.



NO SCALE

Date 11/7/17 Exhibit 1
VOLUMES.dwg

LOCATION MAP

Sons of Norway

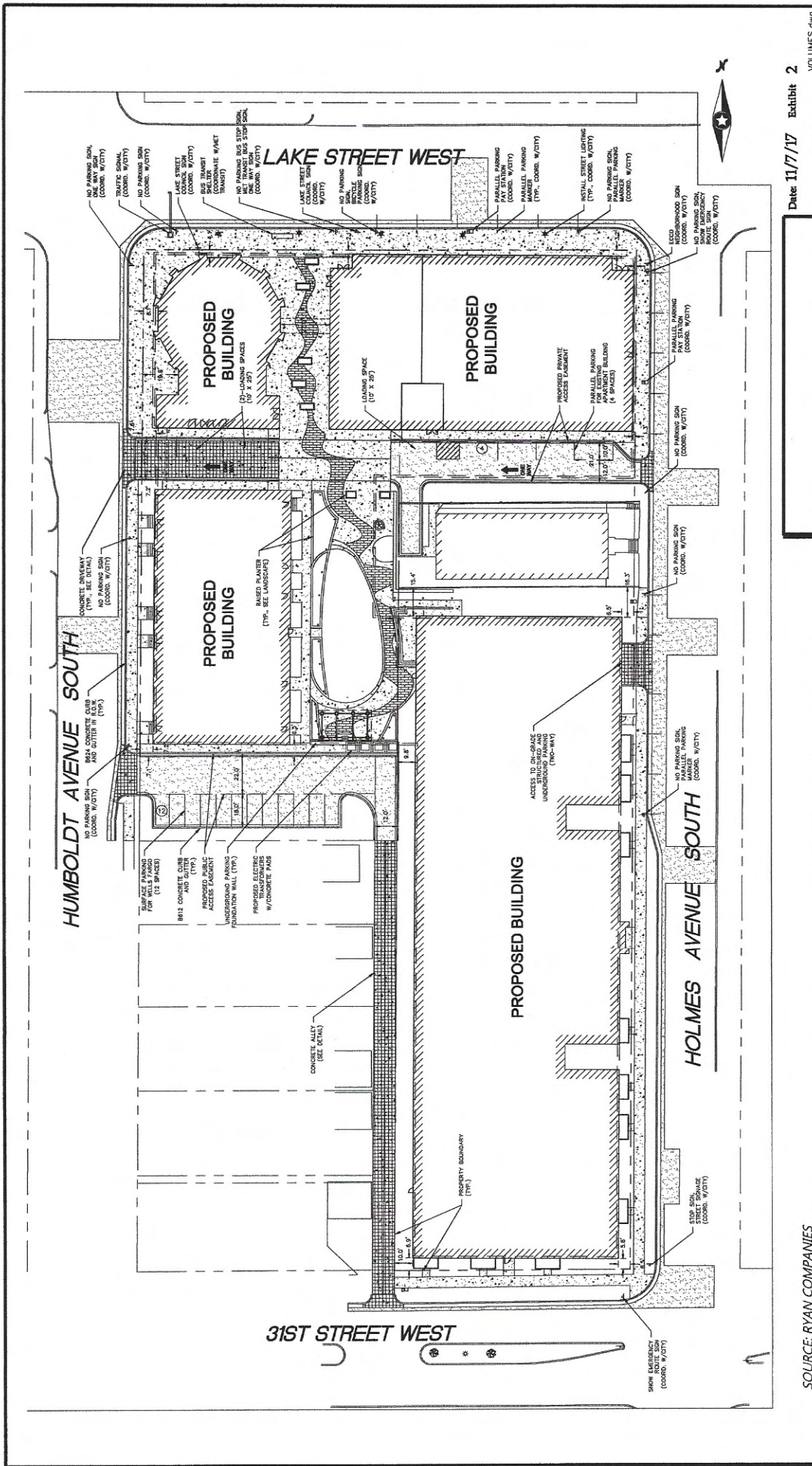
Minneapolis, MN

Prepared for:

RYAN COMPANIES

Designed: _____
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Drawn: _____
Record Drawing by/date: _____





Date 11/7/17 Exhibit 2 VOLUMES 2&3

Sons of Norway
 SITE PLAN

Minneapolis, MN

Prepared for:
RYAN COMPANIES

Designed: _____
 Checked: _____
 Drawn: _____
 Record Drawing by/date: _____

SOURCE: RYAN COMPANIES



2.0 PEDESTRIAN, BICYCLE AND TRANSIT CONSIDERATIONS

The proposed development's location on W Lake Street between Humboldt Avenue S on the west, Holmes Avenue on the east, and W 31st Street on the south affords the future residents, employees and customers of the proposed multi-use development many opportunities for the use of alternative transportation modes. The site is adjacent to roadways with sidewalks and Humboldt Avenue S is designated as a low-stress bike route. Further, the site is two blocks south of the Greenway which is a major bicycle corridor that connects to many locations east and west of the site. (See Exhibit 3.) The site is on a primary bus route corridor, along W Lake Street and is within a block of major bus routes along Hennepin Avenue and Lagoon Avenue. Also, the Hennepin Avenue and Midtown Greenway Uptown Station and Terminal is located three blocks away from the site. (See Exhibit 4.)

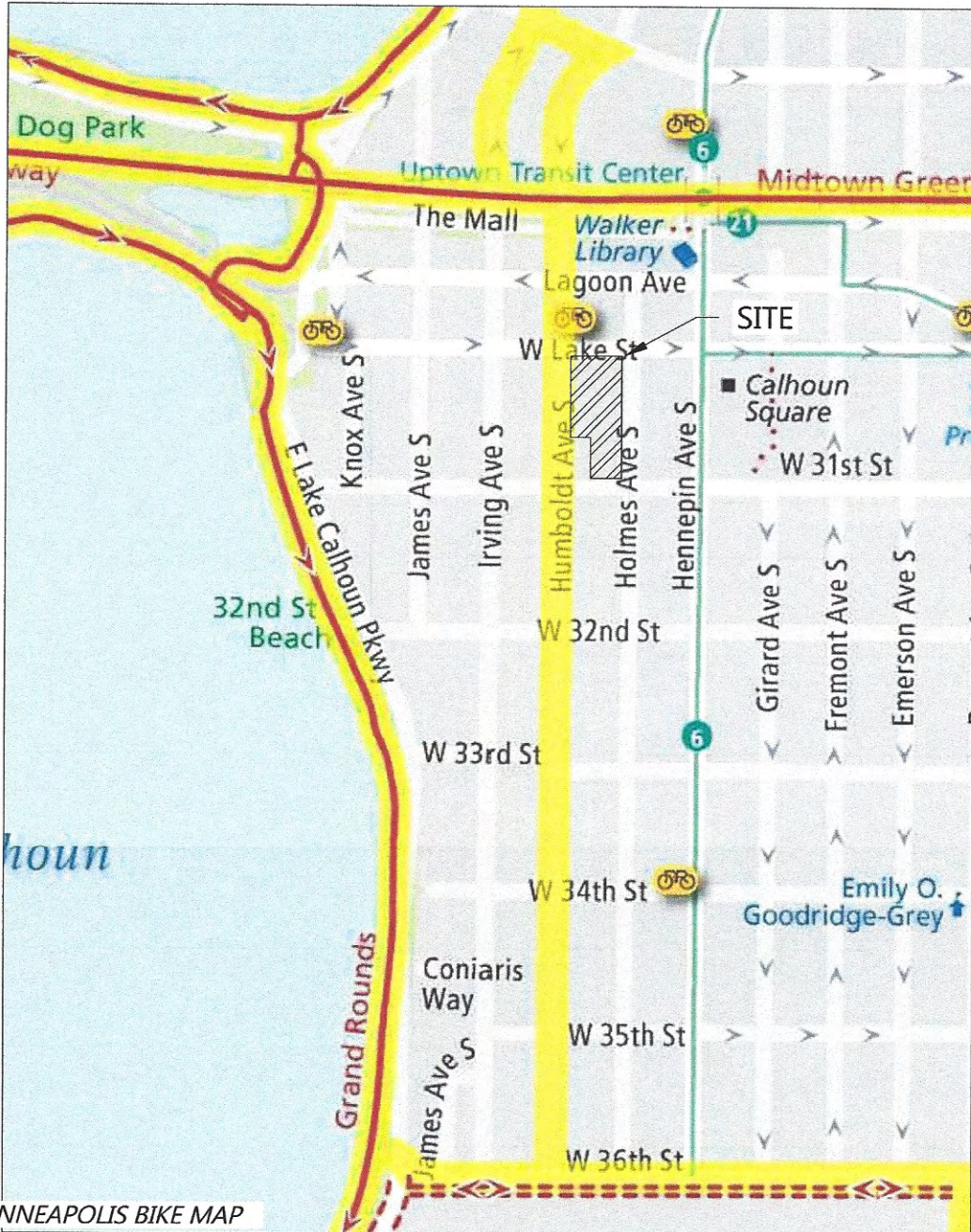
There is a designated bike route along Humboldt Avenue S that ties into the elaborate bike trail system of Minneapolis. This system will enable future residents to easily travel to other downtown locations such as the US Bank Stadium, the central business district and Nicollet Mall, as well as venture to the east across the Mississippi River into Northeast Minneapolis, Dinkytown and the University of Minnesota area, and west to St. Louis Park, Hopkins and Minnetonka. The Humboldt Avenue S bike route also treks north and connects to the Midtown Greenway. There are two Nice Ride Stations near the site, one at Hennepin Avenue and W 31st Street and one across W Lake Street at the intersection with Humboldt Avenue S. Nice Ride Minnesota is a non-profit bike sharing program being deployed throughout the Twin Cities, and is an available strategy to reduce trips.

At least 162 bicycle stalls within a separate bicycle storage area will be provided within the parking levels of the building for use by residents. Further, 12 at grade permanent bicycle rack spaces will be available for office employees and restaurant/coffee shop patrons.

Another non-traditional transportation option is HOURCAR, which provides an hourly rental of a fuel-efficient vehicle. There is a hub for HOURCAR located one block to the east at Calhoun Square and another one located three blocks to the north at the Midtown Greenway on Hennepin Avenue. Use of HOURCAR would also be a viable strategy for travel demand management. For those apartment residents who do not own a personal vehicle and who typically rely on transit or non-motorized transportation, an HOURCAR option within walking distance would be a positive amenity when a personal vehicle is needed on a temporary basis.

Sidewalks exist along the public streets that are adjacent to the project site. These sidewalks provide pedestrian access to the robust sidewalk and pedestrian trail network in the Uptown area of Minneapolis.

Streets	Bicycle Routes	Points of Interest
Busier streets	Off-street bicycle trails	Colleges
Local streets	On-street bicycle lanes and shoulders	Schools
One-way traffic	Shared lanes & bicycle boulevards	Arts & Entertainment
Bicycles prohibited or strongly discouraged	Pedestrian paths and bridges (bicycles allowed)	Bike shops with repairs
Railroad tracks	Low-Stress Bicycle Network	Other bike-related businesses
Selected bridges	Trails, bike boulevards, & quieter streets in Minneapolis	Nice Ride station
0 1/4 mi 1/2 km		Light rail
N		Hi-frequency buses
		Transit hubs



SOURCE: MINNEAPOLIS BIKE MAP

Exhibit: 3
Date: 11/7/17

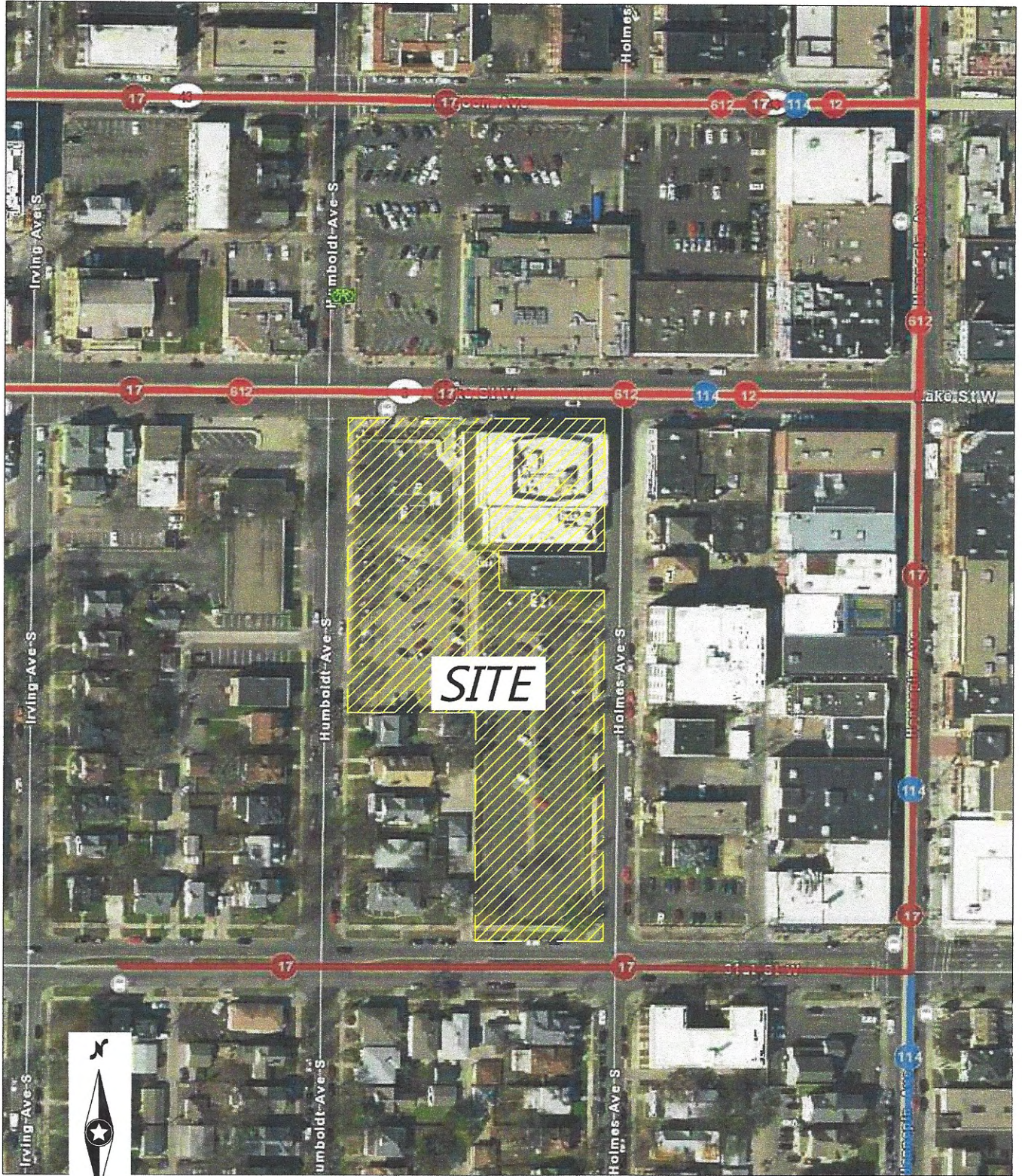
Sons of Norway

Bike Route

Minneapolis, MN



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NO SCALE

SOURCE: METRO TRANSIT

Exhibit: 4
Date: 11/7/17

Sons of Norway

Minneapolis, MN

Metro Transit Routes



Crew: _____
Checked: _____
Drawn: _____
Record Drawing by/date: _____

There are numerous transit opportunities around this site. W Lake Street, Lagoon Avenue and Hennepin Avenue are all major transit routes in the City and provide several options as well as transfer opportunities to access all of the metro area. Table 2 lists the routes that are immediately adjacent to the site and accessible via a stop at Humboldt Avenue S and W Lake Street.

**Table 2
Bus Routes Serving Sons of Norway Site**

ROUTE #	TYPE OF SERVICE	DESTINATIONS	WEEKDAY	MIDDAY SERVICE w/≤ 30 MIN HEADWAYS	SATURDAY	SUNDAY
12	Limited	Downtown, Uptown, Hopkins, Opus, Excelsior Blvd.	5:00 a.m. - 8:00 p.m.	No	N/A	N/A
17	Local	NE Minneapolis, St. Louis Park, Hopkins, Uptown, Minnetonka Blvd	4:30 a.m. - 2:00 a.m.	Yes	4:30 a.m. - 2:00 a.m.	4:30 a.m. - 2:00 a.m.
114	Limited	U of M, S. Minneapolis, St Louis Park, Excelsior Blvd	7:00 a.m. - Noon NB, 2:30-7:00 p.m. SB	No	N/A	N/A
612	Local	Uptown, St. Louis Park, Hopkins, Minnetonka, Excelsior Blvd	8:30 a.m. - 1:00 a.m.	Yes	5:00 a.m. - 1:00 a.m.	5:00 a.m. - 12:00 a.m.

3.0 PARKING CONSIDERATIONS

Parking demand is anticipated to be accommodated on-site. The existing land use includes a 67,000 square-foot office building and the 193-space surface parking lot within a transitional parking overlay. The proposed development will eliminate the transitional parking overlay and this area will be incorporated into a pedestrian overlay within the Uptown District. The development is planned to include 325 residential units, 16,000 square feet of office space, a 2,250 square foot coffee shop and a 4,750 square foot quality sit-down restaurant. The redevelopment of Sons of Norway will provide approximately 332 parking stalls, 285 for the residential units, 40 office spaces of which 35 spaces are to be shared by the restaurant during non-business office hours, 4 surface spaces for the existing apartment units to remain, and 3 loading spaces. It is expected the sit-down restaurant use will be served with Valet parking.

Parking requirements for the site have been calculated using the City of Minneapolis City Code requirements for Off-Street Parking, as found in Chapter 541. Per section 541.2-45 the pedestrian overlay reduces the minimum parking required for the residential units to ½ space per unit. Table 3 outlines the off-street parking required for this development.

**Table 3
Estimated Parking Requirements per City Code**

Land Use	Total GFA (SF)	Requirement	Required Spaces from Table 541-1	Off-Street Parking Provided By This Development
Apartments	325 units	1 space per unit minimum	163	285
Coffee Shop	2,250 SF	1 space/500 SF up to 2000 SF, then 1/300 SF	5	0
Office	16,000 SF.	1 space/500 sq. ft. in excess of 4,000 sq. ft.	24	40
Restaurant	4,750 SF	1 space/500 SF up to 2000 SF, then 1/300 SF	21	35 shared
TOTALS			213	325

The Coffee Shop use is not intended as a driver destination, rather as is consistent with these uses in the Uptown area it is expected to attract pedestrian traffic. This said, there are nine on-street metered spaces in proximity to this planned use which will be more than sufficient for anticipated vehicle demand. The share parking assumption for the propose Office and Restaurant uses anticipates after the business day 35 spaces will be available for restaurant patrons.

Bicycle parking demand was also reviewed. Table 6 outlines the minimum bicycle parking required by the City of Minneapolis for this development.

**Table 4
Bicycle Parking Requirements per City Code**

Land Use	Total GFA (SF)	Requirement	Required Spaces from Table 541-3 - Bicycle Parking Requirements	Number of Bicycle Stalls Being Provided
Apartments	325 units	1 space per 2 dwelling units	162	162
Office	16,000 sq. ft	3 Spaces or 1 per 15 ksf	3	4
Restaurant	4,750 sq. ft.	3 Spaces	3	4
Coffee Shop	2,250 sq. ft.	3 Spaces	3	4
TOTALS			171	174

The development will provide sufficient bicycle parking on-site.

Loading Space

There is a City requirement of two small spaces or one large space for multiple-family dwellings of more than 250 units. A total of three (3) large loading spaces are being proposed, this accommodates off-street service for the office and restaurant uses as well.

Visitor Parking

Visitor parking is anticipated to occur off-site as it is not accommodated on site. There are 13 metered on-street spaces on W Lake Street and Holmes Avenue and there are public parking lots within one or two blocks. One lot is located across W Lake Street behind the Uptown Theatre, and another is just to the east of Calhoun Square. Given the proximity to transit, visitors are also expected to walk or arrive by bus.

4.0 TRAFFIC CONSIDERATIONS

Table 7 summarizes the trip generation estimate calculated for the proposed redevelopment of the Sons of Norway site using the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, 10th Edition. The numbers shown reflect a reduction for shared trips, and pass-by trips, but in order to provide a conservative comparison do not include a reduction for the full usage of the current Sons of Norway office building nor the existing on-site parking lot.

Table 5
Trip Generation Estimates – Proposed Land Use

Land Use	ITE Code	Size	AM Enter	AM Exit	PM Enter	PM Exit
Apartment	221	325 Units	8	57	42	16
Office	710	16 ksf	11	2	2	12
Coffee Shop	936	2,250 sq.ft.	92	88	32	32
Quality Rest.	931	4,750 sq.ft	2	2	25	12
Gross Total Trips			113	149	101	72
Shared Trips			-30	-40	-27	-27
Pass-Trips			-59	-59	-25	-25
Net New Trips			23	50	49	20

The ITE Trip Generation Handbook, 3rd Edition, outlines a procedure to account for shared trips and pass-by trips. Shared trips are those multi-purpose trips within a single-mixed-use development. Pass-by trips are those trips already using the adjacent roadway and enter the site as an intermediate stop on their way to another destination. The pass-by trips are not generated by the land use under study, and thus, are not new trips added to the network but are trips using the site accesses. The coffee shop use is estimated to generate a larger amount of pass-by vehicle traffic than is realistic for this neighborhood where most customers will walk to the site. In order to be more accurate yet conservative in terms of traffic impacts, the traffic analysis has adjusted the pass-by trips associated with the coffee shop by assuming half will walk rather than drive.

Swing Traffic Solutions analyzed several intersections around the Sons of Norway site, and assessed for traffic operational performance. Intersections analyzed include:

- Humboldt Avenue South and W. 31st Street
- Humboldt Avenue South and W. Lake Street
- Humboldt Avenue South and Lagoon Avenue
- Holmes Avenue South and W. 31st Street
- Holmes Avenue South and W. Lakes Street

To understand the impact of site-generated traffic, 2021 No-Build operations at these intersections were reviewed. The traffic estimate to be generated by the proposed site plan was then added to the roadway network. Operations at the intersections were again reviewed and compared to the No-Build conditions. The results of the operational analysis show that the addition of site-generated traffic to the local roadway network does not result in unacceptable, congested or unsafe operations. A full traffic impact study detailing the methodology and results of the analysis has been completed and is attached as Appendix A.

5. TRAVEL DEMAND MANAGEMENT STRATEGIES

A. City of Minneapolis Transportation Goals

The City of Minneapolis has developed a Ten-Year Transportation Action Plan that provides a vision of the future that states, “Minneapolis will build, maintain and enhance access to multi-modal transportation options for residents and business through a balanced system of transportation modes that supports the city’s land use vision, reduces adverse transportation impacts, decreases the overall dependency on automobiles, and reflects the city’s pivotal role as the center of the regional transportation network.” – The Minneapolis Plan for Sustainable Growth, (2009).

From this has emerged their “Transportation Vision for Minneapolis”:

- Transportation is important to the economic viability of the city, the region and the state. *Access Minneapolis* will lay the transportation groundwork for achieving the long-range vision of Minneapolis as a vital and thriving metropolitan urban center that is a great place to live, work, play, visit and conduct business.
- The city must remain livable and walkable to maintain its regional and national competitiveness. In most cases, it is not feasible or desirable to increase the curb-to-curb width of roadways in the city. However, there are many opportunities for improving the operational capacity of the transportation system without street widening. *Access Minneapolis* will result in a city that is livable and walkable while optimizing the operational capacity of the transportation system.
- *Access Minneapolis* will result in a citywide transportation system that is multi-modal (pedestrian, bicycle, transit, automobile, freight), providing good transportation choices to people, including people with disabilities.
- *Access Minneapolis* will result in a citywide transportation system that serves anticipated employment and residential growth and optimizes access to destinations by all modes (pedestrian, bicycle, transit, automobile, freight) throughout the city, between neighborhoods, to/from and within downtown.
- Although all modes of transportation are important, transit is critical for maximizing the people carrying capacity of the transportation system. *Access Minneapolis* will result in a transit system that operates efficiently and effectively in downtown and throughout the city. Transit will become the mode of choice for Minneapolis residents, workers and visitors.

With this vision in mind, the City of Minneapolis has developed Transportation Policies from “The Minneapolis Plan for Sustainable Growth” (2009). Key goals of this include:

- Building the City through multi-modalism;
- Developing modal priorities in a neighborhood context;
- Creating a walkable city;
- Making transit more effective;
- Creating a bicycle-friendly city;
- Managing vehicle traffic;
- Managing freight movement;
- Managing Parking;

- Developing funding and pricing strategies; and
- Supporting a vibrant multi-modal Downtown.

B. City of Minneapolis Transportation Policy Points

The following policy points for transportation are included in Chapter 2 of the Minneapolis Plan for Sustainable Growth¹:

- Policy 1: Encourage growth and reinvestment by sustaining the development of a multi-modal transportation system.
- Policy 2: Support successful streets and communities by balancing the needs of all modes of transportation with land use policy.
- Policy 3: Encourage walking throughout the city by ensuring that routes are safe, comfortable, pleasant, and accessible.
- Policy 4: Make transit a more attractive option for both new and existing riders.
- Policy 5: Ensure that bicycling throughout the city is safe, comfortable and pleasant.
- Policy 6: Manage the role and impact of automobiles in a multi-modal transportation system.
- Policy 7: Ensure that freight movement and facilities throughout the city meet the needs of the local and regional economy while remaining sensitive to impacts on surrounding land uses.
- Policy 8: Balance the demand for parking with objectives for improving the environment for transit, walking and bicycling, while supporting the city's business community.
- Policy 9: Promote reliable funding and pricing strategies to manage transportation demand and improve alternative modes.
- Policy 10: Support the development of a multi-modal Downtown transportation system that encourages an increasingly dense and vibrant regional center.
- Policy 11: Minneapolis recognizes the economic value of Minneapolis-St. Paul International Airport and encourages its healthy competition to reach global markets in an environmentally responsible manner.

C. Goal of the Travel Demand Management Plan

To succeed, this Travel Demand Management (TDM) plan must assist the City of Minneapolis to achieve their transportation goals. Based on previous TDM Plans in the area and the types of proposed land uses, the following mode split goals for the project have been identified by the developer:

¹ http://www.ci.minneapolis.mn.us/cped/docs/02_Transportation_100209.pdf

**Table 6
Mode Split Goals**

Mode Split	Goal
Auto	50%
Transit	40%
Bike/Walk	10%

The owners and/or TDM Liaison will work to achieve a mode share goal percentage of 50% non-single-occupant-vehicles for the residential development.

D. Specific Travel Demand Management Strategies

This section outlines specific Travel Demand Management strategies to be implemented by the owner/end user/property manager/etc. of this site. The strategies detail the responsibilities of the site’s responsible party in addressing the issues regarding transportation cited above. Weidner Investment Services, Inc. and their successors, by accepting the responsibility of implementing the items below, desire to help Minneapolis to achieve their goals of enhancing the local transportation system. Implementation of the items noted will help to encourage use of alternate modes of travel, enhance pedestrian friendliness, and achieve a balance in the needs of all users of the transportation system. Weidner Investment Services, Inc. and their successors specifically commits to the implementation of the following measures:

General

1. The owners and/or property managers of the development will appoint designated TDM Liaisons to coordinate the various TDM strategies that require ongoing attention. The responsibilities of the TDM Liaison would include upkeep of transit information and other communications, carpool program coordination, and administration of a shared car program.
2. The owner/TDM Liaison of the apartment building will maintain commuter information in common areas for residents/guests including the installation of a Real Time Transit variable message screen from Metro Transit that provides real time bus arrival information. Other information should include items such as transit schedules, Metro Transit commuter/carpool program information (Rideshare and the Guaranteed Ride Home), and bicycle/pedestrian commuter information or maps.
3. Assemble and disseminate a move-in package for all new residents. The move-in package will include all the pertinent information on travel information such as parking, alternate modes of travel, bus routes and bike routes.
4. Each resident will also be provided a link to the Minneapolis Transportation Management Organization’s Commuter Connection webpage, <http://www.commuter-connection.org/>, that provides a host of links to transit, biking, LRT, rideshare and walking opportunities in Uptown Minneapolis.

Transit/Carpool

1. The Developer commits to inform residents of the local shared car program for tenant use. The “HOURCAR” program, detailed at www.hourcar.org, is an example of such a program with a hub (parking location for the shared vehicle) at Calhoun Square and another just north of the Midtown Greenway on Hennepin Avenue. The property manager/TDM liaison for the apartment building will manage the building’s involvement in the program and will distribute current

program information to the residents. Such a program is valuable to those residents who may not have a personal vehicle, and who from time to time need to use a personal vehicle, and who are used to walking.

2. Residents will be informed of Met Transit's "Go-Card" passes for hassle-free transit. The link <http://www.metrotransit.org/passes-go-to-cards.aspx> will be provided to residents at move-in.

Bicycles

1. At least 162 bicycle stalls will be provided within the parking levels of the building for use by residents. At least 12 at grade bicycle stalls are proposed to be provided for the office and restaurant components of the development. Bicycle parking for this development will be convenient and accessible.

Deliveries

1. Owners/property managers shall develop and maintain a policy that encourages truck and service deliveries to occur outside of peak traffic times. This would not include FedEx/UPS-type deliveries.

Parking

1. Residential garage parking will be secure and only for residents with access controlled through potential access cards or other similar measures.
2. No residential parking spaces shall be used or sold to anyone who does not own or rent property in the development. No residential parking spaces within the development will be sold to the general public. Office and retail parking spaces will be intended for use solely by employees of the office, and patrons of that retail use.
3. Residential parking will be leased to the resident at rate separate from the monthly rent. Excluding the monthly cost of leasing residential parking stalls from the monthly apartment rent is believed to be an effective way to reduce overall residential parking demand.
4. Adequate parking per City requirements will be provided by the developer. The developer and property manager are aware the parking conditions on nearby streets may change at the discretion of the City of Minneapolis.

Resident Surveys and TDMP Plan Status Reports

1. With the assistance of Commuter Connection, conduct a statistically valid baseline resident commuting survey with the first 6 months after 50% occupancy of the site. Continue to conduct this survey every two years after that, for ten years or until the TDM Plan mode split goals are achieved.

**TRAVEL DEMAND MANAGEMENT PLAN
SONS OF NORWAY
MINNEAPOLIS, MN**

PLAN APPROVAL

Weidner Investment Services, Inc.

By: _____ Dated: _____
Weidner Investment Services, Inc.

Ryan Companies US, Inc.

By: _____ Dated: _____
Tony Barranco
Ryan Companies US, Inc.
50 South Tenth Street, Suite 300
Minnetonka, MN 55403-2012

Minneapolis Community and Economic Development Department

By: _____ Dated: _____

CPED Director

Minneapolis Public Works Department

By: _____ Dated: _____

Steve Mosing, Traffic Operations Engineer

APPENDIX A

TRAFFIC IMPACT STUDY

A-1. EXISTING TRAFFIC CONDITIONS

A. Data Collection

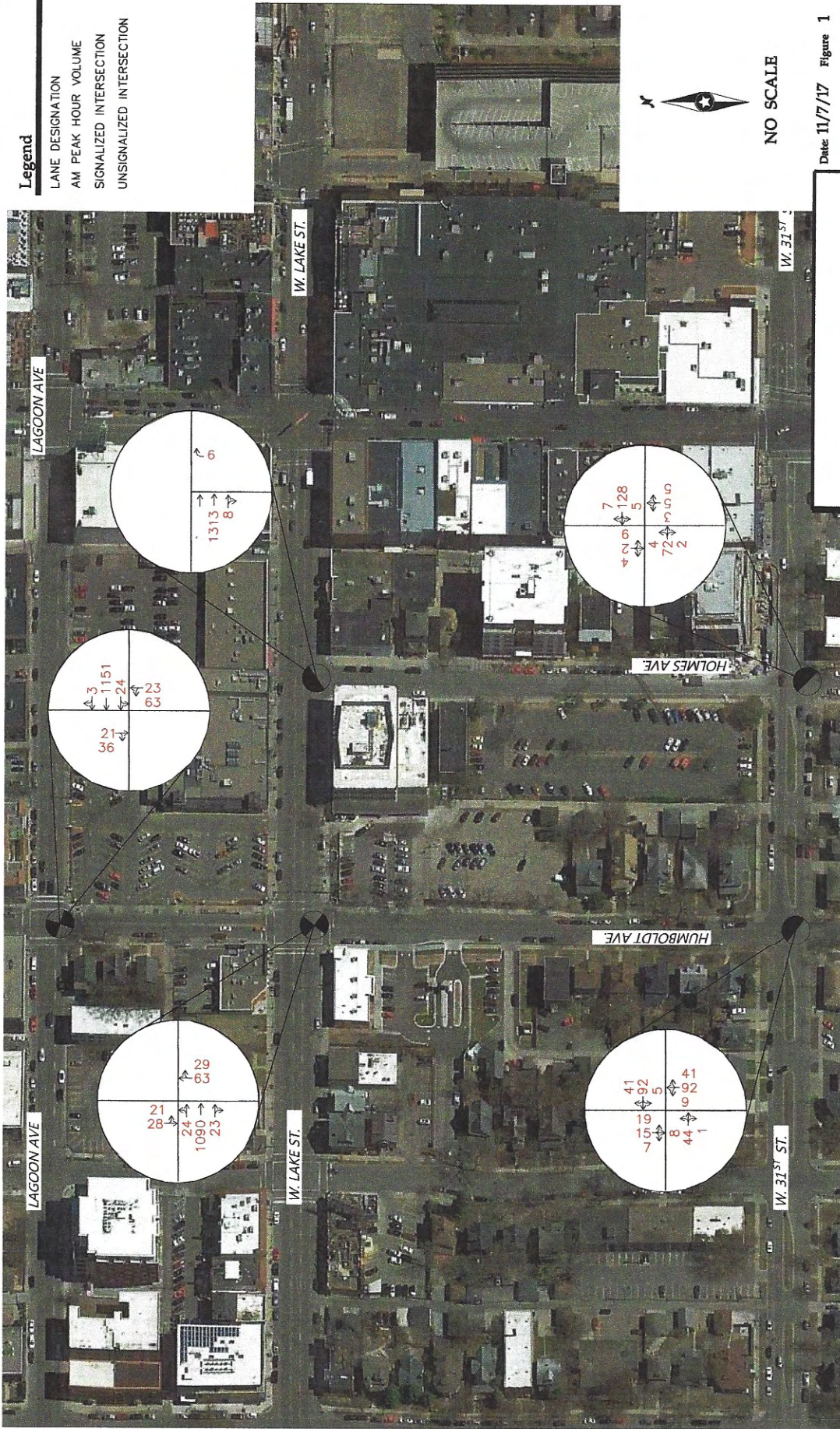
Traffic volumes were analyzed at the following intersections adjacent to Sons of Norway redevelopment:

- Humboldt Avenue South and W. 31st Street
- Humboldt Avenue South and W. Lake Street
- Humboldt Avenue South and Lagoon Avenue
- Holmes Avenue South and W. 31st Street
- Holmes Avenue South and W. Lakes Street

Turning movement counts were conducted by Swing Traffic Solutions during the week of October 16, 2017, and the current signal timings were provided by the City of Minneapolis Traffic Division for use in our analysis. Figures 1 and 2 illustrate the existing AM Peak Hour and PM Peak Hour turning movement traffic counts, respectively.

Legend

- LANE DESIGNATION
- AM PEAK HOUR VOLUME
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION



NO SCALE

Date 11/7/17 Figure 1

VOLUMES.dwg

Sons of Norway

Minneapolis, MN

Prepared for:

RYAN COMPANIES

Designed: _____
 Checked: _____
 Drawn: _____
 Record Drawing by/date: _____



**EXISTING AM
PEAK HOUR
(7:30-8:30am)**

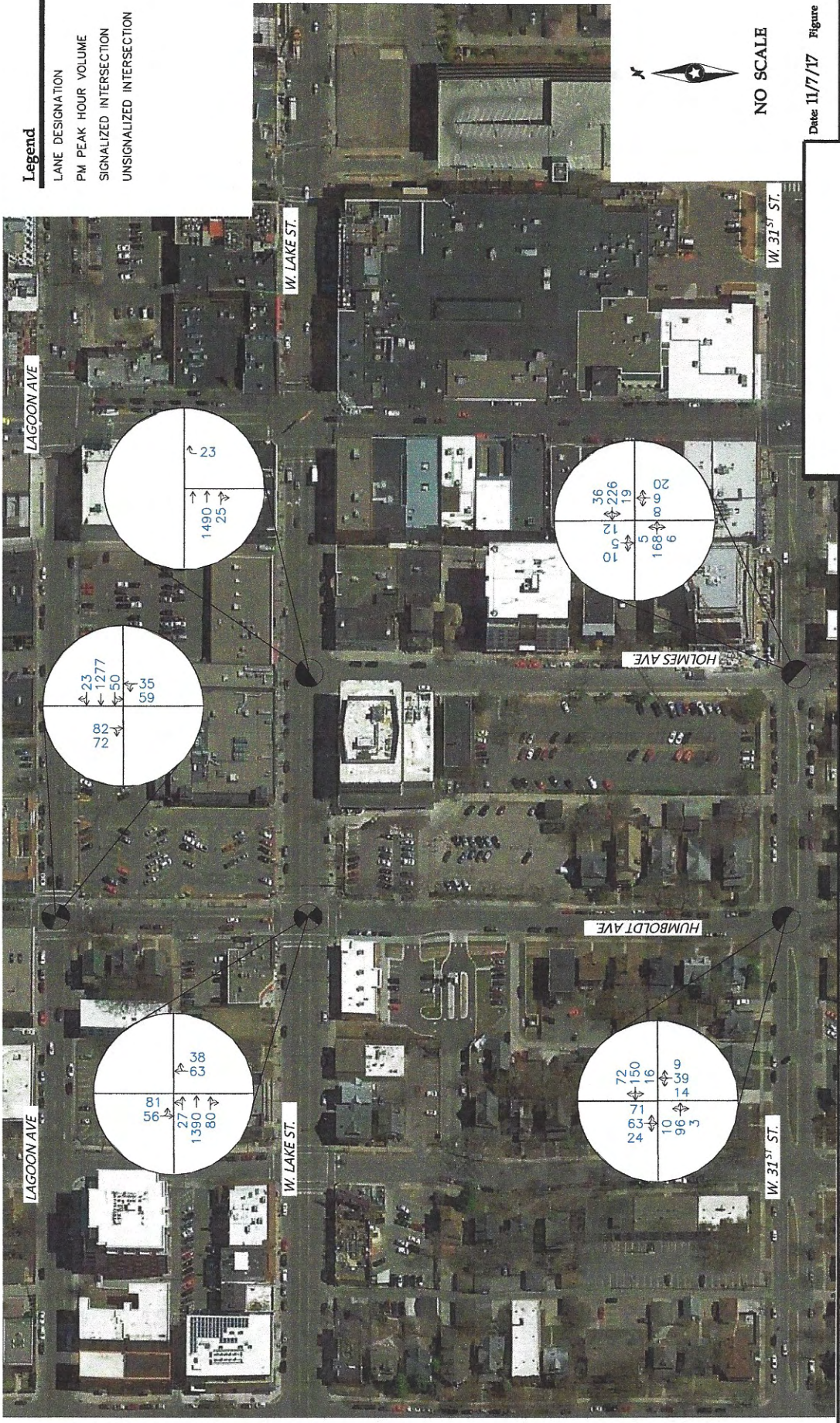
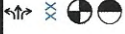
Legend

LANE DESIGNATION

PM PEAK HOUR VOLUME

SIGNALIZED INTERSECTION

UNSIGNALIZED INTERSECTION



NO SCALE

Date: 11/7/17 Figure 2

VOLUMES.dwg

Sons of Norway

Minneapolis, MN

Prepared for:

RYAN COMPANIES

Designed: _____
 Checked: _____
 Drawn: _____
 Record Drawing by/dote: _____



A-2. NO-BUILD ALTERNATIVE

To address the impacts of a development on the surrounding roadway system, it is necessary to first analyze traffic conditions that would be present on the roadway system without the inclusion of the proposed development. The anticipated construction completion date for this development is 2020, thus the year 2021 was selected for analysis so as to compare traffic conditions after initial traffic patterns to and from the Sons of Norway site have become established. Therefore, the 2021 No-Build scenario will serve as a basis with which to compare the 2021 Build scenario.

A. Background Growth

To remain consistent with other studies in the area, an annual background growth rate of one percent (0.5%) was used for this study. The 0.5% annual rate of growth assumed for background traffic as well as the site-generated traffic from any area projects was applied to 2017 traffic volumes to arrive at the estimate of the 2021 No-Build AM and PM Peak hour traffic volumes, shown on Figures 3 and 4, respectively.

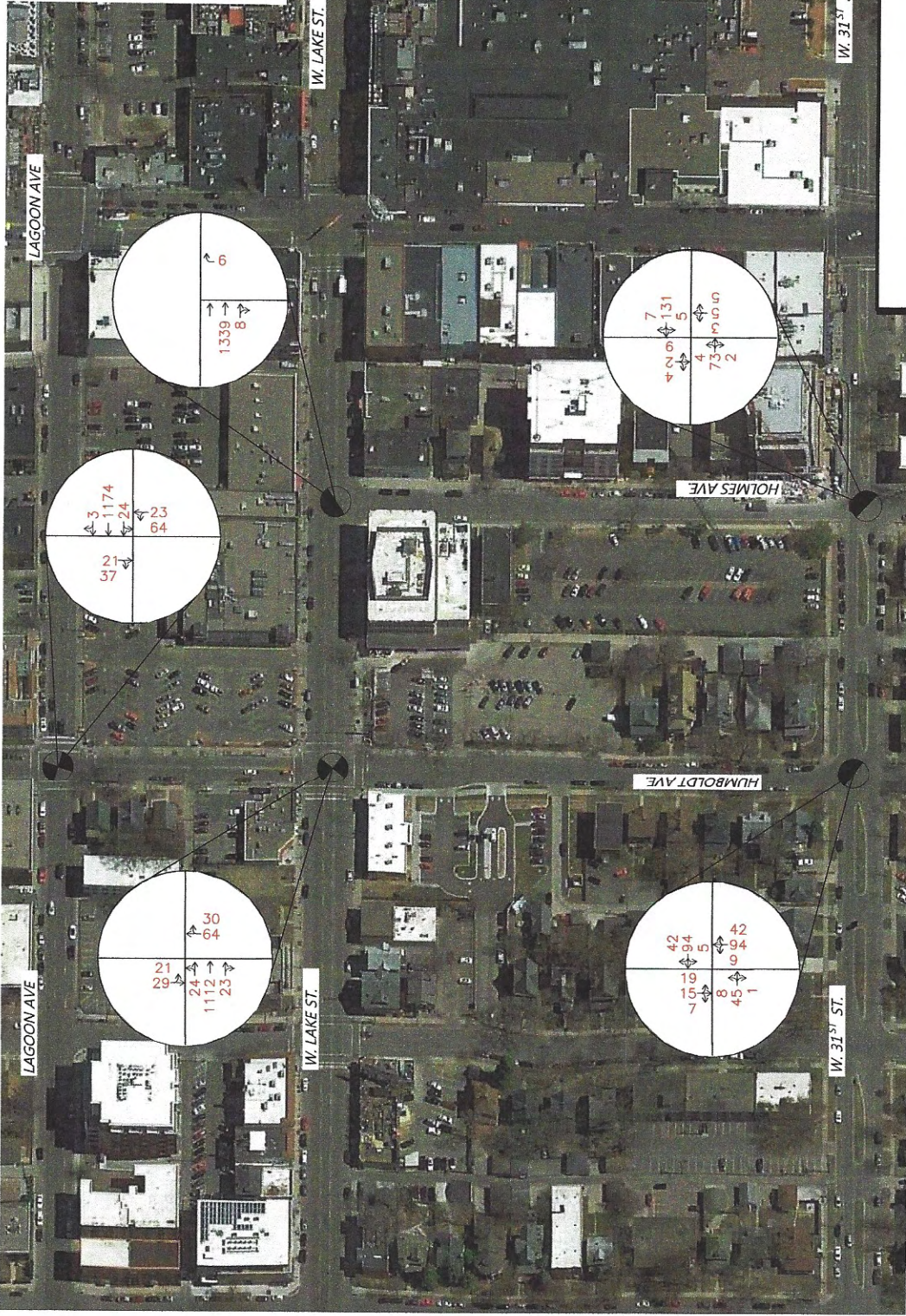
B. Operational Analysis Methodology

Traffic operations for peak hour conditions within the study area were analyzed using the industry-standard Synchro/SimTraffic 10 software package, which uses the data and methodology contained in the 6th Edition, Highway Capacity Manual, published by the Transportation Research Board. The software model was calibrated using existing conditions before being used to assess future conditions.

The operating conditions of transportation facilities, such as traffic signals and stop-controlled intersections, are evaluated based on the relationship of the theoretical capacity of a facility to the actual traffic volumes on that facility. Various factors affect capacity, including travel speed, roadway geometry, grade, number and width of travel lanes, and intersection control. The procedures describe operating conditions in terms of a Level of Service (LOS). Facilities are given letter designations from "A," representing the best operating conditions, to "F," representing the worst. Generally, Level of Service "D" represents the threshold for acceptable overall intersection operating conditions during a peak hour.

The acceptable threshold for a particular movement at an intersection depends on both the priority assigned to that movement and its traffic volume. In general, the higher the priority and the higher the traffic volume, the more stringent the acceptable threshold will be. For example, the acceptable threshold for a high-priority/high-volume suburban movement might be "C," while LOS "F" on a low-priority/low-volume urban movement might be appropriate. For side-street stop-controlled intersections, a key measure of operational effectiveness is the side-street LOS. Long delays and poor LOS can sometimes result on the side street, even if the overall intersection is functioning well, making it a valuable design criterion.

A final fundamental component of operational analyses is a study of vehicular queuing, or the lineup of vehicles waiting to pass through an intersection. An intersection can operate with an acceptable level of service, but if queues from the intersection extend back to block entrances to turn lanes or accesses to adjacent land uses, unsafe operating conditions could result. The 95th percentile queue, or the length of queue with a 5% chance of occurring during the peak hour, is considered the standard for design purposes.



LAGOON AVE

W LAKE ST.

W 31ST ST

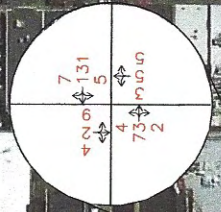
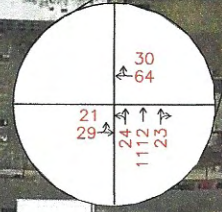
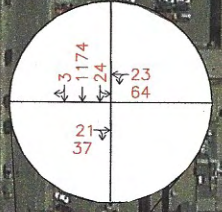
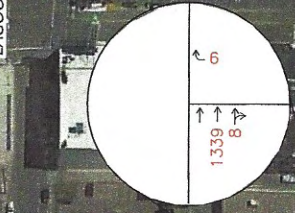
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HUMBOLDT AVE

LAGOON AVE

W LAKE ST.

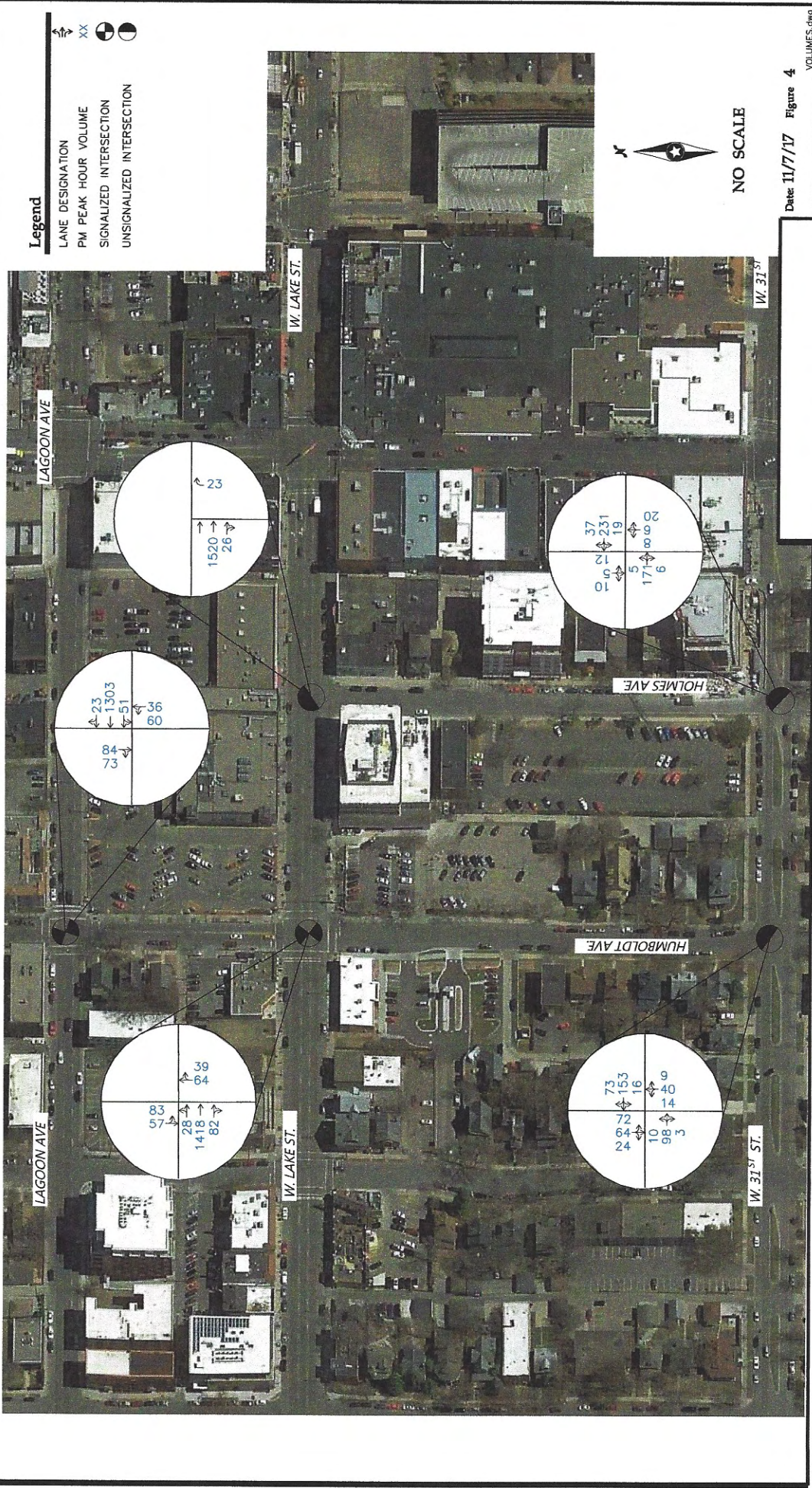
W 31ST ST



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LAGOON AVE

LAGOON AVE

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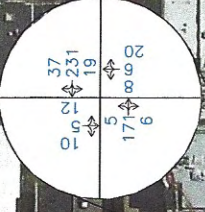
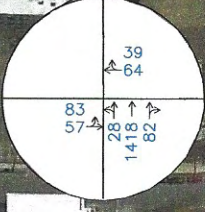
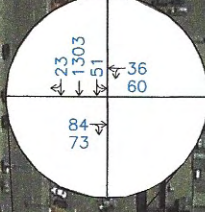
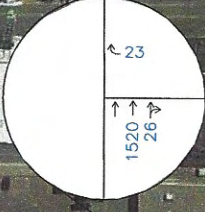
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HUMBOLDT AVE

HUMBOLDT AVE

W. 37th ST.

W. 37th ST.



C. Results of Analysis; No-Build Scenario

The existing roadway infrastructure, in terms of roadway cross sections and intersection control, has the capacity to support the area through the 2021 design year. Tables A and B, which summarize the results of the 2021 No-Build operational analysis, include the LOS for each study area intersection. It is noted that the original signal timings were incorporated into the No-Build analysis. The complete operational analysis output is available upon request.

**Table A
Results of Year 2021 No-Build Analysis – AM Peak Hour**

Intersection	Level of Service¹	Notes/95th Percentile Queues²
Humboldt Ave S & Lagoon Ave	B/C (NB)	WB queue is forecast at 239 feet
Humboldt Ave S & W Lake St	B/D (SB)	EB queue is forecast at 296 feet
Humboldt Avenue S & W 31 st St	a/a (NB)	NB queue is forecast at 68 feet
Holmes Ave & W Lake St	a/a (NB)	NB queue is forecast at 23 feet
Holmes Ave & W 31 st St	a/b (SB)	SB queue is forecast at 45 feet

1. Overall LOS reported from Synchro. First letter represents intersection LOS, while second letter represents worst LOS of individual approach. Upper case letters indicate signalized intersections, and lower case letters indicate unsignalized intersections.
2. 95th percentile queues are a result from an average of 10 SimTraffic simulations.

**Table B
Results of Year 2021 No-Build Analysis – PM Peak Hour**

Intersection	Level of Service¹	Notes/95th Percentile Queues²
Humboldt Ave S & Lagoon Ave	B/C (SB)	WB queue is forecast at 313 feet
Humboldt Ave S & W Lake St	B/C (SB)	EB queue is forecast at 392 feet
Humboldt Avenue S & W 31 st St	a/a (WB)	SB queue is forecast at 76 feet
Holmes Ave & W Lake St	a/a (NB)	NB queue is forecast at 56 feet
Holmes Ave & W 31 st St	a/b (SB)	NB queue is forecast at 51 feet

1. Overall LOS reported from Synchro. First letter represents intersection LOS, while second letter represents worst LOS of individual approach. Upper case letters indicate signalized intersections, and lower case letters indicate unsignalized intersections.
2. 95th percentile queues are a result from an average of 10 SimTraffic simulations.

Results of the analysis contained in Tables A and B indicate that all study area intersections are projected to operate at an acceptable overall LOS for 2021 No-Build conditions.

A-3. BUILD ALTERNATIVE

A. Site-Generated Traffic

The volume of vehicle trips generated by the proposed redevelopment was estimated for the weekday AM and PM peak hours using the data and methodologies contained in the 10th Edition of the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE) for the proposed plan. The trip generation estimates for the project as a whole were developed by combining the trip generation characteristics of the individual land uses. The estimated volume of site-generated trips for each land use is also summarized in Section 4.0 Traffic Considerations, earlier in this TDMP. The site generated traffic has been adjusted to account for share traffic and for pass-by traffic according to the methodology and data in ITE's Trip Generation Handbook, 3rd Edition, and is summarized Table C.

Table C
Adjusted Trip Generation Estimates¹ – Proposed Conditions

Land Use	ITE Code	Size	AM Enter	AM Exit	PM Enter	PM Exit	A.D.T.
Apartment	221	325 Units	8	57	42	16	844
Office	710	16 ksf	11	2	2	12	112
Coffee Shop	936	2,250 sq. ft. ²	92	88	32	32	1,698
Restaurant	931	4,750 sq.ft.	2	2	25	12	398
Subtotal			113	149	101	72	2,940
Deductions for Shared Trips			-30	-40	-27	-27	-764
Deductions for Pass-By Trips			-59	-59	-25	-25	
Subtotal			23	50	49	20	
Total New Trips			73		69		2,176

1. Per the data and methodologies in Trip Generation, 10th Edition, published by ITE.

B. Trip Distribution and Assignment

The distribution of site-generated traffic from and to the adjacent street system was based on distribution patterns within the Uptown area and from review of studies conducted for other recent developments. This distribution pattern is pictured on Figure 5, Trip Distribution.

Using the initial distribution assumptions, the estimated trips from Table C were assigned across the study area roadway network. Figure 6 illustrates the AM and PM trip assignment on the network. These trips were combined with the 2021 No-Build peak hour volumes to represent the 2021 Build volumes. Figures 7 and 8 illustrates the 2021 Build AM and PM Peak Hour volumes through the study area, respectively.

C. Results of Analysis: Build Scenario

This section contains the results of the 2021 Build intersection operational analyses and provides recommendations for mitigating project-related traffic impacts, as necessary. It is noted that the existing signal timing plans were initially utilized in the Build analysis. A summary of the results from the analysis representing the 2021 Build conditions are presented in Tables D for the AM Peak hour and E for the PM Peak hour.

Table D
Results of Year 2021 Build Analysis – AM Peak Hour

Intersection	Level of Service ¹	Notes/95 th Percentile Queues ²
Humboldt Ave S & Lagoon Ave	B/C (NB)	WB queue is forecast at 280 feet
Humboldt Ave S & W Lake St	B/D (SB)	EB queue is forecast at 339 feet
Humboldt Ave S & W 31 st St	a/a (NB)	NB queue is forecast at 66 feet
Humboldt Ave & Alley Egress	a/a (WB)	WB queue is forecast at 35 feet
Holmes Ave & W Lake St	a/a (NB)	NB queue is forecast at 48 feet
Holmes Ave & Alley Ingress	a/a (SB)	N/A
Holmes Ave & Garage Access	a/a (EB)	EB queue is forecast at 48 feet
Holmes Ave & W 31 st Street	a/a (SB)	SB queue is forecast at 47 feet

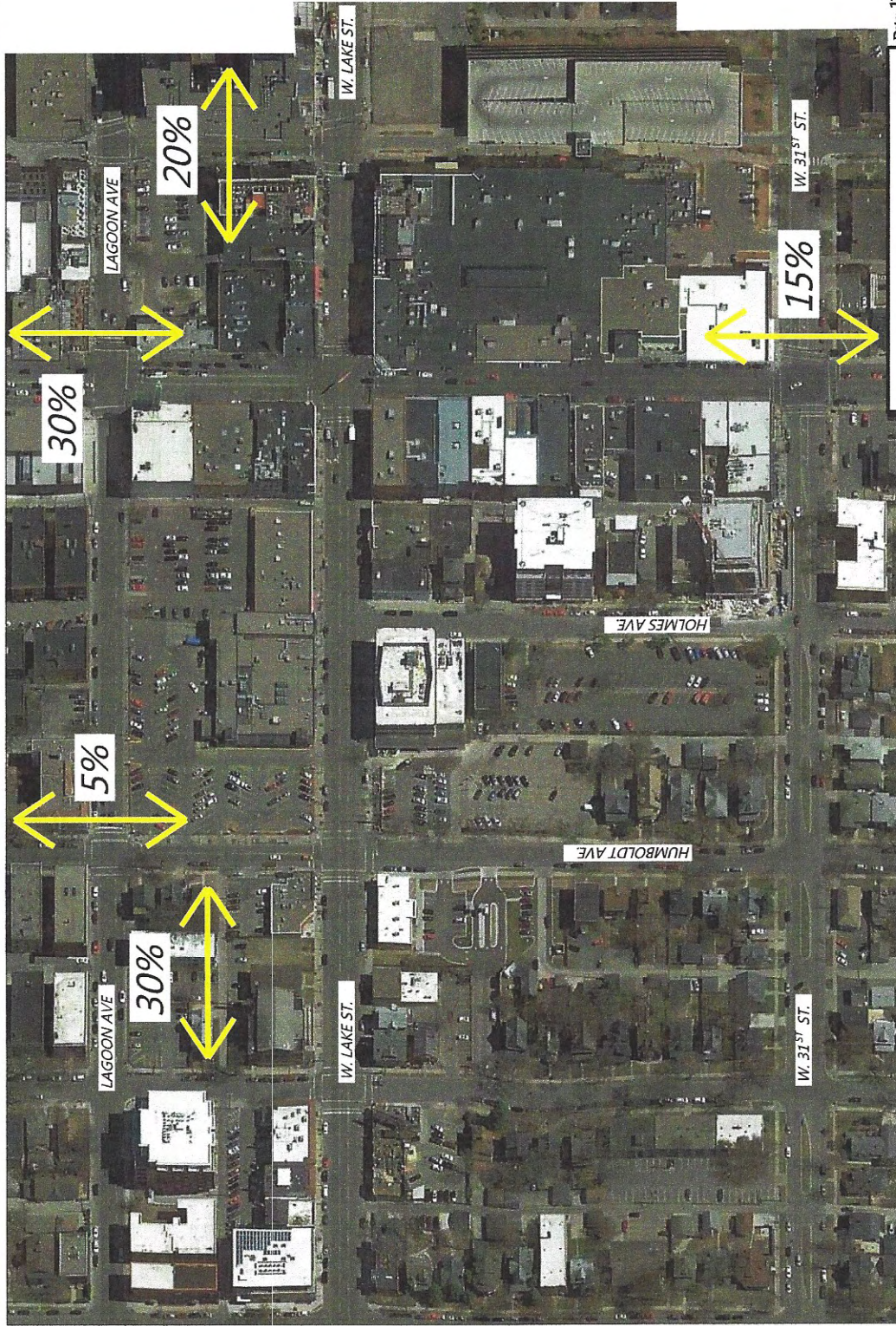
1. Overall LOS reported from Synchro. First letter represents intersection LOS, while second letter represents worst LOS of individual approach. Upper case letters indicate signalized intersections, and lower case letters indicate unsignalized intersections.
2. 95th percentile queues are a result from an average of 10 SimTraffic simulations.

Table E
Results of Year 2021 Build Analysis – PM Peak Hour

Intersection	Level of Service ¹	Notes/95 th Percentile Queues ²
Humboldt Ave S & Lagoon Ave	B/C (SB)	WB queue is forecast at 334 feet
Humboldt Ave S & W Lake St	B/D (SB)	EB queue is forecast at 351 feet
Humboldt Ave S & W 31 st St	a/a (NB)	SB queue is forecast at 80 feet
Humboldt Ave & Alley Egress	a/a (WB)	WB queue is forecast at 21 feet
Holmes Ave & W Lake St	a/a (NB)	NB queue is forecast at 51 feet
Holmes Ave & Alley Ingress	a/a (SB)	N/A
Holmes Ave & Garage Access	a/a (EB)	EB queue is forecast at 41 feet
Holmes Ave & W 31 st Street	a/b (SB)	SB queue is forecast at 51 feet

1. Overall LOS reported from Synchro. First letter represents intersection LOS, while second letter represents worst LOS of individual approach. Upper case letters indicate signalized intersections, and lower case letters indicate unsignalized intersections.
2. 95th percentile queues are a result from an average of 10 SimTraffic simulations.

Review of the Build conditions for the proposed plan indicate that all study area intersections are projected to operate at acceptable levels of service with the addition of site-generated traffic.



NO SCALE

Date: 11/7/17 Figure 5

VOLUMES.dwg

Sons of Norway

Minneapolis, MN

TRIP DISTRIBUTION

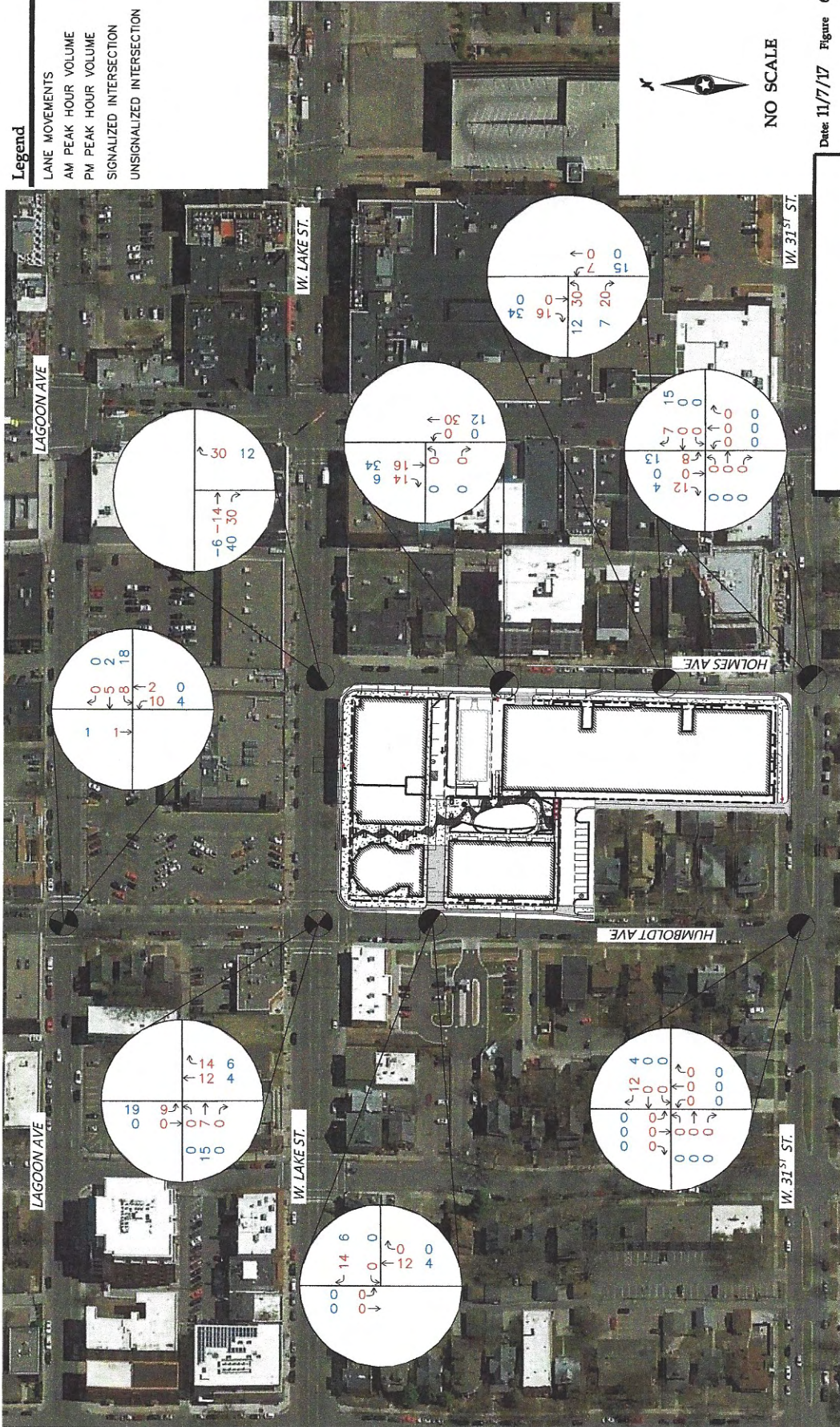
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RYAN COMPANIES

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- Legend**
- LANE MOVEMENTS
 - AM PEAK HOUR VOLUME
 - PM PEAK HOUR VOLUME
 - SIGNALIZED INTERSECTION
 - UNSIGNALIZED INTERSECTION



NO SCALE

Date: 11/7/17 Figure 6
VOLUMES.dwg

Sons of Norway

Minneapolis, MN

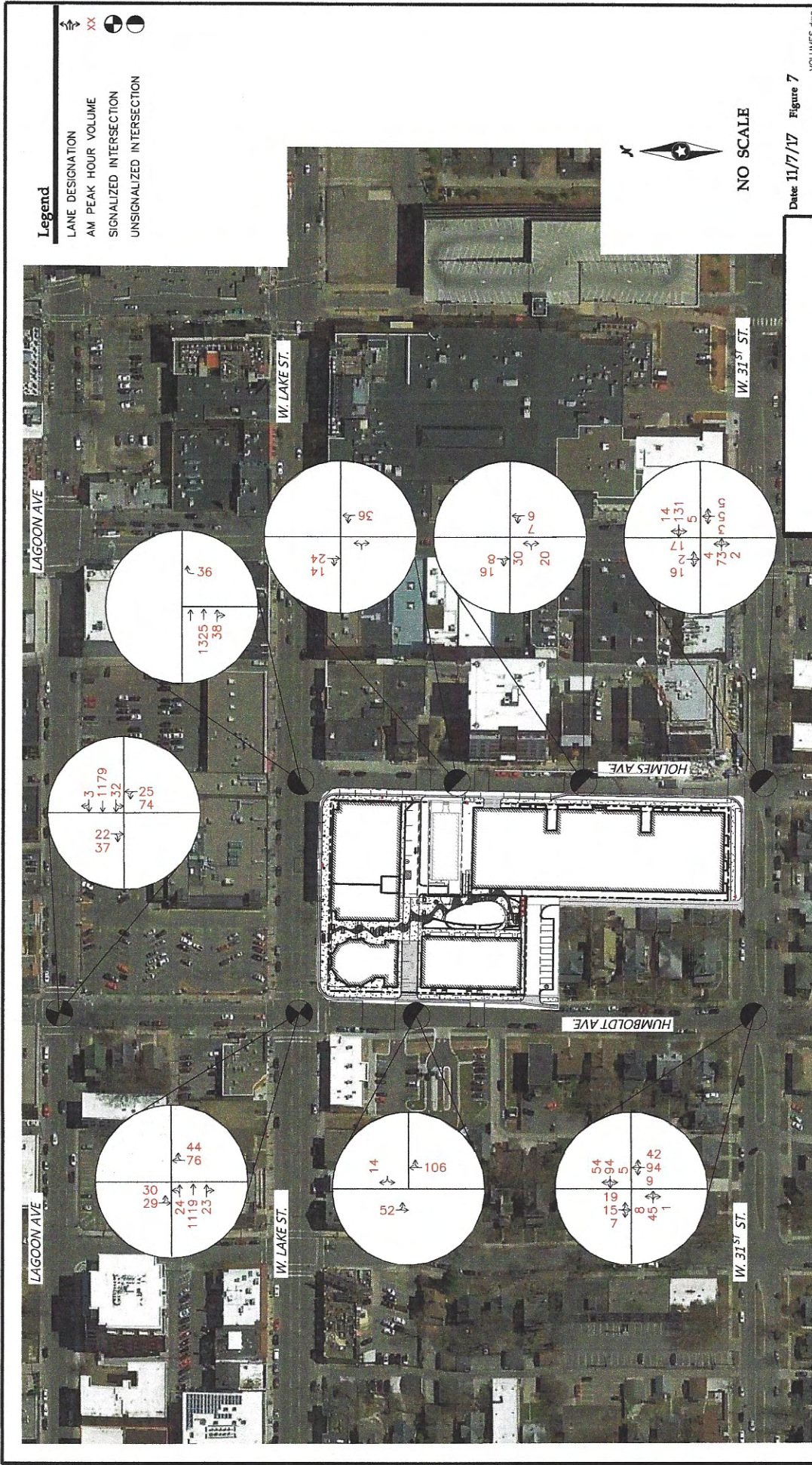
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AM & PM PEAK HOUR TRIP ASSIGNMENT



Sons of Norway

2021 BUILD
AM PEAK HOUR

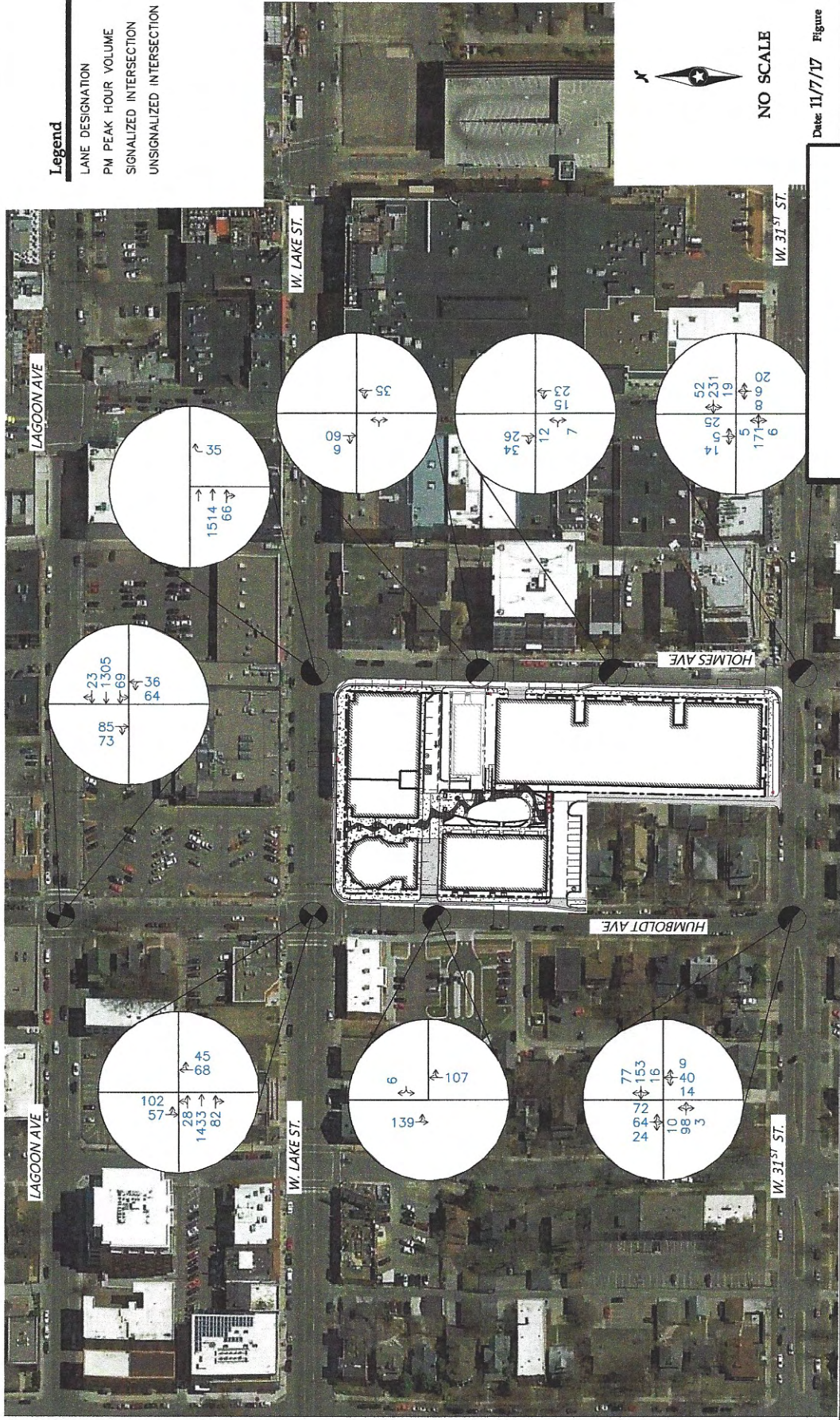
Minneapolis, MN

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Legend

- LANE DESIGNATION
- PM PEAK HOUR VOLUME
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION



NO SCALE

Date: 11/7/17 Figure 8

VOLUMES.dwg

Sons of Norway
2021 BUILD
PM PEAK HOUR

Prepared for:
RYAN COMPANIES

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Minneapolis, MN

LAGOON AVE

LAGOON AVE

W. LAKE ST.

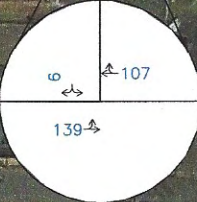
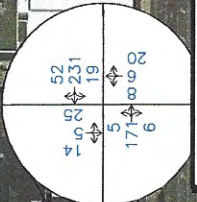
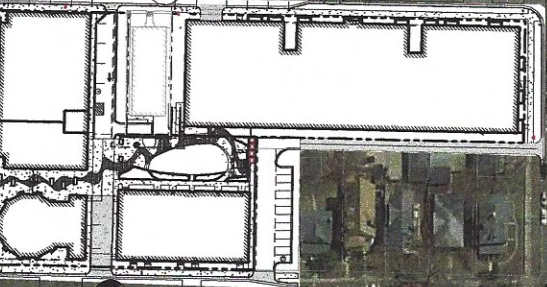
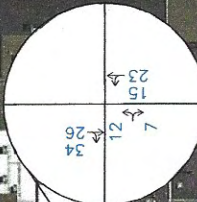
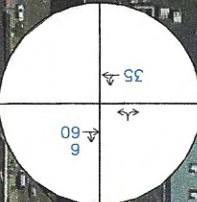
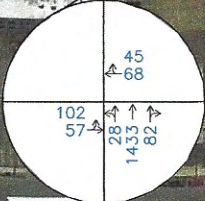
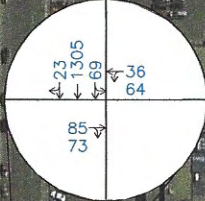
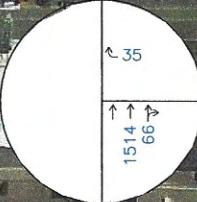
W. LAKE ST.

HUMBOLDT AVE

HOLMES AVE

W. 31ST ST.

W. 31ST ST.



A-4. ACCESS CIRCULATION

The proposed site plan has been reviewed to assess the operational effectiveness of the proposed ingress and egress points. Exhibit 2 schematically depicts site ingress and egress. Ingress to and egress from the apartment and office parking garage will be via an access drive midway between W Lake Street and W 31st Street on Holmes Avenue.

A service drive access is necessary for truck circulation as large trucks (garbage and delivery trucks) will not be able to access the underground parking area. For truck deliveries, the design of the site is configured as a one-way service drive, so that delivery trucks can load and unload along the drive accessed via Holmes Avenue just to the north of the parking access, exiting onto Humboldt Avenue S.

Also, there is an existing alley that runs north south which begins at W 31st Street and turns to the west at the existing Sons of Norway building and terminates at its intersection with Humboldt Avenue S. This alley provides access to residential lots and to the existing Wells Fargo/Sons of Norway parking areas with approximately 75 spaces. The proposed redevelopment will leave the alley intact to continue to serve the residential lots, up to the new 12 space Wells Fargo employee parking lot where it will be vacated and access to Humboldt Avenue S will be provided by means of public easement. This alley will not be accessible by the new Sons of Norway office, the restaurants or the apartments and will have greatly diminished use with the redevelopment.

The preceding operational analysis, which looked at the surrounding intersections, showed that in terms of vehicular delay and queuing, none of the site driveways directly accessing local streets are expected to experience problems.

A-5. CONCLUSIONS

The preceding analysis has evaluated the potential traffic impacts of the proposed redevelopment of the Sons of Norway on the operations of the study area intersections surrounding the site in Uptown Minneapolis.

Two scenarios, a No-Build and a Build scenario were analyzed and compared to assess the development's impact of vehicular traffic to the roadway system. A design year of 2021 was chosen, corresponding to the year after build-out of the site.

The Proposed Plan consists of restaurant and office use fronting on W Lake Street with a 325-unit apartment complex fronting on Holmes Avenue. Underground parking will be provided for residents, office employees and restaurant patrons.

Development of the Proposed Plan is expected to generate 73 new AM Peak hour trips and 69 new PM Peak hour trips on the study area roadways. Growth in background traffic at an annual rate of 0.5% was accounted for in the area.

Results of the operational analyses indicate that under the 2021 No-Build and 2021 Build scenarios, all study area intersection will operate acceptably. Further, with all the bicycle, pedestrian and transit opportunities present in and around the site, vehicular trip generation will remain low.