Transportation Impact Study

for

Project Silver Eagle

Prepared For:

Trammell Crow Company
700 Commerce Drive
Suite 455
Oak Brook, Illinois 60523

Prepared By:

Langan Engineering & Environmental Services, Inc.
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ENGINEERING & ENVIRONMENTAL SERVICES

January 2022
541011901

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I. EXECUTIVE SUMMARY

Overview of Development

Langan has prepared the following Transportation Impact Study (TIS) for the proposed Project Silver Eagle development. The proposed project includes a warehouse with an approximately 635,000 square foot (SF) building footprint located in the Village of Cottage Grove, Dane County, Wisconsin. The site is surrounded by County Trunk Highway "N" (CTH N) to the east, CTH "TT" to the south, residential parcels to the west, and undeveloped / agricultural land to the north.

There are a total of four (4) proposed access points for the development. Site Driveway A and Site Driveway B are proposed as full access, unsignalized access drives along CTH TT and Site Driveway C and Site Driveway D are proposed as full access, unsignalized access drives along CTH N. Site Driveways A, B, and C will act as employee access drives and Site Driveway D will serve as the primary truck access drive.

Site Trip Generation and Distribution

Langan estimated the trip generation for the proposed warehouse with an average of 661 employees per shift using trip generation data contained in the *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The end-user mode choice data indicates that these facilities typically see a 19% total modal split reduction on average nationwide; however, no mode split was applied to present a conservative analysis. It should be noted that regional bus service, including a proposed stop on site, as well as bicycles facilities are present within the study area.

The resulting trip generation calculations indicate the proposed warehouse would generate 344 AM Peak Hour employee trips (271 In, 73 Out) and 390 PM Peak Hour trips (133 In, 257 Out). Heavy vehicle generation based on ITE data indicates that 59 truck trips are expected during the AM Peak Hour (19 In, 40 Out) and 46 truck trips during the PM Peak Hour (24 In, 22 Out). This results in a total of 403 AM Peak Hour trips (290 In, 113 Out) and 436 PM Peak Hour trips (157 In, 279 Out).

The proposed site generated trips were distributed to the study area network based on the location of the site and neighboring metropolitan areas, anticipated employment locations, on-site separation of truck and employee parking, and engineering judgement. The site has immediate access to I-94 as well as access to several county highway routes. As such, we anticipate that:

- 30% of employees will be coming to / from the east on I-94,
- 30% to / from the west on I-94,
- 20% locally from the south on CTH N (Main Street),
- 10% locally from the west on CTH TT,
- 5% locally from the east on CTH TT,
- and 5% locally to / from the north on CTH N.

This site traffic distribution in multiple directions will minimize site traffic impacts along the surrounding road network.

We also anticipate that given the access to area interstate system, the location of the Dane County Regional Airport, and the larger metropolitan areas surrounding Cottage Grove, that 60% of truck traffic will be coming to / from the west on I-94 and that 40% of truck traffic will be coming to / from the west on I-94.

Conclusions

The results of this study provide a broad overview of the transportation impacts that are associated with the proposed Project Silver Eagle development and identification of any necessary alterations due the development.

The proposed Project Silver Eagle can be accommodated with the following modifications to the existing transportation network and proposed points of access in the 2023 Opening Year:

- County Highway TT & Site Driveway A (Int #6) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway.
- County Highway TT & Site Driveway B (Int #7) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway. It is recommended that this access drive be aligned with the existing median break on Hwy TT.
- County Highway N & Site Driveway C (Int #8) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway. Restripe the existing two-way left-turn lane (TWLTL) to provide an exclusive left-turn lane into the site.
- County Highway N & Site Driveway D (Int #9) – Construct a full access unsignalized driveway. Provide two (2) lanes inbound and one (1) lane outbound with stop control on the exiting driveway.

The capacity analyses indicate that all study area intersections are projected to operate at an overall LOS C or better during the AM and PM peak hours under the 2023 Build scenario.

In conclusion, with the construction of the improvements outlined above, the proposed Project Silver Eagle development will have a minimal transportation impact on the surrounding study area roads and intersections.

II. INTRODUCTION / PROJECT SUMMARY

Purpose of Report

The purpose of this document is to summarize the findings of the Transportation Impact Study (TIS) conducted for the proposed Project Silver Eagle development. The proposed project includes a warehouse with an approximately 634,800 square foot (SF) building footprint located in the Town of Cottage Grove, Dane County, Wisconsin. As shown in **Figure 1A,** the site is surrounded by County Trunk Highway N (CTH N) to the east, County Trunk Highway TT (CTH TT) to the south, residential parcels to the west, and undeveloped land to the north.

There are a total of four (4) proposed access points for the development, two located on CTH N and two located CTH TT. All site access drives are proposed to be unsignalized, full access driveways with minor approaches under stop sign control. Site Driveway D, on CTH N, is proposed to exclusively accommodate all truck traffic during typical operations. Site Driveway C (CTH N) and Site Driveways A and B (CTH TT) will accommodate all employee site traffic. Site Driveway C will also be designed to accommodate truck traffic as an auxiliary / alternate egress and to maintain flexibility in site operations. The proposed site access locations are shown on **Figure 1B**.

A preliminary submission was made to Dane County / Village of Cottage Grove on 12/16/2021 to introduce the project and present preliminary trip generation and distribution methodology. A copy of this correspondence, as well as public agency approval of the preliminary submission, has been included in **Appendix A**.

This report examines if there are any impacts from the proposed development on the surrounding intersections and roadways. Based on the results of the analyses, this report provides recommended improvements.

III. EXISTING STUDY AREA CONDITIONS

Study Area Roadways

County Trunk Highway N (CTH N) is a north-south aligned county road with a posted speed limit of 55 mph north of the site. Within 1000' of the CTH N / CTH TT roundabout intersection, the posted speed limit drops to 45 mph, and further drops again to 40 mph south of the Eastbound I-94 Ramp / CTH N roundabout when CTH N is labeled as Main Street within the municipal boundaries of Cottage Grove. The speed limit further drops to 35 mph south of Commerce Parkway. Within the vicinity of the site, CTH N generally provides one lane in each direction. Land use along this road north of I-94 is generally agricultural or undeveloped land, and land use is a mix of commercial / residential uses south of I-94. The segment of CTH N along the site frontage, north of CTH TT, has a WisDOT 2018 AADT volume of 6,100 vehicles and a collected ADT volume of 5,984 vehicles.

County Trunk Highway TT (CTH TT) is an east-west aligned county road with a posted speed limit of 55 mph, which drops to 45 mph within approximately 1000' feet of the CTH N / CTH TT roundabout intersection. Land uses along CTH TT are a mix of low density residential, light industrial, agricultural,

or vacant parcels. The segment of CTH TT along the site frontage, west of CTH N, has a WisDOT 2006 AADT volume of 3,700 vehicles and a collected ADT volume of 3,994 vehicles.

Interstate 94 (I-94) is a four lane grade separated expressway under Wisconsin Department of Transportation (WisDOT) jurisdiction. I-94 provides a full movement interchange with CTH N at Exit 244 via two roundabout intersections.

Commerce Parkway is an east-west aligned local road that provides access to Cottage Grove Commerce Park, a large grouping of commercial / industrial parcels to the east of CTH N. This roadway intersects CTH N (Main St.) at a signalized intersection approximately 1,250 feet south of I-94 interchange.

Gaston Road is an east-west aligned local road that intersects with CTH N aligned opposite Commerce Parkway. Gaston Road has a posted speed limit of 35 mph and provides access to primarily residential land uses.

County Trunk Highway T (CTH T) is a northeast/southwest aligned roadway that primarily facilities traffic between the Madison metropolitan area and residential communities to the northeast. CTH T has a posted speed limit of 55 mph and land uses along this road are generally low density residential and agricultural parcels.

Data Collection

Based upon a review of the surrounding study area, the scope of the study identified to satisfy Dane County / Village of Cottage Grove requirements includes the peak hour turning movement counts at the following nine (9) intersections:

1. CTH N (Main Street) & Commerce Parkway / Gaston Road (signalized)
2. CTH N & I-94 Eastbound Ramps (roundabout)
3. CTH N & I-94 Westbound Ramps (roundabout)
4. CTH N & CTH TT (roundabout)
5. CTH N & CTH T (unsignalized)
6. *Proposed:* CTH TT & Site Driveway A (unsignalized)[1]
7. *Proposed:* CTH TT & Site Driveway B (unsignalized)[1]
8. *Proposed:* CTH N & Site Driveway C (unsignalized)[1]
9. *Proposed:* CTH N & Site Driveway D (unsignalized)[1]

These counts were collected on a typical weekday during the AM peak period (7:00 AM to 9:00 AM) and PM peak period (4:00 PM to 6:00 PM). In addition, 24 hour counts were conducted at the intersection of CTH N & CTH TT to be used for any signal warrants at the proposed driveways, if necessary. All counts included heavy vehicle classification and the peak periods incorporate the AM

and PM peak hours of the adjacent roadway. A copy of the provided turning movement counts are included in **Appendix B**.

The AM and PM peak hours (four consecutive 15-minute periods comprising the highest volume) from the intersection counts were used to determine the 2021 Existing Peak Hour Traffic Volumes shown on **Figure 3**. These volumes represent the base roadway network conditions used to develop future conditions.

We conducted a field reconnaissance of the study area to obtain existing intersection geometry, turn lane lengths, lane widths, and posted speed limits. The field inventory sketches are included in **Appendix C**. The intersection photo log is included in **Appendix D**.

IV. DEVELOPMENT DESCRIPTION

The proposed project includes a warehouse with an approximately 634,800 square foot (SF) building footprint located in the Village of Cottage Grove, Dane County, Wisconsin. The site is bordered by CTH N to the east and CTH TT to the south and is generally located immediately northwest of the I-94 Exit 244 interchange with CTH N.

Based on information provided by the potential end-user, the proposed warehouse facility is expected to operate continuously with both a day and night shift of approximately 661 employees. Both shifts are expected to be of equal size and approximately split in half to serve two distinct areas of the facility. These ½ shifts are staggered by 30 minutes or more in their start and end times in order to minimize the total peak hour trips generated by the proposed facility. The day shift is expected to generally operate from 7:00 AM to 5:30 PM and the night shift will generally operate from 6:00 PM to 4:30 AM with the development generating the majority of its employee trips in the hour before or after each shift purposely to avoid the typical peak hour of adjacent street time periods. Trucks will operate fairly consistently throughout the entire 24 hour period. Trucks will enter the site, drop its trailer, pick up another trailer and depart the site.
The proposed site is to be constructed in a single phase of development with full build-out anticipated to occur in 2023. No subsequent phase of development or out-lot development is proposed at this time. As such for the purposes of this study, Langan analyzed the following design scenarios:

- 2021 Existing Conditions
- 2023 Opening Day Conditions without Development (2023 No Build)
- 2023 Opening Day Conditions with Development (2023 Build)

As requested by the Village of Cottage Grove, ten (10) background developments that are under construction or expected to be completed by 2023 were included in the 2023 No Build condition.

Proposed Site Access

There are a total of four (4) proposed access points for the development which are summarized below:

- Site Driveway A is proposed as a full access, unsignalized intersection along CTH TT located approximately 1,820 feet west of CTH N. This access drive will be used exclusively by employees.
- Site Driveway B is proposed as a full access, unsignalized intersection along CTH TT, located approximately 814 feet west of CTH N. This access drive will be used by employee trips and be designed to accommodate transit vehicles for the proposed on site bus stop.
- Site Driveway C is proposed as a full access, unsignalized intersection along CTH N, located approximately 647 feet north of CTH TT, and will be used primarily by employees, while also being designed to accommodate trucks exiting the site as an alternate egress path.
- Site Driveway D is proposed as a full access, unsignalized intersection along CTH N, located approximately 1490 feet north of CTH TT, and will be exclusively for truck access to and from the site.

The proposed access plan, including driveway location and internal circulation patterns, is illustrated on **Figure 2**.

Parking and On-Site Circulation

As currently proposed, the development will include a warehouse with an approximately 634,800 square foot (SF) building footprint. Surrounding the building will be parking fields for both semi-trailers as well as employees. Along the north and east faces of the building 57 loading docks will be provided as well as 324 additional stalls for tractor trailer storage.

The employee parking field will be located to the south of the building and will provide approximately 1,714 parking spaces including 24 ADA compliant spaces and 16 spaces for motorcycles. It is important to note that not all of the parking spaces will be utilized at the same time during operations and the number of spaces provided is intended to allow for the shift overlap of employees. This parking excess allows both the day shift and night shift to be able to park quickly and avoid circulating around the site to find parking.

An internal circulator roadway is proposed between the public roadway network and the parking field. This circulator roadway will allow employees in the on-site parking lots to access any of the three proposed access drives and vice-versa. This internal roadway will allow for maximum flexibility in how employees arrive and depart the site and will help avoid any one access drive from being over burdened with site traffic entering or exiting the site.

An exhibit showing the employee and heavy vehicle circulation patterns is provided in **Figure 2.**

Site Trip Generation

Langan estimated the trip generation for the proposed warehouse with an average of 661 employees per shift using trip generation data contained in the *Trip Generation Manual*, 11th Edition, published by the Institute of Transportation Engineers (ITE). The end-user typically sees a 19% total modal split reduction for these types of facilities nationwide and the developer is planning on providing a

bus stop on site in order to facilitate alternate mode choice. Additionally, separate bicycle facilities are provided within the vicinity of CTH N / CTH TT and I-94 interchange. While these facilities are present, no modal split was assumed for the site trip generation presented in this study in order to present a conservative analysis.

The resulting trip generation calculations indicate the proposed warehouse would generate 344 AM Peak Hour employee trips (271 In, 73 Out) and 390 PM Peak Hour trips (133 In, 257 Out). Heavy vehicle generation based on ITE data indicates that 59 truck trips are expected during the AM Peak Hour (19 In, 40 Out) and 46 truck trips during the PM Peak Hour (24 In, 22 Out). This results in a total of 403 AM Peak Hour trips (290 In, 113 Out) and 436 PM Peak Hour trips (157 In, 279 Out).

The trip generation calculations are shown in **Table 1A.** For context, client specific trip generation was also included as **Table 1B** and anticipates generating less trips than using ITE mythology. The public agencies have requested that ITE be used, which will present a more conservative analysis.

Site Trip Distribution

The proposed site generated trips were distributed to the study area network based on the location of the site and neighboring metropolitan areas, anticipated employment locations, on-site separation of truck and employee parking, and engineering judgement. The site has immediate access to I-94 as well as access to several county highway routes. As such, we anticipate that:

- 30% of employees will be coming to / from the east on I-94,
- 30% to / from the west on I-94,
- 20% locally from the south on CTH N (Main Street),
- 10% locally from the west on CTH TT,
- 5% locally from the east on CTH TT,
- and 5% locally to / from the north on CTH N.

This site traffic distribution in multiple directions will minimize site traffic impacts along the surrounding road network.

We also anticipate that given the access to area interstate system, the location of the Dane County Regional Airport, and the larger metropolitan areas surrounding Cottage Grove, that 60% of truck traffic will be coming to / from the west on I-94 and that 40% of truck traffic will be coming to / from the west on I-94.

The total proposed site generated trips are illustrated on **Figure 5**, the proposed employee site generated trips and distribution percentages are illustrated on **Figure 5A** and the proposed truck site generated trips and distribution percentages are illustrated on **Figure 5B**.

Background Development

The Village of Cottage Grove furnished a list of 10 developments that are either currently approved or under construction within the village limits. The village furnished the size and location of the nearby

developments and a conservative trip generation and distribution was developed and assigned to study area intersections. Most of the developments are located to the south of the CTH N / I-94 interchange, but the inclusion of these developments will direct substantial additional traffic to the I-94 interchange which will also be the primary path of arrival and departure of site traffic. A summary of the estimated trip generation for each development is summarized in **Table 2** and the trips that are projected to travel through the Project Silver Eagle study area are presented in **Figure 4B**.

Please note that not all site trips presented in **Table 2** will be present in **Figure 4B**, only those that are projected to travel through the existing study area intersections.

V. FUTURE TRAFFIC VOLUMES

No Build Traffic Volumes

In addition to the background developments, a conservative linear regional growth rate of 2.0% per year was assumed. As such, the regional growth rate was applied to 2021 Existing Peak Hour Traffic Volumes to project them to the 2023 Opening Year. The 2023 Regional Growth (**Figure 4A**) and 2023 Total Background Development Trips (**Figure 4B**) was then combined with the 2021 Existing Peak Hour Traffic Volumes (**Figure 3**) to develop the 2023 No Build Peak Hour Traffic Volumes as illustrated on **Figure 4**.

Build Traffic Volumes

2023 Build condition traffic volumes were obtained by adding the Total Site Trips (**Figure 5**) to the 2023 No Build Peak Hour Traffic Volumes (**Figure 4**). The 2023 Build Peak Hour Traffic Volumes are illustrated on **Figure 6**.

VI. OPERATIONAL ANALYSIS

Capacity and Level of Service Analysis

Langan utilized the provided turning movement count data and existing roadway geometry and characteristics to perform capacity analyses based on Highway Capacity Manual (HCM) methodology for the study intersections. Synchro and HCS7 capacity analysis software was used to conduct the capacity analyses.

These analyses calculate the delay experienced by an average motorist and assigns the appropriate level of service (LOS). There are six levels of service that are defined for any intersection. They are given a letter designation from A to F, with LOS A representing the best operating conditions and LOS F the worst. Typically, review agencies consider LOS D or better acceptable for urban conditions.

Table A & Table B in **Appendix E** depicts the level of service criteria for signalized and unsignalized intersections.

2021 Existing, 2023 No Build, 2023 Build levels of service (LOS) were calculated for the AM and PM commuter peak hours for a typical day. Roadway grades and lane widths were obtained through a desktop review and field verification which was incorporated into the calculations. Existing peak hour factors and heavy vehicle percentages from the turning movement counts were also incorporated into the calculations. WisDOT recommended roundabout headway values were used as outlined in the WisDOT Traffic Engineering, Operations, & Safety Manual (TEOpS) Chapter 16, Section 15.

The 2021 Existing, 2023 No Build, 2023 Build, levels of service are summarized in the Level of Service Comparison **Tables 3A – 3B** and the HCS and Synchro printouts can be found in **Appendix F – H**, respectively.

As presented in the capacity analysis tables, all intersections in the study area are currently operating at acceptable level of service and are projected to continue to operate acceptably with the development of the site. Of specific interest, the three roundabout intersections that operate as part of CTH N's interchange with I-94 are all projected to operate at LOS B or better on all approaches under build conditions and 95th percentile queues are expected to be 5 vehicles or less. Site access drives are also projected to operate efficiently with minimal queueing and delays.

Turn Lane Warrant Analysis

The proposed Project Silver Eagle is located along the frontage of two County Trunk Highways which both appear to transition from a rural to urban setting. It is the assumption of this report that Project Silver Eagle will be a catalytic land use that establishes the roadways along the site frontage as urban streets.

Langan conducted auxiliary turn lane warrant analyses at all site driveways for both inbound right-turn and left-turn lanes. Analyses utilized the WisDOT *Facilities Development Manual Chapter 11, Section 25* Table 5.1 and Figure 10.1 for left-turn and right-turn warrants, respectively.

For right-turn warrants, which are listed as guidelines for urban intersections, the analyses indicated that no auxiliary turn lanes would be warranted at any access drive serving the proposed site. This is also supported by the results of the capacity analysis, which indicates that inbound right-turning vehicles do not significantly impact these approach operations, which are projected to operate at LOS A.

For auxiliary left-turn warrants, the analyses indicate that auxiliary left turn lane warrants are met for the intersection of County Highway N & Site Driveway C during the 2023 Build AM Peak hour only. Since the current geometry provides a two-way left turn lane (TWLTL), it is recommended to restripe this turn lane to provide an exclusive turn lane into the site.

The intersection of County Highway N & Site Driveway D does not currently meet left-turn warrant based on WisDOT criteria, but it should be noted that the intersection is very close to meeting this criteria under 2023 Build Conditions during the PM Peak Hour and the developer is open to discussion of providing this left-turn lane should the County and / or Village request it. As shown in Table 3A and 3B, the northbound approach of CTH N is projected to operate at acceptable LOS.

Auxiliary left-turn lanes are also not warranted at County Highway TT & Site Driveway A as well as County Highway TT & Site Driveway B. However, it should be noted that a median exists along CTH TT at the proposed location of Site Driveway B, and that the provision of an eastbound left-turn lane would match the treatment currently provided in the opposite direction.

All turn lane warrant analyses are included in **Appendix I**.

Driveway Site Distance Analysis

During the field observations and subsequent conversations with the Village and County, potential sight distance issues were identified along CTH N, which could impact the placement and operation of Site Driveway D (Int. #9), which is currently proposed to be located approximately 1,490 feet north of County Highway TT. To evaluate these potential sight distance issues, analysis were conducted based on WisDOT standards outlined in Table 5.2 in the WisDOT *Facilities Development Manual Chapter 11, Section 10.*

As can be seen in **Figure J-1** and **Figure J-2** in **Appendix J** the proposed location meets both AASHTO and WisDOT Intersection Sight Distance Requirements for inbound and outbound truck movements into and out of the site.

VII. CONCLUSIONS

The results of this study provide a broad overview of the transportation impacts that are associated with the proposed Project Silver Eagle development and identification of any necessary alterations due the development.

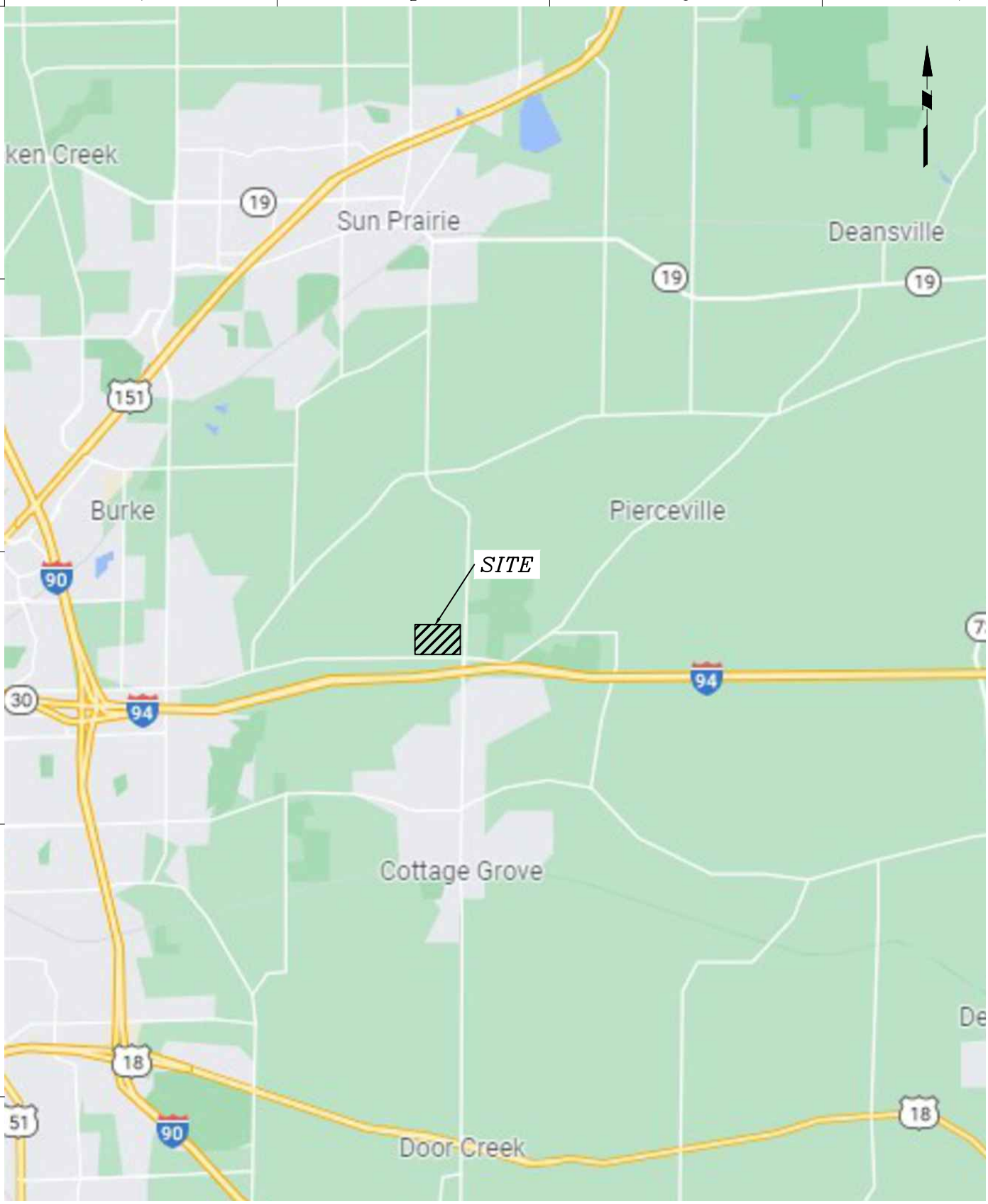
The proposed Project Silver Eagle can be accommodated with the following modifications to the existing transportation network and proposed points of access in the 2023 Opening Year:

- County Highway TT & Site Driveway A (Int #6) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway.
- County Highway TT & Site Driveway B (Int #7) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway. It is recommended that this access drive be aligned with the existing median break on Hwy TT.
- County Highway N & Site Driveway C (Int #8) – Construct a full access unsignalized driveway. Provide one (1) lane inbound and two (2) lanes outbound with stop control on the exiting driveway. Restripe the existing two-way left-turn lane (TWLTL) to provide an exclusive left-turn lane into the site.
- County Highway N & Site Driveway D (Int #9) –Construct a full access unsignalized driveway. Provide two (2) lanes inbound and one (1) lane outbound with stop control on the exiting driveway.

The capacity analyses indicate that all study area intersections are projected to operate at an overall LOS C or better during the AM and PM peak hours under the 2023 Build scenario.

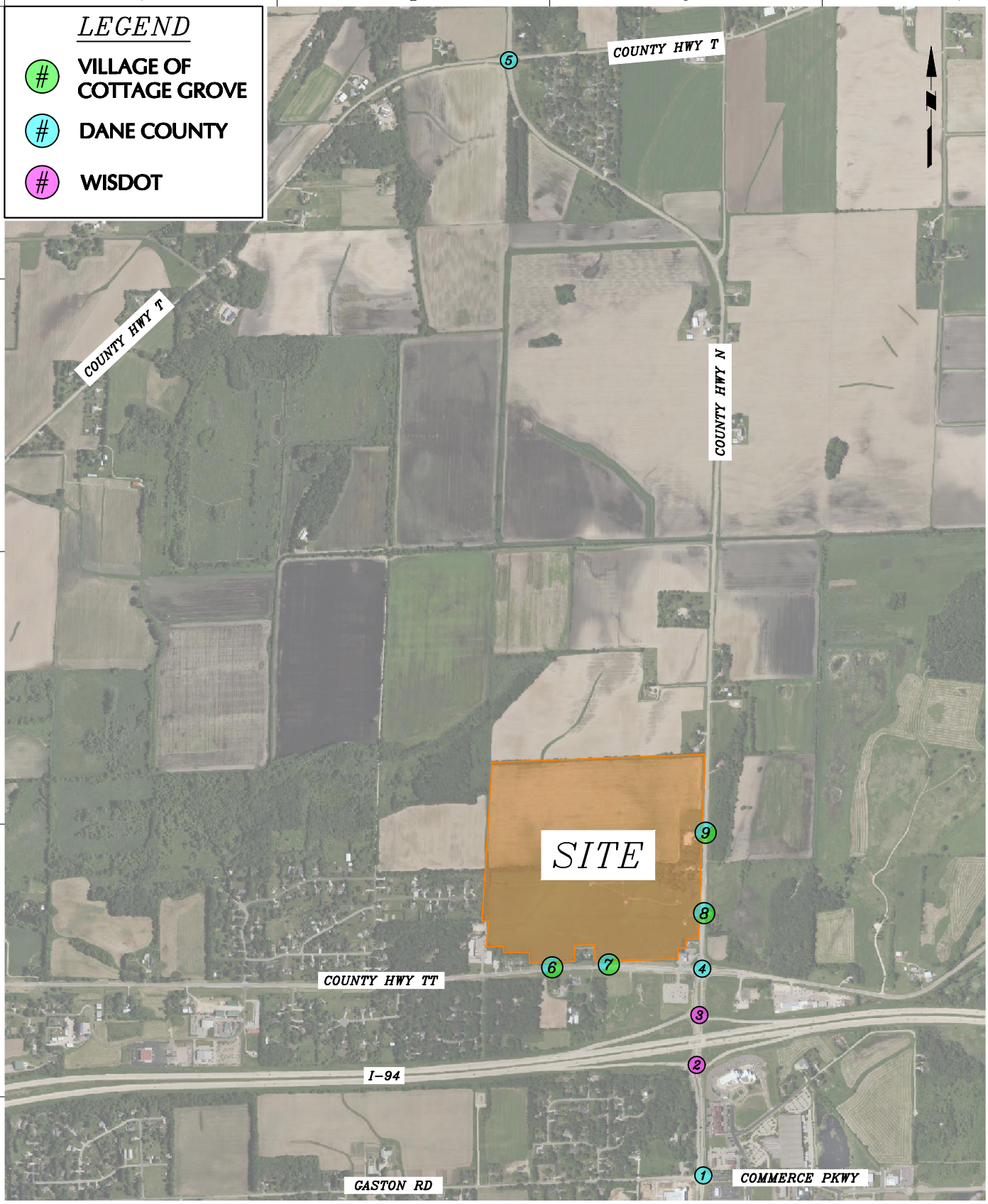
In conclusion, with the construction of the improvements outlined above, the proposed Project Silver Eagle development will have a minimal transportation impact on the surrounding study area roads and intersections.

FIGURES



LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title SITE LOCATION	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 1A

Date: 12/15/2021 Time: 11:24 User: ctirpak Style Table: Langan.stb Layout: FIG 1A Document Code: FG01-541011901-0202-KT101-0101



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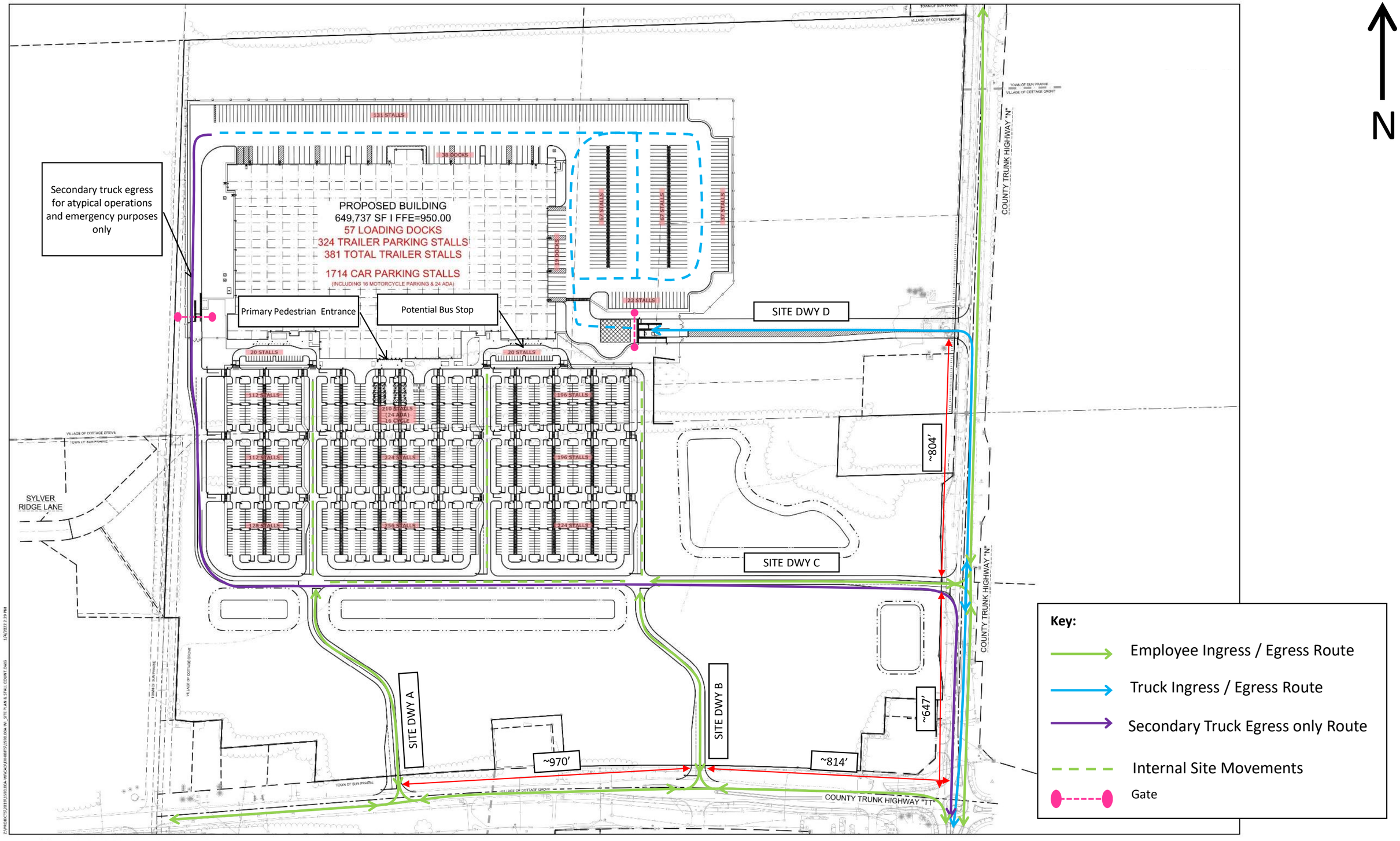

Annotated Site Plan – Circulation and Driveway Spacing

Figure 2

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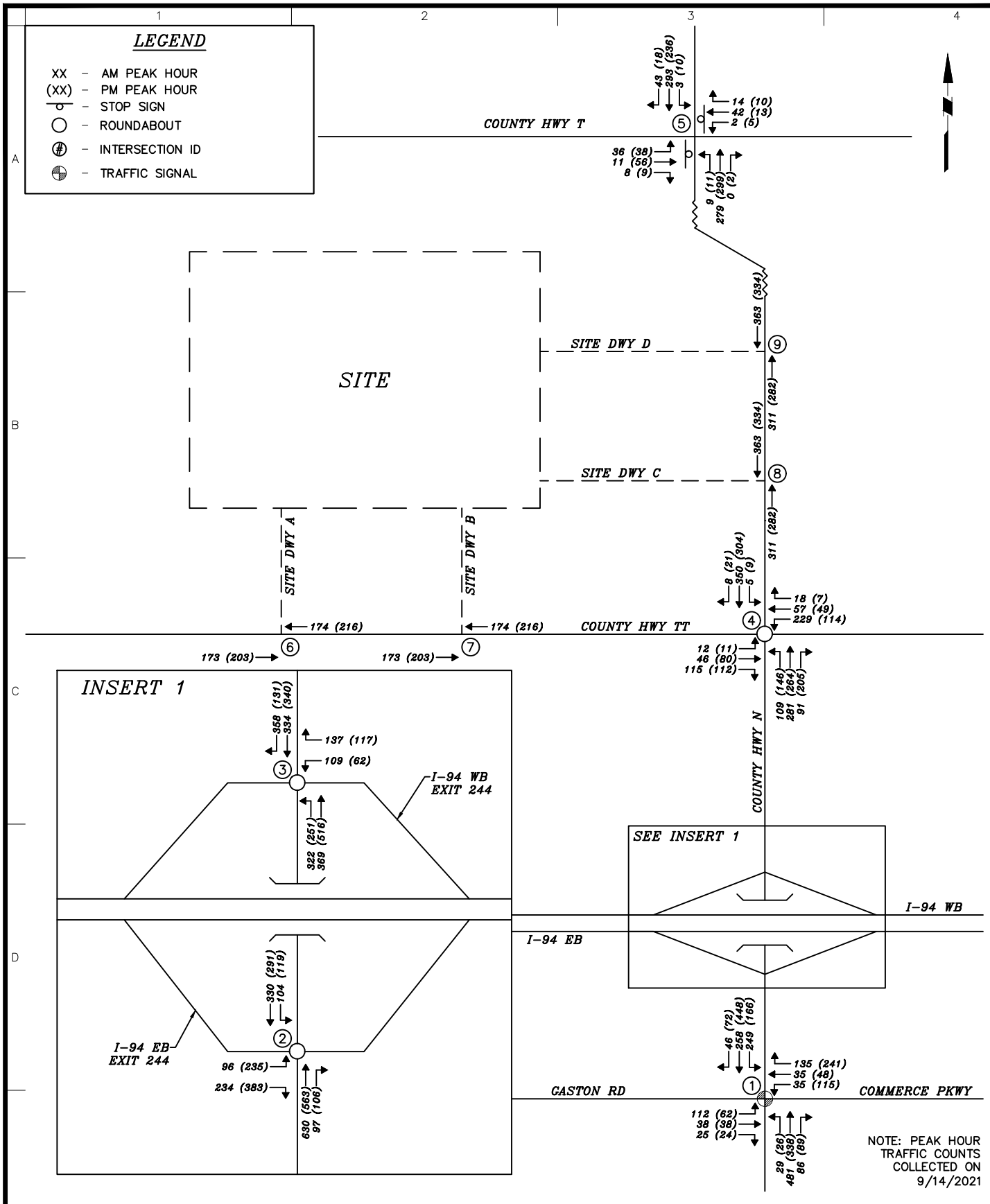
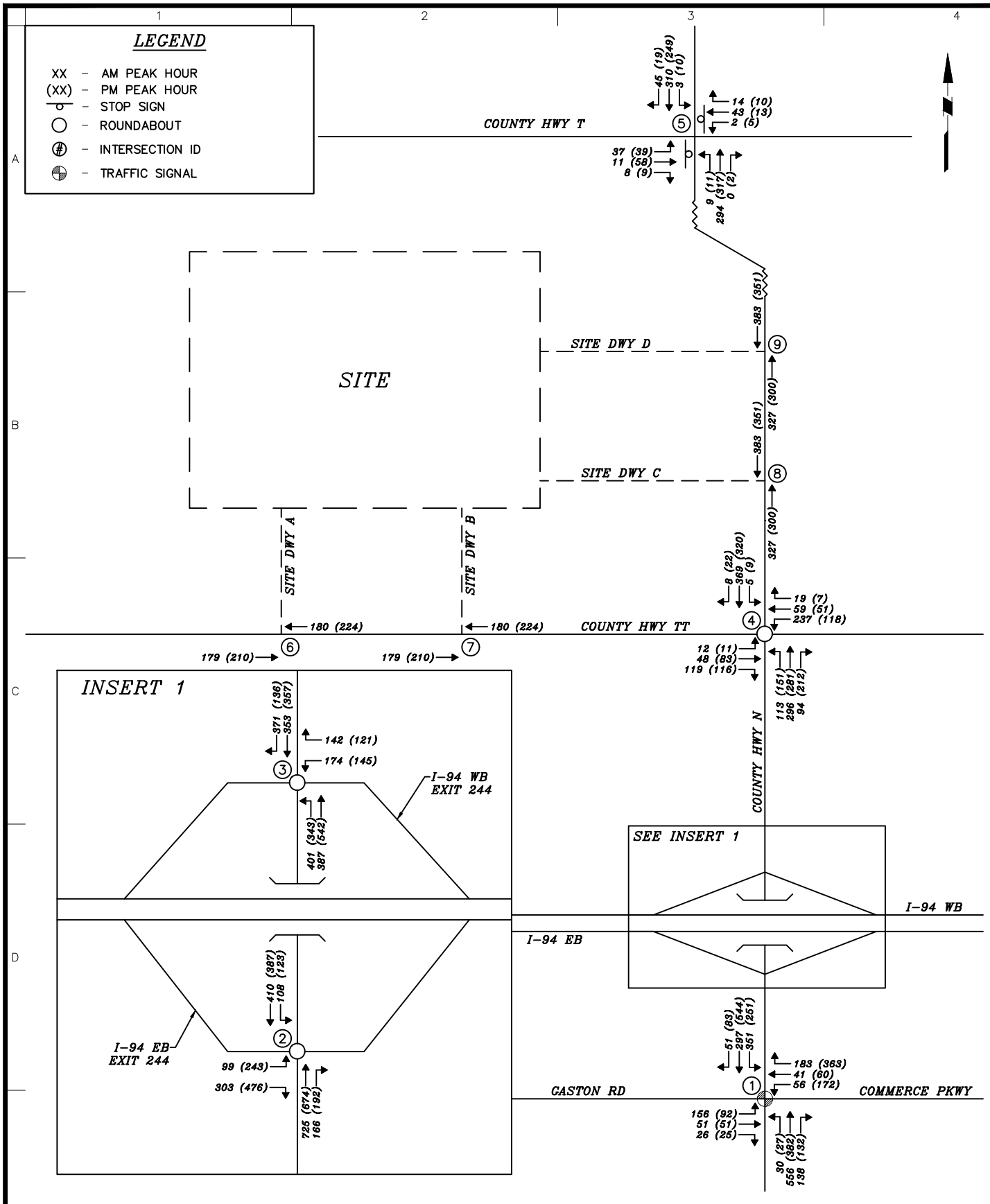


LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title 2021 EXISTING PEAK HOUR TRAFFIC VOLUMES	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 3



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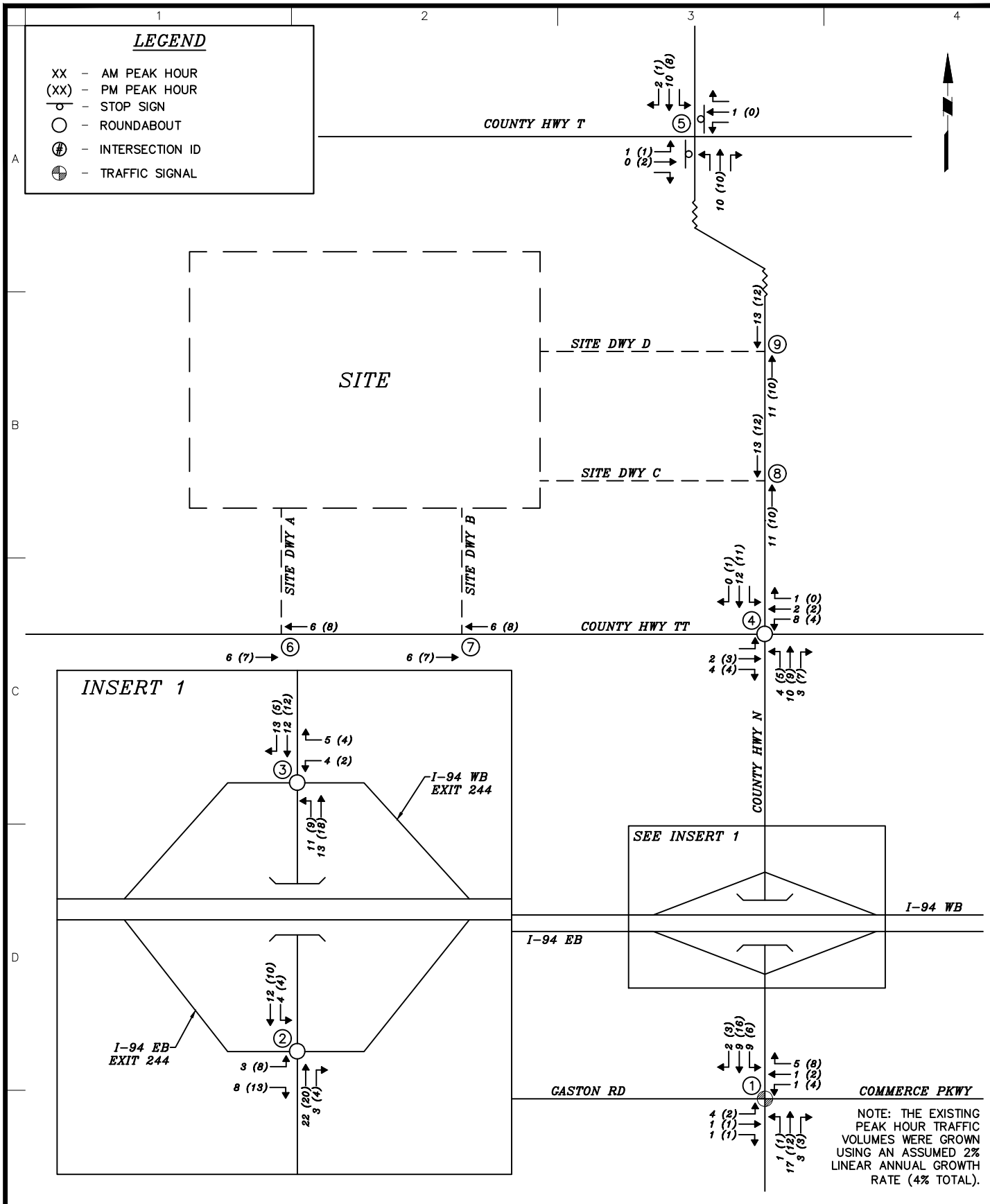
Project
SILVER EAGLE
VILLAGE OF COTTAGE GROVE
DANE COUNTY WISCONSIN

Drawing Title
2023 NO BUILD PEAK HOUR TRAFFIC VOLUMES

Project No. 541011901
Date DECEMBER 2021
Drawn By CMT
Checked By CAP

Figure 4



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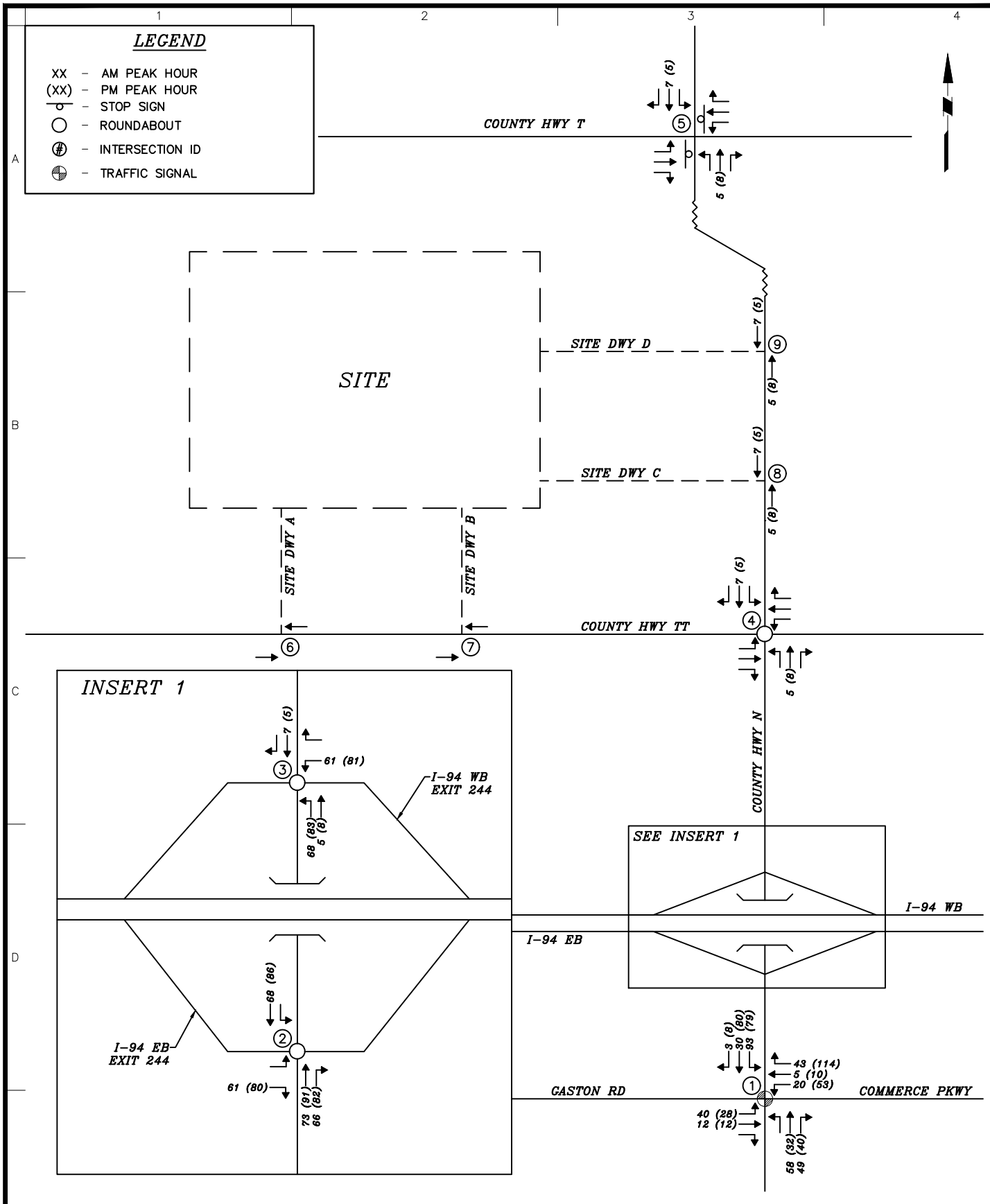
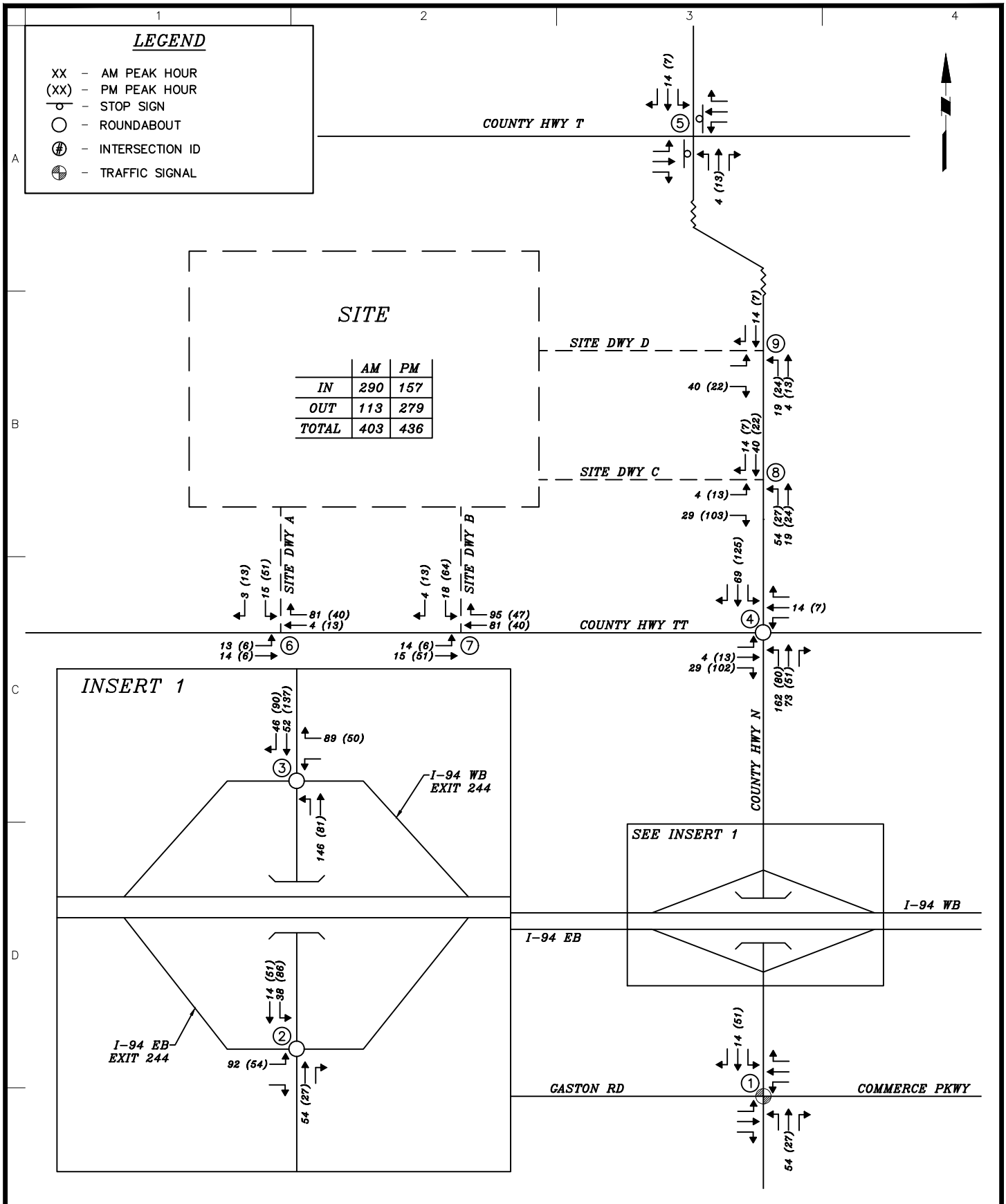
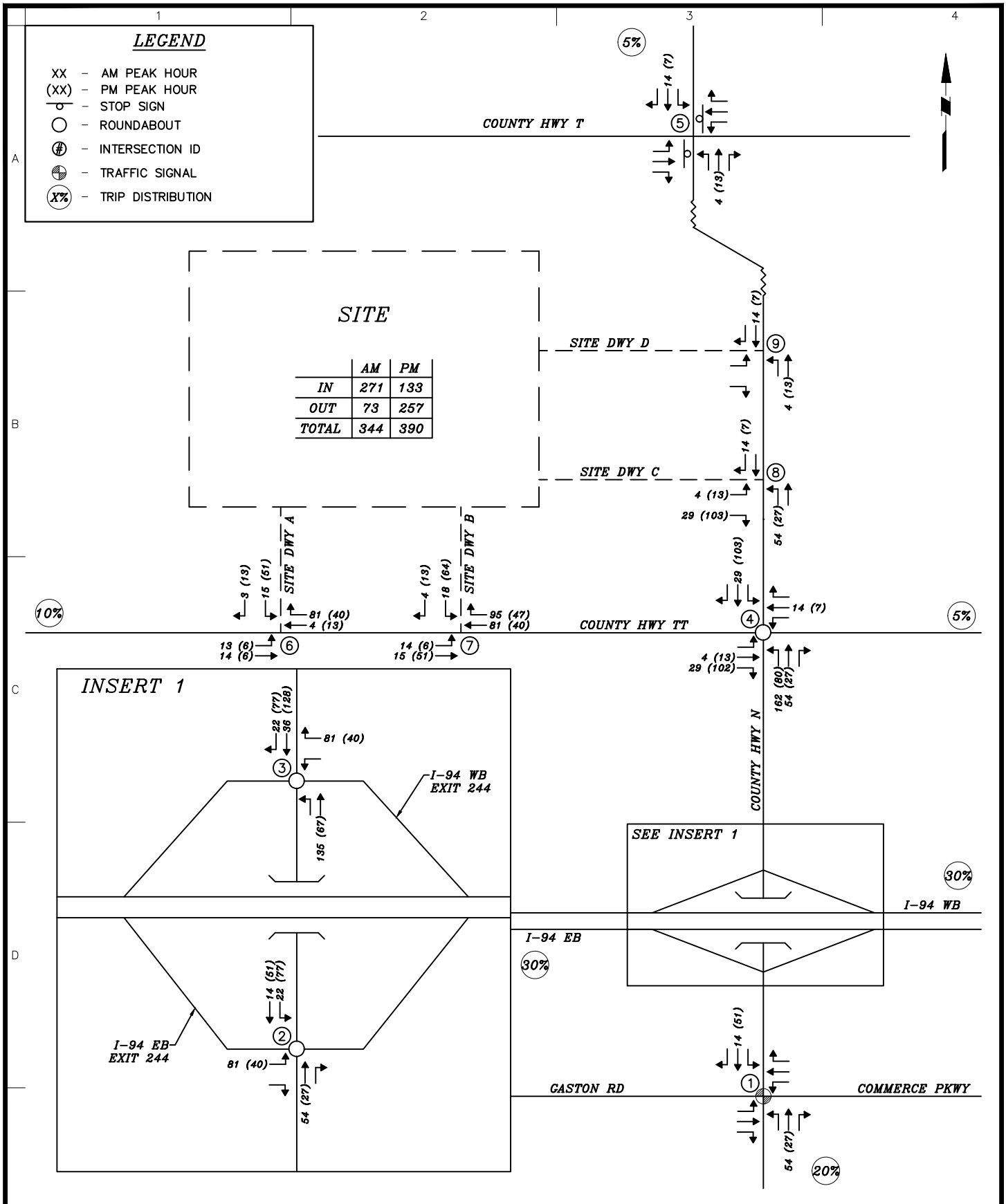


LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title TOTAL BACKGROUND DEVELOPMENT TRIPS	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 4B

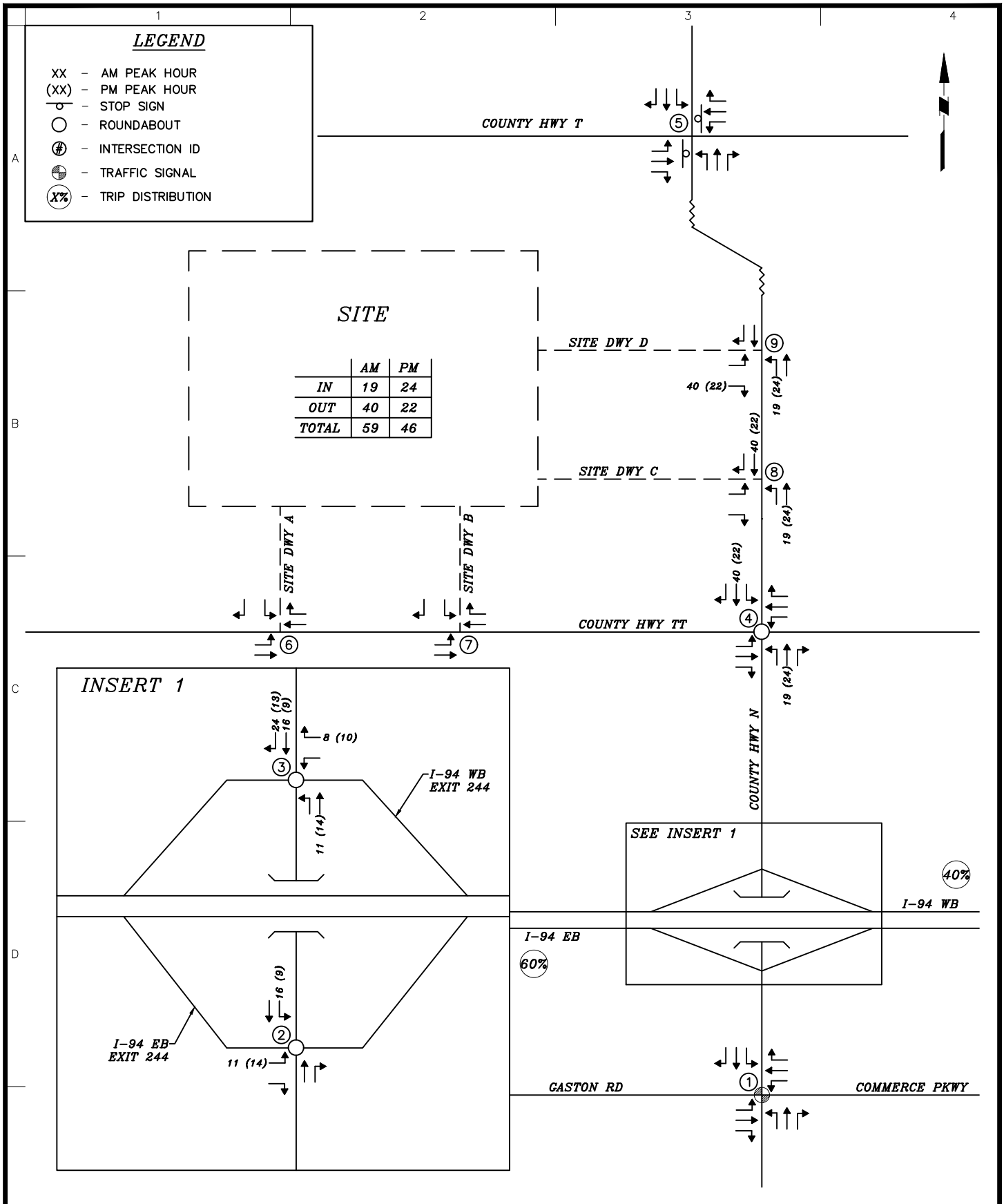
Date: 12/15/2021 Time: 11:24 User: ctirpak Style Table: Langan.stb Layout: FIG 4B Document Code: FG01-541011901-0202-KT101-0101



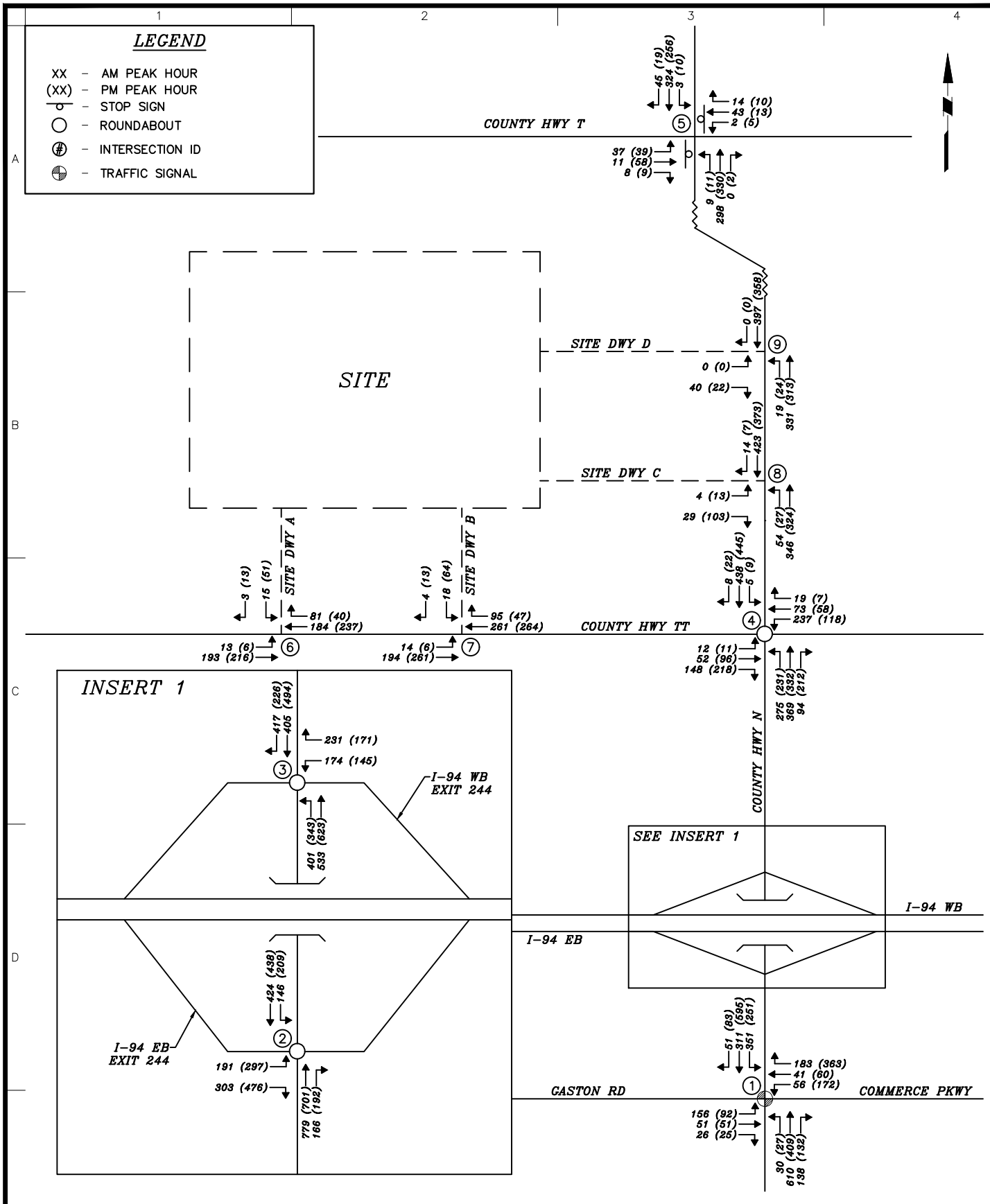
LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title TOTAL SITE TRIPS	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 5



LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title EMPLOYEE SITE TRIPS	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 5A



LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title TRUCK SITE TRIPS	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 5B



LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com	Project SILVER EAGLE VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN	Drawing Title 2023 BUILD PEAK HOUR TRAFFIC VOLUMES	Project No. 541011901 Date DECEMBER 2021 Drawn By CMT Checked By CAP	Figure 6

TABLES

Table 1A
Project Silver Eagle
Site Trip Generation - ITE

Land Use	ITE Code	Size	Units	AM Peak Hour IN	AM Peak Hour OUT	AM Peak Hour TOTAL	PM Peak Hour IN	PM Peak Hour OUT	PM Peak Hour TOTAL	Weekday ADT
Proposed										
Warehousing	150	661	Emply	290	113	403	157	279	436	3,338
Total Proposed Site Generated		**661**	**Emply**	**290**	**113**	**403**	**157**	**279**	**436**	**3,338**
Mode Split Reductions										
Transit, Carpooling, Bicycles, etc.		0%		0	0	0	0	0	0	0
Total Mode Split Reductions		**0%**		**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Proposed External Site Generated				**290**	**113**	**403**	**157**	**279**	**436**	**3,338**
Vehicle Classification										
Trucks		661	Emply	19	40	59	24	22	46	588
Passenger Vehicles				271	73	344	133	257	390	2,750
Total Vehicles				**290**	**113**	**403**	**157**	**279**	**436**	**3,338**

Notes:

No mode split assumed due to rural nature of site.

Number of employees based on site-specific shift schedule provided by client.

Weekday ADT represnts a bi-directional volume (In & Out).

Table 1B

Project Silver Eagle

Trip Generation Comparison - Peak Hour of Adjacent Street

Land Use	ITE Code	Size	Units	AM Peak Hour IN	AM Peak Hour OUT	AM Peak Hour TOTAL	PM Peak Hour IN	PM Peak Hour OUT	PM Peak Hour TOTAL	Weekday ADT
Proposed Warehouse - ITE	150	661	Employees							
Employees				271	73	344	133	257	390	2,750
Trucks				19	40	59	24	22	46	588
ITE Trip Generation				**290**	**113**	**403**	**157**	**279**	**436**	**3,338**
Proposed Warehouse - Client Schedule		661	Employees							
Employees				300	17	317	232	176	408	2,645
Trucks				28	28	56	20	20	40	988
Client Schedule Trip Generation				**328**	**45**	**373**	**252**	**196**	**448**	**3,633**

Notes:

No mode split assumed to be overly conservative.

Client data taken from schedule dated 11.16.21

ADT values reflect 2-way traffic.

Table 2
Project Silver Eagle
Background Trip Generation - Cottage Grove

Land Use	ITE Code	Size	Units	AM Peak Hour IN	AM Peak Hour OUT	AM Peak Hour TOTAL	PM Peak Hour IN	PM Peak Hour OUT	PM Peak Hour TOTAL	Weekday ADT
Cottage Grove Background Development										
1 - Comfort Suites Hotel	310	88	Rooms	20	17	37	19	18	37	530
2 - Cottage Grove Commons- Phase 2	221	269	Units	30	80	110	80	55	135	1,237
3 - Glen Grove Apartments	221	100	Units	10	25	35	25	20	45	431
4 - Authentix Apartments	221	288	Units	26	89	115	69	44	113	1,327
5 - JEK CRE Multi-Tenant	822	15,000	S.F.	21	14	35	49	50	99	817
6 - AVID Risk Management	710	19,000	S.F.	25	4	29	4	23	27	206
7 - Dolphin Swim Academy	495	7,400	S.F.	9	5	14	9	10	19	213
8 - Jump Around Gymnastics	495	11,000	S.F.	14	7	21	13	15	28	317
9 - Grand Appliance	150	40,000	S.F.	5	2	7	2	5	7	68
10 - Atlantis Valley Foods Catering	180	40,000	S.F.	49	17	66	25	52	77	393
Total Background Development				**209**	**260**	**469**	**295**	**292**	**587**	**5,539**

Notes:

All developments listed were provided by the Village of Cottage Grove and are either approved or under contruction with an estimated completion date of 2023 or before.

Trip Generation for the Cottage Grove Commons and Glen Grove developments is sourced from Cottage Grove Commons, Phase 2 Development, Traffic Impact Analysis, dated 11/6/2020.

All other developments had trips estimated based on representative Land Use Codes from ITE.

Table 3A
Level of Service

AM / PM PEAK		AM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		(1) Main Street (CH N) & Gaston Road / Commerce Parkway			
Gaston Road / Commerce Parkway					
Eastbound	Left Turn	B (18.9)	C (23.0)	C (23.7)	
	Through	B (17.5)	C (21.8)	C (22.1)	
	Right Turn				
	Approach	B (18.4)	C (22.6)	C (23.2)	
Westbound	Left Turn	B (17.6)	C (20.3)	C (20.8)	
	Through	C (28.3)	C (31.3)	C (31.8)	
	Right Turn	A (3.4)	A (8.8)	A (8.9)	
	Approach	B (10.1)	B (14.4)	B (14.6)	
Main Street (CH N)					
Northbound	Left Turn	A (9.6)	A (9.6)	A (9.5)	
	Through	C (23.4)	C (27.3)	C (28.1)	
	Right Turn	A (.5)	A (2.2)	A (2.1)	
	Approach	B (19.4)	C (21.8)	C (22.7)	
Southbound	Left Turn	B (12.5)	C (22.4)	C (24.8)	
	Through	B (12.0)	B (12.2)	B (12.1)	
	Right Turn				
	Approach	B (12.2)	C (17.3)	C (18.4)	
OVERALL		**B (15.5)**	**B (19.2)**	**C (20.1)**	
INTERSECTION		(2) County Hwy N & I-94 Eastbound Ramps			
I-94 Eastbound Ramps					
Eastbound	Left Turn	A (5.3)	A (5.9)	A (7.8)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (1.5)	A (1.4)	A (3.0)	
County Hwy N					
Northbound	Through	A (6.0)	A (6.9)	A (8.9)	
	Through	A (6.3)	A (7.4)	A (9.5)	
	Right Turn				
	Approach	A (6.2)	A (7.2)	A (9.2)	
Southbound	Left Turn	A (3.1)	A (3.1)	A (3.4)	
	Through	A (4.5)	A (5.1)	A (5.2)	
	Approach	A (4.2)	A (4.7)	A (4.8)	
OVERALL		**A (4.6)**	**A (5.2)**	**A (6.4)**	
INTERSECTION		(3) County Hwy N & I-94 Westbound Ramps			
I-94 Westbound Ramps					
Westbound	Left Turn	A (8.1)	B (11.3)	B (14.1)	
	Through				
	Right Turn	A (8.7)	B (10.1)	C (17.7)	
	Approach	A (8.5)	B (10.8)	C (16.1)	
County Hwy N					
Northbound	Left Turn	A (4.6)	A (4.9)	A (5.4)	
	Through				
	Through	A (4.9)	A (5.3)	A (5.9)	
	Approach	A (4.7)	A (5.1)	A (5.7)	
Southbound	Through	A (5.8)	A (7.2)	A (7.6)	
	Right Turn	A (.0)	A (.0)	A (7.5)	
	Approach	A (2.8)	A (3.5)	A (3.7)	
OVERALL		**A (4.5)**	**A (5.4)**	**A (6.9)**	

Table 3A
Level of Service

AM / PM PEAK		AM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		**(4) County Hwy N & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn	A (7.7)	A (8.1)	A (9.8)	
	Through				
	Right Turn				
	Approach	A (7.7)	A (8.1)	A (9.8)	
Westbound	Left Turn	A (5.6)	A (5.8)	A (8.0)	
	Left Turn	A (5.1)	A (5.3)	A (7.0)	
	Through				
	Right Turn				
	Approach	A (5.4)	A (5.5)	A (7.5)	
County Hwy N					
Northbound	Left Turn	A (4.9)	A (5.0)	A (7.1)	
	Through				
	Right Turn	A (2.9)	A (2.9)	A (2.9)	
	Approach	A (4.5)	A (4.6)	A (6.6)	
Southbound	Left Turn	A (5.8)	A (6.0)	A (8.2)	
	Through				
	Through	A (5.8)	A (6.1)	A (8.1)	
	Right Turn				
	Approach	A (5.8)	A (6.1)	A (8.1)	
OVERALL		**A (5.5)**	**A (5.7)**	**A (7.5)**	
INTERSECTION		**(5) County Hwy N & County Hwy T**			
County Hwy T					
Eastbound	Left Turn	C (18.6)	C (19.8)	C (20.5)	
	Through				
	Right Turn				
	Approach	C (18.6)	C (19.8)	C (20.5)	
Westbound	Left Turn	C (16.7)	C (17.5)	C (18.0)	
	Through				
	Right Turn				
	Approach	C (16.7)	C (17.5)	C (18.0)	
County Hwy N					
Northbound	Left Turn	A (8.0)	A (8.1)	A (8.1)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (.3)	A (.2)	A (.2)	
Southbound	Left Turn	A (7.9)	A (7.9)	A (7.9)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (.1)	A (.1)	A (.1)	
OVERALL		**A (2.9)**	**A (2.9)**	**A (2.9)**	
INTERSECTION		**(6) Site Driveway A & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn			A (7.9)	
	Through				
	Approach			A (.5)	
Westbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
Site Driveway A					
Southbound	Left Turn			B (12.0)	
	Right Turn			A (9.6)	
	Approach			B (11.6)	
OVERALL				**A (.6)**	

Table 3A
Level of Service

AM / PM PEAK		AM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		**(7) Site Driveway B & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn			A (8.1)	
	Through				
	Approach			A (.5)	
Westbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
Site Driveway B					
Southbound	Left Turn			B (13.1)	
	Right Turn			B (10.2)	
	Approach			B (12.6)	
OVERALL				**A (.7)**	
INTERSECTION		**(8) County Hwy N & Site Driveway C**			
Site Driveway C					
Eastbound	Left Turn			C (19.0)	
	Right Turn			B (11.5)	
	Approach			B (12.4)	
County Hwy N					
Northbound	Left Turn			A (8.5)	
	Through			A (.0)	
	Approach			A (1.2)	
Southbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
OVERALL				**A (1.0)**	
INTERSECTION		**(9) County Hwy N & Site Driveway D**			
Site Driveway D					
Eastbound	Left Turn			A (.0)	
	Right Turn			B (11.3)	
	Approach			B (11.3)	
County Hwy N					
Northbound	Left Turn			A (8.3)	
	Through				
	Approach			A (.4)	
Southbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
OVERALL				**A (.8)**	

Table 3B
Level of Service

AM / PM PEAK		PM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		(1) Main Street (CH N) & Gaston Road / Commerce Parkway			
Gaston Road / Commerce Parkway					
Eastbound	Left Turn	B (16.1)	B (18.3)	B (18.8)	
	Through	B (17.5)	C (21.1)	C (21.4)	
	Right Turn				
	Approach	B (16.8)	B (19.6)	B (20.0)	
Westbound	Left Turn	B (19.0)	C (25.6)	C (26.3)	
	Through	C (25.2)	C (28.3)	C (28.8)	
	Right Turn	A (8.0)	A (8.9)	A (9.4)	
	Approach	B (13.2)	B (15.7)	B (16.2)	
Main Street (CH N)					
Northbound	Left Turn	B (10.6)	B (11.7)	B (11.7)	
	Through	C (22.8)	C (26.4)	C (26.5)	
	Right Turn	A (.8)	A (3.2)	A (3.0)	
	Approach	B (17.8)	B (20.0)	C (20.4)	
Southbound	Left Turn	B (11.9)	C (16.7)	C (17.0)	
	Through	B (14.8)	C (16.8)	C (17.3)	
	Right Turn				
	Approach	B (14.1)	C (16.8)	C (17.3)	
OVERALL		**B (15.1)**	**B (17.5)**	**B (18.0)**	
INTERSECTION		(2) County Hwy N & I-94 Eastbound Ramps			
I-94 Eastbound Ramps					
Eastbound	Left Turn	A (7.6)	A (9.1)	B (13.6)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (2.9)	A (3.1)	A (5.2)	
County Hwy N					
Northbound	Through	A (7.9)	B (10.1)	B (14.0)	
	Through	A (8.2)	B (10.7)	B (14.9)	
	Right Turn				
	Approach	A (8.1)	B (10.4)	B (14.5)	
Southbound	Left Turn	A (3.2)	A (3.3)	A (3.9)	
	Through	A (4.4)	A (5.2)	A (5.6)	
	Approach	A (4.1)	A (4.7)	A (5.1)	
OVERALL		**A (5.2)**	**A (6.5)**	**A (8.7)**	
INTERSECTION		(3) County Hwy N & I-94 Westbound Ramps			
I-94 Westbound Ramps					
Westbound	Left Turn	A (8.2)	B (13.2)	C (15.1)	
	Through				
	Right Turn	A (10.0)	B (12.0)	C (17.0)	
	Approach	A (9.4)	B (12.7)	C (16.1)	
County Hwy N					
Northbound	Left Turn	A (5.0)	A (5.5)	A (5.8)	
	Through				
	Through	A (5.4)	A (5.9)	A (6.3)	
	Approach	A (5.2)	A (5.7)	A (6.1)	
Southbound	Through	A (5.3)	A (6.8)	A (8.1)	
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (3.8)	A (4.9)	A (5.5)	
OVERALL		**A (5.3)**	**A (6.6)**	**A (7.5)**	

Table 3B
Level of Service

AM / PM PEAK		PM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		**(4) County Hwy N & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn	A (6.6)	A (6.8)	B (10.8)	
	Through				
	Right Turn				
	Approach	A (6.6)	A (6.8)	B (10.8)	
Westbound	Left Turn	A (4.8)	A (5.0)	A (5.8)	
	Left Turn	A (4.5)	A (4.6)	A (5.3)	
	Through				
	Right Turn				
	Approach	A (4.7)	A (4.8)	A (5.6)	
County Hwy N					
Northbound	Left Turn	A (5.1)	A (5.3)	A (6.5)	
	Through				
	Right Turn	A (3.6)	A (3.7)	A (3.7)	
	Approach	A (4.6)	A (4.8)	A (5.8)	
Southbound	Left Turn	A (5.1)	A (5.2)	A (6.5)	
	Through				
	Through	A (5.1)	A (5.3)	A (6.6)	
	Right Turn				
	Approach	A (5.1)	A (5.2)	A (6.6)	
OVERALL		**A (5.0)**	**A (5.2)**	**A (6.9)**	
INTERSECTION		**(5) County Hwy N & County Hwy T**			
County Hwy T					
Eastbound	Left Turn	C (21.9)	C (23.9)	D (25.2)	
	Through				
	Right Turn				
	Approach	C (21.9)	C (23.9)	D (25.2)	
Westbound	Left Turn	C (15.9)	C (16.6)	C (17.1)	
	Through				
	Right Turn				
	Approach	C (15.9)	C (16.6)	C (17.1)	
County Hwy N					
Northbound	Left Turn	A (7.9)	A (7.9)	A (7.9)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (.3)	A (.3)	A (.3)	
Southbound	Left Turn	A (8.0)	A (8.1)	A (8.1)	
	Through				
	Right Turn	A (.0)	A (.0)	A (.0)	
	Approach	A (.3)	A (.3)	A (.3)	
OVERALL		**A (4.1)**	**A (4.3)**	**A (4.4)**	
INTERSECTION		**(6) Site Driveway A & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn			A (7.9)	
	Through				
	Approach			A (.2)	
Westbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
Site Driveway A					
Southbound	Left Turn			B (13.1)	
	Right Turn			A (9.9)	
	Approach			B (12.4)	
OVERALL				**A (1.5)**	

Table 3B
Level of Service

AM / PM PEAK		PM PEAK HOUR (LOS / Delay)			
Direction	Approach / Movement	2021	2023		
		Existing	No Build	Build	Build with Improvements
INTERSECTION		**(7) Site Driveway B & County Hwy TT**			
County Hwy TT					
Eastbound	Left Turn			A (8.0)	
	Through				
	Approach			A (.2)	
Westbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
Site Driveway B					
Southbound	Left Turn			B (14.6)	
	Right Turn			B (10.1)	
	Approach			B (13.8)	
OVERALL				**A (1.7)**	
INTERSECTION		**(8) County Hwy N & Site Driveway C**			
Site Driveway C					
Eastbound	Left Turn			C (16.5)	
	Right Turn			B (11.9)	
	Approach			B (12.4)	
County Hwy N					
Northbound	Left Turn			A (8.3)	
	Through			A (.0)	
	Approach			A (.6)	
Southbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
OVERALL				**A (1.9)**	
INTERSECTION		**(9) County Hwy N & Site Driveway D**			
Site Driveway D					
Eastbound	Left Turn			A (.0)	
	Right Turn			B (10.7)	
	Approach			B (10.7)	
County Hwy N					
Northbound	Left Turn			A (8.2)	
	Through			A (.0)	
	Approach			A (.6)	
Southbound	Through			A (.0)	
	Right Turn				
	Approach			A (.0)	
OVERALL				**A (.6)**	