

September 7th, 2023

Tom Wooten, PE OWN, Inc 4240 Philips Farm Road, Suite 101 Columbia, MO 65201



Dear Mr. Wooten,

At your request, I have prepared this letter to do a preliminary trip generation for Woodspring Suites development. The hotel site is located in Lees Summit, Missouri, on the southwest quadrant of the intersection of NW Ward Road and Outerview Road. The site is being developed as a 4-story hotel with 122 rooms.

The current land use of the planned development site is undeveloped. The land use of the surrounding areas is undeveloped to the north and light industrial to the south. A multi-use development, including commercial/retail/multi-family housing, is planned for the east.

The development is bordered on the east by Outerview Road and on the north by NW Ward Road, which accesses I-470. Chipman Road is located to the south of the site and provides access to Missouri Highway 50.

Ward Road is a four-lane north-south median divided major arterial roadway with a posted speed limit of 35 mph.

Outerview Road is a two-lane unmarked north-south private drive with no posted speed limit. The intersection of Outerview Road and NW Ward Road is stop-controlled, with Outerview Road stopping and aligning with Innovation Parkway on the east side of Ward Road.

The development will be accessed by an existing driveway 250 feet south of NW Ward Road onto Outerview Road and by a new right-in/right-out only (RIRO) drive onto Ward Road located 575 feet west of the NW Ward Road and Outerview Road intersection. The most recent site plan will be enclosed as part of this letter.

Expected Trip Generation

The expected trip generation for the development was estimated using the 11th Edition of the <u>Trip Generation Handbook</u> published by the Institute of Transportation Engineers. The trip generation was based on Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM along with Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM criteria.

Estimates for the expected trips generated by the development are provided in Table 1.

Table 1 – Trip Generation for Proposed Site Plan							
	Units	Weekday		AM		PM	
ITE Land Use Code		Trips In (vpd)	Trips Out (vpd)	Trips In (vph)	Trips Out (vph)	Trips In (vph)	Trips Out (vph)
310 – Hotel	122 Rooms	449	450	30	24	32	30

Site Distance

Sight distance was measured at the proposed accesses using the methodology recommending by the American Association of State Highway and Transportation Engineers (AASHTO) for the 35 mph speed limits on NW Ward Road and 25 mph on Outerview Road as City code states that a speed limit of 25 mph governs areas with no posted speed limit.

For 35 mph, AASHTO requires a minimum intersection sight distance of 390 feet and a stopping sight distance of 250 feet. The AASHTO required intersection site distance at 25 mph is 280 feet and 155 feet for stopping sight distance.

Outerview Road Access - The field measured sight distance is greater than 300 feet and meets the AASHTO requirements intersection and stopping sight distance requirements.

NW Ward Road RIRO Access - The available sight distance, based on field measurements, is greater than 400 feet and is adequate for the 35 mph speed limit.

Crash Analysis

Crashes at NW Ward Road and Outerview Road were analyzed over a five-year period (2017-2021) from City of Lee's Summit Police Department data to identify existing crash patterns. The one reported crash, during the study time period, was a lost control crash when a moped without headlights had to stop suddenly to avoid crashing into a police vehicle turning onto Ward Road. The moped driver was not injured. No correctable crash patterns emerged as a result of the study and no recommendations are made to alter the study intersections based on crash data.

Throat Length

The throat lengths for the proposed accesses into the site from NW Ward Road and Outerview Road were compared to City of Lee's Summit *Access Management Code*, March 2018 requirements for drives adjacent to arterial roadways based on vehicles per hour. As Outerview Road is a private roadway, there is no specific guidance provided for throat lengths however, all drives will have at least a 50-foot throat which will likely exceed the expected queue.

Throat lengths for proposed accesses are provided in Table 2.

Table 2 – Driveway Throat Depths						
Intersection	Recommended Throat Length (feet)	Site Plan Measured Throat Length (feet)				
NW Ward Road RIRO Access	125	>150				
Outerview Road Accesses	n/a	>60				

Turn Lane Warrants

The need for right and left-turn lanes into the site entrances was evaluated using the City of Lee's Summit Access Management Code, March 2018 turning lane guidelines using traffic counts from the Summit Orchards West Traffic Impact Study, September 2022.

Left-Turn Warrant

Left-turn lane guidelines per City of Lee's Summit Access Management Code:

16.1.C. Left-turn lanes shall be provided on collector streets at the intersection with a connector serving non-residential development where the left-turn volume is at least 30 vehicles in any hour and should be provided where the left-turn volume is less than 30 vehicles in any hour.

Left-turn lanes will not be required at the existing Outerview Road access as the total expected trips turning left northbound will be less than 10 vehicles for the morning or afternoon peak hours.

Right-Turn Warrant

Right-turn lane guidelines per City of Lee's Summit Access Management Code:

16.2.A. Required on arterial streets at each intersecting street or driveway where the right-turn volume on the major arterial street is or is projected to be at least 30 vehicles in any hour, or the right-turn volume on the minor arterial street is or is projected to be at least 60 vehicles in any hour. Minimum length should be 250 feet plus the taper on a major arterial at the intersection of another arterial street or 200 feet plus the taper on a minor arterial at the intersection with

another arterial street or on a major arterial at the intersection of a collector and 150 feet plus the taper at other locations along arterial streets.

The traffic volumes are not expected to meet the right-turning volume criteria eastbound at the NW Ward Road RIRO access neither the morning or afternoon peak hour is expected to generate more than 20 right-turns.

The raw analysis data is included in the Appendix.

Conclusions

Based on the trip generation of the proposed development site and review of the site plan, the development is expected to cause minimum impact on the existing roadway network. It is recommended that the trips from the development be included in any major traffic impact studies for future developments in the area.

Sincerely,

Amy L. McCurdy, P.E., PTOE

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President/Owner

Enclosure: Site Plan, Trip Generation

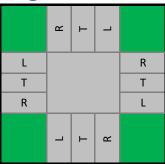
Woodspring Trip Generation

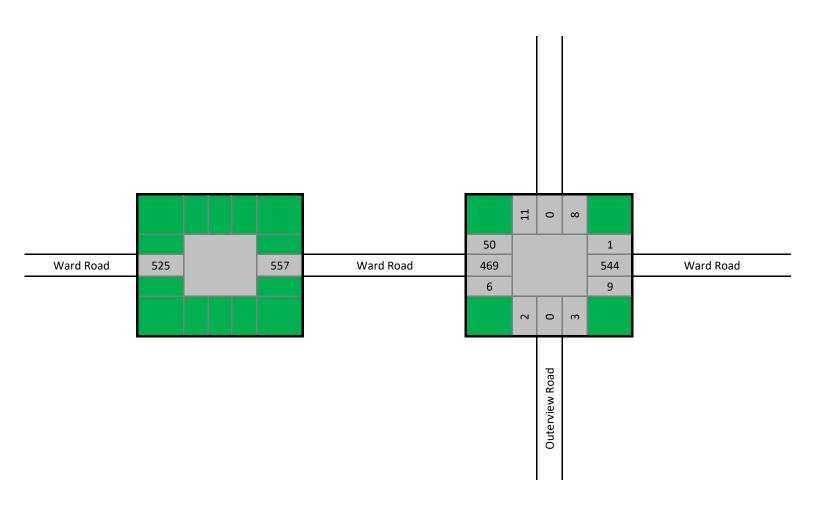
ITE Trip Generation Manual - 11th Edition

Highlighted text indicates trips used in Synchro and Warrant Analysis

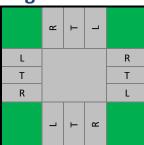
Land Use	ITE Code	Size	Units	Equation	Trips (Eq.)	Av. Rate	Trips (Av. Rate)	In%	Out%	Trips In	Trips Out
Hotel (AM)	310	122	Rooms	T=10.84(X)-423.51	54	0.46	56	56%	44%	30	24
										30	24
Hotel (PM)	310	122	Rooms	T=0.74(X)-27.89	62	0.59	72	51%	49%	32	30
										32	30

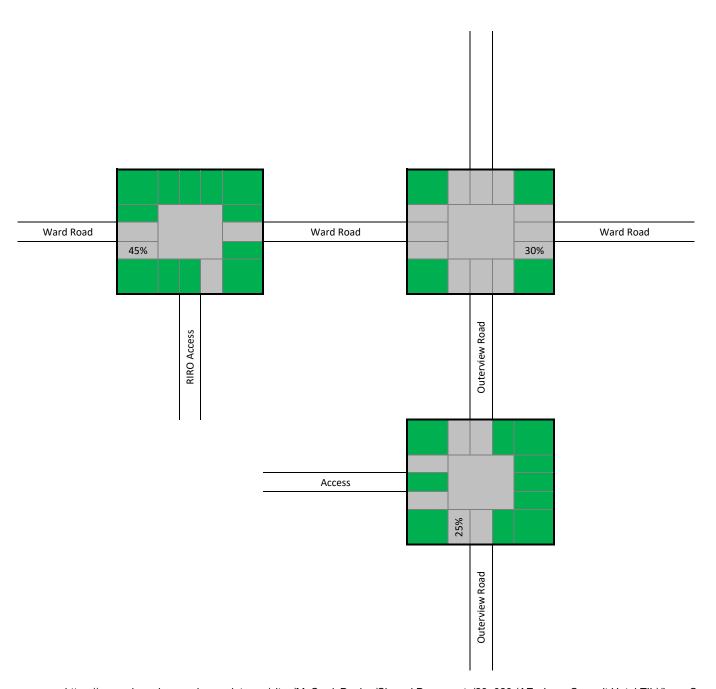
AM Peak Hour Traffic



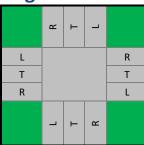


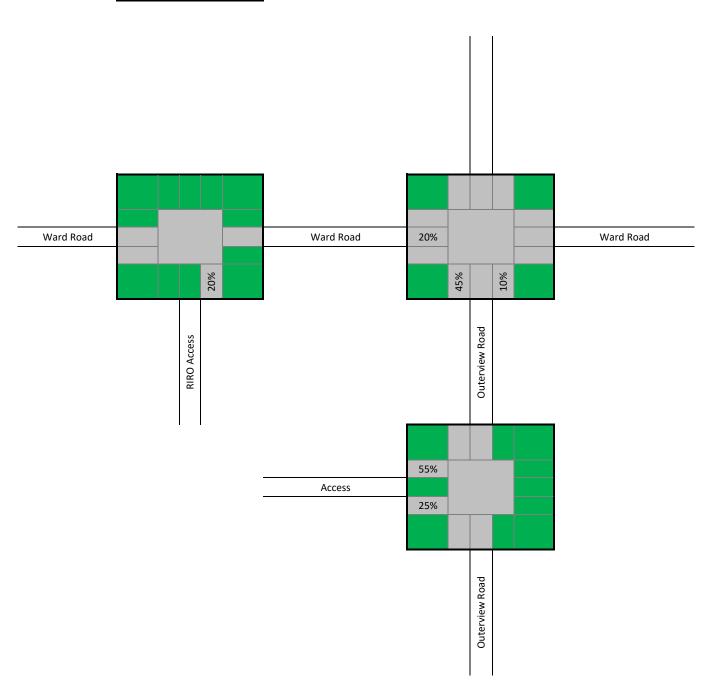
AM Dist In



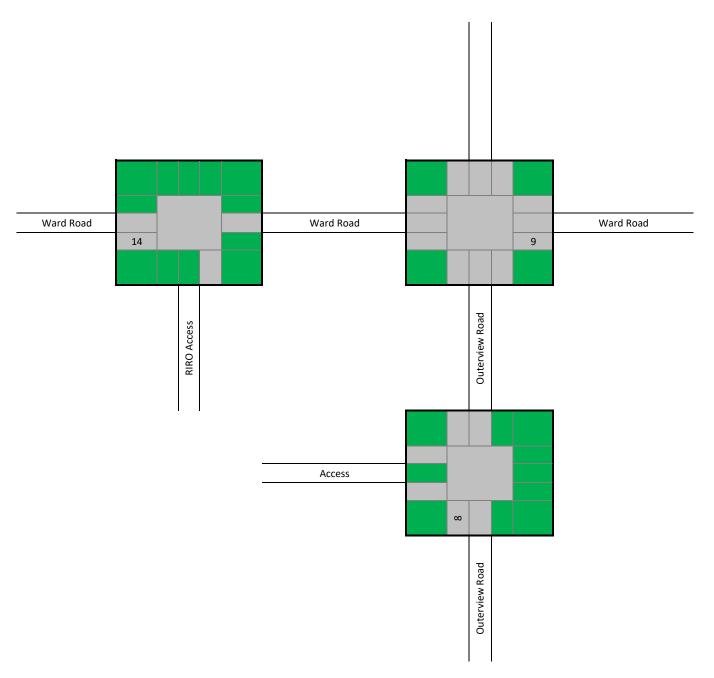


AM Dist Out

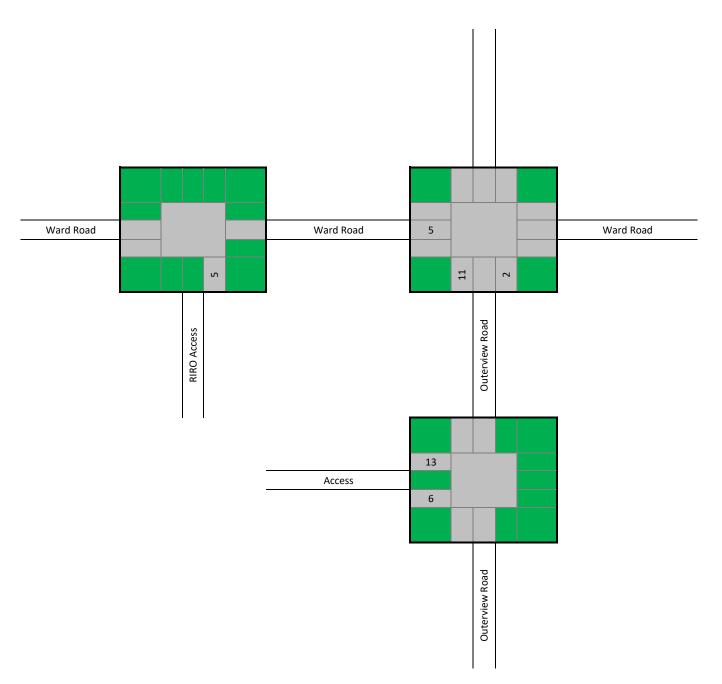




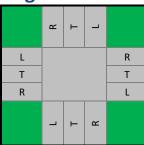
AM Trips In Legend L R T L L R T L

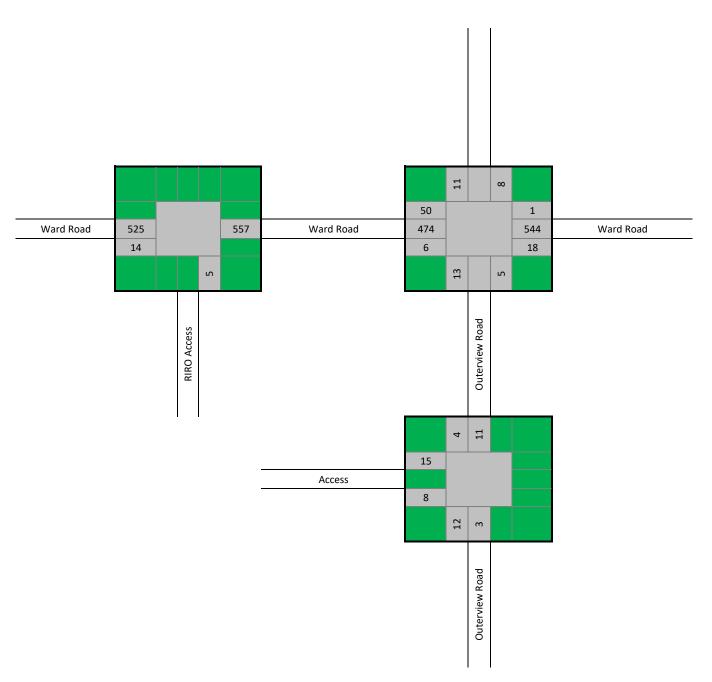


AM Trips Out Legend R Trips L R T R T R

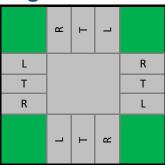


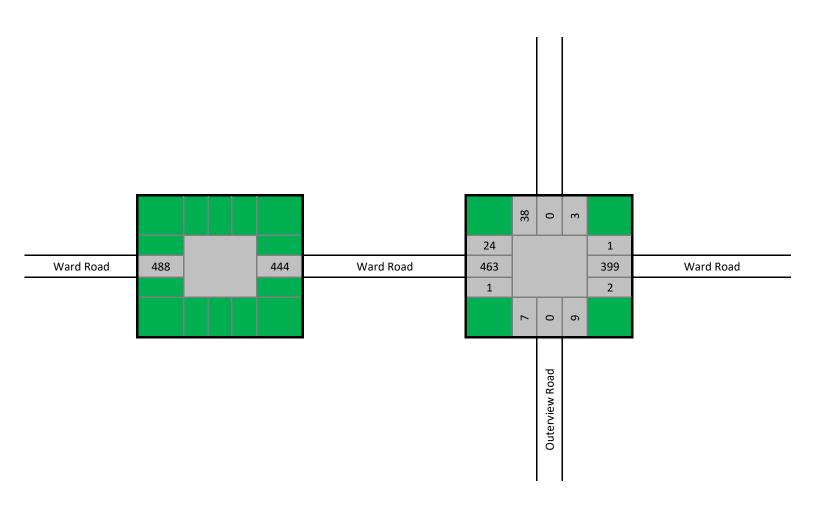
AM Ex plus Site



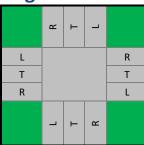


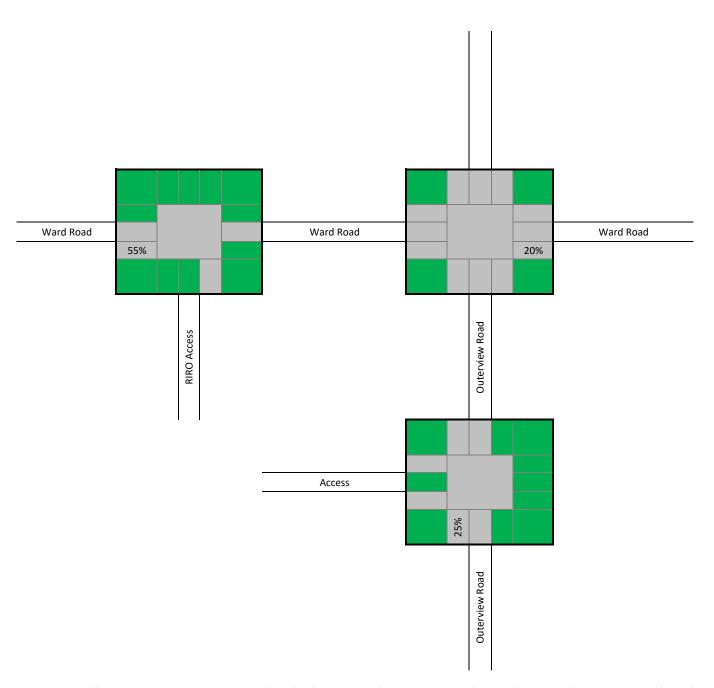
PM Peak Hour Traffic



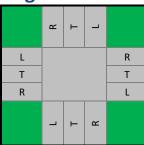


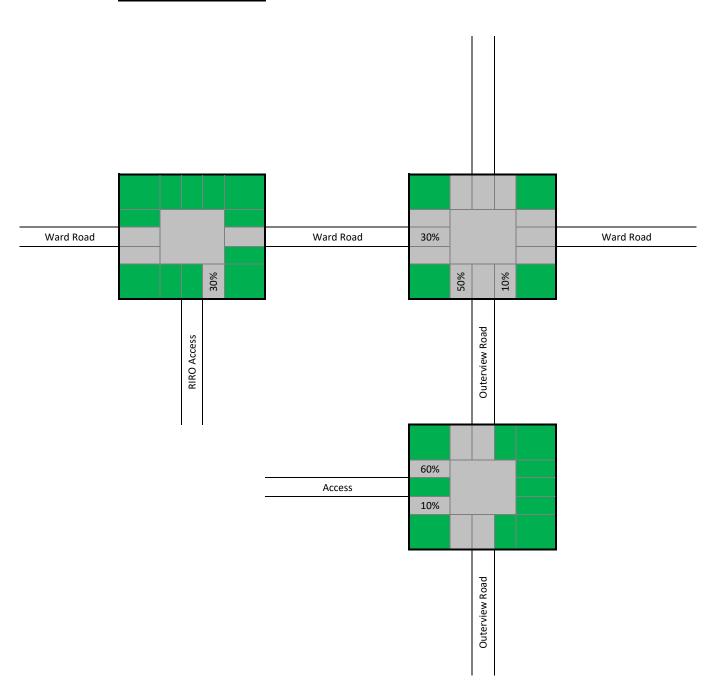
PM Dist In



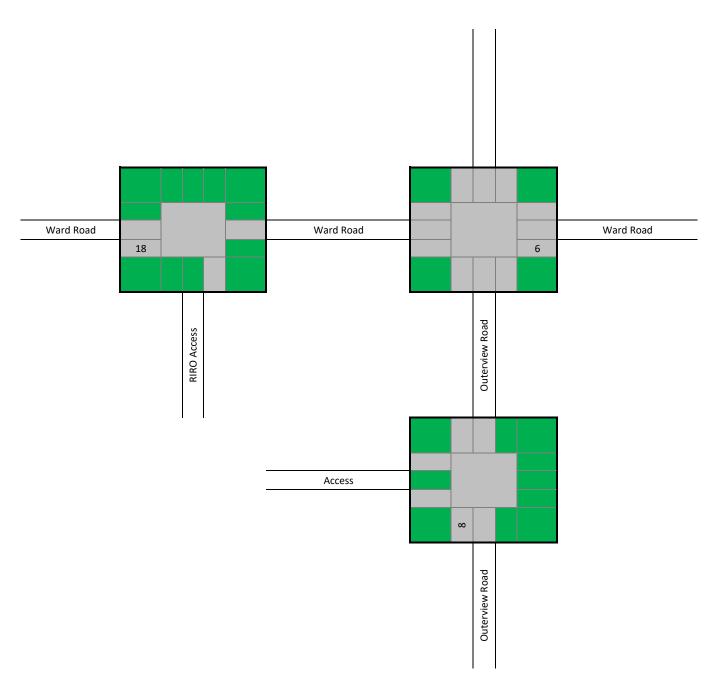


PM Dist Out

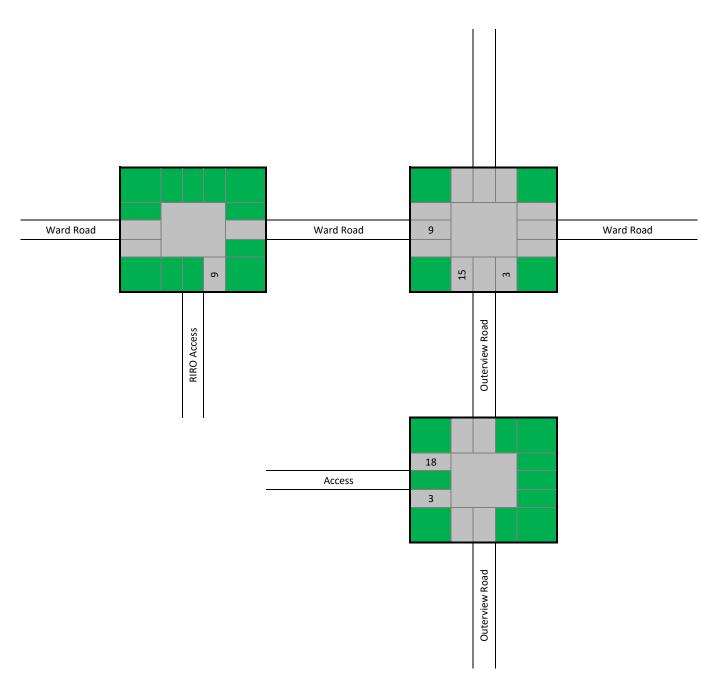




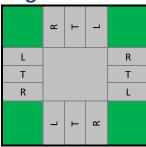
PM Trips In Legend 2 R Trips

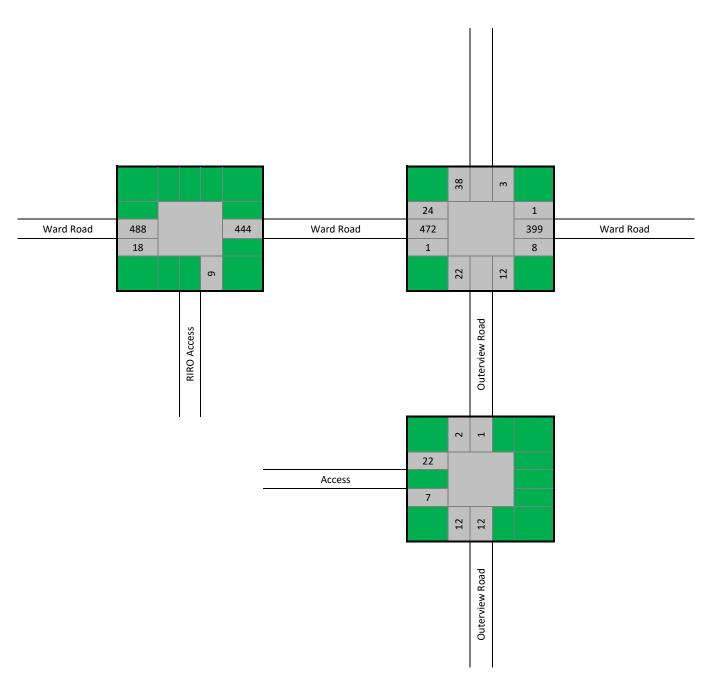


PM Trips Out Legend R Trips



PM Ex plus Site









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FORMERLY ANDERSON ENGINEERING

GENESIS ACQUISITIONS, LLC

WOODSPRING SUITEES

1010 NW WARD ROAD LEE'S SUMMIT, JACKSON COUNTY, MO

		REVISIONS								
	NO.	DESCRIPTION	DATE							
X										
- Q										

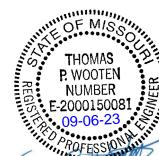
DRAWING INFORMATION

PROJECT NO: 22CO10019

DRAWN BY: CVM
CHECK BY: TPW

ISSUED FOR: PERMIT

ISSUED DATE: 09/01/2023



ISSUED BY: THOMAS P. WOOTEN LICENSE NO: E-2000150081

A licensed Missouri Engineering Corporation COA 00062

SHEET TITLE

SITE PLAN

SHEET NUMBER

C101