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To: Bradley P. Sanderson P.E., City of Yorkville

From: Christopher A. Prisk, P.E., PTOE

CC: Timothy O’Neill, P.E.

Date: March 14, 2025

Re: Trip Generation Memorandum
Project Steel
City of Yorkville, Kendall County, Illinois
Langan Project No.: 541061101

I. Project Overview

The proposed Project Steel data center campus is anticipated to consist of 24,379,100 gross square foot (GSF) data center buildings located between, Galena Road, Eldamain Road, and Corneils Road in the city of Yorkville, Illinois. The proposed campus is anticipated to be constructed over three phases, with phase one comprising of seven buildings, phase two comprising of nine buildings, and phase three including the remaining eight buildings.

The proposed development includes two full access driveways. The first driveway, associated with Phase 1, is proposed along Corneils Road via Beecher Road. The second driveway, associated with Phases 2 and 3, is proposed along Eldamain Road. As part of the development, Beecher Road will be realigned so that the north leg connects to Corneils Road east of its existing connection. The preliminary Planned Unit Development (PUD) site plan is included as **Figure 1**.

II. Trip Generation

ITE Methodology

Trip generation for proposed developments are typically calculated using data contained in the *Trip Generation Manual, 11th Edition*, published by the Institute of Transportation Engineers (ITE). According to the trip generation calculations the anticipated trips for each phase of the development is as follows:

- Phase 1 – Seven Buildings
 - 292 AM Peak Hour trips (161 In, 131 Out)
 - 239 PM Peak Hour trips (72 In, 167 Out)
 - 2,627 ADT
- Phase 2 – Nine Buildings
 - 375 AM Peak Hour trips (206 In, 169 Out)
 - 307 PM Peak Hour trips (92 In, 215 Out)
 - 3,378 ADT

Technical Memorandum

- Phase 3 – Eight Buildings
 - 334 AM Peak Hour trips (184 In, 150 Out)
 - 239 PM Peak Hour trips (82 In, 191 Out)
 - 3,002 ADT

The resulting total trip generation for all three phases of the data center campus is 1,001 AM Peak Hour trips (551 In, 450 Out), 819 PM Peak Hour trips (246 In, 573 Out), and 9,007 average daily trips. These trip generation calculations are summarized in **Table 1A**.

It should be noted that the trip generation data for data centers (Land use code [LUC] 160) contained within the 11th Edition of the *Trip Generation Manual* contains few data points in the AM and PM peak hour of adjacent street windows. Additionally, the information is from the 2010s and for a rapidly developing technology, the trip generation data should not be assumed representative of modern data center uses. As such, the client has provided employment information and shift scheduling for the purposes of calculating trip generation.

Client Site-Specific Methodology

Each data center building is anticipated to require a staff of 30 people split amongst shifts to provided 24/7 coverage. The first shift, the morning shift, is anticipated to contain 50% of the staff and will run between 6:00 AM and 2:00PM. The afternoon shift is anticipated to contain 25% of the total employees and will run between 12:00 PM and 8:00PM. Finally, the remaining 25% of employees will work the night shift from 8:00PM - 8:00 AM. Given these shift times, the majority of traffic generated by the campus will occur outside the AM and PM adjacent street windows. Assuming all staff trips will be made in single occupancy vehicles, the resulting trip generation for each phase is anticipated to be as follows:

- Phase 1 – Seven Buildings
 - 56 AM Peak Hour trips (0 In, 56 Out)
 - 0 PM Peak Hour trips (0 In, 0 Out)
 - 420 ADT
- Phase 2 – Nine Buildings
 - 72 AM Peak Hour trips (0 In, 72 Out)
 - 0 PM Peak Hour trips (0 In, 0 Out)
 - 540 ADT
- Phase 3 – Eight Buildings
 - 64 AM Peak Hour trips (0 In, 64 Out)
 - 0PM Peak Hour trips (0 In, 0 Out)
 - 480 ADT

Combing all three phases, the proposed 24 building data center campus is anticipated to generate 192 AM Peak Hour Trips (0 In, 192 Out), 0 PM Peak Hour trips, and 1,440 Average Daily trips based on the client's site-specific methodology. The trip generation calculations using the campus employment information are summarized in **Table 1B**.

Technical Memorandum

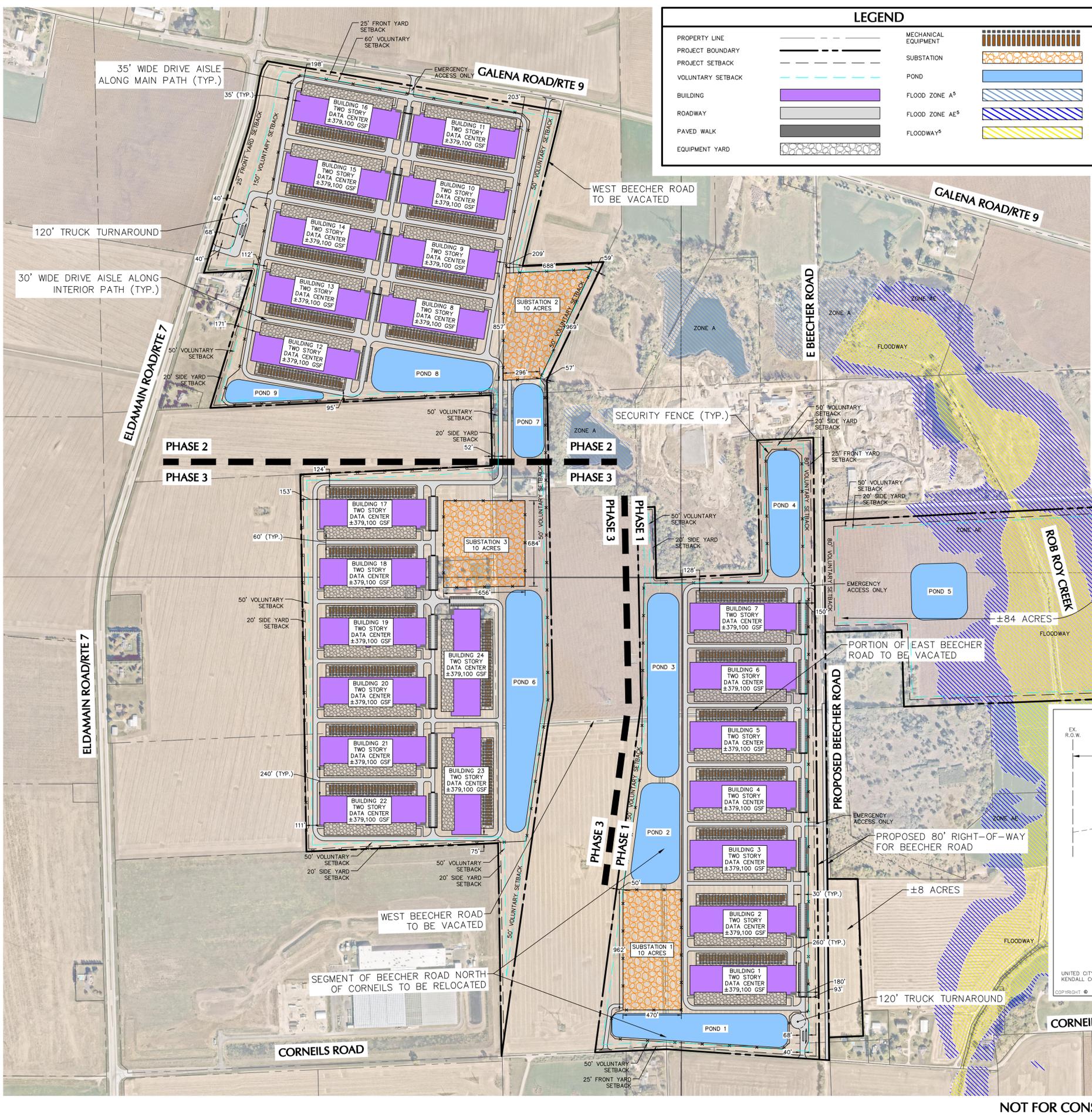
Trip Generation Memorandum
Project Steel
Langan Project No.: 541061101
March 14, 2025 - Page 3 of 3

III. Conclusions

Given the potential shortcomings in the ITE trip generation data, it is recommended that the trip generation projections based on the client's site-specific methodology be used for traffic study evaluations and / or analyses. Using these projections, the proposed Project Steel development is anticipated to generate over 100 trips during the AM peak hour of adjacent street following the completion of the majority of phase two. The city of Yorkville does not appear to post trip generation thresholds for traffic impact studies. Given that the users for this development have not yet been identified, we propose that if a TIS is deemed required, it shall be completed in the Final PUD Process. That will ensure accurate employee data and traffic counts for the proposed users are utilized. This will ensure appropriate traffic mitigations and improvements are implemented for each phase of the project.

FIGURES

- Figure 1** – Preliminary PUD Site Plan
- Figure 2** – Study Intersections



LEGEND

PROPERTY LINE	---	MECHANICAL EQUIPMENT	[Pattern]
PROJECT BOUNDARY	---	SUBSTATION	[Pattern]
PROJECT SETBACK	---	POND	[Pattern]
VOLUNTARY SETBACK	---	FLOOD ZONE A ⁵	[Pattern]
BUILDING	[Pattern]	FLOOD ZONE AE ⁵	[Pattern]
ROADWAY	[Pattern]	FLOODWAY ⁵	[Pattern]
PAVED WALK	[Pattern]		
EQUIPMENT YARD	[Pattern]		

PROPOSED PHASING SCHEDULE

PHASE	BUILDINGS	SITE FEATURES
1	7 TOTAL (BUILDINGS 1-7)	5 PONDS (1-5) SUBSTATION 1 ASSOCIATED PARKING
2	9 TOTAL (BUILDINGS 8-16)	2 PONDS (8-9) SUBSTATION 2 ASSOCIATED PARKING
3	8 TOTAL (BUILDINGS 17-24)	2 PONDS (6-7) SUBSTATION 3 ASSOCIATED PARKING

BULK AND DIMENSIONAL STANDARDS

EXISTING: BRISTOL TOWNSHIP, KENDALL COUNTY, IL ZONE A1, A1-SU, M2
PROPOSED: CITY OF YORKVILLE, KENDALL COUNTY, IL ZONE M2
REFERENCE: CITY OF YORKVILLE ZONING ORDINANCE
TOTAL COMBINED PROJECT AREA = ±540 ACRES (150 + 298 + 84 + 8)

LOT A - PHASE 1

ITEM	REQUIRED	PROPOSED	REFERENCE
LOT SIZE (ACRES)	NONE	±150	10-3-9
MINIMUM LOT FRONTAGE (FEET)	NONE	±6,800 ¹	10-3-9
MAXIMUM BUILDING HEIGHT (FEET)	N/A	±56.5	10-3-9
MAXIMUM BLDG. EQUIPMENT HEIGHT (FT)	N/A	±70	---
MAXIMUM LOT COVERAGE (%)	±85%	±60%	10-3-9
LANDSCAPE ZONE (FEET)	30	50	2009-42
REQUIRED YARD (FEET)			
FRONT	25	±80	10-3-9
SIDE	MIN. 10% OF LOT MAX. 20	±50	10-3-9
REAR	N/A	±50	10-3-9

LOT B - PHASE 2 AND 3

ITEM	REQUIRED	PROPOSED	REFERENCE
LOT SIZE (ACRES)	NONE	±298	10-3-9
MINIMUM LOT FRONTAGE (FEET)	NONE	±4,175	10-3-9
MAXIMUM BUILDING HEIGHT (FEET)	N/A	±56.5	10-3-9
MAXIMUM BLDG. EQUIPMENT HEIGHT (FT)	N/A	±70	---
MAXIMUM LOT COVERAGE (%)	±85%	±70%	10-3-9
LANDSCAPE ZONE (FEET)	30	50	2009-42
REQUIRED YARD (FEET)			
FRONT	25	±150	10-3-9
SIDE	MIN. 10% OF LOT MAX. 20	±50	10-3-9
REAR	N/A	±50	10-3-9

PARKING CHART

LOT A - PHASE 1

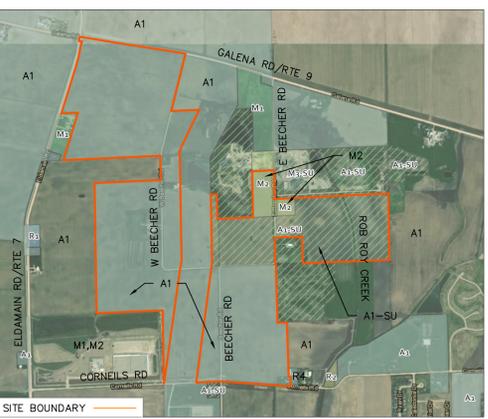
EMPLOYEE PARKING	TBD ²	315 ⁴	10-5-1
ACCESSIBLE PARKING	PER IL ADA	8 ⁴	10-5-1(D)
E/V PARKING	1 PER 50	6 ⁴	10-5-1(K)

LOT B - PHASE 2

EMPLOYEE PARKING	TBD ²	405 ⁴	10-5-1
ACCESSIBLE PARKING	PER IL ADA	9 ⁴	10-5-1(D)
E/V PARKING	1 PER 50	8 ⁴	10-5-1(K)

LOT C - PHASE 3

EMPLOYEE PARKING	TBD ²	360 ⁴	10-5-1
ACCESSIBLE PARKING	PER IL ADA	8 ⁴	10-5-1(D)
E/V PARKING	1 PER 50	7 ⁴	10-5-1(K)

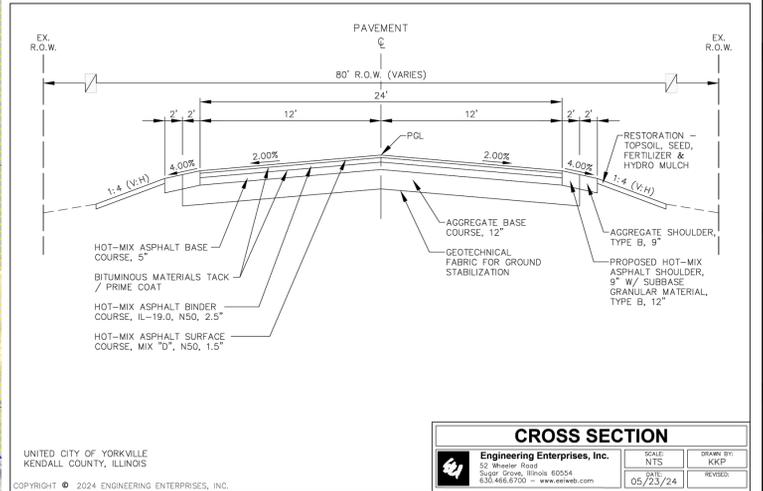


ZONING DISTRICT MAP

LEGEND: (BRISTOL TOWNSHIP - KENDALL COUNTY ZONING)

- A1 - AGRICULTURAL DISTRICT
- A1-SU - AGRICULTURAL DISTRICT SPECIAL USE
- M1 - LIMITED MANUFACTURING DISTRICT
- M2 - HEAVY MANUFACTURING DISTRICT
- M3-SU - AGGREGATE MATERIALS EXTRACTION, PROCESSING AND SITE RECLAMATION DISTRICT SPECIAL USE
- R1 - ONE-FAMILY RESIDENTIAL DISTRICT

- NOTES:
- APPROXIMATELY 5,000 LINEAR FEET OF LOT A FRONTAGE IS ALONG THE PROPOSED RELOCATED BEECHER ROAD.
 - A 30' BUFFERYARD IS REQUIRED WHEN: ADJACENT TO A RESIDENTIAL DISTRICT, PARKING LOT ADJACENT TO A PUBLIC RIGHT-OF-WAY, AND AROUND ANY STORM WATER STORAGE BASIN THAT HAS ITS HIGH WATER LINE WITHIN THE FRONT OR SIDE YARDS OF A LOT.
 - MINIMUM PARKING STALL DIMENSIONS SHALL BE 9 FEET WIDE BY 18 FEET DEEP.
 - ±45 TOTAL PARKING STALLS INCLUDING 2 ADA STALLS AND 1 EV CHARGING STALL PER BUILDING.
 - FLOOD ZONE LIMITS ARE DEFINED BY 2005 INTERIM HYDROLOGIC AND HYDRAULIC ANALYSIS BY ENGINEERING ENTERPRISES, INC.



PROPOSED BEECHER ROAD PAVEMENT CROSS SECTION

Date	Description	No.
Revisions		

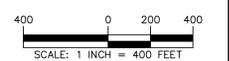
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PROJECT STEEL

KENDALL COUNTY ILLINOIS
Drawing Title

PRELIMINARY PUD PLAN

Project No.	541061101	Drawing No.	PUD-01
Date	3/14/2025	Drawn By	NRR
Checked By	TDO	Sheet	1 of 1



NOT FOR CONSTRUCTION

TABLES

- Table 1A** – ITE Trip Generation
- Table 1B** – Client Site-Specific Trip Generation

Table 1A
 Site Trip Generation (ITE Methodology)
 Project Steel

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday
				IN	OUT	TOTAL	IN	OUT	TOTAL	ADT
<u>PROPOSED</u>										
Phase 1 - Seven Buildings	160	2,653,700	SF	161	131	292	71	166	237	2,627
Phase 2 - Nine Buildings	160	3,411,900	SF	206	169	375	92	215	307	3,378
Phase 3 - Eight Buildings	<u>160</u>	<u>3,032,800</u>	<u>SF</u>	184	150	334	82	191	273	3,002
Total Proposed External Vehicular Site Trips				551	450	1,001	245	572	817	9,007

Notes:

Trip generation calculations based on ITE Trip Generation Manual, 11th Edition average rates.

Weekday ADT is a bi-directional traffic volume (In + Out).

Mode split reduction was not applied to the calculations due to a lack of multi-modal infrastructure in the study area.

AM Peak Hour of Adjacent Street 7:00 AM - 9:00 AM

PM Peak Hour of Adjacent Street 4:00 PM - 6:00 PM

Table 1B
 Site Trip Generation (Client Site-Specific)
 Project Steel

Land Use	ITE Code	Size	Units	AM Peak Hour			PM Peak Hour			Weekday
				IN	OUT	TOTAL	IN	OUT	TOTAL	ADT
<u>PROPOSED</u>										
Phase 1 - 2,653,700 GSF	---	7	Buildings	0	56	56	0	0	0	420
Phase 2 - 3,411,900 GSF	---	9	Buildings	0	72	72	0	0	0	540
Phase 3 - 3,032,800 GSF	---	8	Buildings	0	64	64	0	0	0	480
Total Proposed External Vehicular Site Trips				0	192	192	0	0	0	1,440

Notes:

- Trip generation calculations based on information provided by the client.
- Each data center is assumed to need a staff of 30 employees
- Day shift 50% of total employees: 6:00 AM - 2:00 PM
- Afternoon shift 25% of the total employees: 12:00 PM - 8:00 PM
- Night shift 25% of the total employees: 8:00 PM - 8:00 AM
- Weekday ADT is a bi-directional traffic volume (In + Out).
- Mode split reduction was not applied to the calculations due to a lack of multi-modal infrastructure in the study area.
- AM Peak Hour of Adjacent Street 7:00 AM - 9:00 AM
- PM Peak Hour of Adjacent Street 4:00 PM - 6:00 PM