Methodology Memorandum

Project Understanding

The proposed industrial development is in the City of Yorkville and District 3 of the Illinois Department of Transportation. The site is generally located south of Baseline Road, North of Galena Road, east of Elda main Road, and west of IL 47. The project site is adjacent to both City and State maintained roadways which will require coordination with both interties.

The purposes of the Traffic Impact Analysis (TIA) are to evaluate proposed traffic conditions under build and no-build conditions as it pertains to the proposed development. The TIA will be developed in accordance with the TIA Guidelines contained within the Yorkville, IL Unified Development Ordinance. The proposed scope of services will be performed for normal operating time periods and peak operating time periods.

Scope of Services

The following sections detail the proposed scope of work. The following guidelines will be followed in the preparation of the traffic impact analysis:

- Highway Capacity Manual, 7th Edition
- Institute of Transportation Engineers Trip Generation Manual, 11th Edition
- Yorkville, IL Unified Development Ordinance Traffic Study Guidelines
- IDOT Bureau of Design and Environmental Manual

Project Information

The proposed project site consists of approximately 1,000 acres of Data Center and supporting utility land uses. Two sizes of Data Center buildings are planned for the proposed development, consisting of fourteen (14) total buildings. These include:

- Eleven (11) Data Centers at approximately 1,361,200 SF each
- Three (3) Data Centers at approximately 780,000 SF each

The proposed project site location in relation to Yorkville, IL and Montgomery, IL is shown in Figure 1. A Preliminary Site Plan is shown in Figure 2, depicting general footprint and proposed access locations for the development.

Figure 1: Project Site Location

Definition of the Study Area

The proposed project site is abutted by three IDOT classified roadways and one locally classified roadway, including:

- Hwy 47 – Classified as a Other Principal Arterial by IDOT
- Galena Road – Classified as a Minor Arterial by IDOT
- Ashe Road – Classified as a Minor Arterial by IDOT
- Baseline Road – Classified as a Local Street by IDOT

Figure 3 depicts the surrounding roadways as classified by IDOT.

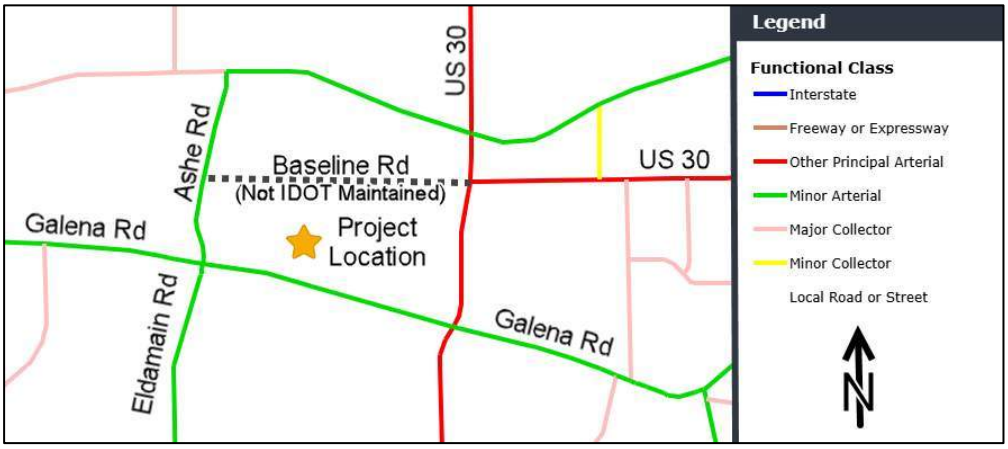

Figure 3: IDOT Roadway Classifications

Additionally, abutting roadways to the project site are maintained by the following agencies, according to the IDOT Roadway Jurisdiction Map:

- Hwy 47 – Maintained by IDOT
- Galena Road – Maintained by Kendall County
- Ashe Road – Maintained by Kendall County
- Baseline Road – Maintained by Yorkville, IL

Traffic Data Collection

Traffic data collection will be performed for the periods from 7:00 AM-9:00 AM and 4:00 PM-6:00 PM at the following locations:

- Study Int #1 – Eldamain Road at Baseline Road
- Study Int #2 – IL 47 at Baseline Road
- Study Int #3 – IL 47 at Galena Road
- Study Int #4 – Eldamain Road at Galena Road

Trip Generation Data

Trips generated by the proposed development were calculated based upon the intended land use and density. Generated trips were calculated per Institute of Transportation Engineers (ITE) trip generation methodologies utilizing the current *ITE Trip Generation Manual, 11th Edition*. For the purposes of this assessment, Land Use Code 160 – Data Center was referenced. Table 1summarizes resulting trip generation projections for the proposed development considering each building's respective size and quantity.

Table 1: ITE Trip Generation Calculations

Development		Units	AM Hour			PM Hour		
Number of Buildings	KSF	Daily*	Total*	In*	Out*	Total*	In**	Out**
11	1,361.2	1,348	171	94	77	144	43	101
3	780	772	96	53	43	80	24	56
Total		**17,144**	**2,169**	**1,193**	**976**	**1,824**	**545**	**1,279**

Note: Trip Generation Calculations Presented per Building

* Average Rate - Referenced Average Rate Equation based on few numbers of studies and less than 0.75 R^2

- Weekday: Trips = 0.99 x (Units)
- Weekday, AM Peak Hour of Adjacent Street: Trips = 0.11 x (Units)
- Weekday, PM Peak Hour of Adjacent Street: Trips = 0.09 x (Units)

** Fitted Curve – Referenced Fitted Curve Equation based on an R^2 greater than 0.75

- Weekday, AM Peak Hour of Adjacent Street: Trips = 0.13 x (Units) – 5.63
- Weekday, PM Peak Hour of Adjacent Street: Trips = 0.11 x (Units) – 5.65

Trip Distribution Assumptions

Trip distribution for the Traffic Study will be approached through review of historical traffic volumes and collected intersection turning movement counts and based on the weighting of traffic demand from currently serviced volumes. Figure 4 depicts the most recent average daily traffic volume data available on IDOT's online data portal.

Figure 4: IDOT Average Annual Daily Traffic Volume [Accessed March 13th, 2025]

Background Growth Rate Determination

Future background traffic volume growth is anticipated to be based on correspondence with the Chicago Metropolitan Agency for Planning (CMAP). Following the Traffic Study Scoping Meeting, a request for CMAP growth rates will be prepared. No other area developments are known at this time. Potential area developments that could impact the study area will be requested during the Traffic Study Scoping Meeting.

Intersection Capacity Analysis

Intersection capacity analysis will be performed to *Highway Capacity Manual* methodologies using TrafficWare Synchro version 12. Analysis output files will be provided within the appendix of the report. A target LOS of D or better will be referenced for the purpose of considering traffic mitigation strategies.

As part of the Traffic Study Scoping meeting, existing traffic signal timing sheets within the study area will be requested. In the event that traffic signal timings are not made available, the project team will reference the collected video-based traffic counts to observe typical existing traffic signal cycle-lengths and optimize software traffic signal timings to the phasing splits.

Traffic Analysis Development

The Traffic Study will be prepared according to the following outline:

I. **Introduction**
II. **Project Conditions**
    a. Land Uses
    b. Roadway System
    c. Traffic volumes
    d. Proposed Development
        i. Land Use Development
        ii. Roadway Development
III. **Traffic Forecasts**
    a. Project Traffic Volumes
        i. Trip Generation
        ii. Trip Distribution and Assignment
    b. Background Traffic Volumes
    c. Future Traffic Volumes
IV. **Traffic Analysis**
    a. Auxiliary Lane Analysis
    b. Traffic Signal Warrant Analysis (if necessary)
    c. Capacity Analysis
        i. Existing Scenario
        ii. Background Scenario
        iii. Future with Project Scenario
        iv. Potential Mitigation Scenario
    d. Queue Length Analysis
    e. Site Circulation
    f. Proposed Lane Configuration
V. **Conclusions**