

BRADY-FARWELL HOTEL TRAFFIC IMPACT STUDY

Klein Development
Milwaukee, Wisconsin



Prepared for:

Klein Development

322 E Michigan Street, Suite 502

Milwaukee, WI 53202

Contact: Mr. Mike Klein

Submitted by:

GRAEF

275 West Wisconsin Avenue, Suite 300

Milwaukee, WI 53203

www.graef-usa.com

Date Submitted: March 31, 2023



Brady-Farwell Hotel
Traffic Impact Analysis Study

City of Milwaukee
Milwaukee County, Wisconsin

Date Submitted: March 31, 2023

Prepared for:

 Klein DEVELOPMENT

Klein Development

322 E Michigan Street, Suite 502

Milwaukee, WI 53202

Contact: Mr. Mike Klein

Prepared by:

 GRÄEF

275 West Wisconsin Avenue, Suite 300

Milwaukee, WI 53203



Alexandria R. Motl
3/31/23

Brady-Farwell Hotel Traffic Impact Study Table of Contents

CHAPTER I – INTRODUCTION AND EXECUTIVE SUMMARY1

 1.1 Introduction.....1

 1.2 Executive Summary.....1

CHAPTER II – EXISTING CONDITIONS.....3

 2.1 Site Location Map & Study Area.....3

 2.2 Transportation System3

 2.3 Traffic Characteristics.....4

CHAPTER III – PROPOSED DEVELOPMENT.....5

 3.1 Development Phasing5

 3.2 Land Use and Intensity.....5

 3.3 Site Access.....5

CHAPTER IV – FUTURE TRAFFIC.....6

 4.1 Background Traffic and Forecasting.....6

 4.2 Trip Generation.....6

 4.3 Trip Distribution and Assignment.....7

 4.4 Build Traffic.....7

CHAPTER V – TRAFFIC ANALYSIS AND DISCUSSIONS.....8

 5.1 Methodology and Level of Service Descriptions.....8

 5.2 Traffic Operational Analysis – Background Conditions.....9

 5.3 Traffic Operational Analysis – Build Conditions.....9

 5.4 Vehicle Circulation & Roadway Considerations.....9

 5.5 Pedestrian Circulation & Considerations10

CHAPTER VI – RECOMMENDATIONS AND CONCLUSION12

 6.1 Recommendations and Conclusion.....12

Tables (Included within report)

Table 1: Intersection Level of Service (LOS) Designations.....8

Exhibits (Included at back of report)

Exhibit 1	Study Intersection Location Map
Exhibit 2	Conceptual Site Plan
Exhibit 3	Conceptual Site Plan
Exhibit 4	Existing Geometrics
Exhibit 5	Year 2023 Background Traffic Volumes
Exhibit 6	Year 2023 Pedestrian Volumes
Exhibit 7	Development Trip Generation
Exhibit 8	Trip Distribution
Exhibit 9	New Trips
Exhibit 10	Year 2023 Build Traffic Volumes
Exhibit 11	Year 2023 Background Traffic Operations
Exhibit 12	Year 2023 Build Traffic Operations
Exhibit 13	New Trips – Sensitivity
Exhibit 14	Year 2023 Build Traffic Volumes – Sensitivity
Exhibit 15	Year 2023 Build Traffic Operations - Sensitivity
Exhibit 16	New Trips – N Prospect Avenue Sensitivity

Appendices (Included at back of report)

Appendix A	Turning Movement Counts
Appendix B	ITE Trip Generation Tables
Appendix C	Year 2023 Background Traffic Analysis with Existing Geometrics – Synchro Report
Appendix D	Year 2023 Build Traffic Analysis with Existing Geometrics – Synchro Report
Appendix E	Year 2023 Build Sensitivity Traffic Analysis with Existing Geometrics – Synchro Report

CHAPTER I – INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Introduction

Klein Development is proposing to develop an 11-story hotel with food and beverage outlets on floors 1, 2, and 11, located in the Lower East Side neighborhood in the City of Milwaukee, Wisconsin. The development site is currently comprised of a mostly vacated two-story commercial building and is located at the north-northeast corner of the five-leg signalized E Brady Street/N Farwell Avenue/ N Cambridge Avenue intersection. Construction for the Brady-Farwell Hotel is expected to begin in 2023, likely opening in 2024. GRAEF has prepared this traffic impact analysis study (TIA) to identify the traffic generated by the development, analyze the traffic impacts of the proposed development, review vehicle and pedestrian circulation, and identify any study area intersection improvements that may be required to accommodate both vehicles and pedestrians as a result of the additional traffic expected to be generated by the Brady-Farwell Hotel development. This report documents the procedures, findings, and recommendations of the traffic impact analysis.

1.2 Executive Summary

This executive summary includes a description of the study area, description of the proposed development, and recommendations and conclusions based on the findings of the TIA.

1.2.1 Study Area

The study area was defined to include the following roadways:

- E Brady Street
- N Farwell Avenue
- N Cambridge Avenue

The study area was defined to include the following existing intersections:

- E Brady Street and N Farwell Avenue and N Cambridge Avenue – Signalized Intersection

The study area is shown on Exhibit 1.

1.2.2 Proposed Development

Exhibits 2 and 3 show a conceptual site plan for the proposed Brady-Farwell Hotel development. The proposed site is a 0.42-acre triangle-shaped parcel currently consisting of a mostly vacated commercial building located at the north-northeast corner of the E Brady Street and N Farwell Avenue and N Cambridge Avenue intersection in the City of Milwaukee, Wisconsin. The proposed Brady-Farwell Hotel 11-story development includes 130 hotel rooms and food and beverage outlets on floors 1, 2, and 11, including a 3,500 square-foot street level restaurant and bar and a 7,000 square-foot rooftop restaurant and bar. These land uses and sizes were used to complete trip generation and distribution based on the *ITE Trip Generation Manual – 11th Edition*. The trips were added to the background volumes to determine build volumes. Vehicular access to the site will be provided by a one-way driveway with an entrance on N Farwell Avenue and an exit on N Cambridge Avenue. The one-way driveway will function as a valet staging area and a small parking lot. A loading area will also be accessed by an additional two-way driveway on N Cambridge Avenue.

An off-site shared parking structure located at the southeast corner of N Farwell Avenue and E Royall Place at 1744 N Farwell Avenue will provide the majority of hotel parking. It is expected that the primary parking structure access point for pedestrians will be located in the northwest corner of the structure and the N Farwell Avenue intersection with E Royall Place will be the primary crossing for pedestrians walking between the hotel and the parking structure. As mentioned, this will be a shared parking structure, with staff from St John's on the Lake, a retirement community located on N Prospect Avenue north of E Royall Place, parking in the garage as well. This staff currently parks in the surface lot located at the property, so this is not expected to create additional traffic.

1.2.3 Recommended Improvements

The study area intersection was analyzed based on procedures outlined in the Wisconsin Department of Transportation (WisDOT) Traffic Impact Analysis Guidelines manual and the *Highway Capacity Manual (HCM) 2000 Edition* using *Synchro 11*. For the purpose of this study, Level of Service (LOS) D was used to define acceptable peak hour operation conditions.

With the build volumes, all movements at the study area intersection are expected to operate acceptably at LOS D or better conditions. Therefore, no roadway improvements are recommended to accommodate additional vehicles for the Brady-Farwell Hotel development. Future changes to the adjacent roadways, such as restricting or changing vehicle access on E Brady Street, are not expected to impact or be impacted by the new traffic generated by the hotel. To accommodate the additional pedestrian traffic crossing N Farwell Avenue between the proposed hotel and parking structure, adding a Rectangular Rapid Flashing Beacon (RRFB) to the crosswalk on the north leg of the intersection is recommended. Activation push buttons should be located on all four quadrants of the intersection. The appropriate yield pavement markings should also be installed at the intersection. It is also recommended that the existing crosswalk on the north leg of the E Royall Place and N Prospect Avenue intersection be retrofitted with an RRFB.

1.2.4 Conclusion

A Rectangular Rapid Flashing Beacon and associated yield pavements markings should be added to the north leg of the N Farwell Avenue and E Royall Place intersection to accommodate pedestrian traffic for the Brady-Farwell Hotel development. The crosswalk on the north leg of the N Prospect Avenue and E Royall Place intersection should be retrofitted with a Rectangular Rapid Flashing Beacon to accommodate pedestrian traffic between the parking structure and St John's on the Lake and the additional hotel-related vehicle traffic leaving the proposed parking structure. No improvements are needed to accommodate vehicle traffic. The study area intersections are expected to operate acceptably with the addition of the proposed development on the existing transportation facilities.

CHAPTER II – EXISTING CONDITIONS

2.1 Site Location Map & Study Area

The proposed Brady-Farwell Hotel development is located at the north-northeast corner of the five-leg intersection of E Brady Street and N Farwell Avenue and N Cambridge Avenue at 1709-1723 N Farwell Avenue as shown on Exhibit 1. Conceptual site plans of the development are shown in Exhibits 2 and 3.

The site is located in the Lower East Side neighborhood, which is a high-density commercial and residential urban area. The vibrant district serves many purposes and users, offering shopping and retail spaces, restaurants, nightlife, entertainment and tourist attractions, recreation and parks, business offices, and residential spaces.

2.2 Transportation System

The existing intersection geometrics, including traffic control and lane configuration, for the study area intersection is shown in Exhibit 4. The study area for the proposed Brady-Farwell Hotel development traffic study includes the following intersection:

- E Brady Street and N Farwell Avenue and N Cambridge Avenue

The study area roadways are described below:

E Brady Street is an east-west two-lane undivided principal arterial. The posted speed limit is 25 mph. According to WisDOT, the Year 2018 Annual Average Daily Traffic (AADT) along E Brady Street was 10,200 vehicles per day (vpd) east of the intersection with N Humboldt Avenue, and Year 2019 AADT was 3,700 vpd east of the intersection with N Farwell Avenue and N Cambridge Avenue. Paid meter street parking is permitted along E Brady Street. Milwaukee County Transit System (MCTS) has a bus route that runs along E Brady Street west of the project intersection that turns north to run along N Cambridge Avenue and N Oakland Avenue at the project intersection. The Green Line connects the Bayshore Mall area to Milwaukee Mitchell International Airport and has a northbound and southbound stop along N Cambridge Avenue – the north leg of the project intersection. The northbound stop is adjacent to the west face of the proposed development. E Brady Street is signed as a “Bike Route” and bicycles travel integrated with vehicle traffic. E Brady Street was inhabited by Polish and Italian immigrants in the late 1800s and early 1900s, and several buildings and businesses preserve and recall the early history of the street. Today the street is tightly packed with an assortment of local businesses, bars and restaurants, and cafes and is a prominent tourist destination and local hot spot. The street is occasionally closed to vehicles during festivals such as the Brady Street Festival, Pet Parade, Halloween, Festivus, Spring Art Walk and others.

N Farwell Avenue is a northeast-southwest two-lane one-way southwest-bound principal arterial. N Farwell Avenue runs parallel to N Prospect Avenue, also a two-lane one-way northeast-bound principal arterial to the east. N Farwell Avenue and N Prospect Avenue function as one-way pairs and are both designated as Wisconsin State Highway 32. The posted speed limit is 25 mph. According to WisDOT, the Year 2019 AADT along N Farwell Avenue was 7,100 vpd north of the intersection with E Royall Place, and Year 2018 AADT was 10,100 vpd south of the intersection with E Brady Street and N Cambridge Avenue. MCTS has two bus routes that run along N Farwell Avenue and N Prospect Avenue. Route 30 runs between University of Wisconsin – Milwaukee to the north then south along E/W Wisconsin Avenue then north along N Sherman Boulevard terminating at Havenwoods State Forrest. Gold Line runs between University of Wisconsin – Milwaukee to the north then south along E/W Wisconsin Avenue and W Bluemound Road terminating at N Executive Drive near Brookfield Square Mall. The eastbound directions of both 30 and Gold Line routes have stops at N Prospect Avenue and E Brady Street, and N Prospect Avenue and E Royall Place near the proposed development. The westbound directions of both routes have stops at N Farwell and E Royall Place, and at the study area intersection along the north leg of N Farwell Avenue – adjacent to the southeast face of the proposed development. Street parking is permitted along both sides of

N Farwell Avenue. Striped bike lanes provide a marked lane for bicycles along N Farwell Avenue and N Prospect Avenue.

N Cambridge Avenue is a north-south two-lane undivided minor arterial. North of the intersection with E Royall Place, N Cambridge becomes a one-way southbound local road and N Oakland Avenue becomes the minor arterial. The posted speed limit is 25 mph. According to WisDOT, the Year 2016 AADT along N Cambridge Avenue was 5,300 vpd north of the intersection with E Brady Street and N Farwell Avenue. Street parking is permitted along N Cambridge Avenue. N Cambridge Avenue to N Oakland Avenue is designated a "Bike Route" and bicycles travel integrated with vehicle traffic.

The study area intersection is described below:

E Brady Street and N Farwell Avenue and N Cambridge Avenue is a five-leg signalized intersection. The lane configuration includes a shared left/through lane and unmarked right turn lane on the west and southeast E Brady Street approaches, a shared left/through lane and right turn lane on the north N Cambridge Avenue approach, and a shared left/through lane, through lane, and right turn lane on the northeast N Farwell Avenue approach. Pedestrian access to Veteran's Park and Lake Michigan is provided near the intersection through a trail connection from the eastern terminal of E Brady Street at N Prospect Avenue connecting to the north-south Oak Leaf Trail and a pedestrian bridge over N Lincoln Memorial Drive to Veterans Park. As stated above, MCTS Route 30, Gold Line, and Green Line have bus stops along the north legs of the intersection.

The existing project area geometrics and facilities are shown on Exhibit 4.

2.2.1 Travel Mode Choice

MCTS Route 30, Gold Line, and Green Line operate within the study area and provide a public transportation mode choice option with multiple route stops adjacent to the proposed development. Bublr Bikes, a nonprofit bikeshare system, operates bikeshare stations throughout the city and neighboring suburbs. An existing Bublr Bike station at N Prospect Avenue and E Brady Street is one block east of the proposed development. The existing high-density and mixed-use development that comprises the Lower East Side neighborhood, as well as the several attractive pedestrian and/or bicycle facilities such as the Oak Leaf Trail, Beerline Trail, and Milwaukee Riverwalk encourage visitors to use multiple forms of active and public transportation, which increases the distribution of mode split among roadway users.

2.3 Traffic Characteristics

On February 15, 2023, GRAEF conducted intersection turning movement traffic counts during the weekday evening (3:30pm to 6:30pm) peak period at the study area intersection.

Based on the traffic counts, the weekday evening peak traffic hour was 5:00pm to 6:00pm. The traffic counts for the study area intersection are included in Appendix A.

Year 2023 Background Vehicle Volumes are shown on Exhibit 5. The Pedestrian Volumes are shown on Exhibit 6.

CHAPTER III – PROPOSED DEVELOPMENT

3.1 Development Phasing

The Brady-Farwell Hotel development is expected to begin construction in 2023, likely opening in 2024. Conceptual site plans of the proposed development are shown in Exhibits 2 and 3.

3.2 Land Use and Intensity

The proposed site is a 0.42-acre triangle-shaped parcel in the Lower East Side neighborhood located at the north-northeast corner of the five-leg intersection of E Brady Street and N Farwell Avenue and N Cambridge Avenue at 1709-1723 N Farwell Avenue. The Brady-Farwell Hotel development is an 11-story, 130 room hotel with food and beverage outlets on floors 1, 2, and 11 and is proposed to consist of the following land uses:

- Hotel (Dense Multi-Use Urban/Center City Core) – 130 Rooms
- Ground Floor Restaurant and Bar – High-Turnover Restaurant – 3,500 Square Feet
- Rooftop Restaurant and Bar – Fine Dining Restaurant – 7,000 Square Feet

The current land use of the parcel is a mostly vacant two-story commercial building that was most recently a Copy, Print and Express Ship store prior to being vacated. A Mega Media Xchange video and gaming store is located on the upper level of the building. Adjacent land uses include a dense-urban mix of residential single-family, multifamily low-rise, mid-rise and high-rise housing, commercial, industrial, and educational uses in the Lower East Side neighborhood. Brady Street functions as a commercial hub of the Lower East Side, and the proposed development would be located near the eastern terminal of the street. The Brady Street Business Improvement District BID describes Brady Street as “...9 blocks that run east to west from Lake Michigan to the Milwaukee River, we are home to some of the city’s finest restaurants, shops, taverns, salons, cafes, and so much more!”. Downtown Milwaukee is located approximately one mile southwest of the proposed development and is a mix of dense commercial and residential uses and operates as the region’s Central Business District. The development site was zoned as LB2 – Local Business 2 (mid-urban) and an affidavit for zoning change has been submitted to accommodate the hotel development.

3.3 Site Access

The proposed Brady-Farwell Hotel development vehicular access will be provided via the existing curb cuts along N Farwell Avenue and N Cambridge Avenue. The driveway along N Farwell Avenue will facilitate the one-way entrance into the site and will feed into and function as a drop-off/valet loading area. Along N Cambridge Avenue, the one-way exit from the site will facilitate drop-off/valet traffic from the development, while an additional driveway to the north will provide access to a small number of on-site parking and rideshare queueing. The vast majority of valet and hotel guest parking will be provided at a proposed shared parking garage that will be located at the southeast corner of N Farwell Avenue and E Royall Place at 1744 N Farwell Avenue. A crosswalk on the south approach of the N Farwell Avenue and E Royall Place intersection will facilitate pedestrian traffic between the hotel and parking structure. Hotel foot traffic will access the development via the main hotel entrance located on the north building front adjacent to the valet area. Street Level Restaurant and Bar foot traffic will access the development via the entrance at the south building front corner near the signalized intersection. Additional entrances along the north and southwest building fronts will provide access to the stairways, electrical utility area, and loading dock.

As mentioned, the proposed parking garage will be shared. St. John’s on the Lake retirement community and facility uses the current lot for staff parking. Staff will be able to use the proposed garage once it is open. While the hotel may generate additional traffic, the St John’s on the Lake parking is not expected to generate any new vehicle or pedestrian trips, as they currently park at this location.

CHAPTER IV – FUTURE TRAFFIC

4.1 Background Traffic and Forecasting

This study evaluates the traffic impacts of the proposed development in the build year. Therefore, the Build Year 2023 is the only analysis year included in this study and the 2023 background peak hour volumes developed using the methodology described in Chapter II and shown in Exhibit 5 were used in the analysis.

4.2 Trip Generation

The traffic expected to be generated by the proposed development must be identified to determine and address any potential traffic impacts within the study area. The expected traffic volumes generated by the proposed Brady-Farwell Hotel development is based on trip data published in the Institute of Transportation Engineer's (ITE's) *Trip Generation Manual, 11th Edition*.

The trip generation for the development is shown in Exhibit 7. The ITE Land Use Codes that were used for the trip generation include: 310: Hotel – Dense Multi-Use Urban/City Center Core, 932: High-Turnover Restaurant, and 931: Fine Dining Restaurant. The proposed land uses are expected to generate 1,655 trips on a typical weekday. During the weekday evening peak hour, the development is expected to generate 130 total vehicle trips (70 entering vehicles/60 exiting vehicles).

Currently, a primarily vacated commercial building and attached paid parking lot is located on the site. Vehicles entering and exiting the site were not counted during the data collection, and these trips were not removed from trip generation volumes. It is likely that these vehicles will remain in the area looking for other parking options and they could potentially use the new off-site parking structure included with the development.

Additionally, no transit reductions were applied to the trips, despite the significant amount of public transit and active transportation options available in the area, as discussed in Section 2.2.1. The Trip Generation Tables from the manual for each land use are included in Appendix B.

4.2.1 Trip Generation Considerations

The most recent *ITE Trip Generation Manual, 11th Edition* includes multiple new land use classifications for residential or lodging developments and options for location types and transit availability for some of the existing land use classifications. For the existing Land Use Code 310: Hotel, new categories for location and proximity to transit including Dense Multi-Use Urban and Center City Core are available. The description in the ITE Manual indicates that “these facilities are typically found in dense multi-use urban and center city core settings,” such as the Lower East Side neighborhood. The trip generation rates for the new options for existing land use 310 reflect the variations in travel patterns that characterize residents with different socioeconomic and demographic backgrounds in highly urban areas, compared to the other land uses that do not account for variations in urban, suburban, and rural areas. These new land use classification categories were used for the trip generation of the Hotel Land Use, specifying the setting/location to be “Dense Multi-Use Urban/Center City Core” It should be noted that using this methodology results in fewer expected trips for the development than using the suburban location option would.

In addition to the ITE research, National Cooperative Highway Research Program (NCHRP) Report 758, a Transportation Research Board (TRB) program, researched Trip Generation Rates for Transportation Impact Analyses of Infill Developments. The definition given for Infill Development in the report is “Infill development or redevelopment is located in fully built areas, often in and around business districts; is walkable; is served by convenient/frequent transit; is commonly served by designated bicycle facilities; and generates significant non-automobile mode shares.” The study provides methodologies for adjusting the widely accepted ITE Trip Generation Manual rates using adjustment factors based on census data or on similar sites. Using this methodology to determine trip generation for the proposed Brady-Farwell Hotel development would result in a similar number of compared to the “Dense Multi-Use Urban/Center City Core” land use in the ITE manual.

Trip generation for a single mixed-use development that includes lodging and commercial uses is typically completed by looking at the trip generation for each individual land use as though they are separate buildings and then potentially applying a linked trip reduction to account for internal trips. However, the Hotel 310 land use code recognizes that hotels usually provide a food and beverage component and include those trips in the expected trip generation, eliminating the need to evaluate the food and beverage facilities separately. Because of this, most TIAs for hotels would not separate the food and beverage land uses for trip generation purposes.

It is assumed that the proposed restaurant and bar areas will attract visitors from the Brady Street area outside of the hotel guests. Therefore, despite the inclusion of food and beverage services in the ITE hotel 310 land use, the proposed restaurant and bar facilities were separated from the hotel and the trip generation was determined independently of the hotel trip generation. Additionally, a linked trip reduction rate was not applied to the food and beverage services.

Although the “Dense Multi-Use Urban/Center City Core” rates were used rather than the suburban rates, it is expected that the trip generation shown for the development is a conservative estimate of trips. By separating out the food and beverage services from the hotel land use to estimate trip generation and not applying a linked trip reduction rate or an alternate mode choice reduction rate, the trip generation used in this study is expected to reflect the highest volume scenario.

4.3 Trip Distribution and Assignment

The trip distribution for the proposed development was estimated based on the existing roadway network and traffic volumes on adjacent roadways. The trip distribution used is summarized below.

- 25% to/from the west on E Brady Street
- 35% to/from the southwest on N Farwell Avenue/N Prospect Avenue
- 10% to/from the north on N Cambridge Avenue/N Oakland Avenue
- 30% to/from the northeast on N Farwell Avenue/N Prospect Avenue

The directional trip distributions are shown on Exhibit 8. The new trips expected to be generated by the proposed development were assigned to the study area intersections based on the directional distributions and are shown on Exhibit 9.

4.4 Build Traffic

The New Trips shown in Exhibit 9 were added to the Year 2023 Background Traffic Volumes shown in Exhibit 5 to develop build traffic volumes. The Year 2023 Build Traffic Volumes (With Development) are shown in Exhibit 10.

As discussed above, the volumes used for this study are conservative based on various new research and separating land uses. They reflect the higher end of potential development-related traffic.

CHAPTER V – TRAFFIC ANALYSIS AND DISCUSSIONS

5.1 Methodology and Level of Service Descriptions

Level of Service Definition

The study area intersections were analyzed using Synchro Version 11 software following procedures in the *Highway Capacity Manual (HCM), 2000 Edition*. Due to the atypical intersection configuration, use of *HCM 2000* was required to analyze intersection operations.

Intersection operation is defined by “level of service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, LOS ‘D’ or better was used to define acceptable peak hour operating conditions. Descriptions of the various levels of service are summarized below:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized intersections, average delays are less than 10 seconds. At unsignalized intersections, average delays are less than 10 seconds.

LOS B represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.

LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.

LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.

LOS E represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for stop-controlled intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

Table 1: Intersection Level of Service (LOS) Designations

Level of Service (LOS)	Traffic Signals Average Delay per Vehicle (sec/veh)	Stop-Controlled Average Delay per Vehicle (sec/veh)
A	<10.0	<10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	>80.0	>50.0

5.2 Traffic Operational Analysis – Background Conditions

Year 2023 Background Traffic Analysis

Year 2023 Background traffic peak hour operations with the existing transportation system is shown on Exhibit 11. With the background volumes, all movements at the study area intersection operate acceptably at LOS D or better conditions.

No improvements are recommended to accommodate background traffic volumes. Detailed Synchro 11 analysis reports for the Background Traffic Operational Analysis is included in Appendix C.

5.3 Traffic Operational Analysis – Build Conditions

Year 2023 Build Traffic Analysis

Year 2023 Build traffic peak hour operations with the existing transportation system is shown on Exhibit 12. With the build volumes, all movements at the study area intersection are expected to operate acceptably at LOS D or better conditions.

No improvements are recommended to accommodate build traffic volumes. Detailed Synchro 11 analysis reports for the Build Traffic Operational analysis is included in Appendix D.

5.4 Vehicle Circulation & Roadway Considerations

5.4.1 Hotel Traffic Circulations & Operations

As previously mentioned, access to the hotel will be provided via a one-way driveway entering at the existing curb cut on N Farwell Avenue and exiting at the existing curb cut on N Cambridge Avenue, as well as via a two-way entrance on N Cambridge Avenue at the existing curb near the north end of the property. Valet services will be provided at the hotel, allowing guests to arrive and depart the hotel without walking to or from the parking structure located at the southeast corner of the N Farwell Avenue and N Royall Place intersection. Because of this, the vehicle trip distribution described in Section 4.3 and shown in Exhibits 8 and 9 shows all vehicle trips leaving the hotel on N Cambridge Avenue. Because of the one-way street designations on N Prospect Avenue and N Farwell Avenue, the locations of the access points of the hotel and the parking structure, and the valet services, no additional traffic is being added to the N Farwell Avenue southwestbound approach of the study area intersection. However, it is possible that some of the hotel guests may walk to the parking structure and leave the structure without re-entering the hotel driveway, instead continuing southwest to the intersection with E Brady Street.

To analyze the impacts that could occur if vehicles exited the parking structure and continued southwest on N Farwell Avenue, a scenario was considered that looked at the 60 exiting vehicles departing from the parking structure, rather than from the hotel. This distribution of new trips and build volumes are shown in Exhibits 13 and 14. Based on the redistribution, all movements at the study area intersection are expected to operate acceptably at LOS D or better, as shown in Exhibit 15. Detailed Synchro 11 analysis reports for the Build Traffic Sensitivity analysis is included in Appendix E.

It should be noted that the scenario shown in Exhibits 13 and 14 assumes traffic heading northeastbound on N Prospect Avenue would exit the parking structure turning west on E Royall Place, south on N Farwell Avenue, east on E Brady Street and north on N Prospect Avenue, going around the block. This is shown as the northbound through volume at the intersection of N Prospect Avenue and E Royall Place. Depending on parking structure entry and exit access, vehicles heading towards N Prospect Avenue may be able to exit the parking structure and turn right onto E Royall Place, avoiding the study area intersection entirely, so the results for this scenario are a conservative worst-case scenario. If some vehicles exiting the parking facility do turn right, the through vehicle volume shown in Exhibit 13 would be reduced and reassigned to the eastbound left turn movement on E Royall Place, as shown in Exhibit 16. This is not expected to cause any vehicle operations issues, but could have pedestrian impacts, which are discussed in Section 5.5. The existing St. John's on the Lake traffic between the surface lot and the facility is not expected to change as a result of the new hotel or proposed parking structure.

5.4.2 Brady Street Considerations

The E Brady Street corridor and neighborhood is a vibrant area with many users and mode choices. A separate study evaluating options for pedestrianizing a segment of the E Brady Street corridor is currently underway. While the specific pedestrian enhancements and the limits of the changes have not yet been determined, it is possible that a segment of E Brady Street may restrict vehicle access. A traffic operations analysis for the hotel with restricted E Brady Street access was not completed because the exact restrictions and limits are unknown, making assumptions about multiple variables and future conditions falls outside the scope of the hotel study, and an analysis based on that many assumptions would be unlikely to provide results with a meaningful degree of certainty and reliability. However, based on GRAEF staff familiarity with the project area and understanding of the adjacent roadway plans, eliminating or reducing E Brady Street vehicle traffic west of the study area intersection could have some of the following impacts on traffic operations:

- **Eastbound Left-Turn Phasing:** With no or reduced eastbound left turn traffic from E Brady Street, the protected eastbound left-turn phase could potentially be eliminated from the signal timings, which would provide more green time for other movements.
- **Through Volumes:** With no or reduced through traffic in both the eastbound and westbound E Brady Street directions, westbound left turn volumes from E Brady Street to North Farwell Avenue may have more gaps in oncoming traffic, improving operations for that movement. If E Brady Street is completely closed to through traffic, the entire eastbound signal phase could be eliminated.
- **Diversion:** With E Brady Street no longer being a primary route for through traffic, vehicles may redistribute to other roadways, reducing overall traffic volumes and congestion at the intersection.
- **Mode Choice:** With less vehicle access, users may choose alternative modes of transportation, such as transit use, biking and walking, which could reduce overall vehicle volumes.

The expected hotel traffic is not expected to negatively impact the potential pedestrianization modifications on E Brady Street. Additionally, a change in vehicle access on E Brady Street is not expected to negatively impact hotel access, as the primary access points and circulation patterns include N Farwell Avenue, N Cambridge Avenue, and E Royall Place, and there are a variety of other routes that can be used to travel to and from the hotel.

5.5 Pedestrian Circulation & Considerations

Because the E Brady Street corridor and neighborhood is a dense urban area with a variety of modes and users, the pedestrian access and circulation for the hotel were also reviewed. As described in Section 3.3, foot traffic for the public restaurant and bars can access the building on the south side of the facility, near the study area intersection. The adjacent bus routes have stops at the study area intersection, so transit users will have direct access to the hotel and related uses. With the valet service and loading area accessed on N Cambridge Avenue, guests travelling via vehicle will have the option to arrive and depart directly from the hotel grounds. However, most vehicles requiring a parking space will be required to use the structure located on the east side of the street. If guests choose to park their own vehicles, they will need to walk from the structure to the hotel, crossing N Farwell Avenue. To accommodate this increase of pedestrian traffic, improvements to the crosswalk at the N Farwell Avenue and E Royall Place intersection are recommended.

- **Rectangular Rapid Flashing Beacon:** Rectangular Rapid Flashing Beacons (RRFBs) are pedestrian crosswalk sign assemblies with flashing lights that operate in a wig-wag alternating pattern. They are activated with a pedestrian push button and alert drivers to stop for pedestrians waiting to enter the crosswalk. One should be added to the crosswalk on the north leg of the intersection to improve pedestrian safety crossing the street at an unsignalized intersection. Activation push buttons should be located on all four quadrants of the intersection.
- **Continental Crosswalk:** The existing crosswalk pavement markings are the ladder-style pavement markings. Continental-style markings have been shown to provide better visibility to drivers, alerting them of the presence of pedestrians.

- **Yield Pavement Markings:** Triangular yield pavement markings should be added to the travel lanes upstream of the crosswalk and RRFB assembly as added traffic control measures.
- **Streetscaping:** To prevent midblock crossings and provide clear direction to the safest pedestrian crossing location, terrace landscaping along the east side of N Farwell Avenue, between the sidewalk along the west side of the parking structure and the roadway, could be considered. Features such as fences or raised flower beds can prevent mid-block crossing and redirect pedestrians to the appropriate crossing locations. These features could be considered once the parking structure plans are fully developed.

While additional or new pedestrian traffic between the parking structure and St. John's on the Lake is expected to be minimal, the additional vehicle traffic for the hotel leaving the parking structure making either an eastbound left turn or a northbound through movement at the E Royall Place and N Prospect Avenue intersection could create additional safety issues, particularly for pedestrians (two examples of potential vehicle distributions are shown in Exhibits 13 and 16). A high visibility crosswalk is located on the north leg of the intersection, and does provide the recommended continental pavement markings and signing on both sides of the street, as well as curb bump-outs. However, retrofitting the crossing sign assembly with Rectangular Rapid Flashing Beacons is recommended, matching the facility at the E Royall Place intersection with N Farwell Avenue. This will increase awareness of pedestrians for all vehicles at the intersection.

CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

6.1 Recommendations and Conclusion

The study area intersections were analyzed following procedures in the *Highway Capacity Manual (HCM), 2000 Edition*. Intersection operation is defined by “level of service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For this study, LOS ‘D’ was used to define acceptable peak hour operating conditions.

With the build volumes, all movements at the study area intersection are expected to operate acceptably at LOS D or better conditions. Therefore, no roadway improvements are recommended to accommodate additional vehicles for the Brady-Farwell Hotel development. Future changes to the adjacent roadways, such as restricting or changing vehicle access on E Brady Street, are not expected to impact or be impacted by the new traffic generated by the hotel. To accommodate the additional pedestrian traffic crossing N Farwell Avenue between the proposed hotel and parking structure, adding a Rectangular Rapid Flashing Beacon (RRFB) to the crosswalk on the north leg of the intersection with E Royall Place is recommended. Activation push buttons should be located on all four quadrants of the intersection. The appropriate yield pavement markings should also be installed at the intersection. It is also recommended that the existing crosswalk on the north leg of the E Royall Place and N Prospect Avenue intersection be retrofitted with an RRFB.



NORTH
NOT TO SCALE



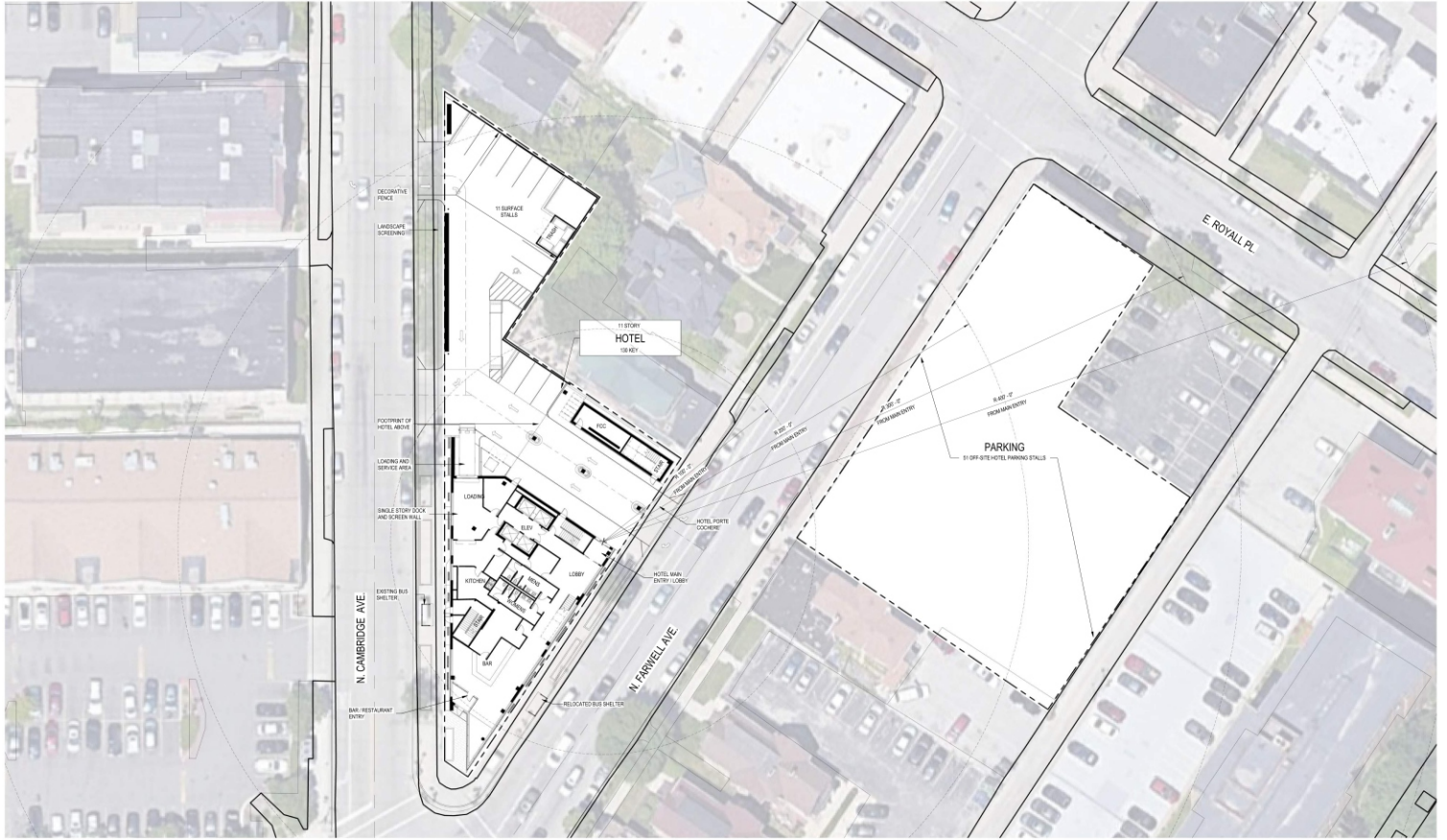
LEGEND

- STUDY INTERSECTION
- PROPOSED INTERSECTION/SITE ACCESS
- PROPOSED BRADY-FARWELL HOTEL LOCATION
- PROPOSED SHARED PARKING GARAGE LOCATION





**NORTH
NOT TO SCALE**



**A01
SITE PLAN**

DPD SUBMITTAL | KAHLER SLATER | COPYRIGHT 2022 | ALL RIGHTS RESERVED 03/03/2023



**EXHIBIT 2
CONCEPTUAL SITE PLAN
BRADY-FARWELL HOTEL TRAFFIC STUDY
MILWAUKEE, WISCONSIN**



NORTH
NOT TO SCALE

SITE INFORMATION		
HOTEL SITE AREA	18186.97	0.418 AC
APARTMENT SITE AREA	#####	
HOTEL SITE DISTURBED AREA	18186.97	0.418 AC
APARTMENT SITE DISTURBED AREA	#####	
HOTEL EXISTING IMPERVIOUS AREA	16408.30	0.377 AC (91.2 %)
APARTMENT EXISTING IMPERVIOUS AREA	#####	#####
HOTEL PROPOSED IMPERVIOUS AREA	18186.97	0.418 AC (100.0 %)
APARTMENT PROPOSED IMPERVIOUS AREA	#####	#####
HOTEL TOTAL PARKING SPACES	12	
APARTMENT TOTAL PARKING SPACES		
HOTEL ADA PARKING SPACES	---	
APARTMENT ADA PARKING SPACES		



SIGMA GROUP
1300 West Canal Street
Milwaukee, WI 53233
Phone: 414-643-4200
Fax: 414-643-4210



GRAPHIC SCALE

HOTEL DEVELOPMENT AT BRADY AND FARWELL

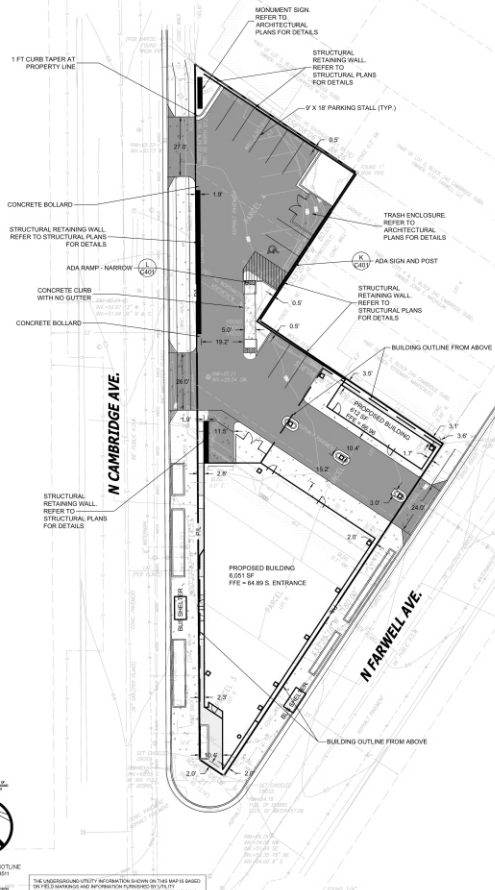
MILWAUKEE, WI

SITE PLAN

PRELIMINARY
NOT FOR
CONSTRUCTION

CITY DPD SUBMITTAL: 1-10-2023

SCALE	1"=50'
DESIGN NO.	21385
DESIGN DATE	01-09-2023
PLDT DATE	10/20/23
DRAWN BY	JRS
CHECKED BY	TRM
APPROVED BY	---
SHEET NO.	C100



LEGEND	
	6\"/>
	CONCRETE PAVEMENT
	ASPHALT SURFACE
	CURB & GUTTER (ACCEPT)
	CURB & GUTTER (REJECT)

- GENERAL NOTES:**
1. THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS DRAWING IS BASED ON FIELD LOCATIONS AND/OR RECORDS FURNISHED BY MUNICIPALITIES AND UTILITY COMPANIES. THE LOCATION AND ACCURACY OF RECORDS CANNOT BE GUARANTEED. THERE MAY BE ADDITIONAL UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
 2. VERIFY ACTUAL LOCATIONS AND INVERTS IN THE FIELD. ANY POTENTIAL ERRORS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
 3. WORK TO BE COMPLETED IS INDICATED IN BOLD TYPE LINES AND EXISTING CONDITIONS ARE INDICATED BY LIGHT TYPE LINES.
 4. ELECTRONIC CIVIL FILES ARE AVAILABLE UPON WRITTEN REQUEST. DO NOT USE ELECTRONIC CIVIL FILES TO LAYOUT FOUNDATIONS, COLUMN LINES, LIGHT POLES, OR OTHER NON-CIVIL SITE WORK. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND ARCHITECTURAL FEATURES.
 5. DIMENSIONS ARE FROM FACE OF CURB OR EDGE OF PAVEMENT.
 6. WORK WITHIN THE PUBLIC RIGHT OF WAY, INCLUDING BUT NOT LIMITED TO DRIVEWAY OPENINGS, SIDEWALK AND RAMP, PAVING, AND CURB AND GUTTER SHALL BE COMPLETED PER MUNICIPAL AND/OR COUNTY REQUIREMENTS AND STANDARDS.
 7. EARTHWORK SHALL BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

\\kin\Development\21385-Brady and Farwell and St Johns Parcel\000 CAD\000_Production\Sheets\100_CIVIL\100 Site Dimension.dwg



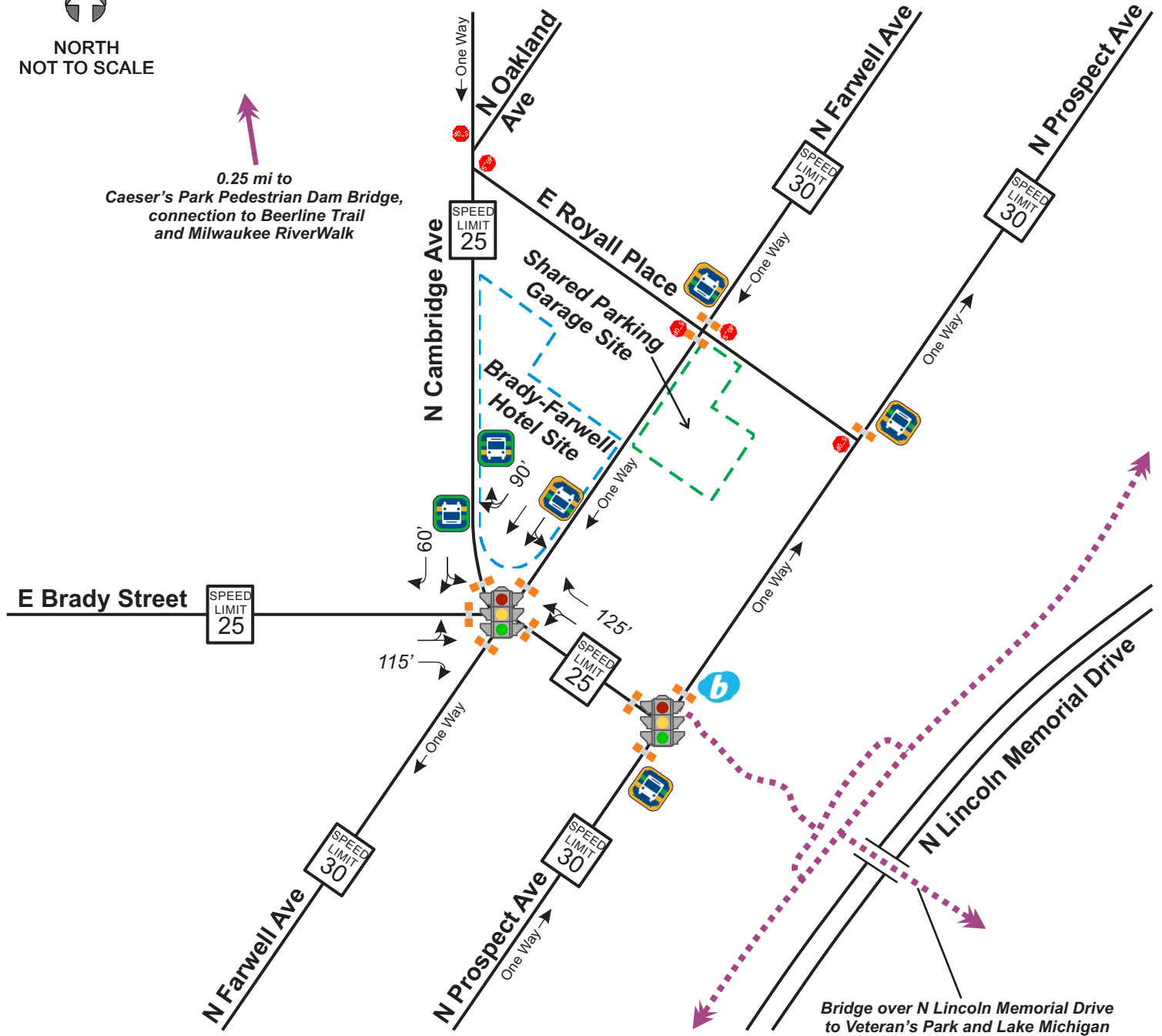
X:\ML\2023\20230067\Design\Reports\Traffic\230310 Exhibits.cdr

EXHIBIT 3 CONCEPTUAL SITE PLAN BRADY-FARWELL HOTEL TRAFFIC STUDY MILWAUKEE, WISCONSIN



NORTH
NOT TO SCALE

0.25 mi to
Caesar's Park Pedestrian Dam Bridge,
connection to Beerline Trail
and Milwaukee RiverWalk



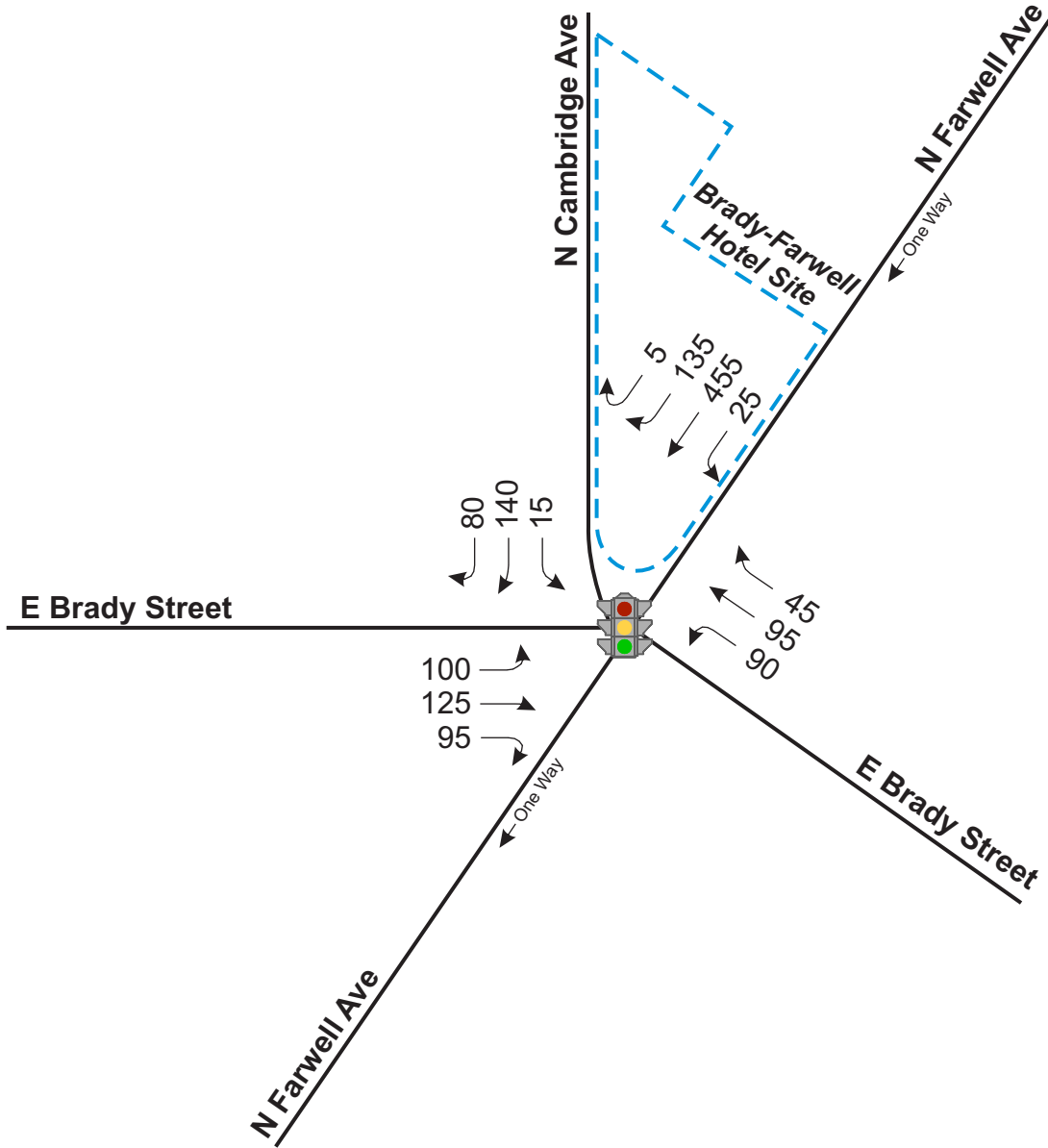
LEGEND

- TRAFFIC SIGNAL
- STOP SIGN
- EXISTING GEOMETRICS
- XXX' EXISTING STORAGE LENGTH
- XXX' EXISTING UNMARKED STORAGE LENGTH
- MARKED CROSSWALK
- OAK LEAF TRAIL
- BUBLR BIKESHARE STATION
- MCTS ROUTE 30/GOLD LINE BUS STOP
- MCTS GREEN LINE BUS STOP





NORTH
NOT TO SCALE



LEGEND


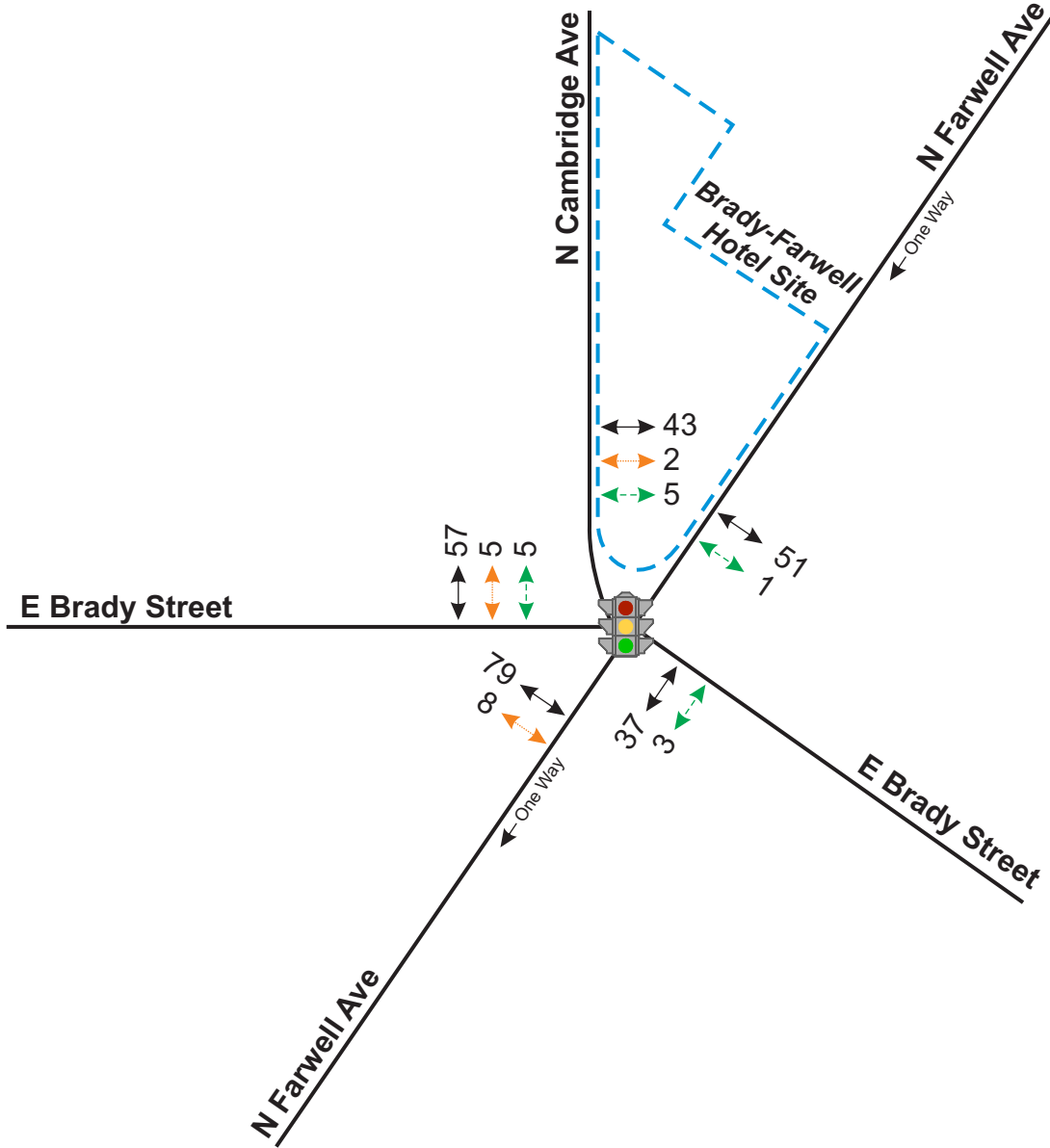
-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) TRAFFIC VOLUMES
- NEG NEGLIGIBLE TRAFFIC VOLUMES - LESS THAN 5 VEHICLES PER HOUR







EXHIBIT 5
YEAR 2023 BACKGROUND TRAFFIC VOLUMES
BRADY-FARWELL HOTEL TRAFFIC STUDY
MILWAUKEE, WISCONSIN



NORTH
NOT TO SCALE



LEGEND

-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) VOLUMES
-  CROSSWALK PEDESTRIAN CROSSING
-  MID-BLOCK PEDESTRIAN CROSSING
-  BICYCLE CROSSING



NORTH
NOT TO SCALE

Brady-Farwell Hotel

3/3/2023

Brady-Farwell Hotel - New Trip Generation - ITE Trip Generation Manual 11th Edition

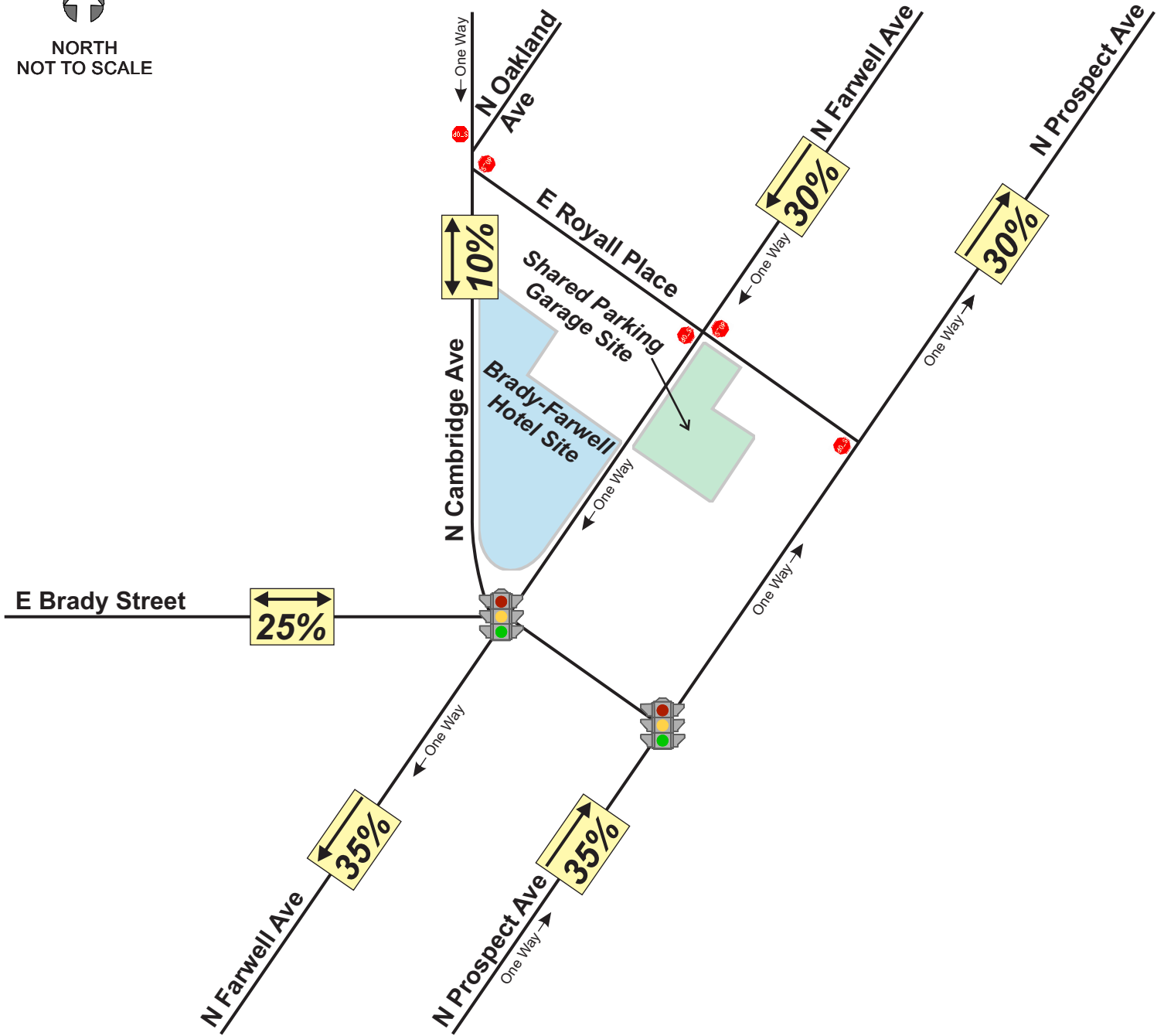
ITE Code	ITE Land Use		Metric	Daily Trips	PM Peak		
				Weekday	In	Out	Total
310	Hotel	Hotel - Dense Multi-Use Urban/Center City Core	Trip Rates/Eq & Dir Dist	5.49	30%	70%	0.34
		130 Rooms	Number of Trips	715	15	30	45
932	Ground Floor Restaurant and Bar	High-Turnover Restaurant	Trip Rates/Eq & Dir Dist	107.20	61%	39%	9.05
		3,300 Square Feet	Number of Trips	355	20	10	30
931	Rooftop Restaurant and Bar	Fine Dining Restaurant	Trip Rates/Eq & Dir Dist	83.84	67%	33%	7.80
		7,000 Square Feet	Number of Trips	585	35	20	55
Total New Trips				1,655	70	60	130

Origin/Destination	Trip Distribution %	Daily Trips	Weekday PM Peak		
			In	Out	Total
West on E Brady St	25%	415	20	15	35
Southwest on N Farwell Ave	35%	580	25	20	45
North on N Cambridge Ave/N Oakland Ave	10%	165	5	5	15
Northeast on N Prospect Ave	30%	495	20	20	40
Total	100%	1,655	70	60	135





NORTH
NOT TO SCALE



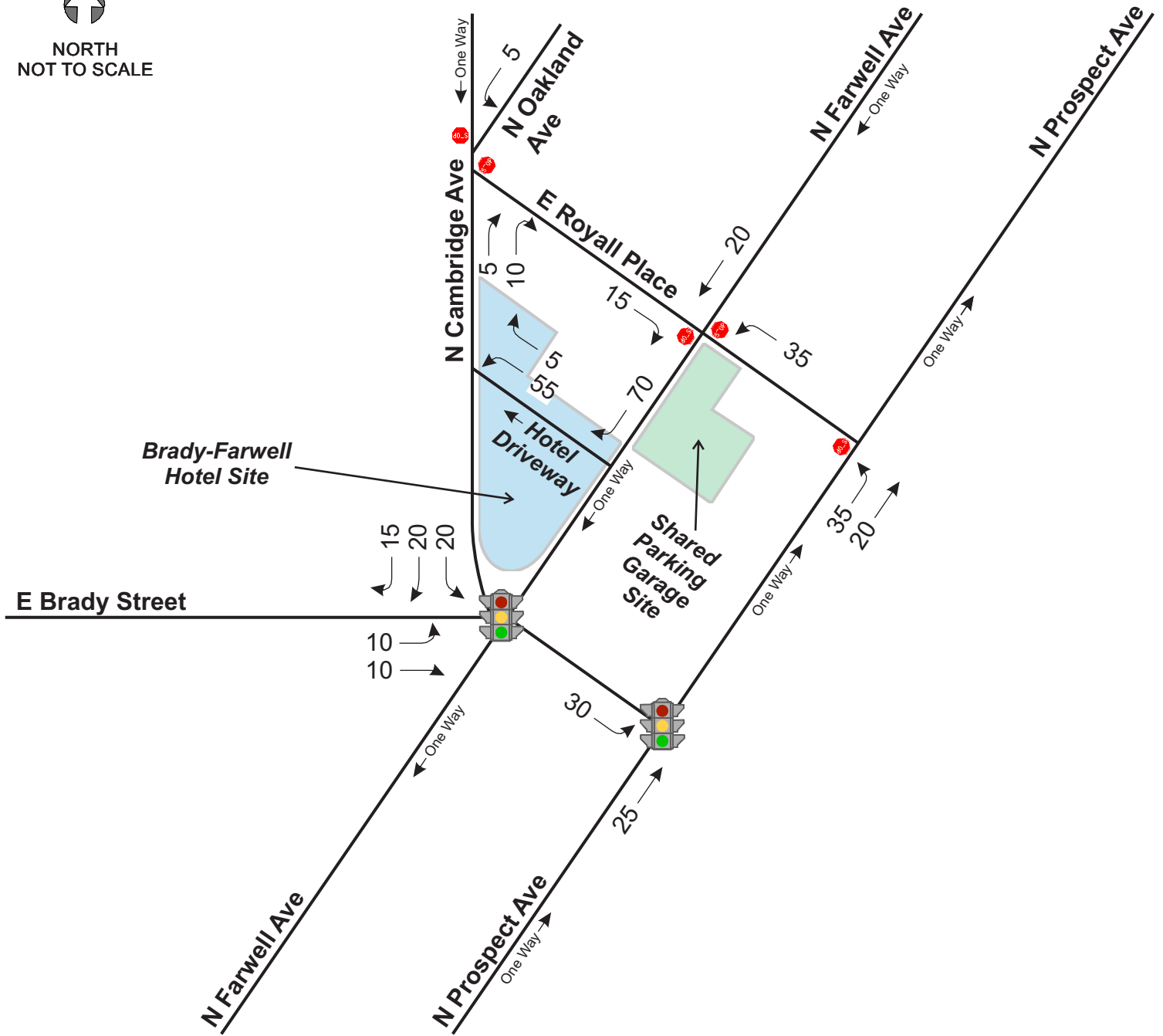
LEGEND

- STOP SIGN
- TRAFFIC SIGNAL
- TRIP DISTRIBUTION







NORTH
NOT TO SCALE

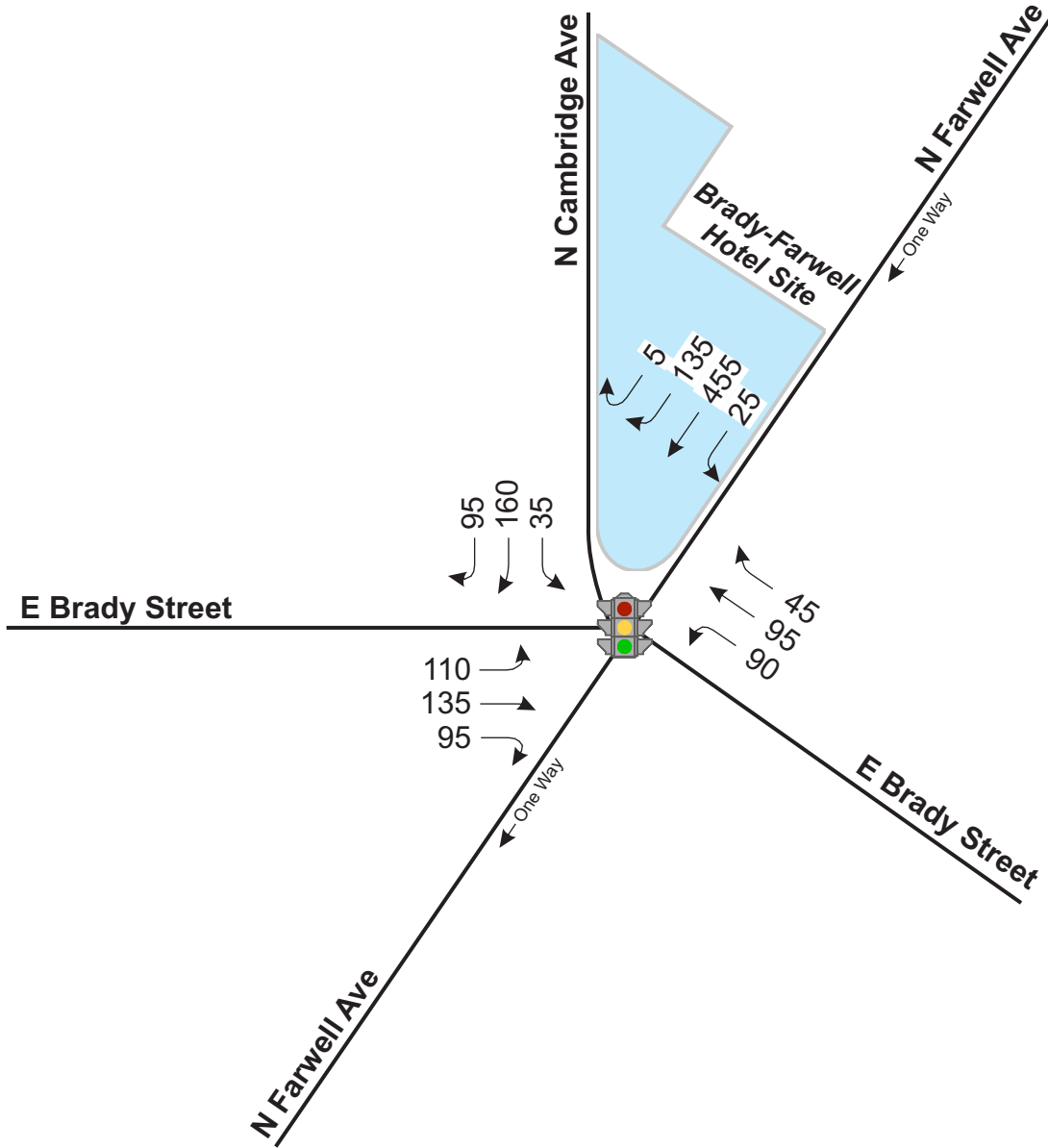


LEGEND


-  STOP SIGN
-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) NEW TRIPS



NORTH
NOT TO SCALE

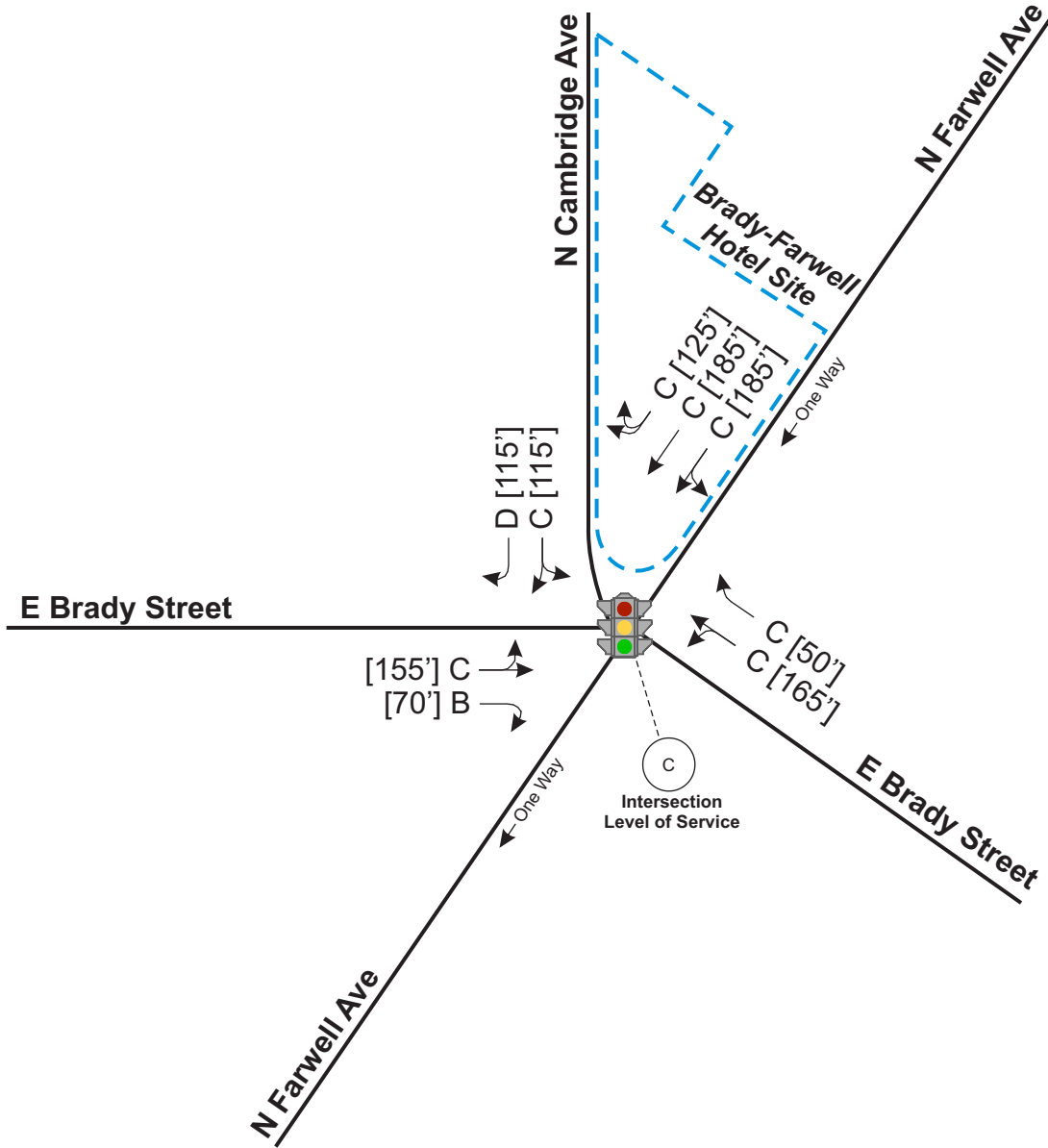


LEGEND


-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) TRAFFIC VOLUMES
- NEG NEGLIGIBLE TRAFFIC VOLUMES - LESS THAN 5 VEHICLES PER HOUR



NORTH
NOT TO SCALE

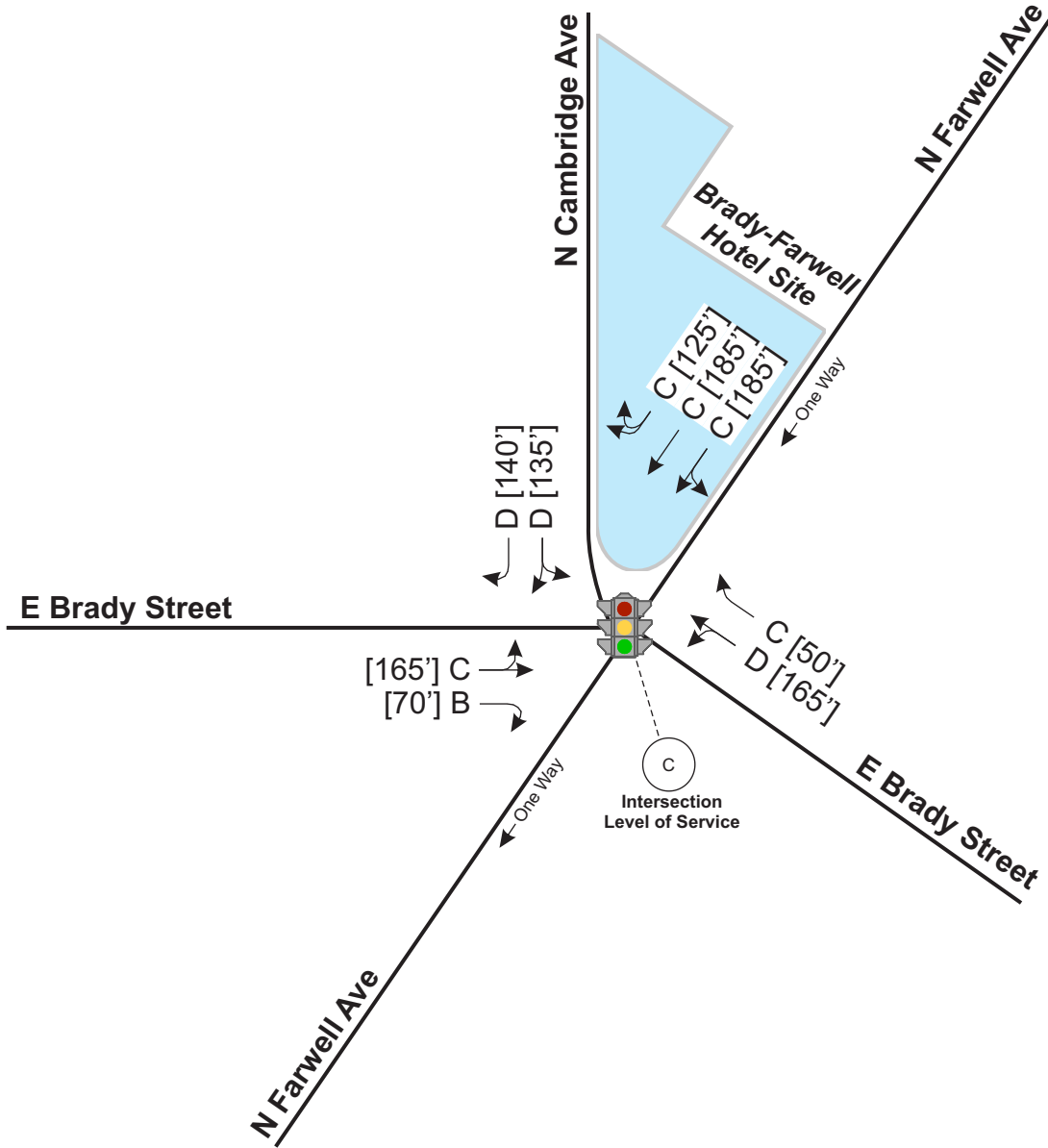


LEGEND


-  TRAFFIC SIGNAL
- X WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) LEVEL OF SERVICE
- [XXX'] MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE PER LANE (IN FEET)



NORTH
NOT TO SCALE

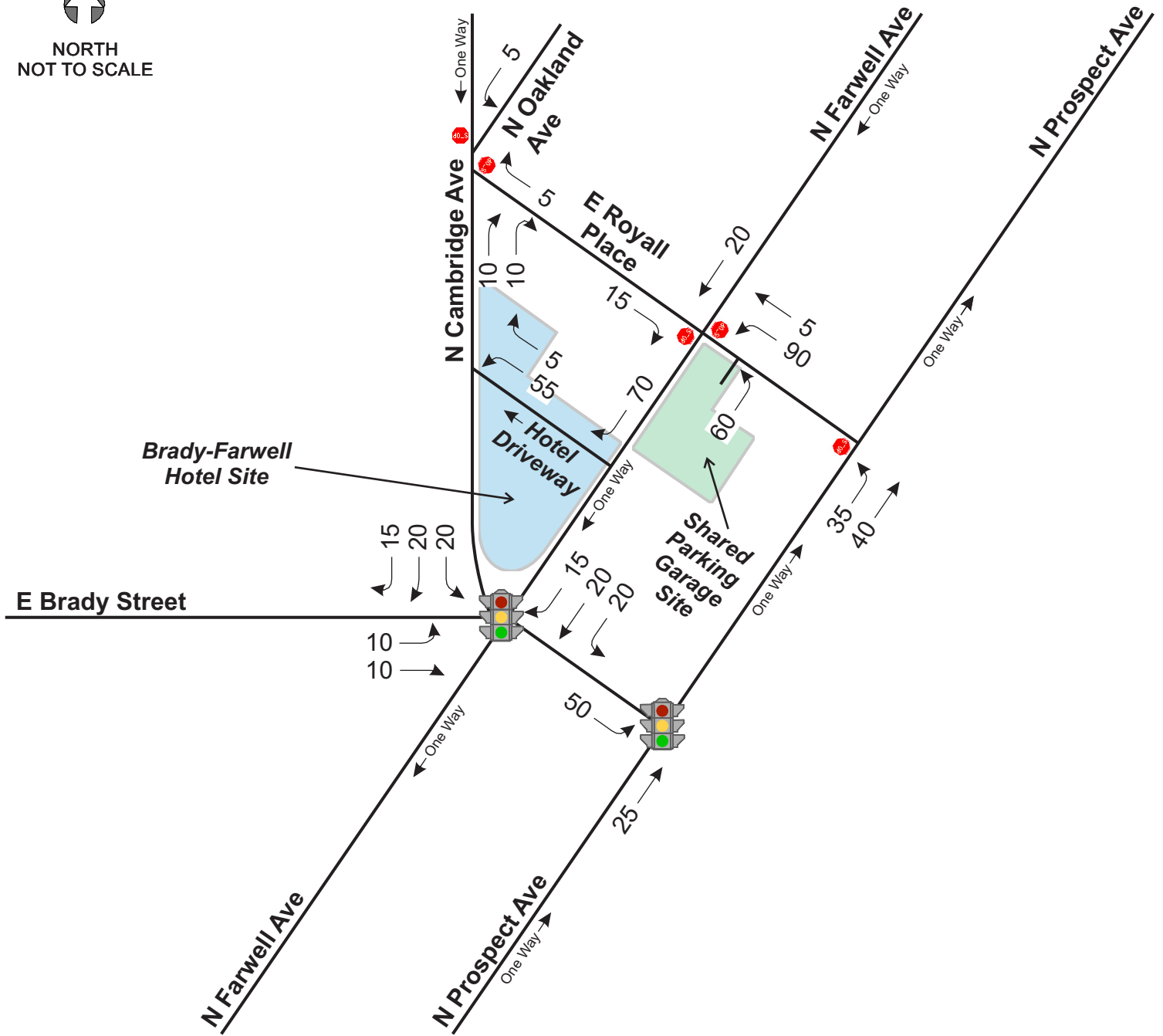


LEGEND



-  TRAFFIC SIGNAL
- X WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) LEVEL OF SERVICE
- [XXX'] MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE PER LANE (IN FEET)



NORTH
NOT TO SCALE

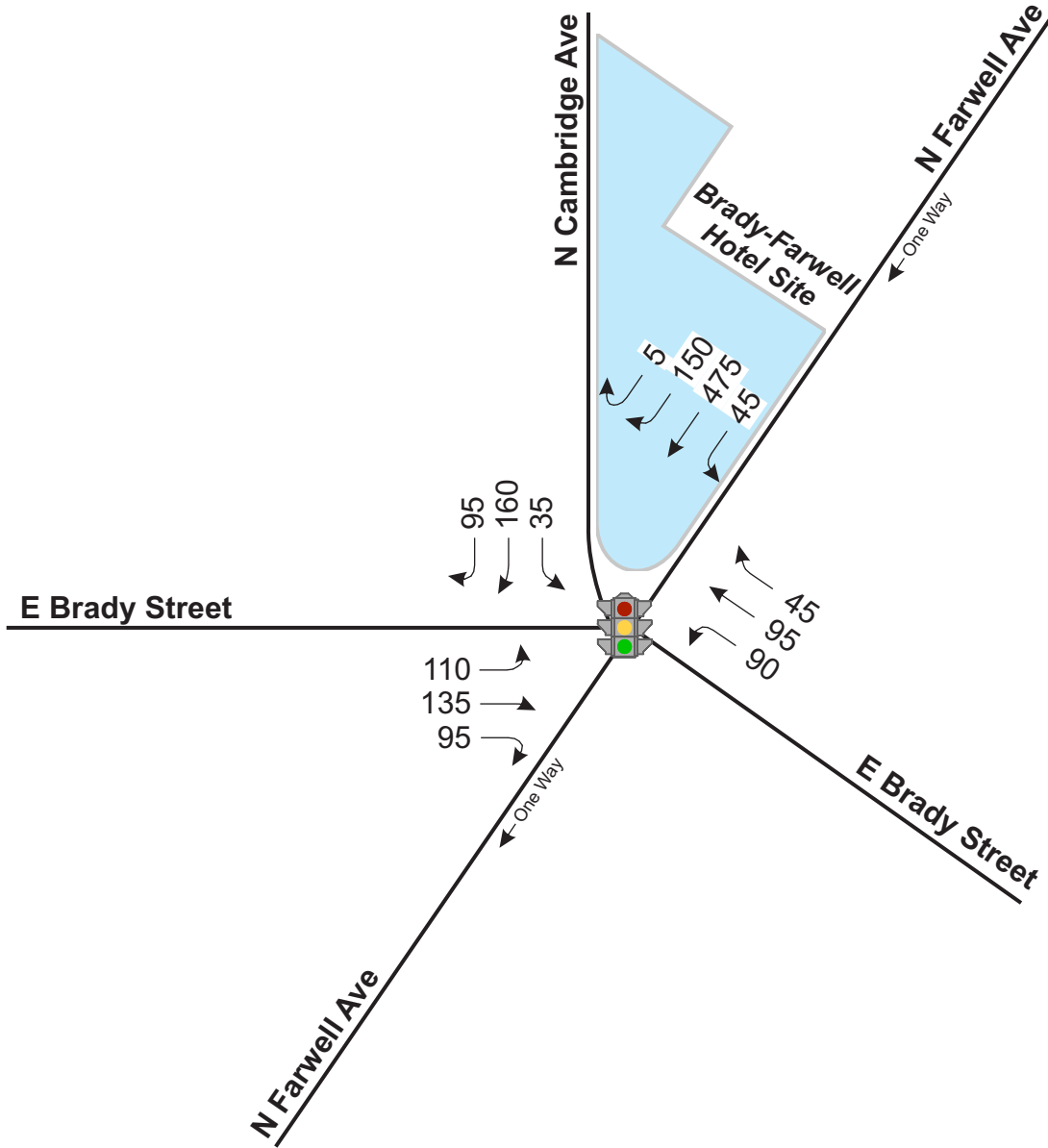


LEGEND


-  STOP SIGN
-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) NEW TRIPS



NORTH
NOT TO SCALE

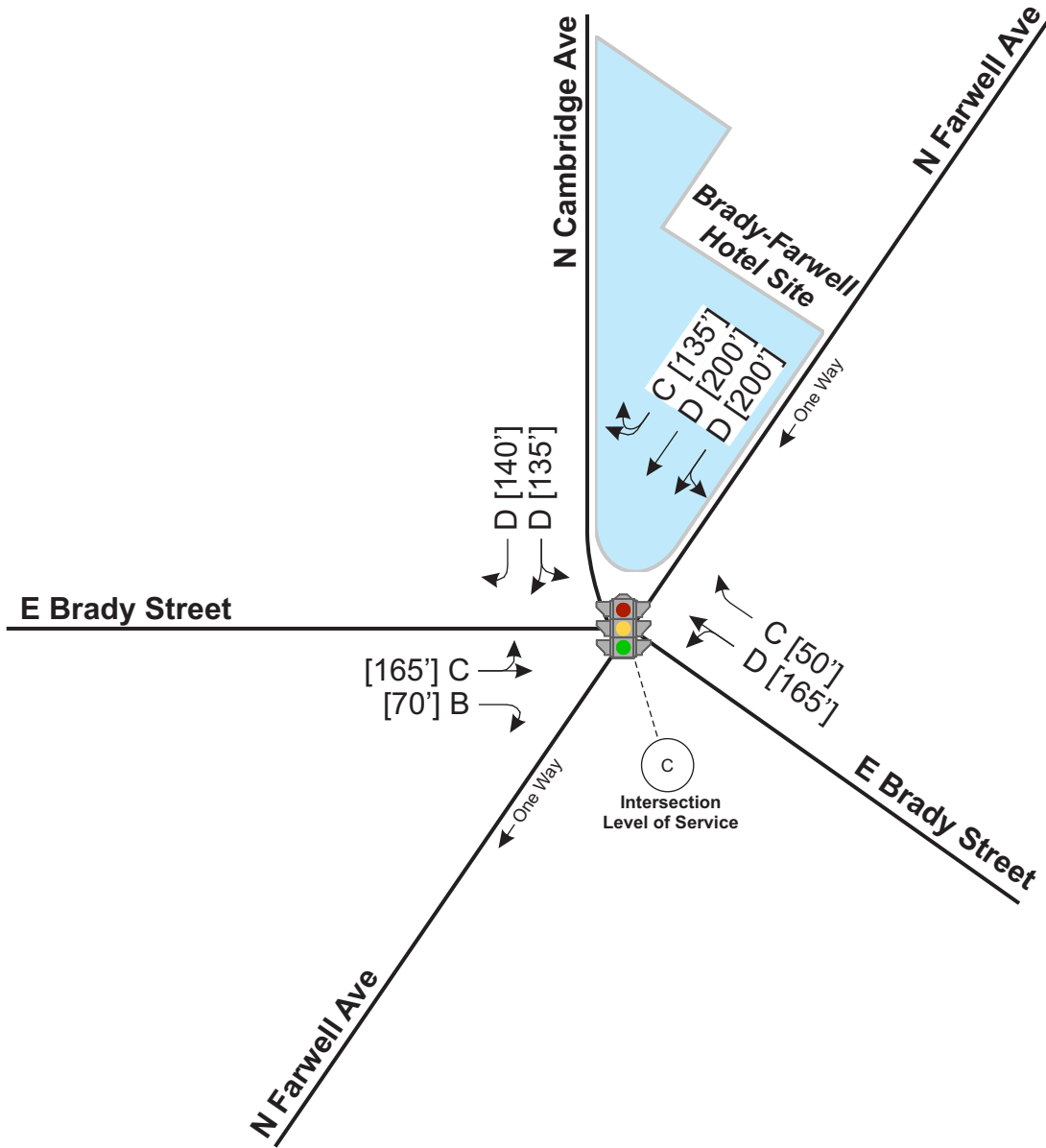


LEGEND


-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) TRAFFIC VOLUMES
- NEG NEGLIGIBLE TRAFFIC VOLUMES - LESS THAN 5 VEHICLES PER HOUR



NORTH
NOT TO SCALE

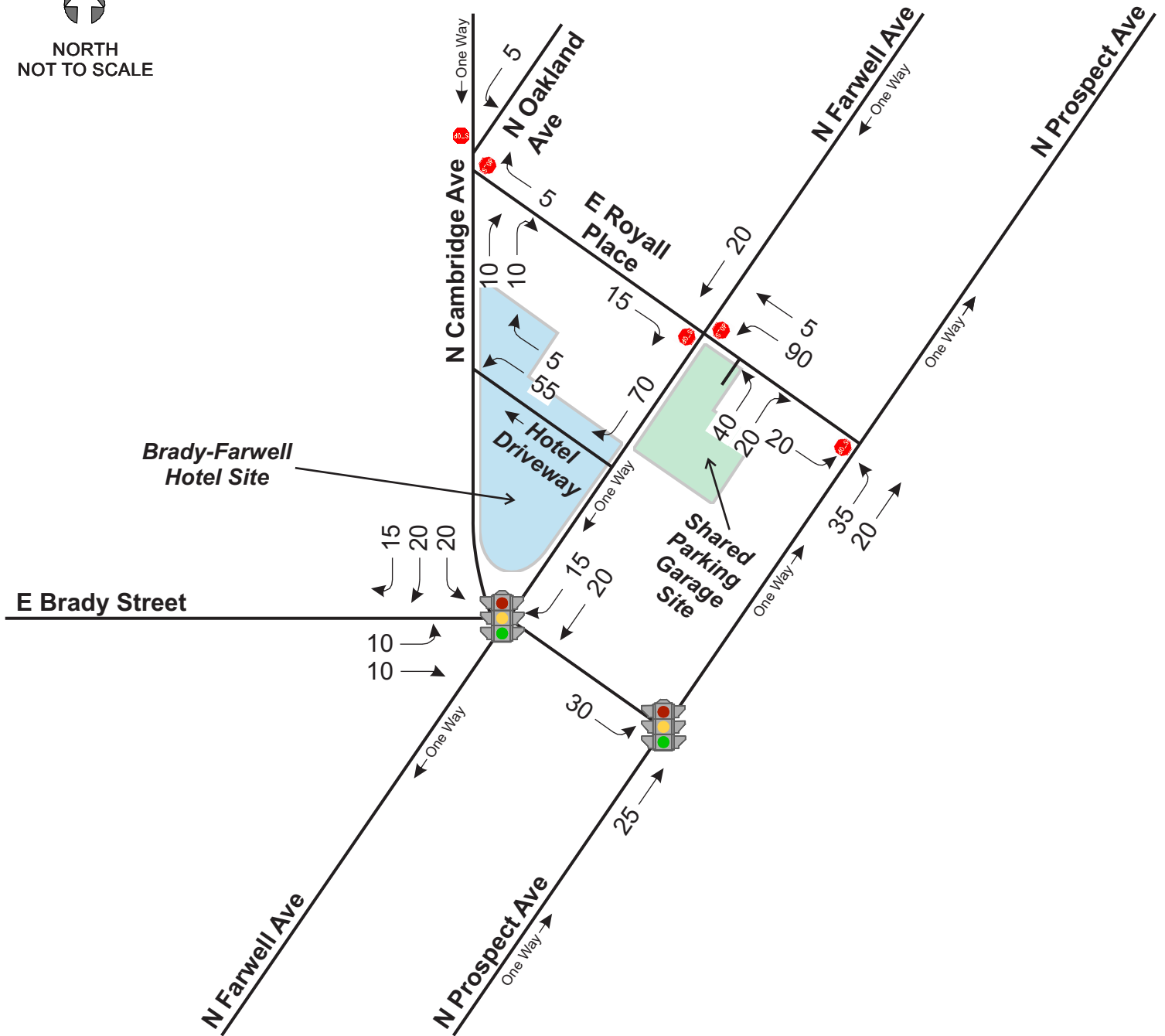


LEGEND

-  TRAFFIC SIGNAL
- X WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) LEVEL OF SERVICE
- [XXX'] MAXIMUM 95TH PERCENTILE TRAFFIC QUEUE PER LANE (IN FEET)



NORTH
NOT TO SCALE



LEGEND



-  STOP SIGN
-  TRAFFIC SIGNAL
- XXX WEEKDAY PM PEAK HOUR (5:00 - 6:00 PM) NEW TRIPS



EXHIBIT 16
NEW TRIPS - SENSITIVITY, N PROSPECT AVE
BRADY-FARWELL HOTEL TRAFFIC STUDY
MILWAUKEE, WISCONSIN