

## **AGENDA ITEM 4A**

**Conditional Use Permit for a totally enclosed,  
automated and conveyor-style car wash – Olympus  
Pines – Lot 5 Val Vista Replat One, located at 10779  
Hillcrest Plaza**



**CITY OF LA VISTA  
PLANNING DIVISION  
RECOMMENDATION REPORT**

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CASE NUMBERS: PCUP23-0001;

FOR HEARING ON: AUGUST 17, 2023  
REPORT PREPARED ON: AUGUST 2, 2023

**I. GENERAL INFORMATION**

**A. APPLICANT(S):**

Olympus Pines  
Attn: Andrew Towne  
6211 Highland Dr. #3051  
Salt Lake City, UT 84121

**B. PROPERTY OWNERS:**

Giles Road No 2, LLC  
2110 N 117<sup>th</sup> Ave  
Omaha, NE 68164

**C. LOCATION:** 10779 Hillcrest Plaza, La Vista, NE 68128, generally located southeast of the intersection of Brentwood Drive and S. 108<sup>th</sup> Street.

**D. LEGAL DESCRIPTION:** Lot 15 Val Vista Replat One.

**E. REQUESTED ACTION(S):** Approval of a Conditional Use Permit for Tommy's Express Carwash for a totally enclosed, automated and conveyor-style car wash.

**F. EXISTING ZONING AND LAND USE:** C-2 General Commercial Zoning District and Gateway Corridor District (Overlay District) with sub-area Secondary Overlay (Special Corridor).

**G. PURPOSE OF REQUEST:** Applicant is seeking to construct and operate a Tommy's Express car wash on Lot 15 Val Vista Replat One, which requires approval of a Conditional Use Permit. The proposed car wash operation would include a 4,625 square foot car wash tunnel/building, in addition to accessory vacuums and cleaning supplies for customer use.

**H. SIZE OF SITE:** Approximately 1.66 acres.

## II. BACKGROUND INFORMATION

### A. GENERAL NEIGHBORHOOD/AREA LAND USES AND ZONING:

<u>Direction</u> <u>From</u> <u>Subject</u> <u>Property</u>	<u>Future Land Use</u> <u>Designation</u>	<u>Current Zoning</u> <u>Designation</u>	<u>Surrounding</u> <u>Development</u>
North	Urban Medium-Intensity Residential Urban Medium-Intensity Residential	C-2 General Commercial Zoning District and Gateway Corridor District (Overlay District) with sub-area Secondary Overlay (Special Corridor)	Vacant Property
East	Urban Medium-Intensity Residential	C-2 General Commercial Zoning District and Gateway Corridor District (Overlay District) with sub-area Secondary Overlay (Special Corridor)	Vacant Property
South	Urban Commercial	C-2 General Commercial Zoning District and Gateway Corridor District (Overlay District) with sub-area Secondary Overlay (Special Corridor)	Vacant Property
West	Industrial	I-1 Light Industrial Zoning District and Gateway Corridor District (Overlay District)	Future site of the Elite Glass Warehouse/Office Building

### B. RELEVANT CASE HISTORY:

1. Not Applicable.

### C. APPLICABLE REGULATIONS:

1. Section 5.11 of the City of La Vista Zoning Ordinance – C-2 General Commercial Zoning District
2. Section 5.17 of the City of La Vista Zoning Ordinance – Gateway Corridor District (Overlay District)
3. Article 6 of the City of La Vista Zoning Ordinance – Conditional Use Permits

### **III. ANALYSIS**

#### **A. COMPREHENSIVE PLAN:**

1. The Future Land Use Map of the La Vista Comprehensive Plan designates this property as Urban Commercial. The La Vista Land Use Plan lists the C-2 General Commercial District as a potential compatible zoning district within the Urban Commercial designation, and indicates the property as intended for commercial development.

The area directly to the east of this site is designated as Urban Medium-Intensity Residential in the Comprehensive Plan. This designation allows for a rezoning to permit the development of a variety of residential uses including, but not limited to, multi-family or senior living type uses. Therefore, care must be taken to provide for compatible commercial uses and their traffic and noise impacts on the surrounding area.

#### **B. OTHER PLANS: N/A.**

#### **C. TRAFFIC AND ACCESS:**

1. The proposed development would have two access driveways off of Hillcrest Plaza.
2. A traffic impact analysis prepared by Kimely Horn & Associates for the proposed development was submitted by the applicant. The City contracted with a third-party engineering firm, HDR, to review the submitted traffic impact analysis and verify the results and recommendations. The summary from the applicant's first analysis, HDR's third-party review letter, and the applicant's response letter and revised analysis (without appendices) are attached to this staff report.
3. The third-party review indicated the need for additional stacking capacity to ensure vehicles do not queue out onto the public roadway during peak times as the demand approaches operating capacity. The analysis also recommended various public improvements discussed below.
4. The City requires that all vehicle stacking related to the use (in this case, the car wash) be accommodated on-site without impeding traffic on the adjoining roadway (free-flowing, one-way vehicle travel in both directions). In order to accommodate additional vehicle stacking capacity that may be needed during peak times, the applicant will be required to construct a right-turn lane on their property.

With the addition of this right turn lane, the car wash site can accommodate stacking for 44 vehicles before entering the car wash tunnel. A site plan that depicts the vehicle stacking capacity is included in the draft conditional use permit, attached to this staff report.

5. In addition to the construction of the right turn lane described above, the applicant will be required to contribute to the cost of additional public improvements including conversion of the intersection at S. 107<sup>th</sup> Street & Giles Road to right-in right-out only and construction of a traffic signal at S. 108<sup>th</sup> Street and Brentwood Drive. The terms of this cost share will be outlined in a development agreement that will be prepared prior to City Council review.
6. The operating statement discloses the applicant's operational plans for how to handle increased traffic on busy days to ensure that vehicle queuing does not stack out onto Hillcrest Plaza. One of these measures is to temporarily close off the southern-most driveway access and to route the queue through the site from the northern driveway access for additional stacking capacity. In this worst-case scenario, 67 vehicles could be accommodated onsite before vehicles impeded traffic flow on Hillcrest Plaza. A site plan that depicts the vehicle stacking capacity in this scenario is included in the draft conditional use permit, attached to this staff report. A condition is included in the CUP that requires this operating scenario in the event that stacking cannot be contained within the site and turn lane. Based on the analysis of HDR's third-party review, the additional stacking capacity provided through the site plan revisions, and conditions within the proposed CUP, staff believes that the proposed maximum on-site stacking for 67 cars is adequate to meet potential future peak demand.

**D. UTILITIES:**

1. The property has access to all necessary utilities.

**E. PARKING REQUIREMENTS:**

1. Paved parking capacity on the site exceeds the minimum off-street parking required by Section 7.06 of the La Vista Zoning Ordinance.

#### **IV. REVIEW COMMENTS:**

1. This site for this proposed car wash is directly adjacent to Lots 6 and 7 Val Vista Replat One which is designated on the Comprehensive Plan's Future Land Use Map as Urban Medium-Intensity Residential. Due to the close proximity of this site to potential future residential development, close attention was paid through the review process to the potential noise, light, traffic, and design impacts from the proposed facility. Consideration of these factors is discussed in the following review comments.
2. A noise study was provided by the applicant to model the potential noise levels (measured in decibels) throughout the site and beyond into neighboring properties.

The Federal Highway Administration (FHWA) has published guidelines for preparing noise studies and conducting noise abatement measures in the Code of Federal Regulations (CFR) Part 772 which help protect the health and welfare of the general public and provide noise abatement criteria. Specifically, a noise impact occurs when either the noise level approaches or exceeds the noise abatement criteria activity level, which is considered 67 decibels (at exterior measurement) in a residential area, or when the predicted noise level substantially exceeds the existing sound level. The "approach" criterion has been defined as 1 dBA less than the abatement criteria, which would be 66 dBA for residential. "Substantially exceeds" is defined as 15 dBA or more.

The study was prepared with the assumption that the tunnel would be set for maximum through-put, and all vacuums would be running (the worst-case scenario), and the study shows that noise levels would be below 66 dBA (the noise impact level) at the building setback line for the neighboring properties where future residential development is contemplated. The noise study exhibit map is attached to this staff report.

The orientation of the car wash tunnel and location of vacuums on the site also help reduce the potential negative impacts of noise. The loudest area for this model of car washes is the tunnel exit as the machinery and blowers produce the most noise. The tunnel exit for this site faces south where only one commercial property is located and then Giles right-of-way. Additionally, the vacuums (also a potential area of concern) are located on the west side of the building, so the building serves to block some of the noise from the adjacent property where potential residential development could occur. The applicant has also proposed to construct a noise mitigation barrier on the southeast side of the

tunnel exit to further reduce noise pollution emanating from the machinery and blowers.

3. A photometric plan was submitted and reviewed to ensure that no significant light pollution was present on adjacent properties as per Section 6.05.09 of the Zoning Ordinance.
4. The building design and landscaping plans must be reviewed by La Vista's third-party design review architect for conformance with the Gateway Corridor District Design Guidelines and the requirements of the Gateway Corridor Overlay District and the Sub-Area Secondary Overlay (Special Corridor). Substantial completion of this process must be achieved prior to submitting an application for building permit.
5. A high-level preliminary review of the building elevations has been performed to ensure that the building design would appropriately fit in with the surrounding development. Several preliminary changes were made through the review process to make the design better fit-in with the surrounding development, including some color changes on various fixtures/materials. Preliminary building elevations are attached to the Conditional Use Permit draft attached to this staff report. Final exhibits related to the building/site design will need to be incorporated into the Conditional Use Permit prior to the recording of the document.
6. Trench drains will be installed at the entrance and exit of the car wash tunnel to ensure that water used in the operations are contained on site. In addition, the site will be sloped in such a manner that stormwater will flow toward the building, into the conveyor pit/trench drains, and will go through the water reclamation system.
7. Fire hydrants have yet to be installed along Hillcrest Plaza (a private roadway) and such hydrants will be required to be installed as part of the development along Hillcrest Plaza. The locations and specifications for such hydrants shall be approved by the Fire Marshal prior to building permit approval.
8. The applicant has submitted an Operating Statement that provides the operational details that the car wash will abide by. This includes the hours of operation of the car wash facility (7:00 AM to 8:00 PM daily) and other operational characteristics. This Operating Statement has been included within the proposed Conditional Use Permit as "Exhibit B".

**V. STAFF RECOMMENDATION – CONDITIONAL USE PERMIT**

**AMENDMENT:**

Staff recommends approval of the Conditional Use Permit for Olympus Pines for a totally enclosed, automated and conveyor-style car wash on Lot 15 Val Vista Replat One, as the request is consistent with the Comprehensive Plan and the Zoning Ordinance, subject to satisfaction of all applicable requirements, including approval and execution of a development agreement.

**VI. ATTACHMENTS TO REPORT:**

- A. Vicinity Map
- B. Review and response letters
- C. Draft Conditional Use Permit with Site Plan, Operating Statement, Building Elevations, Peak Time Operating Scenario Site Plan, Photometric Plan, and Sound Map with Noise Mitigation Barrier
- D. Traffic Impact Analyses

**VII. COPIES OF REPORT SENT TO:**

- A. Andrew Towne, Olympus Pines
- B. Public Upon Request

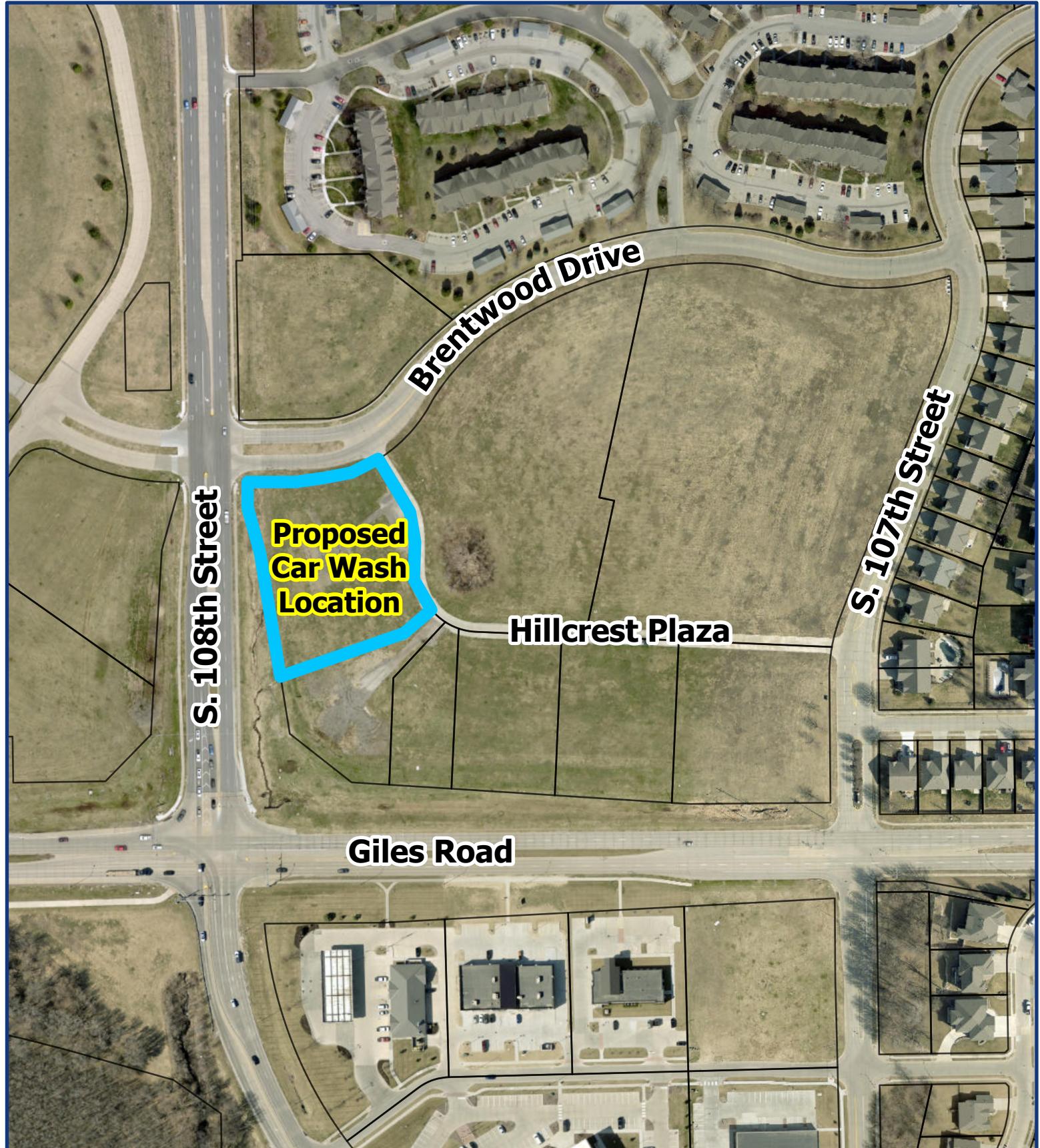


Prepared by: Associate City Planner

8/10/23

Community Development Director

Date



### Vicinity Map - Tommy's Car Wash Conditional Use Permit



#### Legend

- Property Lines
- CUP Boundary





March 17, 2023

Olsson  
Attn: Philip Niewohner  
2111 S 67<sup>th</sup> St. #200  
Omaha, NE 68106

RE: Conditional Use Permit – Tommy's Car Wash – Initial Review Letter  
10779 Hillcrest Drive, La Vista, NE

Mr. Niewohner,

Our review of the above-referenced application is underway, and there are some additional documents that will be required in order for staff to complete our analysis and review. Regarding additional necessary documents, the City has the following comments:

1. Pertaining to Section 6.05.04 of the La Vista Zoning Ordinance, please provide a photometric lighting plan to help us understand the lighting proposed for the site (and/or included in signage) to ensure no light trespass onto adjacent properties. Lot 6 Val Vista Replat One to the east is currently designated for medium-intensity residential development, per the 2022 Future Land Use Plan amendments, and it is imperative that any potential light pollution is avoided.
2. Regarding Section 6.05.10, a traffic impact analysis is required for this project. This TIA should include peaking factors and crush load mitigation, demonstrating that the proposed use will not substantially increase the movement of traffic on public roadways. If operations will result in an increase in traffic, please outline procedures necessary to mitigate congestion. Include the trip generation and stacking considerations for Lot 4, which is proposed to be a carwash of similar capacity.
3. Pertaining to Section 6.05.06, please provide a map of the modeled existing and future noise impact that includes the subject location and surrounding properties with noise measured in terms of the hourly, A-weighted equivalent sound level in decibels (dBA).

**City Hall**  
8116 Park View Blvd.  
La Vista, NE 68128-2198  
402.331.4343 **P**  
402.331.4375 **F**

**Community Development**  
8116 Park View Blvd.  
402.593.6400 **P**  
402.593.6445 **F**

**Library**  
9110 Giles Rd.  
402.537.3900 **P**  
402.537.3902 **F**

**Police**  
7701 S. 96th St.  
402.331.1582 **P**  
402.331.7210 **F**

**Public Works**  
9900 Portal Rd.  
402.331.8927 **P**  
402.331.1051 **F**

**Recreation**  
8116 Park View Blvd.  
402.331.3455 **P**  
402.331.0299 **F**

Please submit the above-mentioned documents, and upon receipt, staff will be able to complete our analysis to provide additional comments. If you have any questions, feel free to contact me at any time.

Thank you,

A handwritten signature in blue ink that reads "Cale Brodersen". The signature is fluid and cursive, with a long horizontal line extending from the end of the "n" in "Brodersen" to the right.

Cale Brodersen, AICP  
Associate City Planner  
cbrodersen@cityoflavista.org  
(402) 593-6400

cc:

Andrew Towne, Olympus Pines  
Bruce Fountain, Community Development Director – City of La Vista  
Chris Solberg, Deputy Community Development Director – City of La Vista  
Pat Dowse, City Engineer – City of La Vista



May 17, 2023

Olsson  
Attn: Philip Niewohner  
2111 S 67<sup>th</sup> St. #200  
Omaha, NE 68106

RE: Conditional Use Permit – Tommy's Car Wash – Second Review Letter  
10779 Hillcrest Drive, La Vista, NE

Mr. Niewohner,

We have reviewed the documents submitted for the above-referenced application. Based on the elements for consideration set forth in the applicable sections of the Zoning Ordinance, the City has the following comments:

1. Regarding Section 6.05.04, please identify in the operating statement appropriate measures that will be taken to ensure that water from onsite operations is contained to the site and will not cause any undue maintenance burden for public roadways.
2. Per Section 6.05.05, please indicate what measures will be implemented to ensure adequate stacking and circulation on busy days in which heavy demand occurs. Please note these measures in the operating statement.
3. Please also include in your operating statement the number of employees that will be on-site during peak hours.
4. Regarding Section 6.05.05, due to the proximity to the intersection of Brentwood Drive and Hillcrest Plaza, the north driveway may not provide proper egress. This driveway should be shifted further south. Please explore that option and resubmit a site plan.

**City Hall**  
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La Vista, NE 68128-2198  
402.331.4343 **P**  
402.331.4375 **F**

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402.331.1051 **F**

**Recreation**  
8116 Park View Blvd.  
402.331.3455 **P**  
402.331.0299 **F**

5. There are currently no fire hydrants along Hillcrest Plaza to serve this development. Private fire hydrant(s) will need to be installed. Please include hydrant locations on the site plan or on an additional exhibit.
6. The building design and site and landscaping plans must be reviewed by La Vista's third-party design review architect for conformance with the Gateway Corridor District Design Guidelines and the requirements of the Gateway Corridor Overlay District and the Sub-Area Secondary Overlay (Special Corridor) outlined in Section 5.17 of the La Vista Zoning Ordinance. Substantial completion of this design review process must be complete prior to application for building permits, however, we will need some preliminary building elevations that are similar to what could eventually be developed (with no clear or drastic variations or violations of the design guidelines) as they will be exhibits in the draft Conditional Use Permit document, and they will be helpful at the public hearings to give the Planning Commission and City Council an understanding of what the proposed development is intended to look like and what the potential visual impacts may be. Please submit some preliminary building elevations for the proposed car wash for review
7. Sidewalks will be required both along Brentwood Drive and Hillcrest Plaza. Please revise the site plan accordingly to represent the required sidewalks.
8. Per Section 5.11.06, the front yard setback for permitted conditional uses in the C-2 Zoning District is 25 feet, or 50 feet with the presence of parking. The "front yard" for this property includes S 108<sup>th</sup> Street, Brentwood Drive, and Hillcrest Plaza, per the definition of Front Yard depicted in the image after Section 2.07.276 of the Zoning Ordinance. It does not appear that this would cause any conflicts with your building location, however, please update the site plan to accurately reflect the proper setbacks (25 feet along Brentwood Drive, and 50 feet along 108<sup>th</sup> Street). When a property line is within a street or drive, the setback should be measured from the back-of-curb.
9. The traffic impact analysis that you submitted for this development is currently under review by the City's third-party traffic engineering consultant. As part of their review, HDR has requested answers to the following questions:
  - a. Please provide an extended data set (6+ months) of daily transactions (timestamps) of vehicles through an existing carwash of a similar site (location/conditions).
  - b. In a typical day, how many customers do you serve?
  - c. How many vehicles does the carwash process on a "busy" day?
  - d. What is the proportion of membership users to cash payment users?
  - e. Are certain lanes dedicated to member-only users?
  - f. What methodology does the development deploy to determine the number of lanes and length of storage for each carwash?
  - g. What is your average service rate / processing time?
  - h. What operating adjustments are executed during peak periods when vehicle queues exceed the site storage capacity?

10. The level of noise that accompanies this use as a car wash operation may be an issue for future planned residential properties to the east. The calculations for noise levels that could impact the adjacent residential buildings is above generally acceptable levels. In addition, the car wash is proposed to operate until 9:00pm.

The Federal Highway Administration (FHWA) has published guidelines for preparing noise studies and conducting noise abatement measures in the Code of Federal Regulations (CFR) Part 772 which help protect the health and welfare of the general public and provide noise abatement criteria.

Specifically, a noise impact occurs when either the noise level approaches or exceeds the noise abatement criteria activity level, which is considered 67 decibels (at exterior measurement) in a residential area, or when the predicted noise level substantially exceeds the existing sound level. The "approach" criterion has been defined as 1 dBA less than the abatement criteria, which would be 66 dBA for residential. "Substantially exceeds" is defined as 15 dBA or more.

Please explore additional measures to reduce/abate the potential for noise pollution to a maximum of 66 dBA thirty feet into the adjacent property to the east (the front yard setback), and demonstrate with an updated study what the expected impact would be with the use of those abatement measures. The color gradient is challenging to decipher how the noise levels progress, and line contours would be helpful in addition to the point calculations.

Please submit (2) full-size revised copies of the CUP plans and related documents (along with electronic copies) to the City for further review. A timeline for review by the Planning Commission and City Council will be determined based on the timing of the resubmittal and the extent to which the issues identified in this review have been sufficiently addressed. If you have any questions regarding these comments, please feel free to contact me at any time.

Thank you,



Cale Brodersen, AICP  
Associate City Planner  
[cbrodersen@cityoflavista.org](mailto:cbrodersen@cityoflavista.org)  
(402) 593-6400

cc:

Andrew Towne, Olympus Pines  
Bruce Fountain, Community Development Director – City of La Vista  
Chris Solberg, Deputy Community Development Director – City of La Vista  
Pat Dowse, City Engineer – City of La Vista

Cale Brodersen, AICP  
Associate City Planner  
cbrodersen@cityoflavista.org  
(402) 593-6400

RE: Conditional Use Permit - Tommy's Car Wash - Second Review Letter  
10779 Hillcrest Drive, La Vista, NE

Mr. Broderson,

Thank you for your Second Review Letter for our proposed Tommy's Express Car Wash at 10779 Hillcrest Drive in La Vista. Please find below responses to your numbered questions.

1. Please see attached updated operating statement
2. Please see attached updated operating statement
3. Please see attached updated operating statement
4. Please see attached updated site plan
5. Please see attached updated site plan
6. Please see attached building elevations
7. Please see attached updated site plan
8. Please see attached updated site plan
9. Please see below answers, which are based on actual data from 7/1/22 – 12/31/22 (183 days) at one of our Tommy's Express Car Washes in Nebraska:
  - a. Total cars washed over 183 days: 70,204
  - b. 384 cars washed per day on average (70,204 washes divided by 183 days)
  - c. On a 'busy' day, we will wash 800-1,000 cars. In 2022, the single busiest day was 1,407 cars washed
  - d. For the given dates, revenue split was 53% memberships and 47% cash payment users
  - e. Yes, we have two "App Only" lanes available to be used by both Unlimited Members and Pay Per Wash Users
  - f. It depends on the size of the parcel on which we're building, but we always exceed stacking requirements of the local jurisdiction. This site plan can accommodate 26 cars outside the tunnel, with 5 cars inside the tunnel at any given time. Our proposed tunnel is able to wash each car in 90 seconds (or 180 cars per hour), meaning that at this site we should be able to clear a full stack of 26 cars every ~8.66 minutes.
  - g. 2-3 minutes depending on belt speed.
  - h. At peak periods, we speed up the conveyor to process vehicles faster, dedicate one employee to loading vehicles to eliminate unnecessary gaps between guests vehicles, and pre-sell in the cashier lane to reduce time at the window.
10. To be answered in later correspondence

Any questions, please let me and Philip Niewohner and Jill Koop know.

Sincerely,

Andrew Towne  
Partner, Olympus Pines

# **City of La Vista Conditional Use Permit**

## **Conditional Use Permit for Car Wash**

This Conditional Use Permit issued this \_\_\_\_ day of \_\_\_\_\_, 2023, by the City of La Vista, a municipal corporation in the County of Sarpy County, Nebraska (“City”) to, Olympus Pines Fleet, LLC (“Owner”), pursuant to the La Vista Zoning Ordinance.

WHEREAS, Owner wishes to operate a totally enclosed, automated, conveyor-style car wash (“Car Wash”) upon the following described tract of land within the City:

Lot 5 Val Vista Replat One, La Vista, Nebraska, 68128 (“Property”).

WHEREAS, Owner has applied for a conditional use permit for the purpose of operating the Car Wash; and

WHEREAS, the Mayor and City Council of the City of La Vista are agreeable to the issuance of a conditional use permit to Owner for the Car Wash on the Property, subject to the terms and conditions as provided in this Permit.

NOW, THEREFORE, BE IT KNOWN THAT subject to the conditions hereof, this conditional use permit is issued to the Owner to use the area of the Property designated on Exhibit “A” hereto for a Car Wash, said use hereinafter being referred to as “Permitted Use” or “Use”.

### **Conditions of Permit**

The conditions to which the granting of this permit is subject are:

1. Any deviation from or breach of any terms hereof shall automatically cause permit to expire and terminate without any further action required of the City.
2. In respect to the proposed Permitted Use:
  - a. The premises shall be developed and maintained in accordance with the site plans (Exhibit “A”) and the building renderings (Exhibit “C”) as approved by the City and incorporated herein by this reference. Any modifications must be submitted to the Community Development Director for such approvals as the Director determines necessary or appropriate.
  - b. Operations on the Property will be limited to and be carried out in accordance with the Operational Statement attached as Exhibit “B” and incorporated into this permit by reference.
  - c. All vehicle stacking related to the Car Wash shall be accommodated on-site without impeding traffic on the adjoining roadway (free flowing, one-way vehicle travel in both directions). In the event that vehicles are stacking out into the right turn lane during peak times, the temporary barricades must be deployed to close off the south access to the site, routing vehicles through the interior of the site from the north entrance, as described in Exhibit “B” and as depicted in the peak scenario site plan attached as Exhibit “D” which shows that 67 vehicles can be accommodated on-site in this scenario.
  - d. The applicant shall construct, or cause to construct the right turn lane on Hillcrest Plaza

and perimeter sidewalks depicted in Exhibit "A" at the applicant's sole cost, and shall contribute to the cost of other such public improvements as described in and in accordance with the development agreement approved by the City, including, but not limited to the conversion of the intersection at S. 107th Street & Giles Road to right-in right-out only and construction of a traffic signal at S. 108th Street and Brentwood Drive.

- e. There shall be no storage, placement or display of motor vehicles, goods, supplies or any other materials, substances, containers or receptacles outside of the car wash building, except as approved in writing by the City.
- f. Site and building lighting, and the impacts of such, shall conform with the photometric plan submitted and attached as Exhibit "E". Any additional site lighting or changes shall be reviewed and approved by the Community Development Department prior to installation to ensure that it does not have a significant negative impact on neighboring properties.
- g. A noise mitigation barrier shall be constructed and maintained on the southeast corner of the building, adjacent to the exit tunnel, to assist in preventing or minimizing noise pollution onto adjacent properties. Noise emanating from the Car Wash site shall adhere to the guidelines published by the Federal Highway Administration (FHWA) in the Code of Federal Regulations (CFR) Part 772 regarding noise abatement criteria, and levels shall be limited to that depicted in the Sound Map with Noise Mitigation Barrier exhibit attached to this permit as Exhibit "F".
- h. The building design, site design, and landscaping plans must be installed and maintained in compliance with the Gateway Corridor District Design Guidelines and the requirements of the Gateway Corridor Overlay District and the Sub-Area Secondary Overlay (Special Corridor), in addition to Sections 5.17 and 7.17 of the La Vista Zoning Ordinance. The approved exterior building elevations and approved landscaping plan are attached and incorporated into this permit by reference as Exhibit "C" and Exhibit "G" respectively.
- i. Owner shall obtain all required permits, including without limitation all required permits of the City of La Vista, and shall comply with any additional requirements as determined by the La Vista Planning Department or other applicable authorities.
- j. Owner shall comply (and shall ensure that all employees, invitees, suppliers, structures, appurtenances and improvements, and all activities occurring or conducted, on the premises at any time comply) with any applicable federal, state and/or local laws, rules, or regulations, as amended or in effect from time to time, including, but not limited to, applicable environmental or safety laws, rules or regulations.
- k. Owner hereby indemnifies the city against, and holds the City harmless from, any liability, loss, claim or expense whatsoever (including, but not limited to, reasonable attorney fees and court cost) arising out of or resulting from the acts, omissions or negligence of the Owner, or any agents, employees, assigns, suppliers or invitees of Owner, including, but not limited to, any liability, loss, claim or expense arising out of or resulting from any violation on the premises of any environmental or safety law, rule or regulation.
- l. Any exhibit attached to or referenced in this permit, together with the recitals at the beginning of this permit, are hereby incorporated by reference.

3. The applicant's right to maintain the Use as approved pursuant to these provisions shall be based on the following:

- a. An annual inspection to determine compliance with the conditions of approval. The conditional use permit may be revoked upon a finding by the City that there is a violation of the terms of approval.
- b. The Use authorized by the conditional use permit must be initiated within one (1) year of

approval, and, in the event of any authorized administrative extensions for good cause shown, shall in all cases become void two (2) years after the date of approval unless the applicant has fully complied with the terms of approval.

- c. All obsolete or unused structures and accessory facilities and any remaining environmental or safety hazard shall be abated and/or removed at owner's expense within the time required by applicable law or regulations, and in all cases no later than twelve (12) months of cessation of the Permitted Use.
- 4. Notwithstanding any other provision herein to the contrary, this Permit, and all rights granted hereby, shall expire and terminate as to a permitted use hereunder upon the first of the following to occur:
  - a. Owner's abandonment of the Permitted Use. Non-use thereof for a period of twelve (12) months shall constitute a presumption of abandonment.
  - b. Cancellation, revocation, denial or failure to maintain any federal, state or local permit required for the Conditional Use.
  - c. Owner's construction or placement of a storage tank, structure or other improvement on the premises not specified in this permit or approved by the Community Development Director or Chief Building Official.
  - d. Owner's breach of any other terms hereof and failure to correct such breach within ten (10) days of City's giving notice thereof.
  - e. Transfer of ownership of the property or business entity.
- 5. In the event of the owner's failure to promptly remove any safety or environmental hazard from the premises, or the expiration or termination of this permit and the owner's failure to promptly remove the permitted structures or any remaining environmental or safety hazard, the City may, at its option (but without any obligation to the owner or any third party to exercise said option) cause the same to be removed at owner's cost (including, but not limited to, the cost of any excavation and earthwork that is necessary or advisable) and the Owner shall reimburse the city the costs incurred to remove the same. Owner irrevocably grants to City permission to assess, impose and file with the Sarpy County Register of Deeds against the property a lien for any such costs that are not paid within 30 days. Owner hereby irrevocably grants the City, its agents and employees an easement and the right to enter the premises and to take whatever action as is necessary or appropriate to remove the structures or any environmental or safety hazards in accordance with the terms of this permit, and the right of the City to enter the premises as necessary or appropriate to carry out any other provision of this permit.
- 6. If any provision, or any portion thereof, contained in this agreement is held to be unconstitutional, invalid, or unenforceable, the remaining provisions hereof, or portions thereof, shall be deemed severable, shall not be affected, and shall remain in full force and effect.

## **Miscellaneous**

The conditions and terms of this Permit shall be binding upon Owner, his successors and assigns.

- 1. Delay of City to terminate this Permit on account of breach of Owner of any of the terms hereof shall not constitute a waiver of City's right to terminate, unless it shall have expressly waived said breach in writing and a waiver of the right to terminate upon any breach shall not constitute a waiver of the right to terminate upon a subsequent breach of the terms hereof, whether said breach be of the same or different nature.

2. Nothing herein shall be construed to be a waiver or suspension of, or an agreement on the part of the City to waive or suspend, any zoning law or regulation applicable to the premises except to the extent and for the duration specifically authorized by this permit.
3. Any notice to be given by City hereunder shall be in writing and shall be sufficiently given if sent by regular mail, postage prepaid, addressed to the Owner as follows:

**Contact Name and Address:** Olympus Pines Fleet, LLC  
Attn: Andrew Towne  
6211 Highland Drive, #3051  
Salt Lake City, UT 84121

**Exhibits:** The following exhibits are incorporated herein by reference:

Exhibit "A": Site Plan

Exhibit "B": Operating Statement

Exhibit "C": Building Elevations

Exhibit "D": Peak Time Operating Scenario Site Plan

Exhibit "E": Photometric Plans

Exhibit "F": Sound Map with Noise Mitigation Barrier

Exhibit "G": Landscaping Plans

**Effective Date:**

This Permit shall take effect upon the filing hereof with the City Clerk a signed original hereof. This Permit shall be filed with the Sarpy County Register of Deeds, shall constitute covenants running with the land, and shall be binding on the Owner and all successors and assigns of the Owner.

THE CITY OF LA VISTA

By: \_\_\_\_\_  
Douglas Kindig, Mayor

Attest:

Pam Buethe, CMC  
City Clerk

CONSENT AND AGREEMENT

The undersigned does hereby consent and agree to the conditions of this permit and that the terms hereof constitute an agreement on the part of the undersigned to fully and timely perform each and every condition and term hereof, and the undersigned does hereby warrant, covenant and agree to fully and timely perform and discharge all obligations and liabilities herein required by Owner to be performed or discharged.

Owner:

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

### ACKNOWLEDGMENT OF NOTARY

STATE OF NEBRASKA )  
COUNTY OF \_\_\_\_\_ ) ss.  
 )

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023, before me, a Notary Public duly commissioned and qualified in and for said County and State, appeared Douglas Kindig and Pamela A. Buethe, personally known by me to be the Mayor and City Clerk of the City of La Vista, and the identical persons whose names are affixed to the foregoing Agreement, and acknowledged the execution thereof to be their voluntary act and deed and the voluntary act and deed of said City.

Notary Public

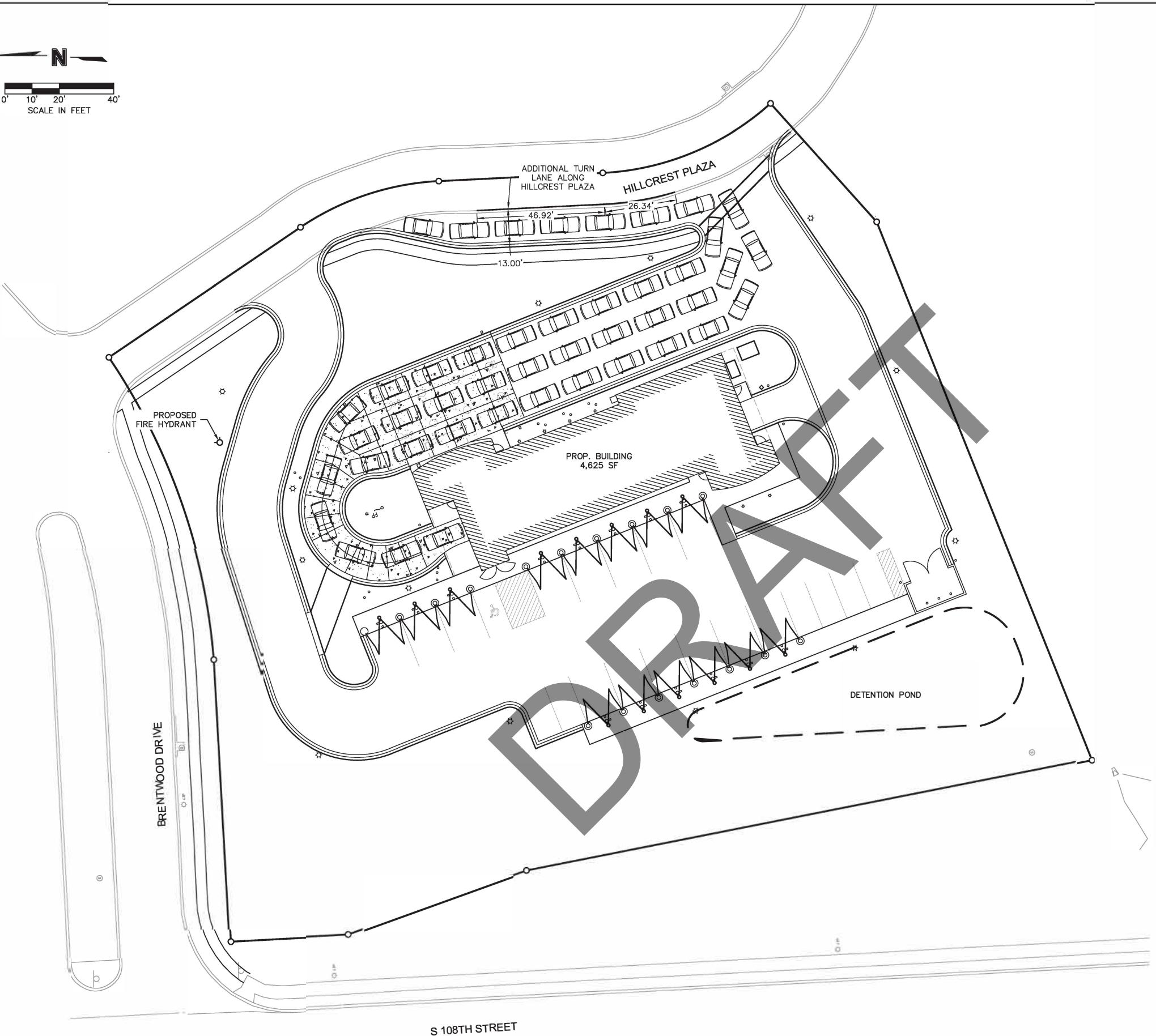
### ACKNOWLEDGMENT OF NOTARY

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ ) ss.  
 )

On this \_\_\_\_\_ day of \_\_\_\_\_, 2023, before me, a Notary Public duly commissioned and qualified in and for said County and State, appeared Andrew Towne personally known by me to be an authorized agent of Olympus Pines Fleet, LLC, and the identical person whose name is affixed to the foregoing Agreement, and acknowledged the execution thereof to be his voluntary act and deed and the voluntary act and deed of said company.

Notary Public

N  
 0' 10' 20' 40'  
 SCALE IN FEET



SITE INFORMATION TABLE	
LEGAL DESCRIPTION:	LOT 5, VAL VISTA REPLAT ONE
ZONING:	GENERAL COMMERCIAL DISTRICT (C-2)
SETBACKS:	
FRONT:	25'-0" (50'-0" WITH PRESENCE OF PARKING)
REAR:	15'-0"
SIDE:	15'-0"
PARKING REQUIREMENTS:	
REQUIRED:	0
PROVIDED:	7 STALLS ON-SITE
ACCESSIBLE PARKING:	
REQUIRED:	1 (1 VAN ACCESSIBLE)
PROVIDED:	1 (1 VAN ACCESSIBLE)

Exhibit A

Olsson

SITE PLAN	REV.	NO.	DATE	REVISIONS DESCRIPTION
VAL VISTA TOMMYS	2023			
LA VISTA, NE				REVISIONS

drawn by: ZM  
 checked by: PN  
 approved by: PN  
 QA/QC by: PN  
 project no.: 022-06547  
 drawing no.: 022-06547  
 date: 02.01.23

SHEET  
 C2.0

# Exhibit B

## Operating Statement for Proposed Tommy's Express Car Wash at 10779 Hillcrest Plaza

Olympus Pines is proud to build a Tommy's Express Car Wash at 10779 Hillcrest Plaza. Our fully automatic wash features numerous technological advances including the easy-loading car wash dual belt conveyor, wide open car wash bay for natural lighting, advanced presoak and sealer services and free high-power self-serve vacuums on site. These technological advances allow us to process each car in 90 seconds, and because our tunnel can fit 5-6 cars at a time, we process up to 180 cars per hour. We expect to serve roughly 450 cars per day, and our goal is that our guests almost never have to wait in line. We are open from 7:00 AM to 8:00 PM daily, and we are excited to offer a high quality and efficient wash with convenient hours. At peak hours, we expect to have as many as 5 employees on site at the same time. To ensure a quality and efficient wash experience for our guests we increase throughput during the busiest times by (a) increasing the speed of our conveyor, (b) dedicating an employee to loading vehicles to eliminate unnecessary gaps between guests and (c) pre-sell in the cashier lane to reduce spent time at the window. While it is unlikely that stacking for our car wash would ever spill back onto Hillcrest Plaza, we also have temporary barricades (large, red, weighted plastic balls) which we can deploy in less than 5 minutes to control traffic. In the event that any cars spilled onto Hillcrest Plaza, we would block the southern entrance to our wash with these barricades to force cars to enter our site through the north, functionally doubling stacking on our site. To ensure that water from onsite operations is contained to the site and will not cause any undue maintenance burden for public roadways, we (a) have trench drains at the entrance and exit of the car wash tunnel and (b) slope grades on the site in the direction of our building, such that stormwater flows into our conveyor pit and goes through our water reclamation system.

T

Exhibit C

Tommy's Express Car Wash



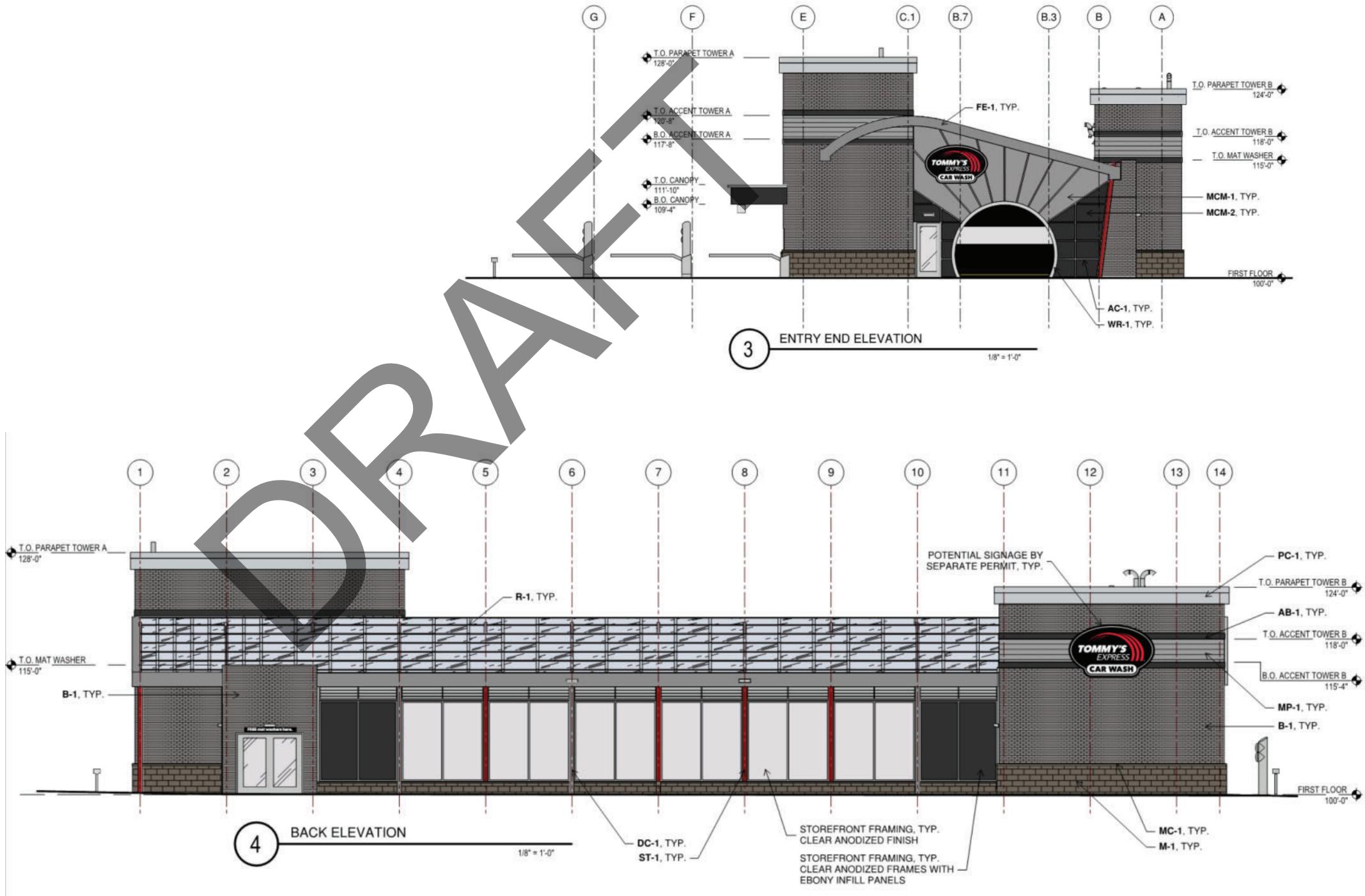
EXTERIOR COLORS AND MATERIALS

T



## B2 - GRAY BRICK

TAG	MATERIAL	MFR.	DESCRIPTION	MFR. COLOR
ST-1	STRUCTURAL STEEL	PROSPANT	5-STAGE POWDER COATED	RAL 3001
MP-1	PREFINISHED PROFILED MCM, TOWER BANDING	ATAS	BELVEDERE 7.2" RIB PANEL	SILVERSMITH
B-1	BRICK, MAIN BUILDING FINISH	GLEN-GARY	GLAZED BRICK, KLAYCOAT	STONE GREY
M-1	CMU BLOCK	CONSUMERS	4" SPLIT FACE VENEER	ASH (MORTAR COLOR TO MATCH)
MC-1	PRECAST STONE		MASONRY CAP	TO MATCH M-1
AB-1	PREFINISHED MCM, TOWER BANDING	ATAS	FLAT SHEET AND COIL	BLACK
PC-1	PREFINISHED MCM, TOWER FASCIA	ARCONIC	REYNOBOND COMPOSITE PANEL	BRIGHT SILVER METALLIC
MCM-1	PREFINISHED MCM, END WALLS	LAMINATORS	LAMINATORS OMEGA SERIES	SLATE GREY
MCM-2	PREFINISHED MCM, END WALLS	CITADEL	SINOCORE	EBONY
AC-1	PREFINISHED MCM, END WALL REVEALS	TUBELITE	200 SERIES CURTAINWALL	CLEAR ANODIZED
DC-1	PREFINISHED MCM, DOWNSPOUT COVERS	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
WR-1	PREFINISHED MCM, GARAGE DOOR WRAPS	CITADEL	ENVELOPE 2000 SYSTEM	CLEAR SATIN ANODIZED
FE-1	PREFINISHED MCM, ROOF FASCIA	ALPOLIC	4MM PE CORE	TBX METALLIC SILVER
R-1	ACRYLIC ROOF SYSTEM	ACRYLITE	HEATSTOP HIGH IMPACT MULTI-SKIN	WZO11 - COOL BLUE WHITE





## B2 - GRAY BRICK

Towers: Brick - Stone Gray

End Walls: Prefinished Aluminum Composite Panels - Black and Slate Gray

Backroom: Brick - Stone Gray



T

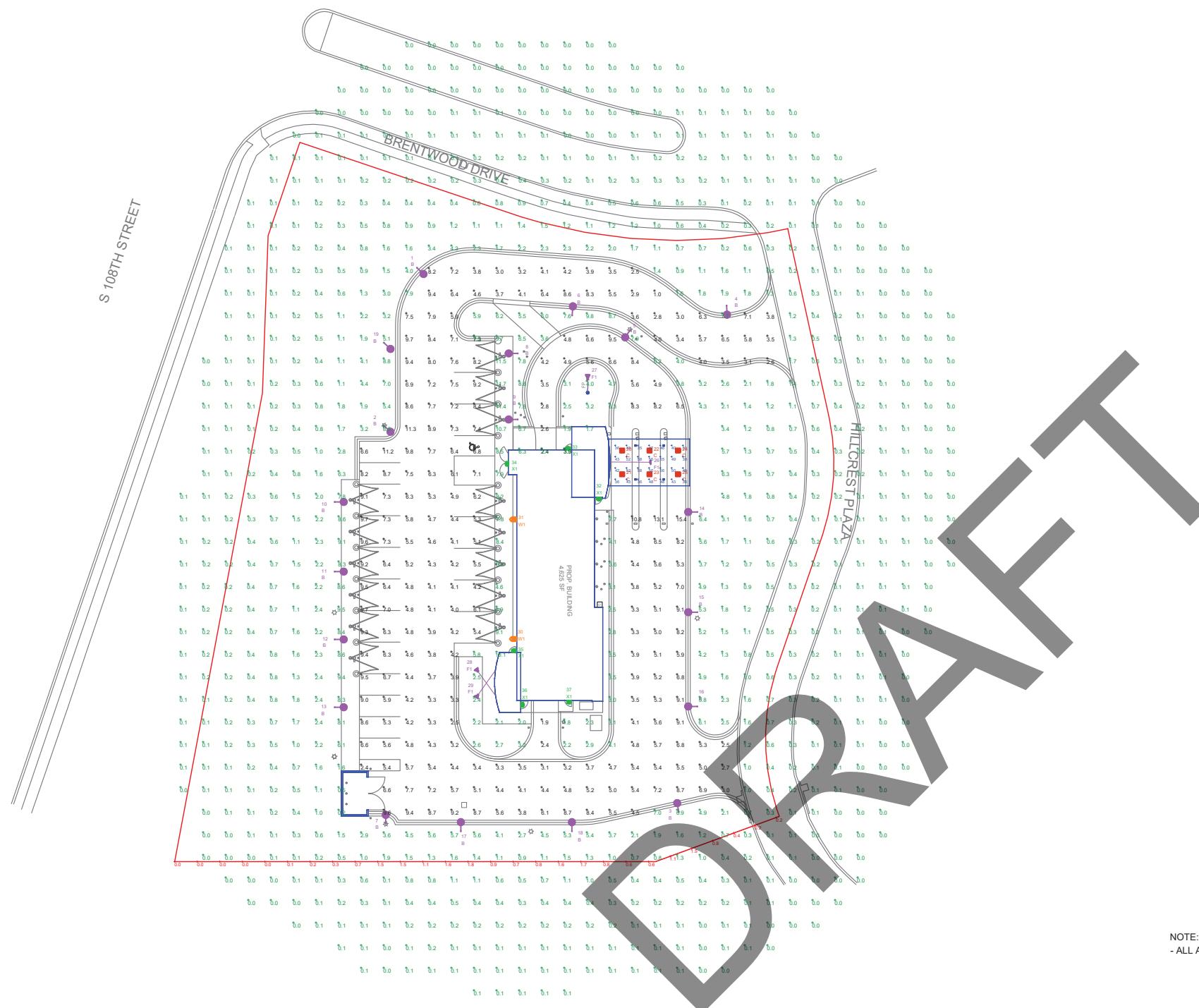
T



B2 GRAY BRICK



## Exhibit E



THIS SITE IS LOCATED IN A REGION WHERE LIGHTING IS  
REGULATED BY LOCAL ORDINANCES

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
PAVED AREA	5.87	15.4	1.0	5.87	15.40
PROPERTY LINE	0.74	1.8	0.0	N.A.	N.A.
UNDEFINED	1.10	11.7	0.0	N.A.	N.A.
UNDER CANOPY	45.43	58	31	1.47	1.87

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	19	B	Single	12338	1.000	B2-U3-G2	90	1710	HCI LIGHTING	F177-L-A360-1A-P452-1-5FC-20
	6	C	Single	10912	1.030	B3-U0-G1	101	606	CREE, INC.	CAN-304-PS-XX-06-E-UL-XX-525-57K-DIM
	4	F1	Single	4330	1.030	B2-U0-G0	37	148	CREE, INC.	FLD-EDG-N6-AA-02-E-UL-XX-525-57K
	2	W1	Single	11259	1.030	B3-U0-G3	134	268	CREE, INC.	SEC-EDG-4M-WM-06-E-UL-XX-700-57K-DIM
	6	X1	Single	657	1.030	N.A.	6	36	BARRON LIGHTING GROUP	SLW-15-4K-XX-EM

The logo for Red Leonard Associates. It features a stylized 'R' icon composed of three parallel bars of increasing height from left to right, with a red diagonal bar crossing the top two. To the right of the icon, the word 'RED' is in red capital letters, 'LEONARD' is in large black capital letters, and 'ASSOCIATES' is in smaller black capital letters below it.

REV.	BY	DATE
R1	JSG	4/21/23
.	.	.
.	.	.

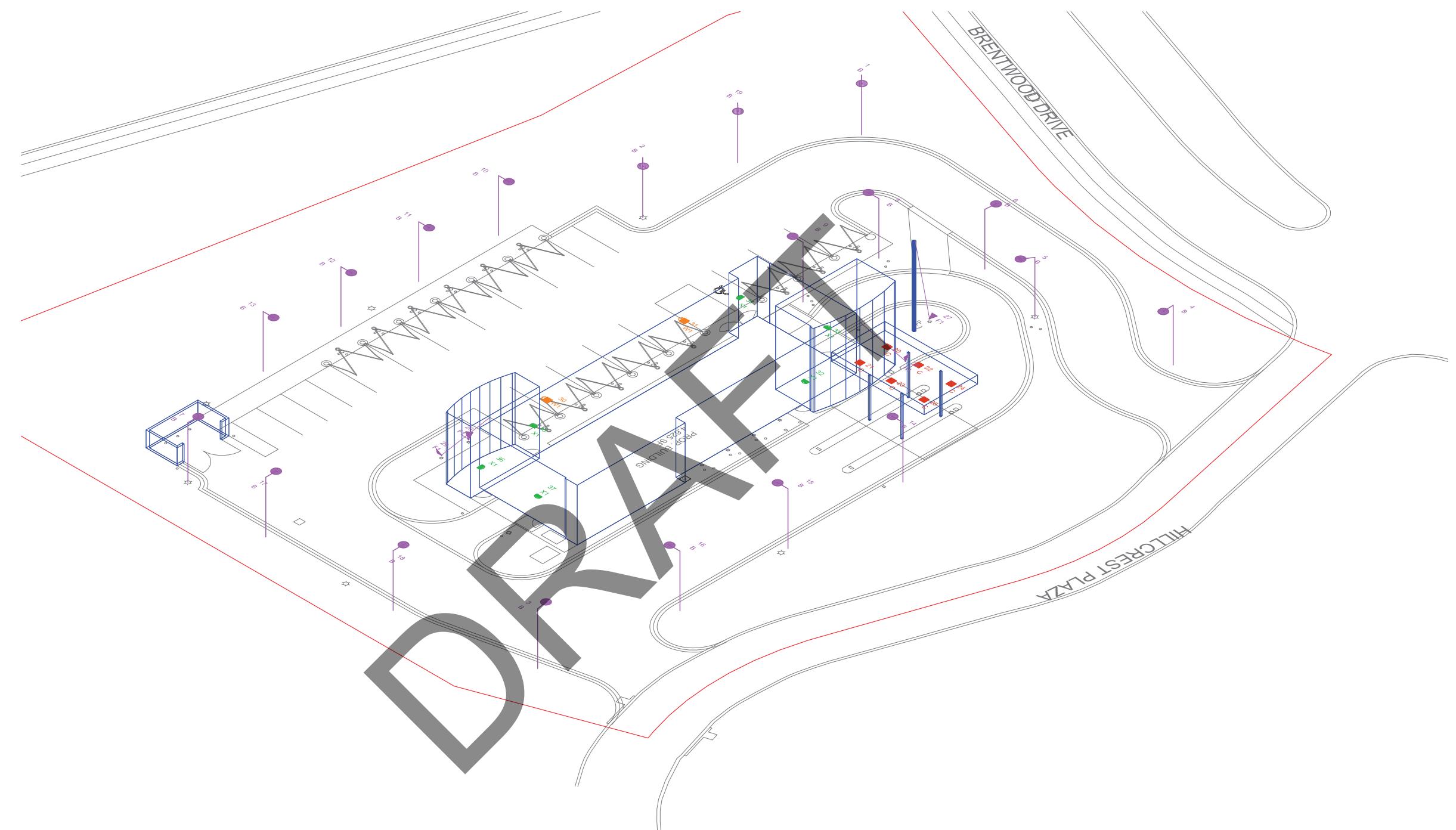
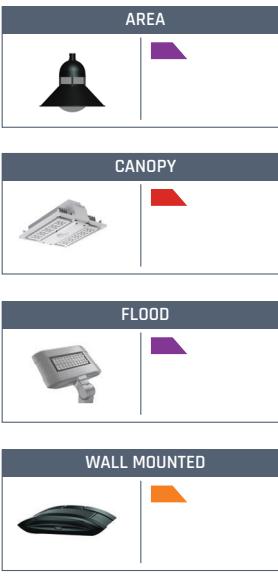
DESCRIPTION  
AREA LIGHTS WERE CR

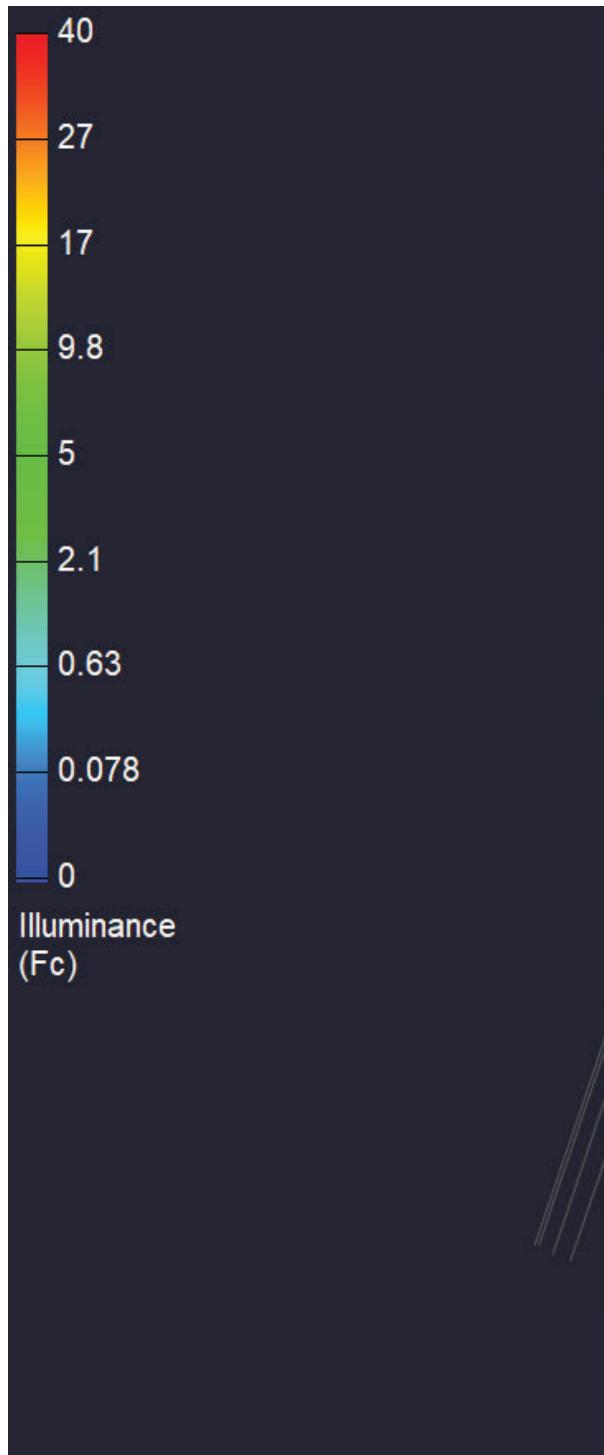
SCALE: LAYOUT BY:  
1" = 30' JAN  
DWG SIZE: DATE:  
D 02/28/23

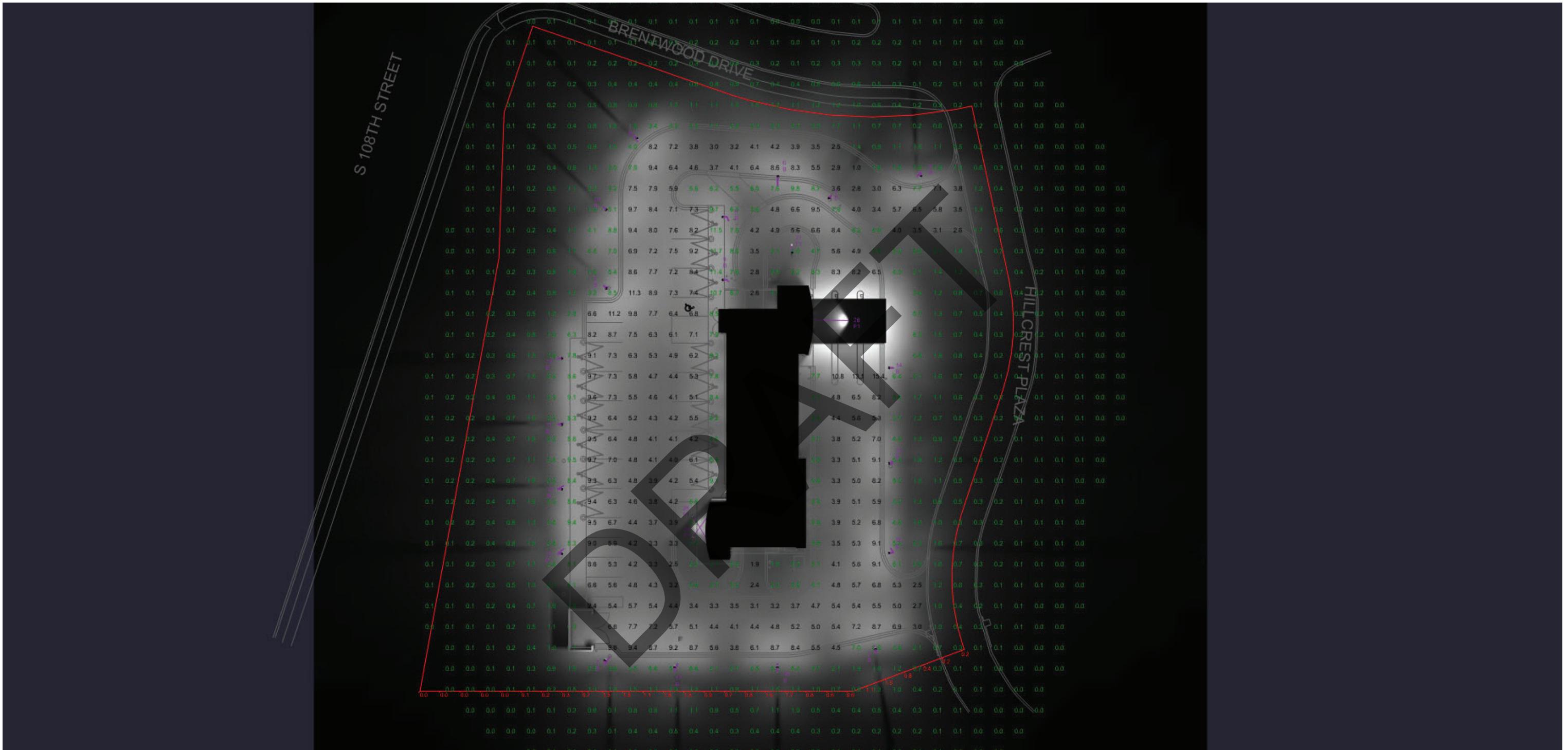
PROJECT NAME:  
**TOMMY CAR WASH**  
**LA VISTA, NE**  
DRAWING NUMBER:  
**RL-8680-S1-R1**

The logo for Tommy Car Wash Systems. It features the word "TOMMY" in a bold, black, sans-serif font, with "CAR WASH SYSTEMS" in a smaller, black, sans-serif font directly below it. A thick, red, curved line starts from the top left, above the "T", and sweeps down and to the right, ending with three vertical bars on the right side of the "S".



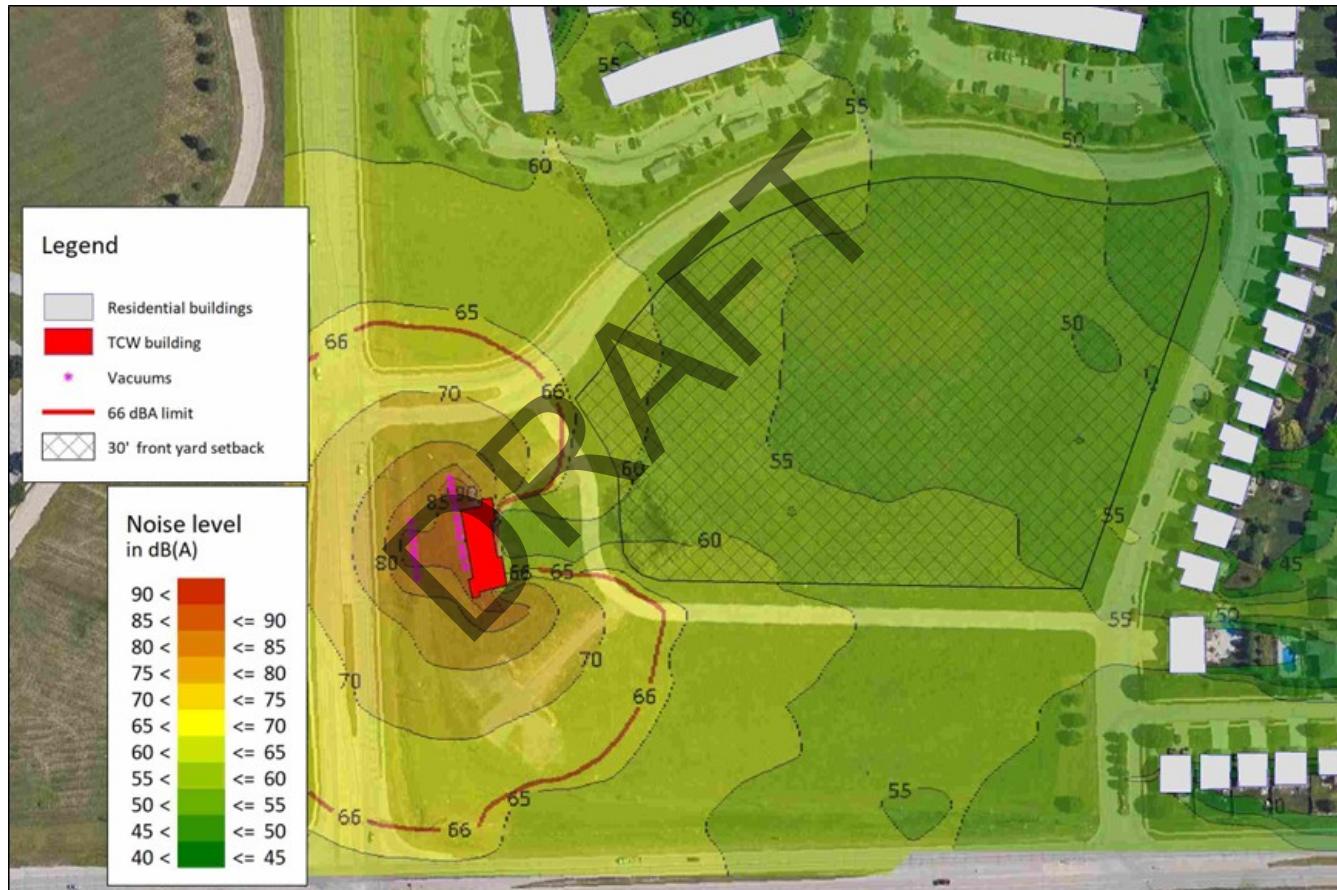






# Noise Map with Sound Mitigation Barrier

Exhibit F



**Insert approved landscaping plans here once complete**

**DRAFT**

Traffic Impact Study

# Val Vista Car Wash

La Vista, Nebraska

Prepared for:

**E & A Consulting Group, Inc.**

**Kimley»Horn**

T R A F F I C   I M P A C T   S T U D Y

**Val Vista Car Wash**

La Vista, Nebraska

Prepared for  
**E & A Consulting Group, Inc.**  
10909 Mill Valley Road  
Suite 100  
Omaha, Nebraska

Prepared by  
**Kimley-Horn and Associates, Inc.**  
4582 South Ulster Street  
Suite 1500  
Denver, Colorado 80237  
(303) 228-2300



March 2023

*This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.*

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## 1.0 EXECUTIVE SUMMARY

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Val Vista Car Wash is proposed to be located on the southeast corner of the 108<sup>th</sup> Street and Brentwood Drive intersection in La Vista, Nebraska. It is part of the overall Val Vista development area proposed on the northeast corner of 108<sup>th</sup> Street and Giles Road. The project is proposed to include an approximate 4,625 square foot automated car wash. It is expected that Val Vista Car Wash will be completed in the next couple years. Therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the City of La Vista standards and requirements:

- 108<sup>th</sup> Street and Brentwood Drive
- 108<sup>th</sup> Street and Giles Road
- 107<sup>th</sup> Street and Giles Road

In addition, the proposed two access intersections along Hillcrest Plaza at Brentwood Drive and at 107<sup>th</sup> Street were included for evaluation.

Regional access to Val Vista Car Wash will be provided by Interstate 80 (I-80). Primary access will be provided by Giles Road and 108<sup>th</sup> Street. Access will be provided by the intersections of Bentwood Drive/Hillcrest Plaza and 107<sup>th</sup> Street/Hilcrest Plaza while direct access is proposed with driveways along Hillcrest Plaza.

Based on Institute of Transportation Engineers (ITE) *Trip Generation Manual* rates and equations, Val Vista Car Wash is expected to generate approximately 660 weekday daily trips, with 66 of these trips occurring during the morning and afternoon peak hours.

Based on the analysis presented in this report, Kimley-Horn believes Val Vista Car Wash will be successfully incorporated into the existing and future roadway network. Analysis of the existing

street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

- All surrounding studied key intersections and roadways will operate acceptably with the addition of Val Vista Car Wash project traffic. Therefore, no offsite transportation improvements or modifications are recommended for implementation of this project.
- With completion of the Val Vista Car Wash project, direct access is proposed along Hillcrest Plaza at two accesses. The south access is intended primarily for inbound traffic while the north access is intended primarily for exiting traffic. However, if both accesses will allow two-way traffic, it is recommended that R1-1 “STOP” signs be installed on the eastbound driveway exiting approach at both driveways.
- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of La Vista and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.



**Remainder of study available upon request.**

# Memo

Date: Tuesday, July 11, 2023

Project: 108<sup>th</sup> Street & Giles Road Review

To: Pat Dowse – City of La Vista

From: Mike Forsberg, PE, PTOE – HDR  
Brett Guy, EIT – HDR

Subject: Car Wash TIS Evaluation Review

## Introduction

This memo documents recently completed Traffic Impact Studies (TIS) of the Val Vista Car Wash completed by Kimley-Horn (KH) and the automated car wash tunnel completed by Felsburg Holt & Ullevig (FHU). Both independent car washes are located on the property northeast of the 108<sup>th</sup> Street and Giles Road intersection. This multi-level review includes the following:

- A comparison of the proposed developments site characteristics.
- A review of the analysis methodology and recommendations provided by each independent TIS.
- A composite list of recommendations at all proposed intersections based on the findings of each individual TIS.

## Development Site Characteristics Comparison

Below is a general list of characteristics documented in each TIS:

<u>Description</u>	<u>Val Vista Car Wash (KH)</u>	<u>Automated Car Wash (FHU)</u>
<i>Development Size (SF)</i>	4,625	4,650
<i>Car Wash Type</i>	Automated Tunnel	Automated Tunnel
<i>Trip Generation (veh-trips) -Daily/AM/PM</i>	660 66 66	780 78 [142] <sup>1</sup> 78 [142]
<i>Average Service Rate (veh/hr)</i>	Not provided <sup>2</sup>	100
<i>No. of Service Lanes</i>	3 <sup>3</sup>	3 <sup>3</sup>
<i>Site Queue Storage (veh)<sup>4</sup></i>	18 <sup>3</sup>	22

1. [Weekend] trip generation.

2. Operations assumed to be similar based on car wash type.

3. Per site plan.

4. Storage in advance of payment kiosk. Additional capacity beyond kiosk into wash tunnel.

## Val Vista Car Wash (KH) Summary

The proposed Val Vista car wash is anticipated to consist of one car wash tunnel with three payment lanes. The car wash will be located in the southeast quadrant of 108<sup>th</sup> Street & Brentwood Drive, with direct access off of Hillcrest Plaza. Traffic volumes were collected in 15-minute intervals on Tuesday, February 21<sup>st</sup>, 2023, during the morning and afternoon peak hours at the following intersections:

- 108<sup>th</sup> Street & Giles Road (4 hours)
- 107<sup>th</sup> Street & Giles Road (4 hours)
- 108<sup>th</sup> Street & Brentwood Drive (4 hours)

Construction is anticipated to be completed within a few years. Existing volumes were forecasted using a 1.35% annual growth rate based on projections from the Metropolitan Area Planning Agency (MAPA) traffic model to develop background traffic. Total trips were calculated by adding the site trips to the background traffic. The site trips were distributed to intersections above, in addition to the intersections at Brentwood Drive & Hillcrest Plaza and at 107<sup>th</sup> Street & Hillcrest Plaza. Traffic operations were analyzed for the existing year of 2023, an opening year of 2025, and horizon year of 2045 at these five intersections. ***The results of the analysis yielded no operational concerns for any of these traffic scenarios.*** Based on the results, the following improvements were recommended:

### RECOMMENDATIONS

- Install stop sign(s) at the driveway exit(s) of the carwash onto Hillcrest Plaza.

## Automated Car Wash (FHU) Summary

The proposed car wash is also anticipated to consist of one car wash tunnel with three payment lanes. The car wash will be located directly to the south of the Val Vista car wash with direct access off of Hillcrest Plaza. Traffic volumes were collected in 15-minute intervals on various days to develop existing weekday and weekend volumes at the following intersections:

- 108<sup>th</sup> Street & Giles Road
  - Wednesday, April 20<sup>th</sup>, 2022 (24 hours)
  - Saturday, April 4<sup>th</sup>, 2023 (4 hours)
- 107<sup>th</sup> Street & Giles Road
  - Thursday, May 19<sup>th</sup>, 2022 (4 hours)
  - Saturday, April 4<sup>th</sup>, 2023 (4 hours)
- 108<sup>th</sup> Street & Brentwood Drive
  - Thursday, March 2<sup>nd</sup>, 2023 (8 hours)
  - Saturday, April 4<sup>th</sup>, 2023 (4 hours)

Existing traffic operations analysis suggest non-site related improvements may be needed to address current operational deficiencies. The overall LOS at 108<sup>th</sup> Street & Giles Road is D(E)[D] for the AM, (PM) and [Weekend] peak hours, respectively. Individual movements also operate at LOS E or worse at 107<sup>th</sup> Street & Giles Road and 108<sup>th</sup> Street and Brentwood Drive.

Future traffic volumes were developed using MAPA's 2050 projections, as well as projections from previously completed studies. Growth rates for each leg of the study intersections were used to develop future year background volumes. These growth rates ranged from 1.0 to 1.85 for each specific intersection leg. 2024 Buildout and 2044 Future volumes were developed by adding the site trips to these future background volumes. Overall site trips were reduced by 30% to account for pass-by trips, or trips that already exist within the volume network that would access the site as they "pass-by".

A queue analysis was completed to determine the effective capacity of the car wash to identify any potential queue spillback off the site onto Hillcrest Plaza and other adjacent streets. Based on the estimated incoming traffic demand (39 veh/hr) and the service rate of the carwash (100 veh/hr), the average queue length is expected to only reach 0.64 vehicles on a typical weekday and max queue length of 3.55 vehicles on the weekend. This estimation is well below the available queue storage (22 veh).

Signal warrants, turn-lane warrants, and intersection operation analysis hinged on two different geometric considerations at 107<sup>th</sup> Street & Giles Road. The first scenario kept the intersection as-is, a full-access intersection. The second scenario restricts lane movements in what is known as a Right In – Right Out (RIRO) intersection. Left-turns and through movements from the minor street (107<sup>th</sup>) and left-turns from the major street (Giles) would be prohibited and existing traffic would be redistributed to nearby intersections. **Based on the results for the 2024 Buildout volumes under both geometric scenarios, no improvements were recommended.**

However, under the 2044 Future traffic volumes, the following recommendations were identified as "non-site related" improvements:

<u>Full Access Scenario</u>	<u>RIRO Scenario</u>
<b>108<sup>th</sup> Street &amp; Giles Road</b>	
Construct EBR Lane <sup>1</sup> (250')	Construct EBR Lane <sup>1</sup> (250')
Construct WBR Lane <sup>1</sup> (150')	Construct WBR Lane <sup>1</sup> (150')
Extend EBL Lane (400')	Extend EBL Lane (400')
Extend NBL Lane (400')	Extend NBL Lane (400')
<b>107<sup>th</sup> Street &amp; Giles Road</b>	
Construct WBR Lane <sup>2</sup>	Convert to RIRO Intersection <sup>1</sup> Construct WBR Lane <sup>2</sup>
<b>108<sup>th</sup> Street &amp; Brentwood Drive</b>	
Construct NBR Lane <sup>2</sup> Install Traffic Signal <sup>2</sup>	Construct NBR Lane <sup>2</sup> Install Traffic Signal <sup>2</sup>
<b>Giles Road Corridor</b>	
Update Signal Timings routinely	Update Signal Timings routinely
<b>Portal Road Corridor</b>	
Convert to 5-Lane Section	Convert to 5-Lane Section

1. Improvements identified in previous Giles Road Corridor Study

2. Improvements recommended if additional lots developed surrounding car wash site.

## HDR Review & Findings

HDR conducted a comprehensive review of the traffic data collection, traffic forecasting, trip generation, traffic operations analysis, and the subsequent recommendations provided by each individual TIS. The findings are summarized in the sections below:

### EXISTING TRAFFIC VOLUMES

Based on the existing volumes provided in each study, it was found that the volumes in the KH study were significantly lower than those in the FHU study. Traffic volumes at the intersections of 108<sup>th</sup> Street & Giles Road and 107<sup>th</sup> Street & Giles Road were up to 55% lower than the volumes collected in FHU's study. Based on reviews and local knowledge of travel patterns in the area, the existing volumes in the FHU study appear more in line with expected demand. The variance in the existing volumes in the KH study may be the result of an undisclosed event during the data collection period. Below is a summary of the difference in Total Entering Volume (TEV) at the three study intersections for the AM and PM Peak Hours:

Total Entering Volume Comparison

	108 <sup>th</sup> Street & Giles Road		107 <sup>th</sup> Street & Giles Road		108 <sup>th</sup> Street & Brentwood Drive	
	AM	PM	AM	PM	AM	PM
KH	2,344	2,302	1,253	1,676	1,312	1,457
FHU	3,228	4,048	1,525	2,252	1,320	1,482
% Difference	31.7%	55.0%	19.6%	29.3%	0.6%	1.7%

This anomaly in traffic volumes is significant enough to alter operations results. **In this case, the overall analysis and recommendations provided in either study could be over- or understated.**

### TRAFFIC FORECASTS

Both studies utilized the MAPA traffic model projections to develop growth rates or growth factors for future years. **This methodology is consistent with typical TIS.**

### TRIP GENERATION

Both studies utilized the Institute of Traffic Engineers (ITE) Trip Generation Manual, 11<sup>th</sup> Edition and used ITE Code 948-Automated Car Wash to generate trips to/from each site. The trips calculated for each study are similar based on the overall size of the developments. FHU also provided an estimation on weekend trips to the site based on the same methodology. FHU applied a pass-by trip reduction of 30%, meaning that 30% of the traffic accessing the site is current traffic already on the surrounding road network. **This methodology is consistent with typical TIS.** Note: There are only 3 applicable studies in the ITE Trip Generation Manual used to determine trip generation rates to automated car wash sites. These sites were surveyed in the 1990s/2000s and may not reflect demand generated by modern car wash tunnels with membership options.

## TRAFFIC OPERATIONS

As mentioned above in the existing traffic volume section, operation results provided in the KH study are more than likely understated due to an undisclosed event that resulted in significantly less traffic along Giles Road. The recommendations provided in the FHU study are consistent with the expected delay and 95<sup>th</sup> percentile queue length due to traffic volumes. The addition of turn lanes or turn lane extensions is to mitigate spillback of turning traffic into the through lanes. The recommendation of controlling access at 107<sup>th</sup> Street & Giles Road should be considered. Delay at the minor streets will be excessive and may lead to drivers choosing small gaps to turn left onto Giles Road. This behavior could lead to potentially severe crashes at the intersection. Another option to consider is a ¾ access intersection, where left-turns from Giles Road onto 107<sup>th</sup> Street, as this would have less restrictive access at the intersection. Finally, the FHU study stated a signal could be warranted at 108<sup>th</sup> Street & Brentwood Drive with additional lot development in the area. With both car washes planned and additional lots likely to develop, a traffic signal will most likely be warranted, especially if access is restricted at 107<sup>th</sup> Street & Giles Road.

## QUEUEING ANALYSIS

A sensitivity analysis of queue spillback from vehicles waiting to go through the car wash was conducted to determine when the entering vehicle demand would potentially fill up the sites available queue storage. Using the same Kendall notation as the FHU study, the M/M/1 queuing model was used to determine what level of demand the available queue storage on site begins to fill and spill onto the adjacent roadway. Using the following formulas, we can estimate the average number of vehicles in queue under certain demand volumes.

Where utilization ( $\rho$ ) = arrival rate ( $\lambda$ ) / service rate ( $\mu$ ), or  $\rho = \lambda / \mu$ , we can determine the length of queue,  $L_q$ , by the following formula.

$$L_q = \frac{\rho^2}{1 - \rho}$$

The table below summarizes the estimated queue lengths using a fixed average service rate of 100 vehicles per hour and a variable arrival rate. The parameters and associated queue lengths are as follows:

Arrival Rate (veh/hr)	Average Service Rate (veh/hr)	Utilization	Average Queue Length (veh)
60	100	0.60	0.9
70	100	0.70	1.63
80	100	0.80	3.20
90	100	0.90	8.10
95	100	0.95	18.1

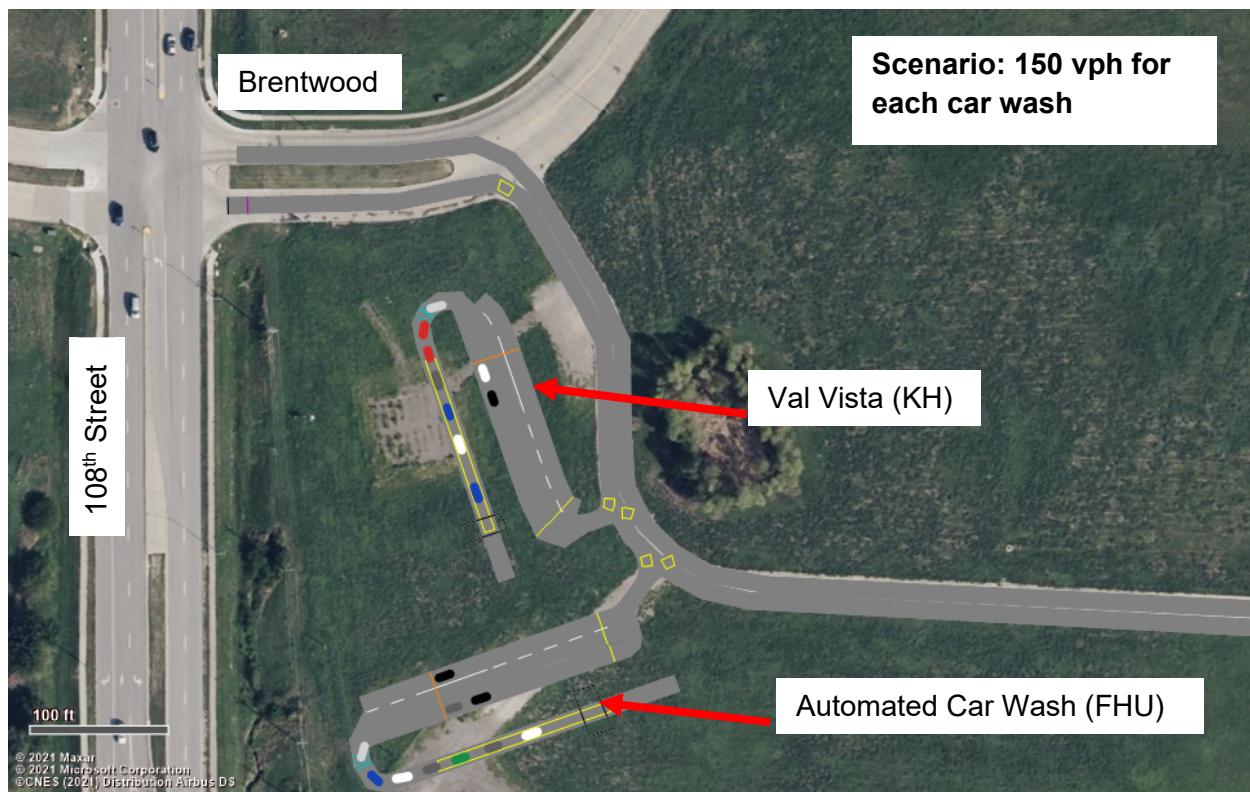
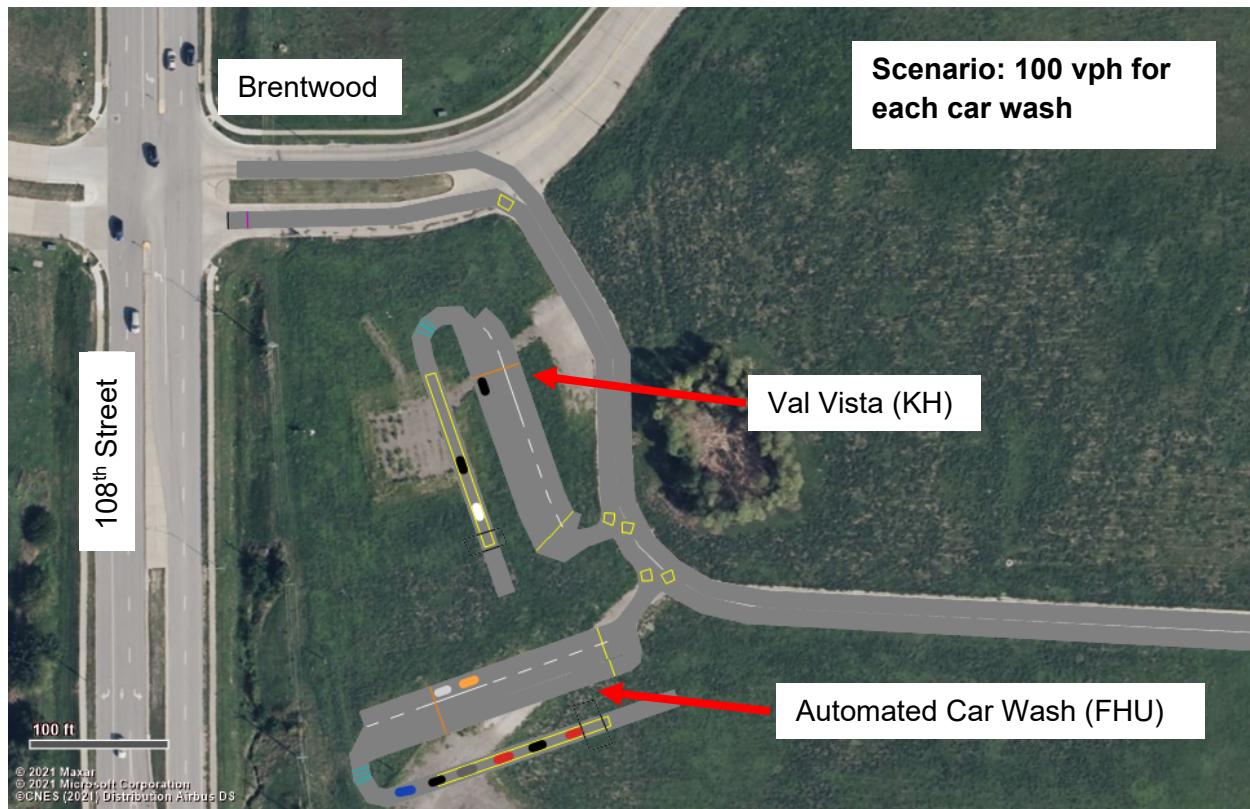
Under 95% utilization, the queue length will be approximately 18 vehicles long, which is at or just shy of the queue storage provide in both site plans. However, additional service rate capacity is available, if needed, for peak periods per the operating plan of the FHU car wash.

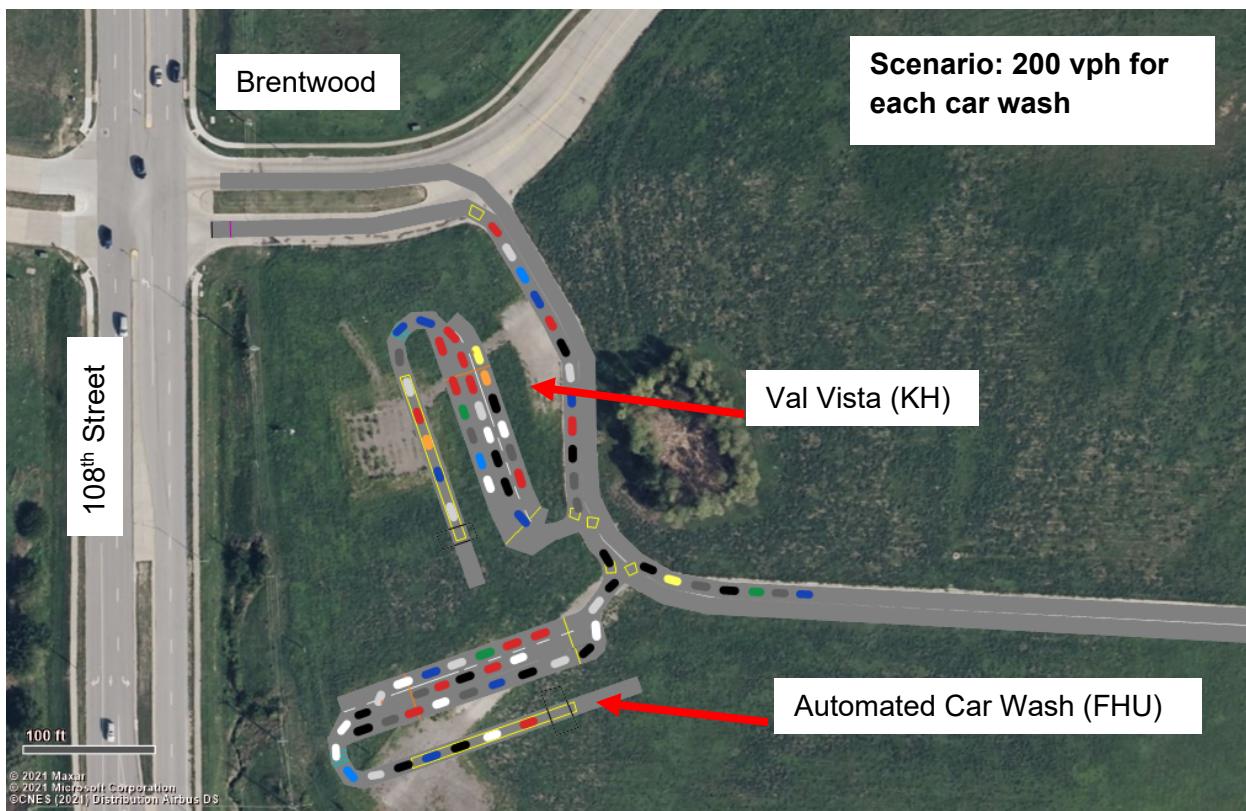
*Disclaimer: The M/M/1 queue model is not best suited for over-capacitated analysis when the utilization factor is >1. The model becomes unstable as it approaches the upper limits and queues extend to infinity. Additionally, the M/M/1 model accurately depicts the arrivals and service of the car wash tunnel itself. However, it does not accurately model the payment process of the three queue lines, assuming that one queue line is for individual cash payments and two lanes are for membership users. The proportion of traffic that are single user or membership holders may have slightly skew the queue lengths of each individual lanes.*

Queuing was also reviewed using Vissim microsimulation to get a more detailed and visual estimate of queuing potential. Vissim is a detailed modeling platform that simulates individual vehicle movement and their interaction with one-another, other modes and traffic control devices. To approximate the operations of the car wash developments, the following additional assumptions were made:

- 30% are cash/card (non-members) using one of the three lanes dedicated to cash/card; wait time distribution at kiosk/attendant 30-60 seconds.
- 70% are members or non-members using two of the three lanes dedicated for app service at a rate of 10-20 seconds.
- Peak processing speed through car wash tunnel equivalent to 160 vph.
  - It should be noted that the FHU study indicated that the car wash could process up to 200 vph if the volume entering the car wash exceeds the stacking availability. However, the car wash developer planner did not provide a response to asked questions, including service rates.
- 70% of entering trips off 108<sup>th</sup> Street; 30% of entering trips off 107<sup>th</sup> Street based on trip distribution of competed TIS.
- Looked at scenarios of 100, 150 and 200 cars entering each car wash during peak hour
  - FHU study showed peak Saturday is expected to be 71 entering (710 entering per day based on FHU's assumption of 10% during the peak hour).
  - Car wash development planner shared that a typical busy day has 800-1,000 vehicles serviced with a busiest record day of 1,400.
  - Review of car wash forum found a common response to daily service to be 600-800 on good days; even higher on ideal days (no rain; perhaps after days contributing to dirt build-up; upwards of 2,000 daily). Using a range of 600-2,000 per day and 10% during peak hour assumption would yield a range of 60-200 during a Saturday peak hour.

Screenshots from the Vissim model with approximate max queuing for scenarios of 100, 150 and 200 peak hour demand are shown below.





## Conclusion & Recommendations

Based on the review of both independent studies, the following conclusions and recommendations have been made.

### CONCLUSIONS

- Investigation into the large discrepancies between the existing volumes between the two traffic studies, particularly at 108<sup>th</sup> Street & Giles Road, should be examined to determine any unknown event that may have occurred during data collection.
- Trip generation rates for both sites are consistent with ITE's Trip Generation Handbook and other similar studies.
- Based on provided operations and demand information, queue spillback is not expected to occur unless arrival demand exceeds 150 vph for each site. Both sites noted peak service operations capacity near 180-200 vph. One site planner noted peak daily service of 1,400 at another site. The FHU study estimated 10% of daily volume during the peak hour, which would yield 140 vehicles during the peak hour on a peak day.
- Observations of other sites in the metropolitan area show queuing that is beyond what the simulation of 150 vph produced. This indicates the potential for either greater demand than what has been estimated or service rate that is slower than what has been provided. The simulation results for peak hour demand of 200 vph may be more indicative of high demand days based on observations. Queues during high

**demand days (demand near 200 vph) would be expected to extend out of the car wash sites and onto Hillcrest Plaza. This would be the case for development of either site by itself, independent of the other.** This is illustrated in the graphic in the Recommendations section with traffic queued onto Hillcrest Plaza with an added southbound right-turn lane on Hillcrest Plaza into the Val Vista car wash. Traffic exiting the car washes or other developments along Hillcrest Plaza may be blocked by queues.

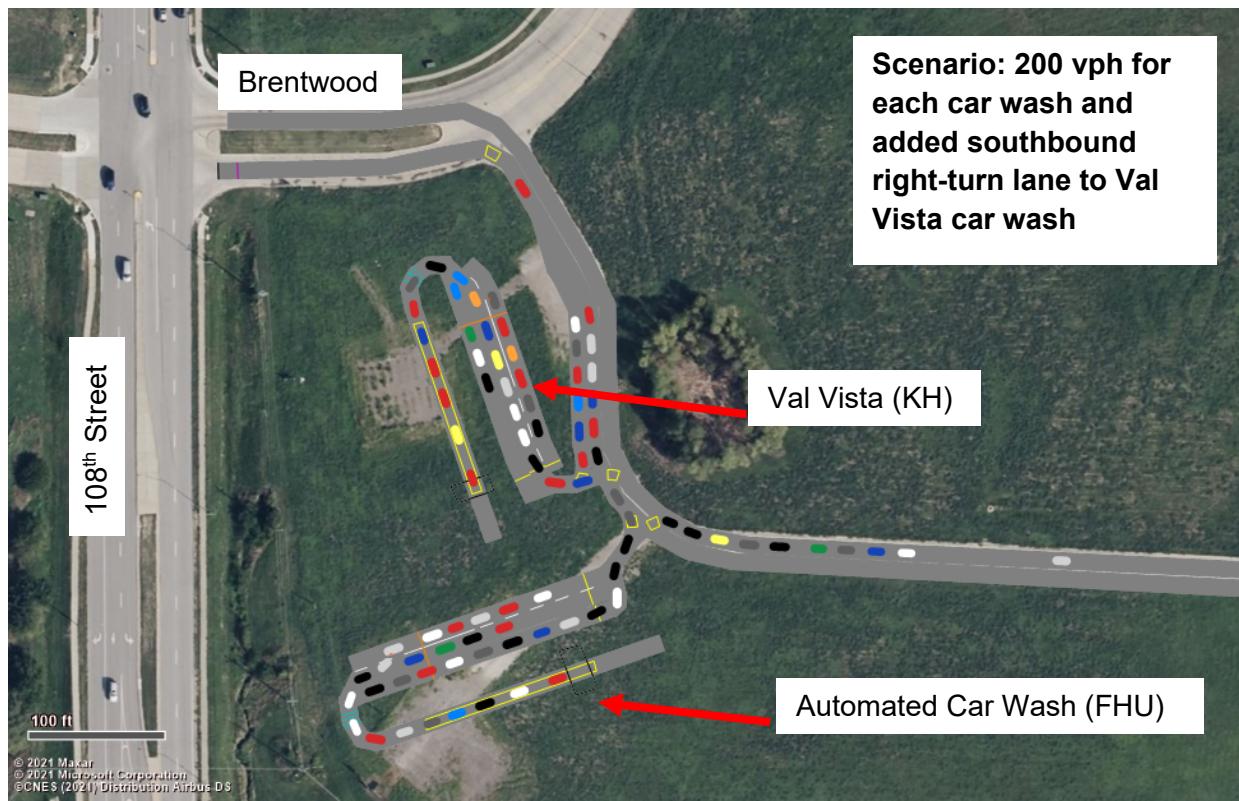
## RECOMMENDATIONS

The following recommendations are based on the accuracy of the volumes collected by FHU:

- **108<sup>th</sup> Street & Giles Road**
  - Construct EBR Lane (250')
  - Construct WBR Lane (150')
  - Extend EBL Lane (400')
  - Extend NBL Lane (400')
- **107<sup>th</sup> Street & Giles Road**
  - Convert Full-Access intersection to RIRO or ¾ Access intersection
  - Construct WBR Lane (feasibility constraint)
- **108<sup>th</sup> Street & Brentwood Drive**
  - Construct NBR Lane
  - Install Traffic Signal

**Improvements at 108<sup>th</sup> Street & Brentwood Drive should be discussed between developments and City of La Vista for cost sharing.**

**A southbound right-turn lane on Hillcrest Parkway into the Val Vista car wash should also be considered to provide added storage for entry into the north car wash and limit potential for spillback to Brentwood Drive.** This would provide for vehicles destined to the Val Vista car wash and vehicles to the other car wash could then bypass queued Val Vista car wash customers. This is illustrated in the following graphic. This may require modification to the site layout to accommodate turning template into the site.



August 8, 2023

Pat Dowse  
City of La Vista

Re: Val Vista Car Wash; Traffic Impact Study Comment Response Letter

Dear Pat:

Thank you for the Traffic Impact Study review comments memo provided by Mike and Brett at HDR dated July 11, 2023 for the Val Vista Car Wash project. The purpose of this letter is to provide responses to the comments to assist the City of La Vista with review of the traffic study.

**Comment #1:** Investigation into the large discrepancies between the existing volumes between the two traffic studies, particularly at 108<sup>th</sup> Street & Giles Road, should be examined to determine any unknown event that may have occurred during data collection.

**Response:** Understood. Upon further comparisons, we agree that the counts collected were not fully encompassing the actual traffic patterns at the study intersections. Therefore, the FHU counts were used instead in this updated traffic study. Likewise, the car wash project studied in the FHU TIS was included as background traffic in this updated traffic study.

**Comment #2:** Trip generation rates for both sites are consistent with ITE's Trip Generation Handbook and other similar studies.

**Response:** Comment acknowledged.

**Comment #3:** Based on provided operations and demand information, queue spillback is not expected to occur unless arrival demand exceeds 150 vph for each site. Both sites noted peak service operations capacity near 180-200 vph. One site planner noted peak daily service of 1,400 at another site. The FHU study estimated 10% of daily volume during the peak hour, which would yield 140 vehicles during the peak hour on a peak day.

**Response:** Comment acknowledged.

**Comment #4:** Observations of other sites in the metropolitan area show queuing that is beyond what the simulation of 150 vph produced. This indicates the potential for either greater demand than what has been estimated or service rate that is slower than what has been provided. The simulation results for peak hour demand of 200 vph may be more indicative of high demand days based on observations. Queues during high demand days (demand near 200 vph) would be expected to extend out of the car wash sites and onto Hillcrest Plaza. This would be the case for development of either site by itself, independent of the other. This is illustrated in the graphic in the Recommendations section with traffic queued onto Hillcrest Plaza with an added southbound right-turn lane on Hillcrest Plaza into the Val Vista car wash. Traffic exiting the car washes or other developments along Hillcrest Plaza may be blocked by queues.

**Response:** Comment acknowledged.

**Comment #5:** The following recommendations are based on the accuracy of the volumes collected by FHU:

- **108<sup>th</sup> Street & Giles Road**
  - Construct EBR Lane (250')
  - Construct WBR Lane (150')
  - Extend EBL Lane (400')
  - Extend NBL Lane (400')
- **107<sup>th</sup> Street & Giles Road**
  - Convert Full-Access intersection to RIRO or ¾ Access intersection
  - Construct WBR Lane (feasibility constraint)
- **108<sup>th</sup> Street & Brentwood Drive**
  - Construct NBR Lane
  - Install Traffic Signal

**Response:** These recommendations were included in the revised traffic study except for the northbound right turn lane along 108<sup>th</sup> Street at Brentwood Drive or the westbound right turn lane along Giles Road at 107<sup>th</sup> Street. These turn lanes are not yet warranted. Of note, once more development is constructed on the northeast corner of Brentwood Drive and 108<sup>th</sup> Street, these turn lanes may likely be warranted.

**Comment #6:** Improvements at 108<sup>th</sup> Street & Brentwood Drive should be discussed between developments and City of La Vista for cost sharing.

**Response:** Agreed.

**Comment #7:** A southbound right-turn lane on Hillcrest Parkway into the Val Vista car wash should also be considered to provide added storage for entry into the north car wash and limit potential for spillback to Brentwood Drive. This would provide for vehicles destined to the Val Vista car wash and vehicles to the other car wash could then bypass queued Val Vista car wash customers. This is illustrated in the following graphic. This may require modification to the site layout to accommodate turning template into the site.

**Response:** A southbound right turn lane will be provided at the entrance access along Hillcrest Plaza.

If there are any additional questions or if anything else is needed, please feel free to contact me.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.

  
Curtis D. Rowe, P.E., PTOE  
Vice President

Traffic Impact Study

# Val Vista Car Wash

La Vista, Nebraska

Prepared for:

**E & A Consulting Group, Inc.**

**Kimley»Horn**

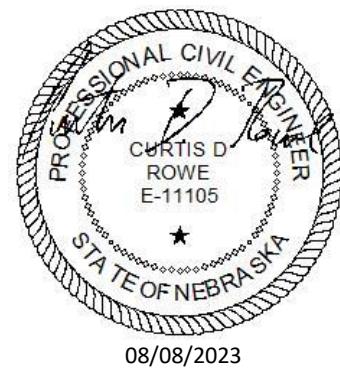
T R A F F I C   I M P A C T   S T U D Y

**Val Vista Car Wash**

La Vista, Nebraska

Prepared for  
**E & A Consulting Group, Inc.**  
10909 Mill Valley Road  
Suite 100  
Omaha, Nebraska

Prepared by  
**Kimley-Horn and Associates, Inc.**  
6200 South Syracuse Way  
Suite 300  
Greenwood Village, Colorado 80111  
(303) 228-2300



August 2023

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## 1.0 EXECUTIVE SUMMARY

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Val Vista Car Wash is proposed to be located on the southeast corner of the 108<sup>th</sup> Street and Brentwood Drive intersection in La Vista, Nebraska. It is part of the overall Val Vista development area proposed on the northeast corner of 108<sup>th</sup> Street and Giles Road. The project is proposed to include an approximate 4,625 square foot automated car wash. It is expected that Val Vista Car Wash will be completed in the next couple years. Therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the City of La Vista standards and requirements:

- 108<sup>th</sup> Street and Brentwood Drive
- 108<sup>th</sup> Street and Giles Road
- 107<sup>th</sup> Street and Giles Road

In addition, the proposed two access intersections along Hillcrest Plaza at Brentwood Drive and at 107<sup>th</sup> Street were included for evaluation.

Regional access to Val Vista Car Wash will be provided by Interstate 80 (I-80). Primary access will be provided by Giles Road and 108<sup>th</sup> Street. Access will be provided by the intersections of Bentwood Drive/Hillcrest Plaza and 107<sup>th</sup> Street/Hilcrest Plaza while direct access is proposed with driveways along Hillcrest Plaza.

Based on Institute of Transportation Engineers (ITE) *Trip Generation Manual* rates and equations, Val Vista Car Wash is expected to generate approximately 660 weekday daily trips, with 66 of these trips occurring during the morning and afternoon peak hours.

Based on the analysis presented in this report, Kimley-Horn believes Val Vista Car Wash will be successfully incorporated into the existing and future roadway network. Analysis of the existing

street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

- With completion of the Val Vista Car Wash project, direct access is proposed along Hillcrest Plaza at two accesses. The south access is intended primarily for inbound traffic while the north access is intended primarily for exiting traffic. An approximate 75-foot southbound right turn lane into the south access along Hillcrest Plaza will be provided into the site.
- The intersection of 108<sup>th</sup> Street and Brentwood Drive is nearing warrants for signalization based on the four-hour peak periods. However, all four hours are not met in 2025. The intersection should be monitored for signalization in the future with the addition of traffic from surrounding undeveloped areas.
- The 107<sup>th</sup> Street and Giles Road intersection is recommended to be converted to three-quarter movements (minor street left turn and through movements restricted) as requested by the City. The southbound and northbound approaches will operate with right turn only movements. Therefore, R3-5R Right Turn Only signs could be placed underneath the STOP signs on both minor approaches. Likewise, an S-shaped raised median within the middle of the intersection may be desired to physically restrict minor street left turn and through movements.
- If 2045 traffic volumes are realized, the 150-foot eastbound left turn at 108<sup>th</sup> Street and Giles Road intersection may need to be extended to 400 feet. An exclusive eastbound right turn lane may need to be constructed to provide a length of 250 feet while a westbound right turn lane may need to be constructed to provide a length of 150 feet. Lastly, dual southbound left turn lanes may be needed with the second southbound left turn lane restriped within the existing pavement space striped out at this intersection.
- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of La Vista and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.



## 2.0 INTRODUCTION

---

Kimley-Horn has prepared this report to document the results of a Traffic Impact Study for Val Vista Car Wash proposed to be located on the southeast corner of the 108<sup>th</sup> Street and Brentwood Drive intersection in La Vista, Nebraska. It is part of the overall Val Vista development area proposed on the northeast corner of 108<sup>th</sup> Street and Giles Road. A vicinity map illustrating the Val Vista Car Wash development location is shown in **Figure 1**. Val Vista Car Wash is proposed to include an approximate 4,625 square-foot car wash. A conceptual site plan is attached in **Appendix H**. It is expected that Val Vista Car Wash will be completed in the next couple of years; therefore, analysis was conducted for the 2025 short-term buildout horizon as well as the 2045 long-term twenty-year planning horizon.

The purpose of this traffic study is to identify project traffic generation characteristics to determine potential project traffic related impacts on the local street system and to develop the necessary mitigation measures required for the identified traffic impacts. The following intersections were incorporated into this traffic study in accordance with the City of La Vista standards and requirements:

- 108<sup>th</sup> Street and Brentwood Drive
- 108<sup>th</sup> Street and Giles Road
- 107<sup>th</sup> Street and Giles Road

In addition, the proposed two access intersections along Hillcrest Plaza at Brentwood Drive and at 107<sup>th</sup> Street were included for evaluation.

Regional access to Val Vista Car Wash will be provided by Interstate 80 (I-80). Primary access will be provided by Giles Road and 108<sup>th</sup> Street. Access will be provided by the intersections of Bentwood Drive/Hillcrest Plaza and 107<sup>th</sup> Street/Hilcrest Plaza while direct access is proposed with driveways along Hillcrest Plaza.

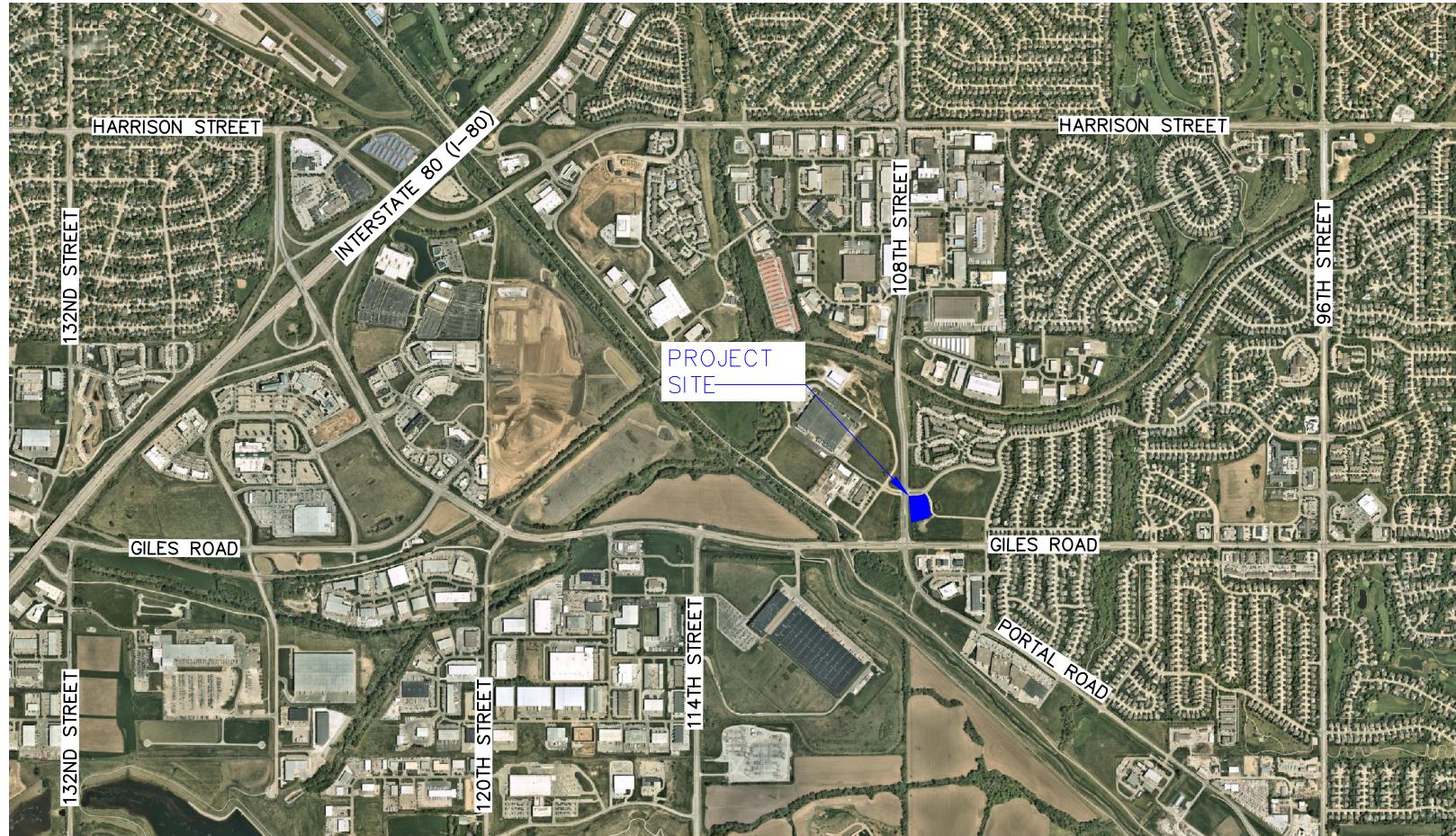


FIGURE 1  
VAL VISTA CAR WASH  
LA VISTA, NEBRASKA  
VICINITY MAP

## 3.0 EXISTING AND FUTURE CONDITIONS

---

### 3.1 Existing Study Area

The existing site is comprised of vacant land. Directly northeast and east of the site is remaining vacant land for the Val Vista mixed-use development. Extending to the east are residential homes and to the north are multifamily dwelling units with industrial/warehouse uses further north. Extending to the west are industrial uses and agricultural land.

### 3.2 Existing Roadway Network

Giles Road extends east/west with two through lanes of travel in each direction with a raised median divider. The posted speed limit along this roadway is 45 miles per hour through the study intersections. There are sidewalks present along completed development's frontages.

108<sup>th</sup> Street provides two through lanes in each direction extending northbound and southbound, north of Giles Road. South of Giles Road the roadway changes alignment to curve to the southeast and the name changes to Portal Road. Portal Road is primarily a three-lane roadway, but two northbound through lanes and one southbound through lane do exist just south of Giles Road. The posted speed limit along 108<sup>th</sup> Street is 40 miles per hour.

107<sup>th</sup> Street is a two-lane roadway extending mainly in the northbound and southbound direction through the study area. The posted speed limit along 107<sup>th</sup> Street is 25 miles per hour. Sidewalk is provided on the east side of the roadway in front of the residential homes.

Brentwood Drive provides one through lane in each direction extending eastbound and westbound with a posted speed limit of 25 miles per hour. Sidewalks are not currently present west of 108<sup>th</sup> Street. However, east of 108<sup>th</sup> Street, sidewalk is only provided on the north side of Brentwood Drive.

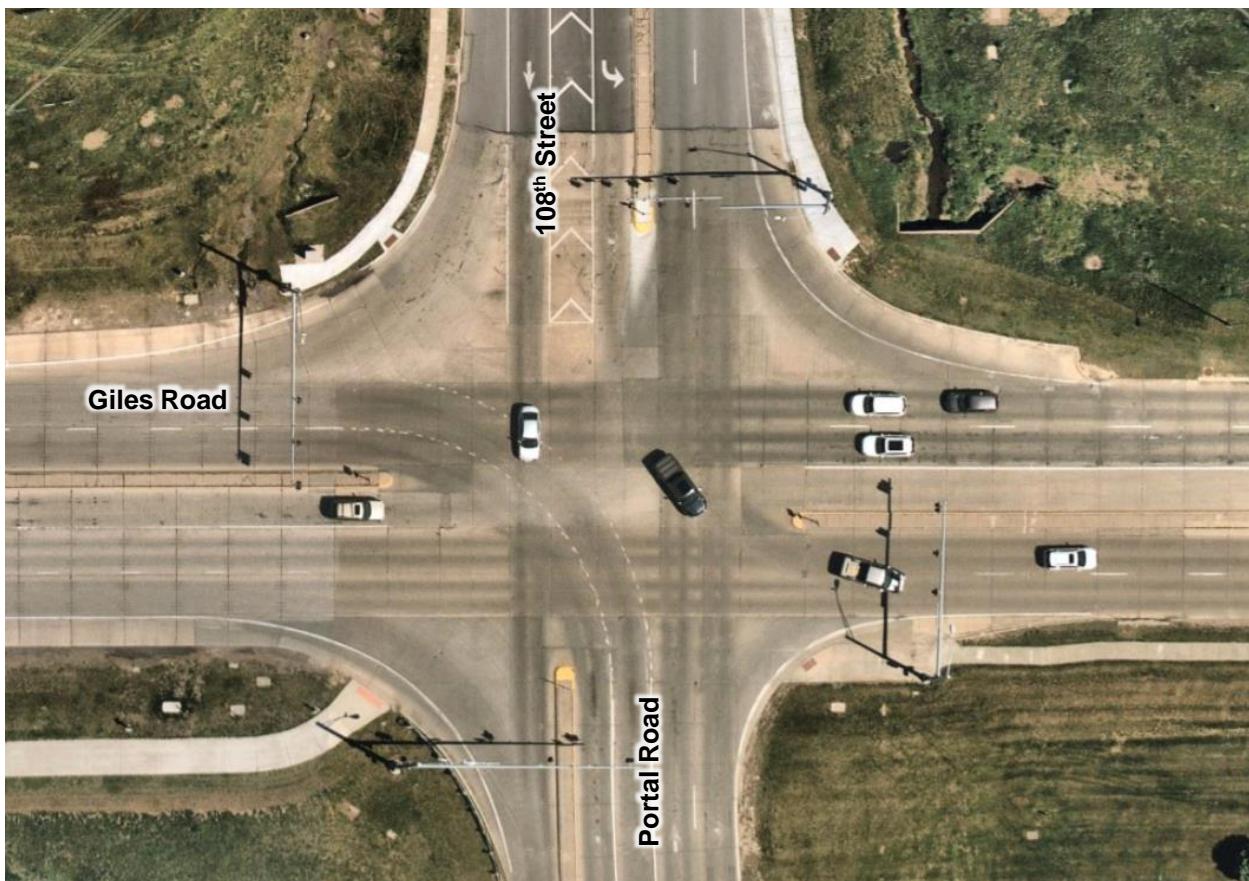
Hillcrest Plaza is a two-lane roadway that intersects Brentwood Drive as a north/south roadway and intersects 107<sup>th</sup> Street as an east/west roadway. There is currently nominal traffic volumes along Hillcrest Plaza with the roadway connecting Brentwood Drive and 107<sup>th</sup> Street with no land uses to the north or south of the roadway yet existing.

The unsignalized intersection of 108<sup>th</sup> Street and Brentwood Drive operates with stop control on the eastbound and westbound approaches of Brentwood Drive. The eastbound and westbound approaches each provide a left turn lane and a shared through/right turn lane. The northbound and southbound approaches of 108<sup>th</sup> Street each provide a left turn lane and two through lanes with the outside through being a shared right turn. An aerial photo of the existing intersection configuration is below (north is up - typical).



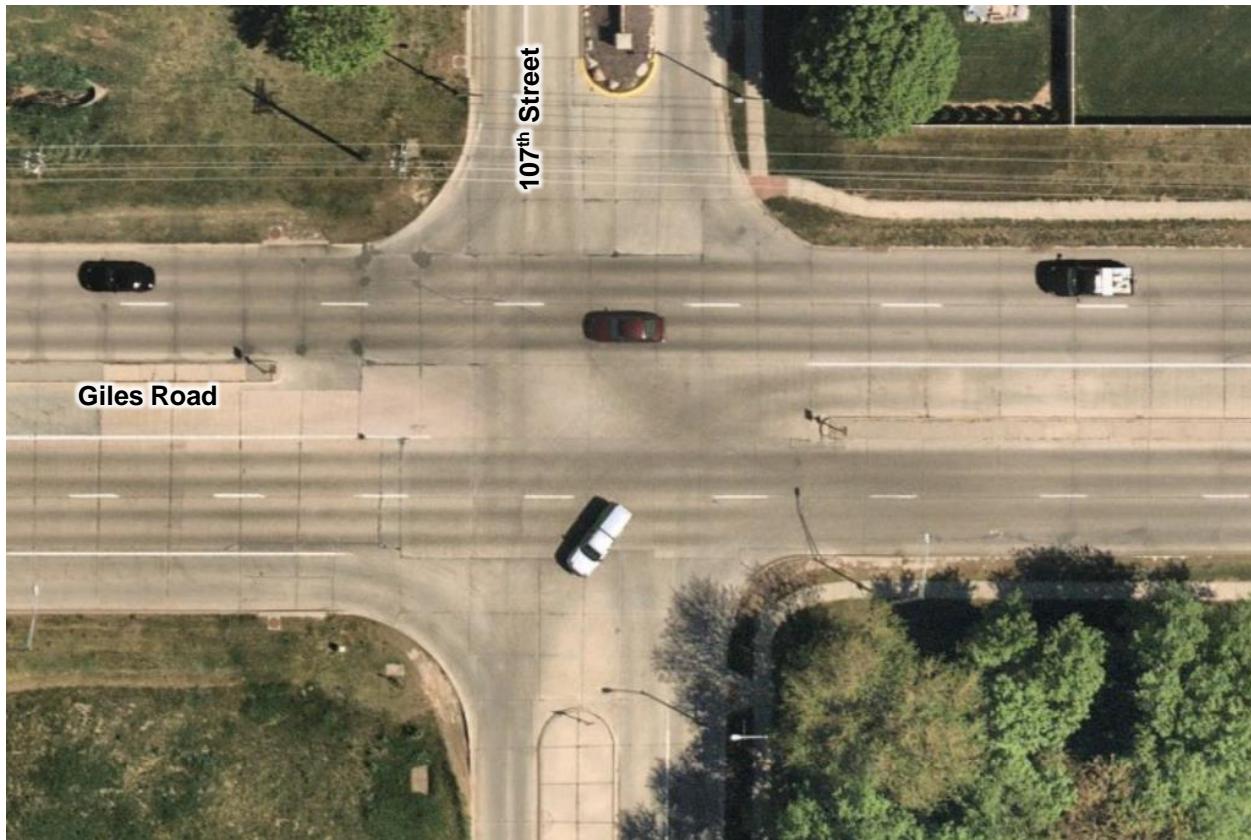
108<sup>th</sup> Street & Brentwood Drive

The signalized intersection of 108<sup>th</sup> Street and Giles Road operates with projected-only left turn phasing on the northbound 108<sup>th</sup> Street/Portal Road approach and protected-permitted left turn phasing on the eastbound, westbound, and southbound approaches. The eastbound and westbound approaches of Giles Road each provide a left turn lane and two through lanes with the outside lane being a shared right turn. The northbound approach of 108<sup>th</sup> Street/Portal Road provides dual left turn lane and two through lanes with the outside through lane having a shared right turn. The southbound 108<sup>th</sup> Street approach provides a left turn lane, a striped-out area for a possible future southbound left turn lane, a through lane, and a right turn lane. An aerial photo of the existing intersection configuration is below.



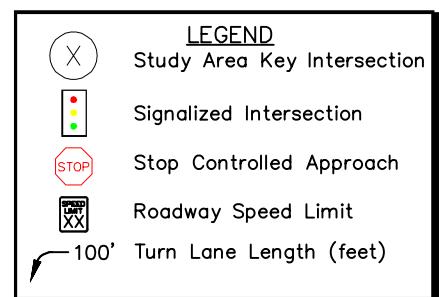
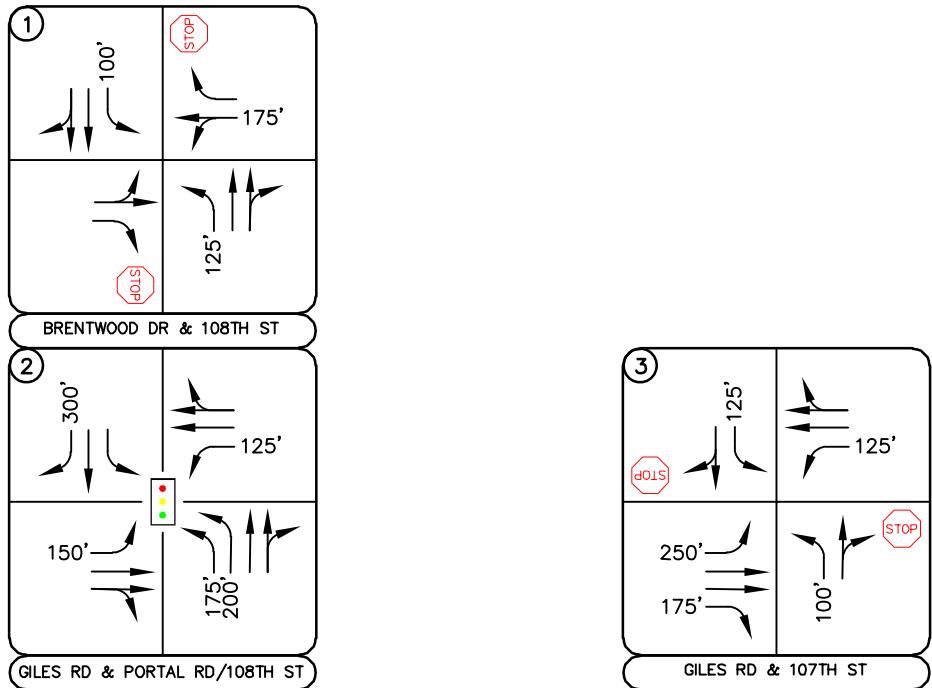
108<sup>th</sup> Street & Giles Road

The unsignalized intersection of 107<sup>th</sup> Street and Giles Road operates with stop control on the northbound and southbound approaches of 107<sup>th</sup> Street. The northbound and southbound approaches each provide a left turn lane and a shared through/right turn lane. The eastbound approach of Giles Road provides a left turn lane, two through lanes, and a right turn lane while the westbound approach provides a left turn lane and two through lanes with the outside through lane providing a shared right turn. An aerial photo of the existing intersection configuration is below.



107<sup>th</sup> Street & Giles Road

The intersection lane configuration and control for the study area intersections are shown in **Figure 2**.



**FIGURE 2**  
 VAL VISTA CAR WASH  
 LA VISTA, NEBRASKA  
 EXISTING GEOMETRY AND CONTROL

### 3.3 Existing Traffic Volumes

Existing turning movement counts were conducted at the study intersections on Tuesday, February 21, 2023 during the weekday morning and afternoon peak hours. The counts were conducted during the morning and afternoon peak hours of adjacent street traffic in 15-minute intervals from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on this count date. However, the adjacent development *108<sup>th</sup> Street/Giles Road TIA* collected turning movement counts in March 2023. The City identified the March 2023 counts were higher than the February counts. As shown in **Table 1**, the counts collected in the *108<sup>th</sup> Street/Giles Road TIA* are higher than the counts collected in February 2023. Therefore, the *108<sup>th</sup> Street/Giles Road TIA* counts were used within this traffic study instead, as requested by the City of La Vista.

**Table 1 – Turning Movement Count Comparison**

Data Collection	108 <sup>th</sup> & Giles		107 <sup>th</sup> & Giles		108 <sup>th</sup> & Brentwood	
	AM	PM	AM	PM	AM	PM
2/21/2023	4,109	4,309	2,102	3,024	2,157	2,772
<b>108<sup>th</sup> Street/Giles Road TIA</b>	4,934	6,235	2,207	3,471	2,145	2,687

Existing traffic volumes are shown in **Figure 3** with count sheets provided in **Appendix A**.

### 3.4 Unspecified Development Traffic Growth

According to traffic projections from the Metropolitan Area Planning Agency (MAPA) traffic model, the area surrounding the site is expected to have an average 30-year growth factor between 1.4 and 1.6. The average of these growth factors (1.5) equates to an average annual growth rate of 1.35 percent. Future traffic volume projections and growth rate calculations are provided in **Appendix B**. The 1.35 percent annual growth rate was used to calculate future traffic volumes at the study area intersections. This annual growth rate was used to estimate short-term 2025 and long-term 2045 traffic volume projections at the key intersections. Of note, the south leg of 107<sup>th</sup> Street at Giles Road is a cut-through street and is not anticipated to have additional growth than what is currently on the roadway. Since the *108<sup>th</sup> Street/Giles Road TIA* development is under review and will be directly adjacent to the site, the project traffic volumes associated with *108<sup>th</sup> Street/Giles Road* development were added directly to the background traffic volumes. The calculated background traffic volumes for 2025 and 2045 are shown in **Figure 4** and **Figure 5**, respectively.

Existing traffic volumes taken from the 108th Street/Giles Road TIA prepared in March 2023. The morning peak hour is 7:15 to 8:15 AM and the afternoon peak hour is 4:30 to 5:30 PM at the study intersections.

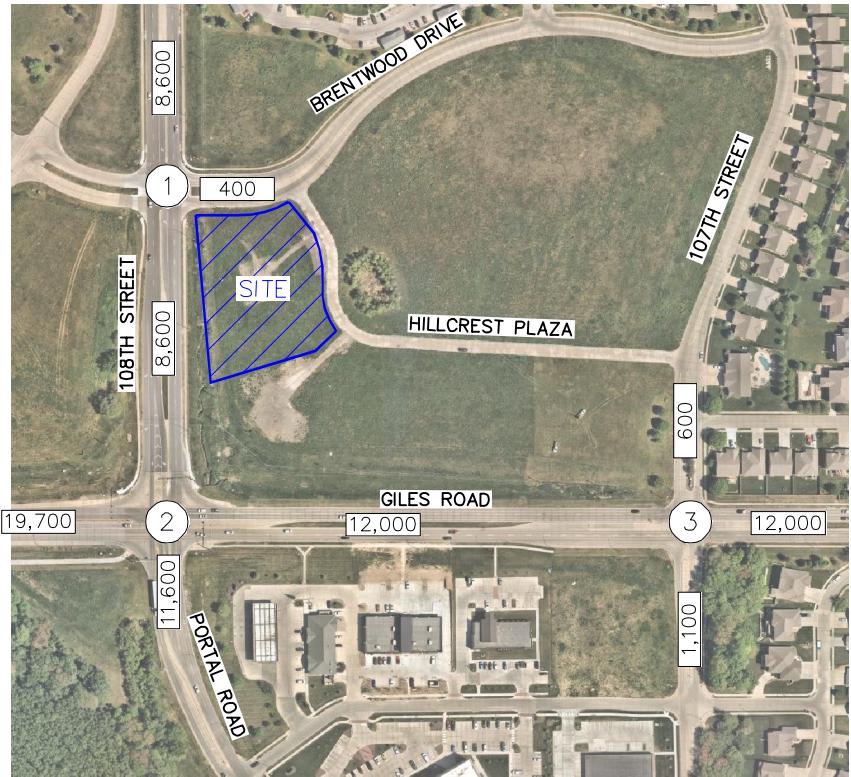
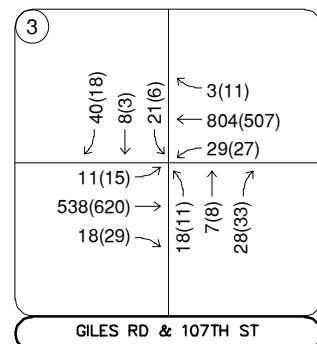
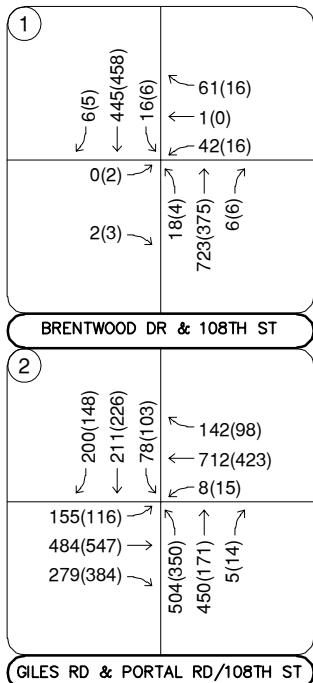
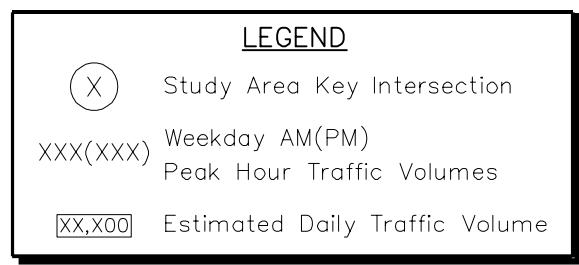
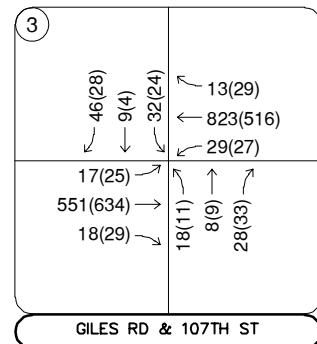
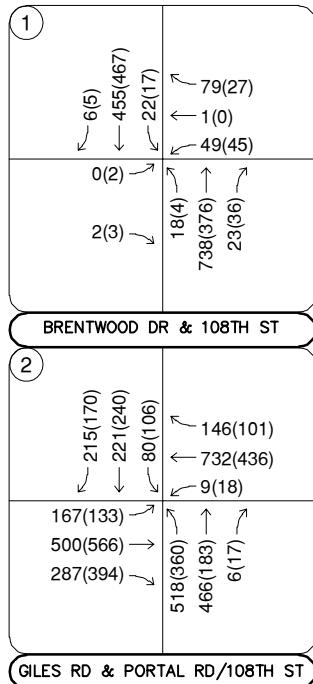
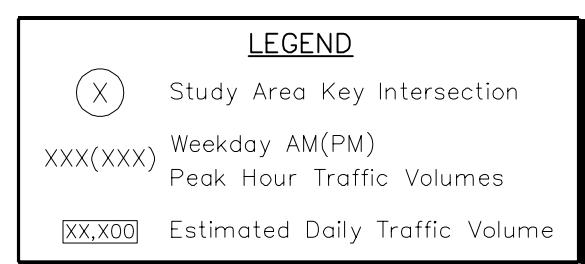


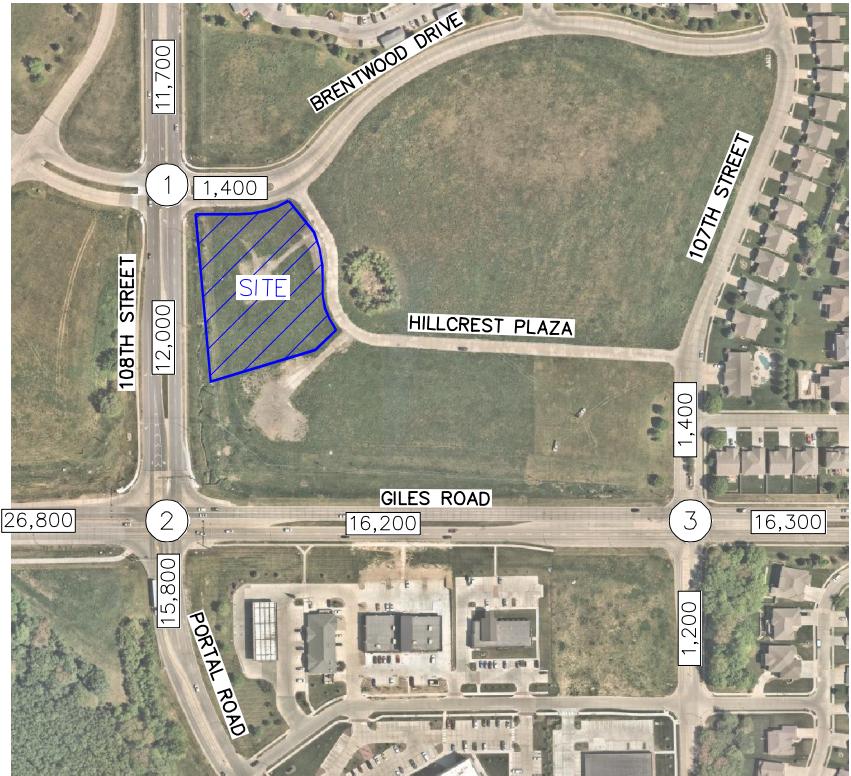
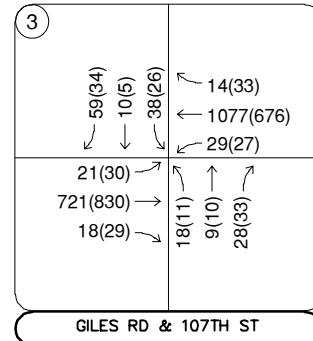
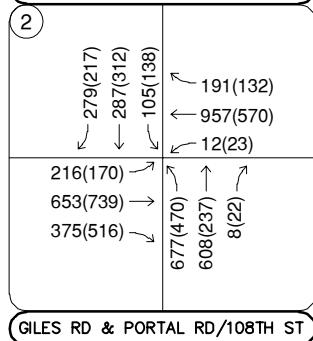
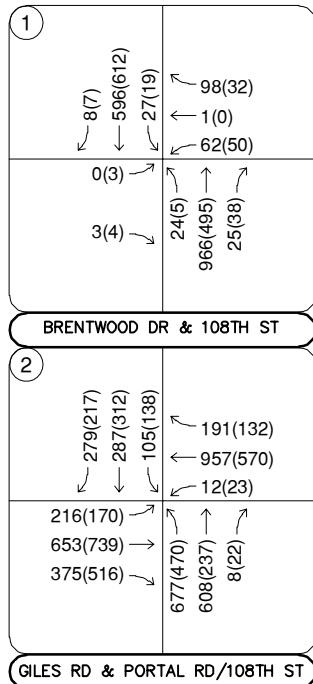
FIGURE 3  
VAL VISTA CAR WASH  
LA VISTA, NEBRASKA  
2023 EXISTING TRAFFIC VOLUMES



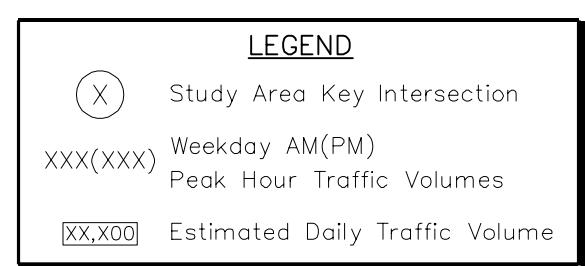


**FIGURE 4**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**2025 BACKGROUND TRAFFIC VOLUMES**





**FIGURE 5**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**2045 BACKGROUND TRAFFIC VOLUMES**



## 4.0 PROJECT TRAFFIC CHARACTERISTICS

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### 4.1 Trip Generation

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*<sup>1</sup> published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses. For this study, Kimley-Horn used the ITE Trip Generation Report average rates that apply to Automated Car Wash (ITE Land Use Code 948) for traffic associated with the development. Of note, ITE does not provide rates for the morning peak hour, but the car wash will be operational during the morning peak hour. Therefore, the morning peak hour utilized the afternoon peak hour rates to provide a conservative analysis. Likewise, a daily trip rate is not provided, so the daily volume was assumed to be ten times the peak hour trip generation volume, which is the typical average of all uses that 10 percent of the daily volume occurs during the peak hour.

Based on ITE *Trip Generation Manual* rates and equations, Val Vista Car Wash is expected to generate approximately 660 weekday daily trips, with 66 of these trips occurring during the morning and afternoon peak hours. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11<sup>th</sup> Edition – Volume 1: User's Guide and Handbook*, 2021. **Table 2** summarizes the estimated trip generation for the Val Vista Car Wash. The trip generation worksheets are included in **Appendix C**.

**Table 2 – Val Vista Car Wash Traffic Generation**

Land Use and Size	Daily	Weekday Vehicle Trips					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Automated Car Wash (ITE 948) – 4,625 Square Feet	660	33	33	66	33	33	66

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<sup>1</sup> Institute of Transportation Engineers, *Trip Generation Manual*, Eleventh Edition, Washington DC, 2021.

## 4.2 Trip Distribution

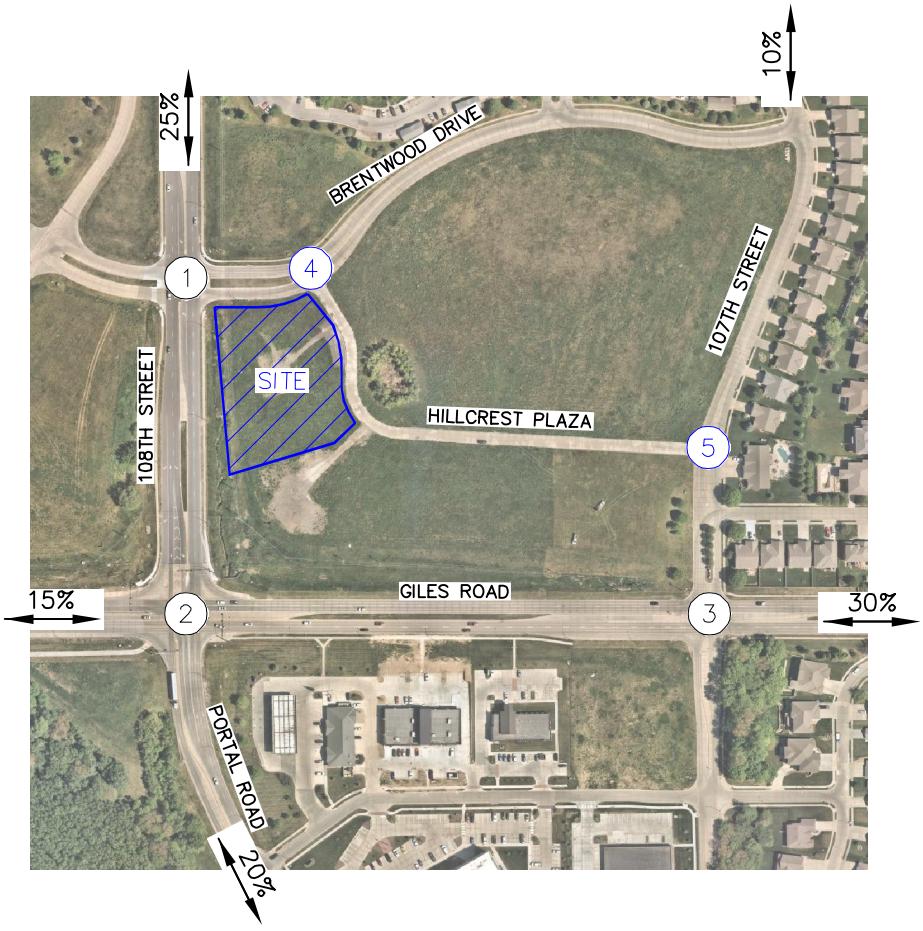
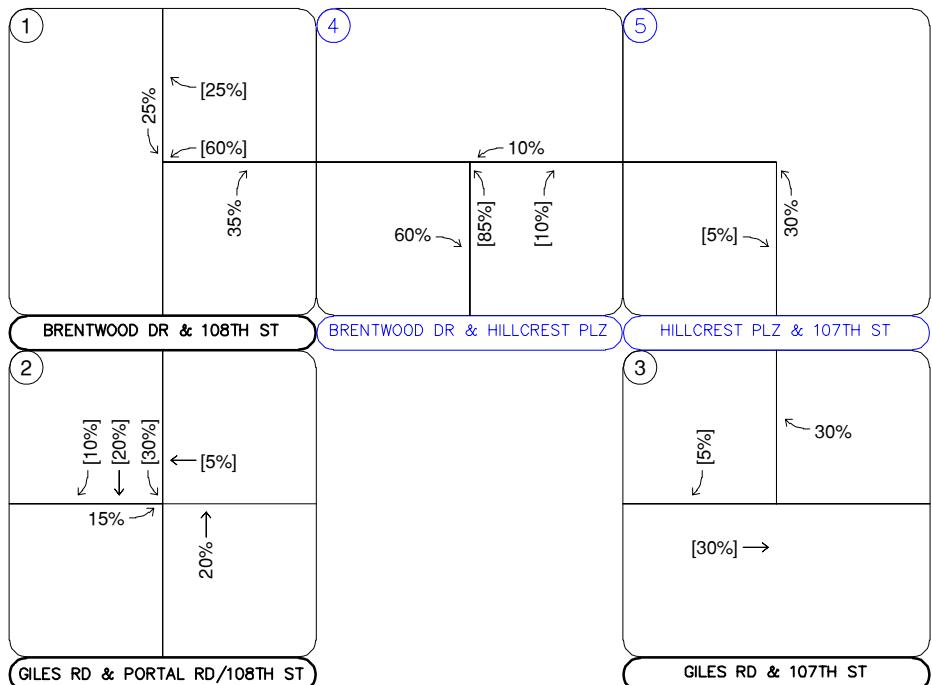
Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns, existing and anticipated surrounding demographic information, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site-generated traffic that approaches the site from a given direction and departs the site back to the original source. The project trip distribution for the proposed development is illustrated in **Figure 6**.

## 4.3 Traffic Assignment

Val Vista Car Wash traffic assignment was obtained by applying the project trip distribution to the estimated traffic generation of the development shown in **Table 1**. Traffic assignment is shown in **Figure 7**.

## 4.4 Total (Background Plus Project) Traffic

Site traffic volumes were added to the background volumes to represent estimated traffic conditions for the short-term 2025 buildout horizon and long-term 2045 twenty-year planning horizon. These total traffic volumes for the study area are illustrated for the 2025 and 2045 horizon years in **Figures 8** and **9**, respectively.



**FIGURE 6**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**PROJECT TRIP DISTRIBUTION**

<b>LEGEND</b>	
(X)	Study Area Key Intersection
(X)	Project Access Intersection
XX%	External Trip Distribution Percentage
XX%[XX%]	Entering[Exiting] Trip Distribution Percentage

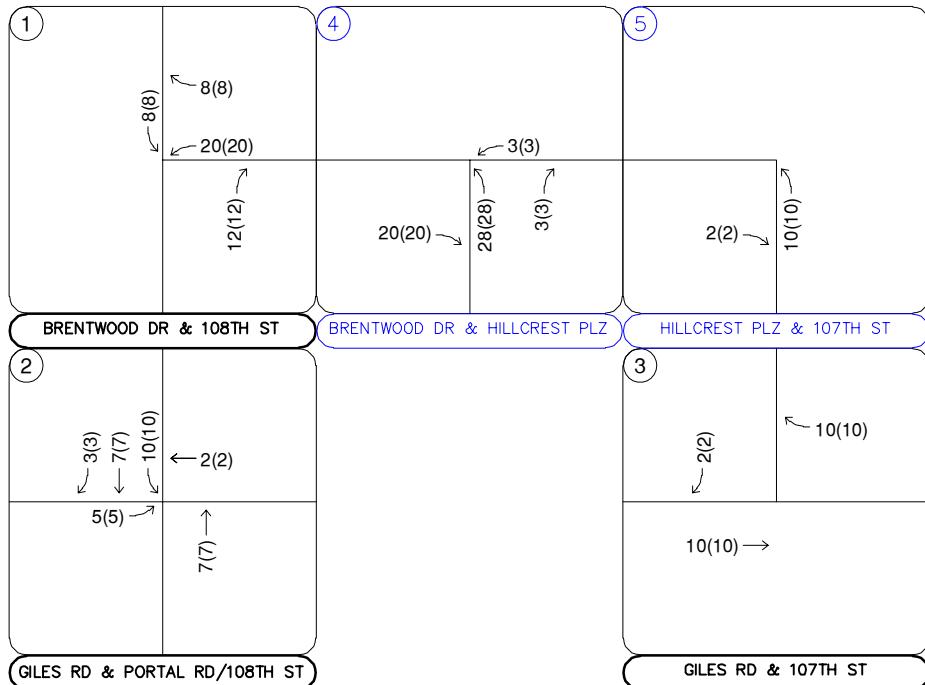
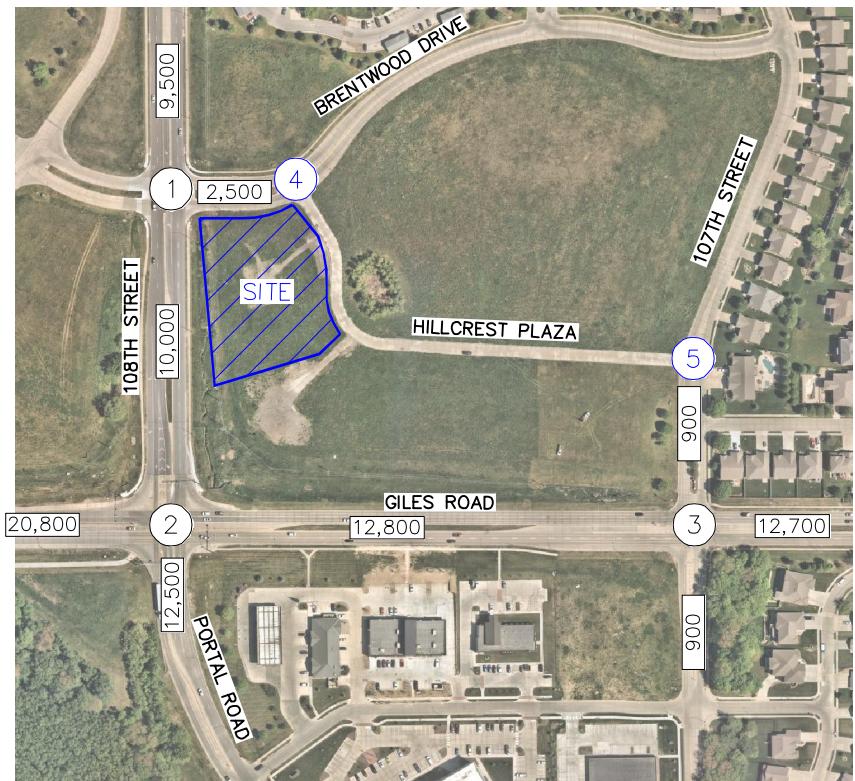
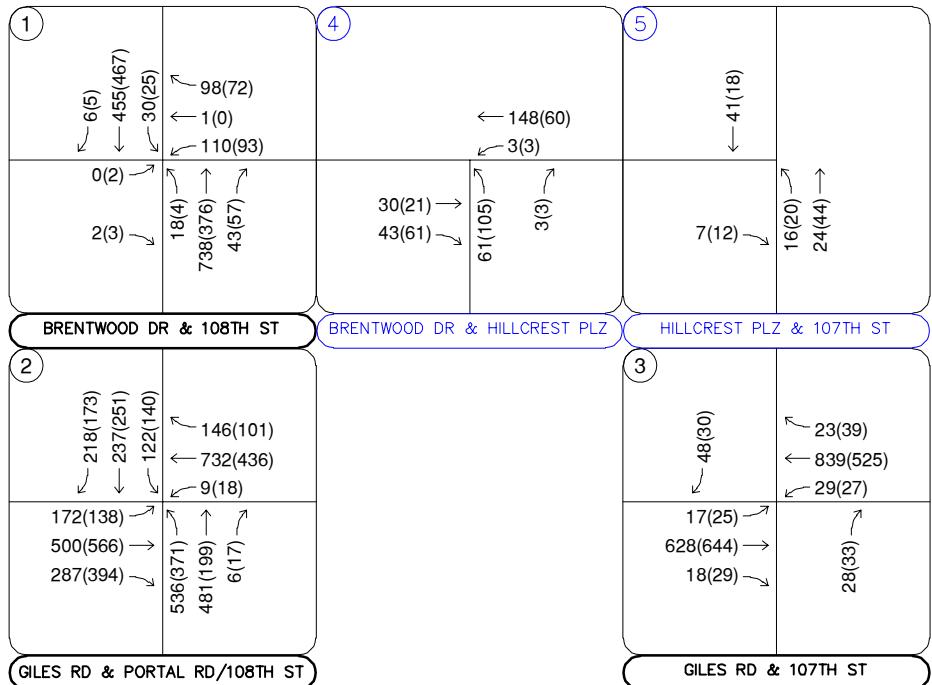
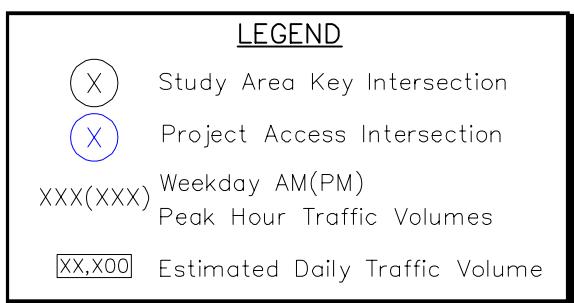


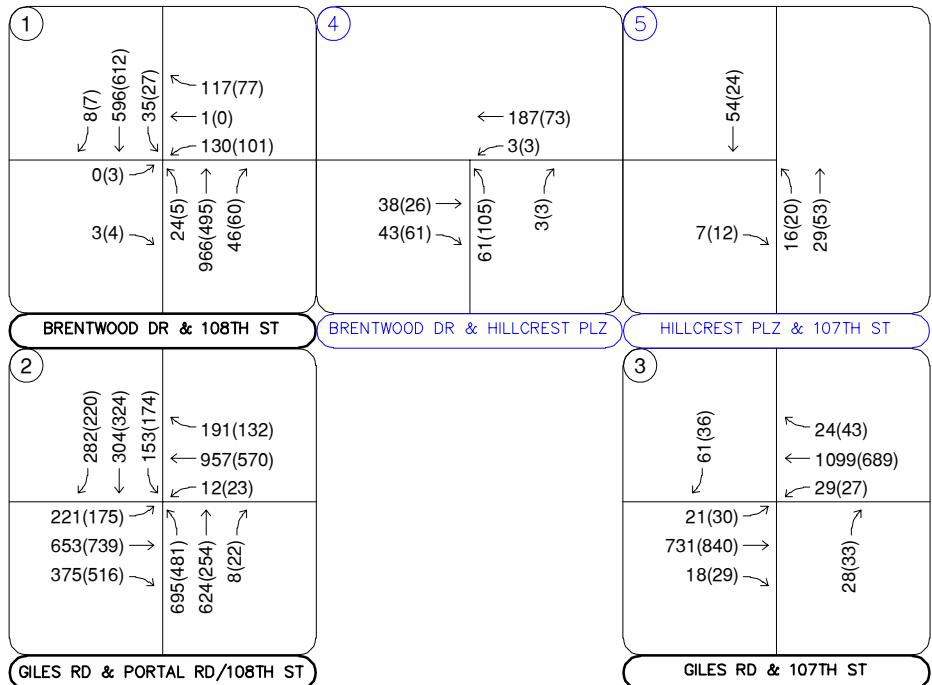
FIGURE 7  
 VAL VISTA CAR WASH  
 LA VISTA, NEBRASKA  
 PROJECT TRAFFIC ASSIGNMENT

<u>LEGEND</u>	
	Study Area Key Intersection
	Project Access Intersection
XXX(XXX)	Weekday AM(PM) Peak Hour Traffic Volumes
XX,X00	Estimated Daily Traffic Volume

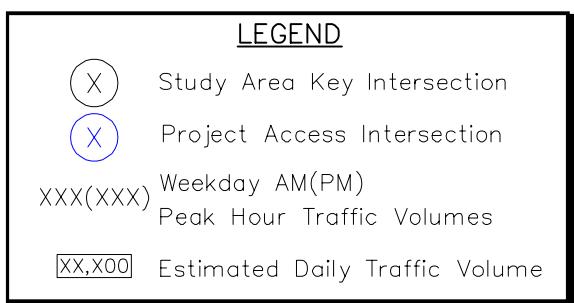


**FIGURE 8**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**2025 TOTAL TRAFFIC VOLUMES**





**FIGURE 9**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**2045 TOTAL TRAFFIC VOLUMES**



## 5.0 TRAFFIC OPERATIONS ANALYSIS

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Kimley-Horn's analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2025 and 2045 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the *Highway Capacity Manual (HCM)*<sup>2</sup>.

### 5.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, standard traffic engineering practice recommends overall intersection LOS D and movement/approach LOS E as the minimum desirable thresholds for acceptable operations. **Table 3** shows the definition of level of service for signalized and unsignalized intersections.

**Table 3 – Level of Service Definitions**

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Sixth Edition, Transportation Research Board, 2016.

Study area intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop-controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for signalized, roundabout, and all-way stop controlled intersections are defined for each approach and for the overall intersection.

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<sup>2</sup> Transportation Research Board, *Highway Capacity Manual*, Sixth Edition, Washington DC, 2016.

## 5.2 Key Intersection Operational Analysis

Calculations for the operational level of service at the key intersections for the study area are provided in **Appendix D**. The existing year analysis is based on the lane geometry and intersection control shown in **Figure 2**. Existing peak hour factors were utilized in the long-term 2045 horizon analysis. Synchro traffic analysis software was used to analyze the signalized, and unsignalized key intersections for HCM level of service.

### 108<sup>th</sup> Street and Brentwood Drive

The unsignalized intersection of 108<sup>th</sup> Street and Brentwood Drive operates with stop control on the eastbound and westbound approaches of Brentwood Drive. The intersection movements operate acceptably at LOS C or better during both peak hours under existing conditions with the exception of the westbound left/through movement which operate with LOS E. With background traffic, the westbound left/through movement is anticipated to operate with LOS F and will continue to do so with or without project traffic through 2045. Therefore, an MUTCD Four Hour Signal Warrant was performed, and two out of four hours meet warrants for signalization in 2025. However, by 2045 all four hours may meet warrants for signalization. The signal warrant analysis is provided in **Appendix F**. Therefore, an analysis was provided for the short-term and long-term with signalization of this intersection to alleviate the westbound approach delay. Of note, the eastbound and westbound left turn lanes are recommended to be striped as exclusive turn lanes and the northbound and southbound left are recommended to operate with protected-permitted left turn phasing. With signalization, the intersection may operate with LOS B or better during both peak hours through the 2045 horizon. **Table 4** provides the results of the LOS analysis conducted at this intersection.

**Table 4 – 108<sup>th</sup> Street and Brentwood Drive LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2023 Existing</b>				
Northbound Left	8.6	A	8.4	A
Eastbound Left/Through	0.0	A	17.1	C
Eastbound Right	9.9	A	9.9	A
Westbound Left/Through	46.4	E	16.6	C
Westbound Right	12.2	B	9.6	A
Southbound Left	9.7	A	8.2	A
<b>2025 Background</b>				
Northbound Left	8.6	A	8.5	A
Eastbound Left/Through	0.0	A	18.2	C
Eastbound Right	10.0	B	9.9	A
Westbound Left/Through	57.1	F	19.3	C
Westbound Right	12.7	B	9.8	A
Southbound Left	9.9	A	8.3	A
<b>2025 Background Plus Project</b>				
Northbound Left	8.6	A	8.5	A
Eastbound Left/Through	0.0	A	19.6	C
Eastbound Right	10.0	B	9.9	A
Westbound Left/Through	188.9	F	24.5	C
Westbound Right	13.3	B	10.3	B
Southbound Left	10.1	B	8.4	A
<b>2025 Background Plus Project #</b>	10.5	B	9.6	A
<b>2045 Background</b>				
Northbound Left	9.2	A	9.0	A
Eastbound Left/Through	0.0	A	25.0	D
Eastbound Right	10.6	B	10.5	B
Westbound Left/Through	280.3	F	28.6	D
Westbound Right	15.5	C	10.4	B
Southbound Left	11.4	B	8.7	A
<b>2045 Background Plus Project</b>				
Northbound Left	9.2	A	9.0	A
Eastbound Left/Through	0.0	A	27.5	D
Eastbound Right	10.6	B	10.5	B
Westbound Left/Through	>300	F	45.0	E
Westbound Right	16.6	C	10.9	B
Southbound Left	11.7	B	8.8	A
<b>2045 Background Plus Project ##</b>	11.5	B	9.5	A

# = Signalized with Separate EB and WB Left Turn Lanes

### 108<sup>th</sup> Street and Giles Road

The signalized intersection of 108<sup>th</sup> Street and Giles Road operates with projected-only left turn phasing on the northbound 108<sup>th</sup> Street/Portal Road approach and protected-permitted left turn phasing on the eastbound, westbound, and southbound approaches. The intersection currently operates at LOS D during the morning peak hour and LOS C during the afternoon peak hour. With project traffic, the intersection is anticipated to continue operating with LOS D during the morning peak hour and LOS C during the afternoon peak hour through the short-term 2025 horizon. However, if future traffic volumes are realized with or without project traffic, the intersection is anticipated to operate with LOS E during the morning peak hour in 2045 horizon. The *108<sup>th</sup> Street/Giles Road TIA* identified separate eastbound and westbound right turn lanes. Additionally, southbound dual left turn lanes with a second southbound left turn lane may need to be restriped within the existing pavement. With these improvements, the intersection may operate with LOS D during both peak hours in 2045. **Table 5** provides the results of the LOS analysis conducted at this intersection.

**Table 5 – 108<sup>th</sup> Street and Giles Road LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
2023 Existing	36.8	D	31.2	C
2025 Background	38.3	D	32.3	C
2025 Background Plus Project	39.3	D	33.1	C
2045 Background	60.8	E	41.9	D
2045 Background Plus Project	63.9	E	43.2	D
2045 Background Plus Project #	49.2	D	37.8	D

# = Separate EB and WB Right Turn Lane, Second SB Left Turn Lane

### 107<sup>th</sup> Street and Giles Road

The unsignalized intersection of 107<sup>th</sup> Street and Giles Road operates with stop control on the northbound and southbound approaches of 107<sup>th</sup> Street. Under existing conditions, the northbound left turn and southbound left turn movements operate with LOS E during the morning peak hour, while the other movements operate acceptably at LOS D or better during both peak hours. However, with the addition of background traffic, the southbound left turn movement increases delay to a LOS F. Therefore, the intersection is recommended to be converted to three-quarter movements (minor street left turn and through movements restricted) as requested by the

City. The southbound and northbound approaches will operate with right turn only movements. Therefore, R3-5R Right Turn Only signs could be placed underneath the STOP signs on both minor approaches. Likewise, an S-shaped raised median within the middle of the intersection may be desired to physically restrict minor street left turn and through movements. With this intersection turning movement restriction, the movements may operate with LOS B or better throughout 2045. **Table 6** provides the results of the LOS analysis conducted at this intersection.

**Table 6 – 107<sup>th</sup> Street and Giles Road LOS Results**

Scenario	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
<b>2023 Existing</b>				
Northbound Left	36.7	E	26.1	D
Northbound Through/Right	17.4	C	14.8	B
Eastbound Left	9.8	A	8.6	A
Westbound Left	8.9	A	9.1	A
Southbound Left	47.2	E	24.7	C
Southbound Through/Right	18.4	C	13.0	B
<b>2025 Background</b>				
Northbound Left	40.8	E	28.3	D
Northbound Through/Right	19.4	C	15.9	C
Eastbound Left	10.0	A	8.7	A
Westbound Left	8.9	A	9.1	A
Southbound Left	61.0	F	29.5	D
Southbound Through/Right	19.6	C	13.2	B
<b>2025 Background Plus Project #</b>				
Northbound Right	10.8	B	9.6	A
Eastbound Left	10.1	B	8.8	A
Westbound Left	9.2	A	8.0	A
Southbound Right	12.4	B	10.4	B
<b>2045 Background</b>				
Northbound Left	103.4	F	48.5	E
Northbound Through/Right	36.0	E	23.5	C
Eastbound Left	11.5	B	9.3	A
Westbound Left	9.6	A	10.0	A
Southbound Left	262.6	F	54.5	F
Southbound Through/Right	34.3	D	17.1	C
<b>2045 Background Plus Project #</b>				
Northbound Right	11.3	B	11.8	B
Eastbound Left	11.7	B	9.4	A
Westbound Left	9.7	A	10.0	B
Southbound Right	14.8	B	11.2	B

# = Convert from Full Movement to Three-Quarter

### Project Accesses

With completion of the Val Vista Car Wash, the project will use the existing intersections of Brentwood Drive/Hillcrest Plaza and Hillcrest Plaza/107<sup>th</sup> Avenue for access. These intersections were included in this access analysis because Hillcrest Plaza generates nominal trips along the roadway today. However, direct access is proposed along Hillcrest Plaza at two driveways. The south access is intended primarily for inbound traffic while the north access is intended primarily for exiting traffic. The south entrance access is proposed to include an approximate 75-foot right turn lane into the site. However, if both accesses will allow two-way traffic, it is recommended that R1-1 “STOP” signs be installed on the eastbound driveway exiting approach at both driveways.

**Table 7** provides the results of the level of service for this project street access. As shown in the table, the Hillcrest Plaza intersections are anticipated to have all movements operating with acceptable LOS B or better during the peak hours in both the buildout year 2025 and the 2045 long term horizons with the Val Vista Car Wash project.

**Table 7 – Project Access Level of Service Results**

Intersection	2025 Total				2045 Total			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS						
<b>Brentwood Dr &amp; Hillcrest Plz</b> Northbound Approach Westbound Left	10.1 7.4	B A	9.8 7.4	A A	10.5 7.4	B A	9.9 7.4	A A
<b>Hillcrest Plz &amp; 107<sup>th</sup> St</b> Northbound Left Eastbound Approach	7.3 8.5	A A	7. 8.4	A A	7.4 8.6	A A	7.3 8.5	A A

### 5.3 Turn Lane Analysis

A turn lane analysis was prepared based on NCHRP Auxiliary Right-Turn Lane Warrants. Based on the northbound right turn lane volumes for the short-term or long-term horizons with project traffic at Brentwood Drive along 108<sup>th</sup> Street, a northbound right turn lane is **not warranted**. Likewise, the westbound right turn volumes along Giles Road near 107<sup>th</sup> Street do **not warrant** an auxiliary westbound right turn lane during either the short-term or the long-term horizon. However, development of the remaining vacant parcels may warrant turn these turn lanes. All intersections provide existing auxiliary left turn lanes; therefore, a turn lane warrant evaluation was not needed. The right turn lane warrants are provided in **Appendix F**.

## 5.4 Vehicle Queuing Analysis

A vehicle queuing analysis was conducted for the study area intersections. The queuing analysis was performed using Synchro presenting the results of the 95<sup>th</sup> percentile queue lengths. Results are shown in the following **Table 8** with calculations provided within the level of service operational sheets of **Appendix D** for unsignalized intersections and **Appendix E** for signalized intersections.

**Table 8 – Turn Lane Queuing Analysis Results**

Intersection Turn Lane	Existing Turn Lane Length (feet)	2025 Calculated Queue (feet)	2025 Recommended Length (feet)	2045 Calculated Queue (feet)	2045 Recommended Length (feet)
<b>108<sup>th</sup> St &amp; Brentwood Dr</b>					
Northbound Left	125'	7'	125'	9'	125'
Eastbound Left	C	111'	C	126'	C
Westbound Left	175'	9'	175'	13'	175'
Southbound Left	100'	13'	100'	17'	100'
<b>108<sup>th</sup> St &amp; Giles Rd</b>					
Eastbound Left	150'	132'	150'	294'	400'
Eastbound Right	DNE	-	-	82'	250'
Westbound Left	125'	21'	125'	28'	125'
Westbound Right	DNE	-	-	65'	150'
Northbound Left	175'/200'	<b>291' DL</b>	175'/200'	<b>415' DL</b>	175'/200'
Southbound Left	C	111'	C	110' DL	C/150'
Southbound Right	300'	118'	300'	194'	300'
<b>107<sup>th</sup> St &amp; Giles Rd</b>					
Northbound Left	100'	-	<b>DNE</b>	25'	<b>DNE</b>
Eastbound Left	250'	25'	250'	25'	250'
Westbound Left	125'	25'	125'	25'	125'
Southbound Left	125'	-	<b>DNE</b>	25'	<b>DNE</b>
<b>Brentwood Dr &amp; Hillcrest Plz</b>					
Westbound Left	50'	25'	50'	25'	50'

DNE = Does Not Exist; C = Continuous; **Red** Text = Storage Deficiency; **Blue** Text = Recommendation

All queues are anticipated to remain within the existing or recommended turn lane lengths through 2045 with exception of the dual northbound left turn lanes at 108<sup>th</sup> Street and Giles Road intersection. These turn lanes cannot be extended due to back-to-back left turn lanes with Virginia Street to the south. The City may consider adjusting the green time allotted to the northbound left turn movement or converting the Virginia Street and Portal Road intersection to a right-in/right-out to accommodate extending the northbound left turn lanes.

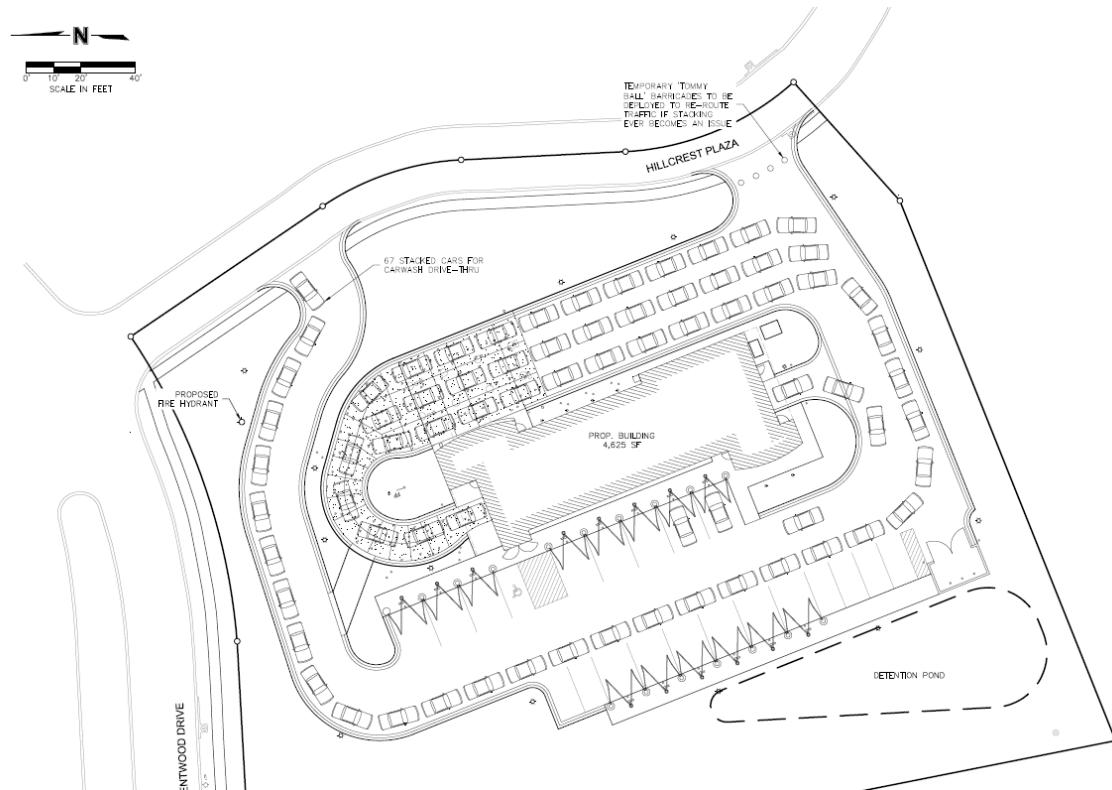
The 108<sup>th</sup> Street/Giles Road T/A identified extension of the eastbound left turn at 108<sup>th</sup> Street and Giles Road intersection to 400 feet by 2045. Additionally, the exclusive eastbound right turn lane should provide a length of 250 feet while the westbound right turn lane provides a length of 150

feet. Dual southbound left turn lanes with the second southbound left turn lane restriped within the existing striped out pavement to provide a length of 150 feet may also be needed by 2045.

## 5.5 Car Wash Operations

Based on client provided data for the car wash operations, the site can process a car in 90 seconds with a vehicle leaving every 16 seconds. The maximum number of cars processed in one (1) hour is 180 vehicles with a maximum queue length of 110 feet. The existing site plan provides three lanes of stacking queue for 21 vehicles and an additional five (5) vehicles can be stacked prior to the entrance of the car wash. Therefore, vehicles are not anticipated to extend past the provided on-site stacking area. The client provided data is included in **Appendix G**.

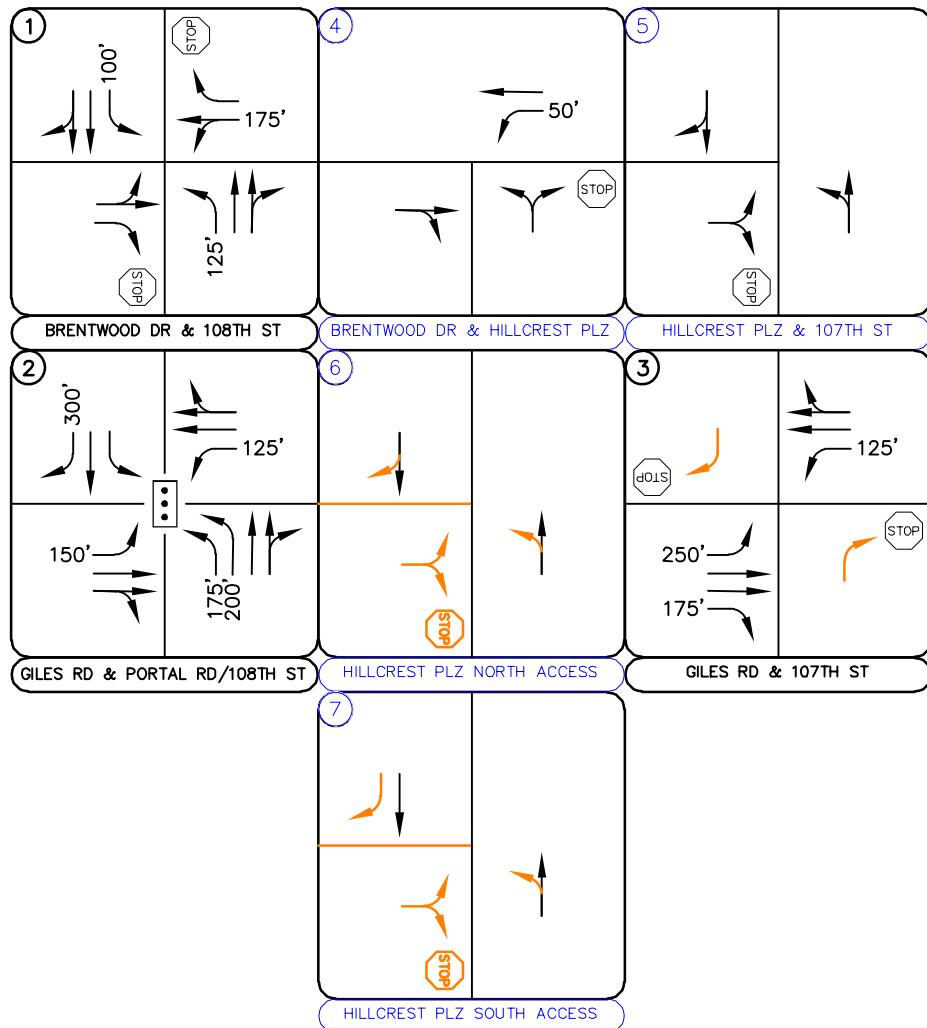
However, if stacking ever becomes an issue and vehicles stack further past the southbound right turn lane into the site, then alternative routes will be implemented. The south access (entrance) will be closed off by temporary barricades to reroute entering vehicles to the north for vehicles to be able to stack around the south side of the building in a counterclockwise direction. A site plan snip of this temporary operation is shown below:



Car Wash Vehicle Queuing Available

## **5.6 Improvement Summary**

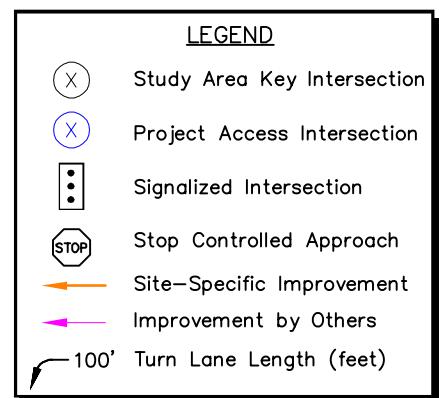
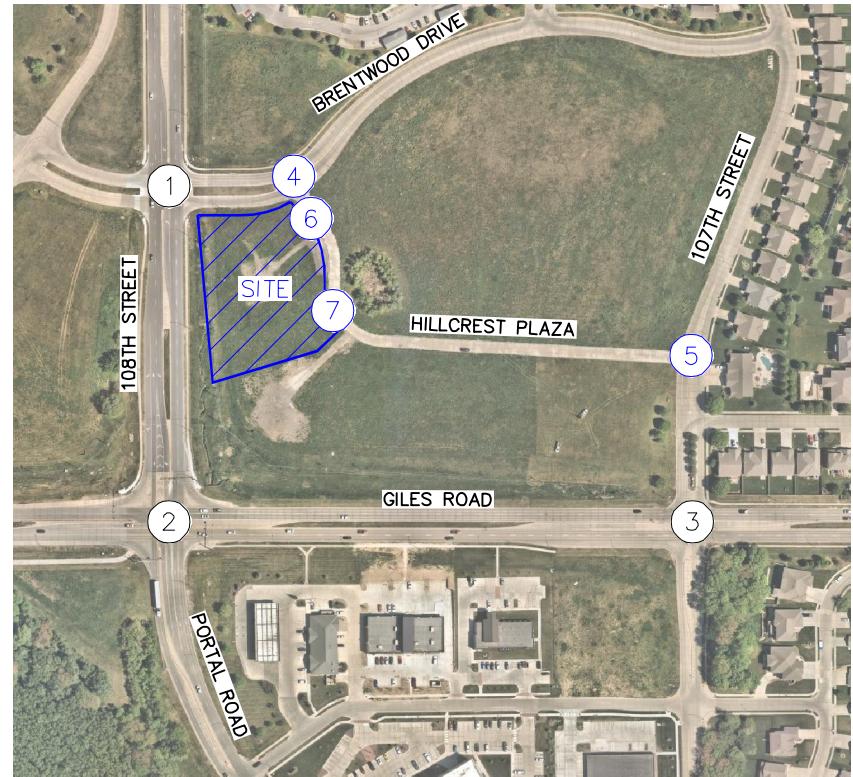
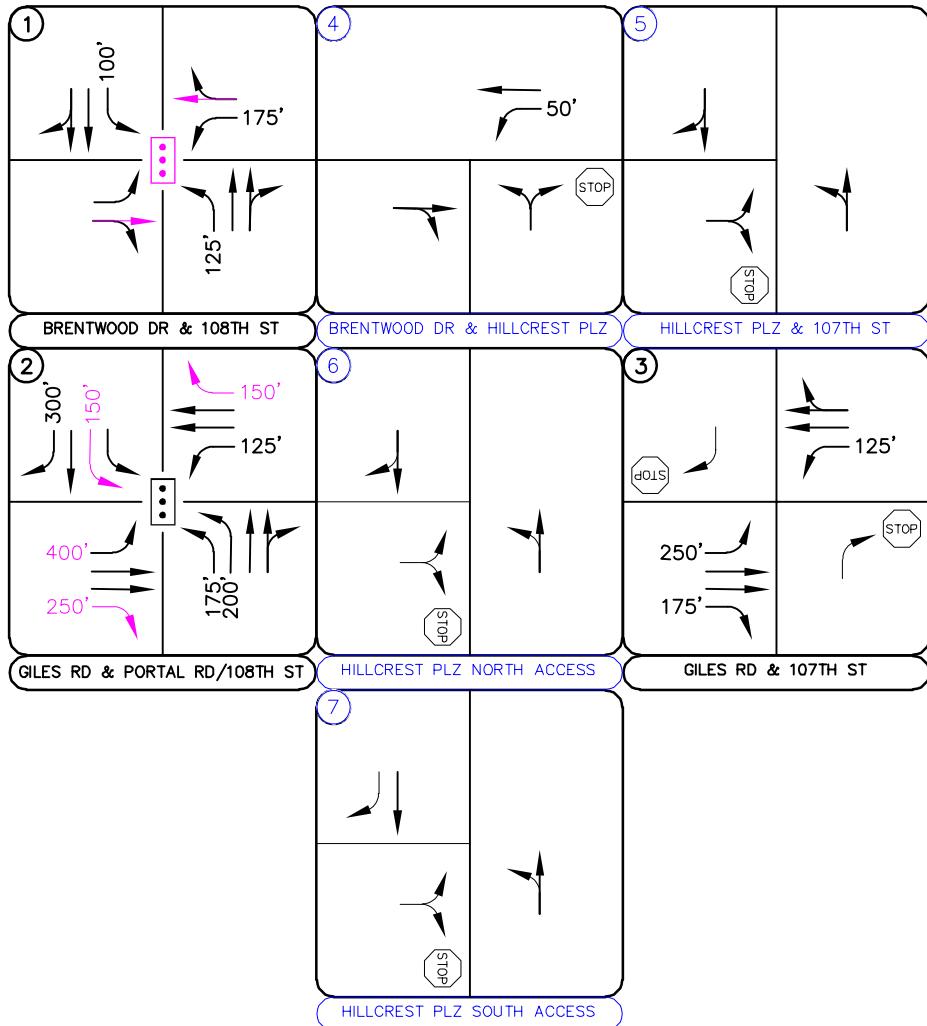
Based on the results of the intersection operational and vehicle queuing analysis, the key intersection recommended improvements and control are shown in **Figure 10** for 2025 and **Figure 11** for 2045.



#### LEGEND

- (X) Study Area Key Intersection
- (X) Project Access Intersection
- (::) Signalized Intersection
- (STOP) Stop Controlled Approach
- (orange arrow) Site-Specific Improvement
- (pink arrow) Improvement by Others
- (100') Turn Lane Length (feet)

FIGURE 10  
 VAL VISTA CAR WASH  
 LA VISTA, NEBRASKA  
 2025 RECOMMENDED GEOMETRY AND CONTROL



**FIGURE 11**  
**VAL VISTA CAR WASH**  
**LA VISTA, NEBRASKA**  
**2045 RECOMMENDED GEOMETRY AND CONTROL**

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

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Based on the analysis presented in this report, Kimley-Horn believes Val Vista Car Wash will be successfully incorporated into the existing and future roadway network. Analysis of the existing street network, the proposed project development, and expected traffic volumes resulted in the following recommendations:

- With completion of the Val Vista Car Wash project, direct access is proposed along Hillcrest Plaza at two accesses. The south access is intended primarily for inbound traffic while the north access is intended primarily for exiting traffic. An approximate 75-foot southbound right turn lane into the south access along Hillcrest Plaza will be provided into the site.
- The intersection of 108<sup>th</sup> Street and Brentwood Drive is nearing warrants for signalization based on the four-hour peak periods. However, all four hours are not met in 2025. The intersection should be monitored for signalization in the future with the addition of traffic from surrounding undeveloped areas.
- The 107<sup>th</sup> Street and Giles Road intersection is recommended to be converted to three-quarter movements (minor street left turn and through movements restricted) as requested by the City. The southbound and northbound approaches will operate with right turn only movements. Therefore, R3-5R Right Turn Only signs could be placed underneath the STOP signs on both minor approaches. Likewise, an S-shaped raised median within the middle of the intersection may be desired to physically restrict minor street left turn and through movements.
- If 2045 traffic volumes are realized, the 150-foot eastbound left turn at 108<sup>th</sup> Street and Giles Road intersection may need to be extended to 400 feet. An exclusive eastbound right turn lane may need to be constructed to provide a length of 250 feet while a westbound right turn lane may need to be constructed to provide a length of 150 feet. Lastly, dual southbound left turn lanes may be needed with the second southbound left turn lane restriped within the existing pavement space striped out at this intersection.

- Any onsite or offsite improvements should be incorporated into the Civil Drawings and conform to standards of the City of La Vista and the Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition.



08/08/2023

# APPENDICES

**Remainder of study available upon request.**