Staff Report



AT A GLANCE

Applicant:
Greentec Auto Inc

Location: 6800 W. 61st Street

Property ID: KF251208-2028

Current Zoning: M-1/C-2B

Proposed Zoning: N/A

Current Land Use: Commercial

Proposed Land Use: Warehouse/Distribution

X Public Hearing RequiredLegal Notice:April 9, 2024

Case Number: 24-09

Project Name: Greentec Auto Special Use Permit

Project Summary:
The applicant requests a Special Use Permit for business operations that include warehouse storage, disassembly, and shipment of hybrid vehicle batteries and components.

Staff Contact:
Karie Kneller, Planner



1



PROPERTY BACKGROUND AND INFORMATION

The facility at 6800 West 61st Street is a former light-industrial printing and distribution operation that was recently sold to the applicant, Greentec Auto Inc. The property consists of two parcels; the north parcel is .45 acres, zoned "C2-B" Retail and Service District, and the south parcel is 1.3 acres, zoned "M-1" General Industrial. The single structure lies within both zoning districts; the northern portion of the building in C2-B zoning houses warehousing facilities and loading docks, while the southern portion of the building in M-1 zoning is the office operations part of the structure. The property is also within the Form-Based Code overlay district. The building was constructed in 1963 on the northwest corner of 61st Street and Barkley Street, and the Barkley right-of-way terminates at the southeast corner of the south property line where a driveway leads to the back of the property's parking lot and delivery docks. The rear parking lot has 30 parking spaces, and an additional seven head-in parking stalls are located south of the building on 61st Street within the public right-of-way.

PROJECT PROPOSAL

The building was vacant for an undetermined time before the applicant purchased the property. Staff learned of the change in use after a business license application was submitted to the city clerk and the city planner reviewed the application for zoning verification accompanying the new use.

The applicant has applied for a Special Use Permit to conduct warehouse, disassembly, and shipment operations for used hybrid vehicle batteries with between 10-15 employees on site. This is a proposed satellite location for its main operations in Kansas City, Kansas., to provide additional space for growing business operations, wherein hybrid and plug-in electric batteries are shipped on pallets to the facility. Operations at the main facility include the disassembly of batteries from the outer casing, testing of individual battery cells, and sorting of viable battery cells from non-viable cells. Viable cells are then reassembled into vehicle battery casings that can be resold back to the market. The applicant proposes that the Mission operation will receive hybrid batteries that do not contain lithium ion (Liion) components, which have been found to spontaneously combust when damaged. Batteries that are received at the Mission facility will be of non-hazardous nickel metal hydride (NiMH). These batteries will be disassembled and sorted after testing, then viable battery cells will be repackaged and shipped back to the Kansas City facility. The non-viable cells will be shipped to another facility to be recycled. The Mission facility will also shelve empty casings and other minor components.

PLAN REVIEW AND ANALYSIS

Mission Comprehensive Plan

The 2023 Comprehensive Plan's Future Land Use map indicates the property is mixed-use high density. This proposal does not include redevelopment of the property, however. Future redevelopment of the property would be evaluated for conformance with the Comprehensive Plan and applicable zoning code.

Analysis: Warehousing, storage, and shipping activity would not be out of context with the



surrounding context; the post office and grocery store, and big-box retail that currently exist adjacent to the subject property are not anticipated to be redeveloped in the near future. However, the municipal code zoning regulations that currently regulate the land use were considered non-conforming.

Municipal Code

The existing structure is contained within two different zoning districts. The M-1 zoning applies to the southernmost part of the structure where office operations are not compatible. The C2-B zoning applies to the northernmost parcel where the warehousing and storage operations are not compatible. Parking under Section 410.130 (H) requires sufficient parking for employees and visitors. The site accommodates the anticipated number of employees with adequate spaces for visitors.

Section 420.200 covers the abandonment and discontinuance of non-conforming situations, which is relevant in this case since the zoning of the property does not conform with the corresponding uses within the building. At the time that the previous operations as a printing and distribution facility were a legal non-conforming use, the zoning code had been amended in 2013 to include the West Gateway Overlay (and corresponding Form-Based Code overlay district regulations). Thus, when the legal non-conforming operations ceased, the abandonment and discontinuance clause took effect. Therefore, staff requested that the applicant submit an application for a Special Use Permit to conduct the warehousing and shipping of vehicle battery components. Without a rezoning and re-platting process, the proposed operations are not in conformance with the zoning regulations, and a Special Use Permit may be issued to allow a non-conforming use.

Under Article III, "Special Use Permits" in the City of Mission municipal code, the following stipulations apply:

§440.140(E) "Criteria for Considering Applications"

- 1. The character of the neighborhood and extent that the use would be in harmony with nearby properties
- 2. The extent to which approval would detrimentally affect nearby properties
- 3. Relative benefit to public welfare by retaining applicable restrictions compared to the destruction of the value of the property or hardship to the owner with denying the request
- 4. The Comprehensive Plan
- 5. The extent to which utilities and public services are adequate
- 6. The extent that the use creates excessive pollution or environmental harm
- 7. The extent to which there is a need for the use in the community
- 8. The economic impact of the use on the community



- 9. The ability of the applicant to satisfy any requirements imposed
- 10. The recommendation of professional staff

Analysis: It is Staff's interpretation that a Special Use Permit for the use of the property as a warehouse facility meets all applicable criteria in Article III, §440.140, as follows: (1) the facility and its surrounding property are harmonious with nearby properties; (2) the proposed use does not detrimentally affect property values or neighborhood aesthetic that currently exist; (3) redevelopment consistent with the applicable regulations is not anticipated in the near future; (4) the use is not consistent with the Comprehensive Plan, but a conditional permit would be re-evaluated for conformance upon change of use and/or redevelopment; (5) the property has adequate access to utilities and public services; (6) excessive pollution or environmental harm have not been reported to Staff's knowledge, and the operation has not negatively impacted the community economically; because the storage of lithium ion batteries will not be part of the facility's operations, the environmental hazards associated with spontaneous combustion of battery components is diminished, and the facility will not have increased outward negative effect on adjacent neighborhoods; (7) the increase in hybrid electric vehicles and plug-in electric vehicles has created a market for the type of proposed operations; the business operations repurposes non-viable vehicle batteries for reuse and returns components back to the market; (8) economic impact on the community is minimal without a retail sales tax revenue; (9) the applicant has thus far met all permitting requirements imposed by the City and other regulatory bodies, including an inspection by the City's Building Official and Fire Marshall. Staff also visited the site of the Kansas City facility to learn about operations (see following site visit pictures and descriptions); (10) see Staff's recommendations and conditions in the next section.



Figure 1. Hybrid battery in outer casing; warehouse shelving with battery components in background.

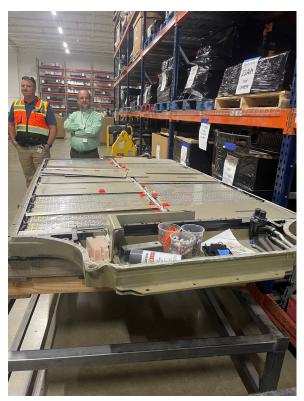


Figure 2. EV (Tesla) battery, not fully enclosed; individual cells secured to outer frame.



Figure 3. Disassembly, sorting, and testing room; boxes with "good" battery cells, shelving with reassembled batteries.





Figure 4. Sorting boxes with "good" cells that have been tested and separated from "bad" cells.

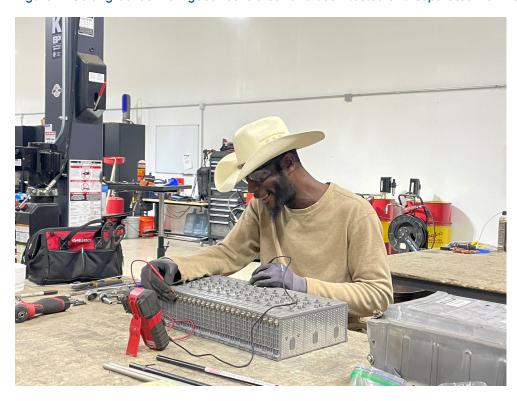


Figure 5. Greentec Auto technician testing individual cells for viability.



Under §445.210 of the City's municipal code, Special Use Permits may be for a specified time period or continual. Revocation of a Special Use Permit may be granted if any of the following conditions are met:

- Non-compliance with any applicable requirement
- Non-compliance with any special conditions imposed at the time of approval
- Violation of any provisions of the Code
- Where conditions of the neighborhood have changed to the extent that approval would be unwarranted
- Violation of any State or Federal law or regulation

RECOMMENDATION

It is Staff's determination that the existing property and structure thereon complies with local, state, and federal law. It is Staff's interpretation that the future land use plan for the property is not consistent with either light industrial/warehousing, or retail and service operations on the site, but utilizing an existing structure for the proposed purpose does not directly violate the future land use plan. However, if the property is redeveloped in the future, zoning districts as currently defined will no longer be relevant under the Comprehensive Plan (2023), contingent upon updates and/or amendments to the Comprehensive Plan. Redevelopment under the current Comprehensive Plan and the Form-Based Code overlay district would render the Special Use Permit for the use as proposed null and void and would constitute redevelopment that is consistent with the Comprehensive Plan and applicable area plans/overlay district(s). Therefore, Staff recommends that the Planning Commission recommend approval for the Special Use Permit on the following conditions:

- 1. The Special Use Permit is contingent upon the property remaining as-is regarding site design and building structure; should the site be redeveloped in the future, the Special Use Permit may be reevaluated for conformance with municipal zoning code regulations.
- 2. The Special Use Permit shall become void if the facility is vacant for six months or more.
- 3. If the special use is determined to be in violation at any time of the five conditions of 445.210, the Special Use Permit shall become void and violations shall be corrected and a new application for a Special Use Permit shall be under review by the Planning Commission.
- 4. Staff recommends an initial 3-year term limit on the Special Use Permit that shall require an application for renewal at the end of the term.
- 5. A maintenance agreement shall be required by the property owner for the on-street parking that will remain with the property upon transfer of ownership; all snow removal and repair/maintenance



shall be the responsibility of the owner or owner's agent.

- 6. The facility shall adhere to all building and fire code requirements as determined by the Mission Building Official or designee and the Consolidated Fire District #2 (CFD2) Fire Marshal.
- 7. Installation of an NFPA 13 compliant fire suppression system is required.
- 8. Installation of an NFPA 72 compliant fire alarm system is required.
- 9. The building will be subject to periodic inspection, with or without notice, by CFD2 and/or City of Mission inspectors.

PLANNING COMMISION ACTION

Case #24-09, Greentec Auto Special Use Permit, will be considered by the Planning Commission at its April 29, 2024 meeting.

CITY COUNCIL ACTION

Case #24-09, Greentec Auto Special Use Permit, will be considered by the City Council at its June 26, 2023 public hearing.



Community Development Department 6090 Woodson Street Mission, KS 66202 913-676-8360

Development Application

Permit	#			

Applicant Name: Travis Brackman Company: Greentce Auto Inc
Address: LBUD W GIST ST
City/State/Zip: Mission les (6202
Telephone: 814-305-9104
Email: trav & greentecauto: com
· ·
Property Owner Name: Tim Razumovily Company: Time KC LU
Address: 4800 W 415+ 57
City/State/Zip: Mission KS (4202
Telephone: 914-247-8383
Email: +: make 11c Com
Firm Preparing Application: Company:
Address:
City/State/Zip:
Telephone:
Email:
*All correspondence on this application should be sent to (check one)ApplicantOwnerFirm
Application Type
Rezoning Plat Site Plan SUP Lot Split Other (Specify):
Description of Request
Please provide a brief description of the request: Pallet Packing NiMH (non Hazardars)
Bottery Rebuilding, unload trules Regranize and tear down
Butteries that ship to our other facilities for testing. Small office
Reception employees for papernerk. There will be no opening
of any batteries to expose the cells. We are not manufacturing
Botteries. No Strage of Lion butteries.

	Project Details
	,
General Location or Address of Property:	Property Address
	· op · · · · ·
Present zoning of property: M-1	C-2B
Present zoning of property: M-1 - Present use of property:	
Agreement to Pay Expenses	
	nmunity Development Department of the City of Mission, Kansas
	ty may incur certain expenses, such as but not limited to
	court reporter fees. Applicant hereby agrees to be responsible for
(10) days of the receipt of any bill substituted by City as	a result of said application. Said costs shall be paid within ten
	to Applicant. It is understood that no requests granted by City or
	s have been paid. Costs will be owed whether or not Applicant
obtains the relief requested in the application.	
Affidavit of Ownership and/or Authorization of A	gent
1, 61,0	certify that I am the owner or contract purchaser of the
subject property. I give my permission for the under	rsigned to act as my agent on behalf of the application hereby
being submitted.	, , ,
x + a C	Date 2/23/24
Signature (Owner)	
X	Date
Signature (Owner's Agent)	
, , ,	

FOR	ROFFICE USE ONLY************************************
File Fee: \$	W-0-54
riie ree. \$	Meeting Date
	PC CC
Total:	Date Notices Sent
Receipt #	
Notes:	Date Published
	Date Fubilished
	Decision



Greentec Overview Kansas City, KS Plant

Greentec sells hybrid and EV batteries that are built and remanufactured in house at the main office in Kansas City, KS. Greentec has over 27 different locations here in the United States and just recently opened the first international location in Vancouver, Canada. The batteries are received at the Kansas City plant and are sorted by make and model. Once they are sorted, they are put on pallets, and are strapped down to secure them to the pallets. These pallets are stored on the pallet racking until they are ready to be taken apart. We have an inventory system that is used to keep track of our inventory and helps us decide which batteries are disassembled next. Once the decision has been made for which batteries to disassemble, they are pulled off of the shelves and are placed in the disassembly area to be disassembled. After the batteries are disassembled, individual cells are voltage checked. The good cells are sent into the testing room for further testing to ensure modules are in good working and sellable condition. Once this has been completed, the cells/modules are moved into the assembly room to be assembled back into hybrid batteries. After the batteries are assembled, they then go through various QC inspections to make sure they are up to standard. Once they pass this inspection, they are then installed into one of the testing vehicles to ensure everything is working properly before they are shipped to other Greentec locations or customers. Greentec has two main warehouse locations that do this work, Sacramento, CA and Kansas City, KS. The remaining locations that we have receive shipments from our warehouses and do installations for customers. They do not do any manufacturing of the batteries. We are looking to expand into the City of Mission to give us more working room here in Kansas City, KS as well as to continue to grow our company.

Greentec Mission, KS Overview

Greentec is planning to use the Mission, KS building for shipping, receiving, sorting, and dismantling of non hazardous nickel metal hydride batteries. The plan is to receive these batteries from the KC plant after they have been sorted. Once they are received in Mission the batteries will be disassembled and the modules will be sorted by good and bad. Once they are sorted the good modules will be transferred back to KC for testing and then the assembly and shipping process. The bad modules will be shipped to another Greentec facility to be processed

and shipped for recycling. The shelves at the mission plant will store all of the empty casings and components to these batteries in this facility to free up more room in the KC plant. The shelves will also hold any additional non battery items that the KC plant decides to transfer over to make room, such as pallets, extra testing equipment, cardboard boxes, and plastic totes and bins for shipping. This plant should initially start up with 10-15 employees. The hours of operation would be 7:30am - 5:30pm. Majority of the employees will be warehouse employees with a few employees to work in the front office to do paperwork for office administration. The warehouse will consist of pallet racking, forklifts, pallets, work tables and other warehouse equipment. The plan is to use this facility as an extension of our warehouse in Kansas City, KS and and to only use it for Non Hazardous Nickel Metal Hybrid Batteries as listed above.

Greentec Mission, KS Location Plan Use

Greentec is running out of working space in our current facilities. We have found another building that will help us with our expansion. We plan to use this building for the following:


- Receive shipments of NiMH batteries from our KC plant.
- Sort the batteries by make and model on pallets as listed above.
- Use pallet shelving to store pallets until we are ready to transfer to other locations, or when the batteries can be broken down accordingly.
- Re pallet the battery empty cases and components.
- Put the modules in our gaylord pallet boxes and prepare them for transfer back to the KC plant.
- Ship the modules to our Kansas City plant for testing.

Greentec Mission, KS Plan Picture Explanation

- Area 1 will be the office area. This area will be used for 1-2 office administrative employees to help any office admin work that needs to be completed.
- Area 2 is the work area of the employees that are planning to disassemble the hybrid batteries.



- Area 3 will be used for shipping and receiving. This will also double as a staging area until the pallets can be sorted.
- Area 4 will be used for pallet racking.



FOUND "+" 0.04' ON CURB FOUND 1/2" REBAR (BENT) RET. WALL ASPH. RET. WALL CONC. CONC. ASPH. PORTION UNDER BUILDING IS VACATED. 5' KCP&L EASEMENT, MISC. BK. 128, PG. 710. (#8) BK. 200609, PG. 006704. (#8) 5' KCP&L EASEMENT, MISC. BK. 128, PG. 710. (#8) BK. 200609, PG. 006704. (#8) CONC. 108.8 RET. WALL POB OF TRACT / FOUND 5/8" REBAR $\Theta MH ss - ss - ss -$ N 89°54'30"E, 61st STREET 1006.13 NOT TO SCALE PP POMH NOT EVERY SYMBOL MAY BE USED Monumentation Found as Noted - 5/8" Rebar w/Cap Set – Monument in Monument Box —SS— - Sanitary Sewer — S — – Storm Sewer -UE- - Underground Electric PROJECT LOCATION ──OE── — Overhead Electric - - Underground Telephone ─C── - Underground Cable T.V. -UF- - Underground Fiberoptics -0Ḥ─ – Overhead Utilities UTILITY WARNING – Flag Pole UNDERGROUND UTILITIES AS SHOWN HAVE BEEN PLOTTED FROM Monitoring WellBollard Post EXISTING UTILITY DRAWINGS AND FIELD SURVEY INFORMATION. THEY 61st STREE ARE BELIEVED TO REPRESENT ALL THE UTILITIES FOR THE PREMISES, - Handicap Space BUT THE SURVEYOR CAN MAKE NO GUARANTEE THAT THE UNDERGROUND – Sign – Mail Box UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN USE OR ABANDONED. THE SURVEYOR ALSO DOES NOT Telephone ManholeTelephone Pedestal 63rd STREET WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATIONS INDICATED. — Fiber Optic Marker SECTION 8-12-25 SCALE 1"=30" Vault **VICINITY MAP** Storm Manhole NOT TO SCALE Curb Inlet Basin w/ Grate Catch Basin Cleanout Sanitary Manhole

SYMBOL LEGEND

——G— – Gas

- Guardrail

-□--- - Wood Fence

— X – Fence

P.O.B. — Point of Beginning P.O.C. — Point of Commencement

R — Radius

Deed

Arc Length

Measured

 Fire Hydrant Water Valve

Water Meter

– Gas Meter

- Gas Valve

Water Manhole

Gasline Marker

- Cable Pedestal

— Electric Manhole

Electric Meter

Light Pole

Power Pole

- No Parking Area

Concrete Area

- Building Area

— Guy Wire

🧼 — Ground Light

Asphalt Area

- Air Condition Unit

- Electric Transformer

SURVEY CERTIFICATION

To: TIMA KC, LLC; (lender if any) and Chicago Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 7(a), 7(b)(1), 8, 9, 11(a) and 11(b), of Table A thereof. The fieldwork was completed on November 3, 2023. Date of Plat or Map: November 6, 2023.



Chicago Title commitment No. KCC232123 - Schedule "A" Property Description:

That part of the Northwest 1/4 of the Southwest 1/4 of Section 8, Township 12 South, Range 25 East of the Sixth Principal Meridian, in Mission, Johnson County, Kansas, described as follows: From a point in the South line of the Northwest 1/4 of the Southwest 1/4 of Section 8, Township 12, Range 25 (and in the center line of 61st Street), that is North 89 degrees 54 minutes 30 seconds East along said South line, 1006.13 feet from the West line of said Section 8 run North 25 feet to the Southeast corner of the Post Office tract of land described in Book 480 of Deeds, at Page 678, Register's File No. 621979, and the point of beginning of the tract herein described; continuing thence North 260 feet to the Northeast corner of the Post Office tract of land; thence East 250 feet; thence South 189.49 feet to the Northerly line of said 61st Street; thence South 44 degrees 54 minutes 30 seconds West, 37.02 feet; thence Southwesterly on a curve to the right with the last described course as a tangent and a radius of 150 feet, a distance of 117.81 feet; thence South 89 degrees 54 minutes 30 seconds West tangent to the last described curve, a distance of 117.87 feet to the point of beginning.

That part of the Northwest 1/4 of the Southwest 1/4 of Section 8, Township 12 South, Range 25 East of the Sixth Principal Meridian, in Mission, Johnson County, Kansas, described as beginning at the Northwest corner of the above described tract of land conveyed to Gill Studios, Inc., a Missouri corporation, by the Warranty Deed dated March 28, 1962, in Book 499 of Deeds, at Page 694, Registers File No. 644131, run North 55 feet; thence East 250 feet; thence South 55 feet to the Northeast corner of the aforesaid tract of land conveyed to Gill Studios, Inc.; thence West 250 feet to the point of beginning.

Chicago Title commitment No. KCC232123 - Schedule "B" Exceptions:

8. Property is subject to easement granted to Kansas City Power & Light Company, filed in Misc. Book 128, Page 710. Partial Disclaimer filed in Book 200609, Page 006704, as shown hereon.

Miscellaneous Notes:

1. The property described and depicted or shown hereon, are the same as the property described in Chicago Title commitment number KCC232123 with an effective date of October 2, 2023, at 8:00 AM and that all easements, covenants and restrictions referenced in said title policy have been plotted hereon or as otherwise noted as to their effect on the property. Basis of Bearings: Held corners found along the West line of surveyed tract in Mission, KS. I further certify that this survey is based on an actual survey made by me or under my direct supervision and that survey meets or exceeds the current minimum standards for property boundary surveys.

2. By scaled map location and graphic plotting only, the subject property appears to lie entirely in Zone Designations "X" (Areas determined to be outside the 0.2% annual chance floodplain) by the Federal Emergency Management Agency (FEMA), on Flood Insurance Rate Map No. 29091C0023G, with a date of identification of August 3, 2009, for Mission, Kansas, which is the current Flood Insurance Rate Map for said community.

- 3. There is direct access to the subject property via 61st Street, a public right-of-way.
- 4. Property has 41 standard and 0 handicap parking spaces.
- 5. According to the city website the property is zoned M-1. No Table "A" Item 6 information was provided.

Date:

Comment:

- 6. The property contains 75,762.36 sq. ft. or 1.74 acres, more or less.
- 7. The locations of all utilities shown on the survey are from visible surface evidence and information provided by others.
- 8. The posted address on site is 6800 W. 61st Street, Mission, KS 66202.

REVISION NOTES

6800 W. 61st STREET

ALTA/NSPS LAND TITLE SURVEY VIKING SURVEYS

SURVEY ORDERED BY: Name:

SURVEY PERFORMED BY: Curtis Tolson, KS 908, MO 2236 DBA Viking Surveys P.O. Box 13324 Overland Park, KS 66282 (913) 492-6179 Curtis@vikingsurveys.com

PROJ. NO. C23.027

From: <u>Kerkhoff, Todd, CFD2</u>

To: <u>Karie Kneller</u>

Subject: FD Memo for Special Use Permit **Date:** Tuesday, March 19, 2024 10:34:31 AM

Attachments: <u>image001.png</u>

This message came from outside City of Mission, Kansas - please use caution when opening attachments or links.

The following criteria will need to be met for Consolidated Fire District No.2 (CFD2) to support the issuance of a special use permit for the project at 6800 W 61st Street in Mission, KS.

- Installation of an NFPA 13 compliant fire suppression system.
- Installation of an NFPA 72 compliant fire alarm system.
- The building will be subject to periodic inspection, with or without notice, by CFD2 and/or City of Mission inspectors.

Todd Kerkhoff

Fire Marshal
Johnson County
Consolidated Fire District No.2
(O) 913-432-1105
(C) 913-207-0122
Todd.kerkhoff@cfd2.org
www.cfd2.org



CONFIDENTIALITY NOTICE: This e-mail, including any files transmitted with it, is the property of the City of Mission, Kansas. It is confidential and is intended solely for the use of the individual, or entity, to whom the e-mail is addressed. If you are not the named recipient, or otherwise have reason to believe that you have received this message in error, please notify the sender at (913) 676-8350 and delete this message immediately from your computer. Any other use, retention, dissemination, forwarding, printing, or copying of this e-mail is strictly prohibited.

Staff Report



AT A GLANCE

Applicant:

Milhaus Development, LLC

Location:

Eight properties, generally at Martway Street and Beverly Avenue

Property ID:

KP20600000 0003, KP20600000 0002, KP20600000 0001, KF251208-4017, KF251208-4016, KF251208-4018, KF251208-4010, KF251208-4022

Current Zoning:

MS2

Proposed Zoning:

N/A

Current Land Use:

Office, Parking, Open Space

Proposed Land Use:

Mixed-Use

Public Hearing Required

Legal Notice:

April 9, 2024

Case Number: 24-07

Project Name: Mission Beverly

Project Summary:

The project developer proposes a mixed-use, residential complex on five properties at the northeast corner of Martway and Beverly on the block between Beverly and Dearborn, and includes three properties on the adjacent south side of Martway. The development as proposed consists of 261 residential units and approximately 1,500 square feet of retail.

Staff Contact:

Karie Kneller, City Planner





PROPERTY BACKGROUND AND INFORMATION

Milhaus Development, LLC submitted an application for a mixed-use development at the following eight existing properties: 6005 Martway, 6025 Martway, 6045 Martway, 6000 Martway, 6040 Martway, 5945 Beverly, 5935 Beverly, 5960 Dearborn. The location is in the general vicinity of Martway Street and Beverly Avenue, with five properties on the north side of Martway between Beverly Avenue and Dearborn Street, and three properties immediately adjacent on the south side of Martway. The properties north of Martway are two office buildings, a bank building, a parking lot, and a .4 acre green space locally known as Beverly Park, owned by the City. Three office buildings on the south side of Martway are currently being demolished after several years of vacancy following a redevelopment application that was approved by the governing body, but never built.

Total land area of the subject properties is 4.32 acres and all properties are zoned "MS-2" Main Street District 2, adjacent to Mission's downtown commercial area. Adjacent properties to the west are the Powell Community Center and an office building. Properties to the east are multi-family and an office building. Properties to the south, across the Rock Creek channel, are the Mission Family Aquatic Center/ Andersen Park and a single-family residence. Adjacent properties to the north are office buildings. Structures neighboring the subject properties are between two and two-and-a-half stories.

PROJECT PROPOSAL

The applicant voluntarily held a neighborhood public meeting on March 20, 2023 to gain feedback on the initial design and layout of the project. Notes from that meeting are included in the packet; main takeaways were (1) there were parking concerns for Building B, (2) residents would like a connection to Anderson Park on the site, (3) concern for screening trash and sight lines from balconies on the south side of Building B toward homes facing 61st Street, and (4) some residents commented that they would like to keep the current space at Beverly Park. Feedback was mostly positive relating to the design, scale, and community benefits. Some residents felt that the applicant heard their concerns about reducing the scale at the south building, and the setback from single-family homes was a plus. Since that neighborhood meeting, the applicant has worked closely with staff to maintain the integrity of the original layout and design as voiced by residents, as other factors such as Beverly Park were being considered. The layout and density of the plan has not significantly changed, but the park space that was originally swapped to a location on the west side of Building B has been eliminated from the plan after residents and stakeholders voiced concern about the layout and parking accessibility of the park at the new location. Therefore, the applicant has made concessions by providing a financial contribution for the City to use funds to improve park space closer to the open space at the Farmers Market and city-owned lots nearby. This will allow the city to program and further develop a linear park space on a nearby site along the Rock Creek Trail. Staff has received favorable feedback with the new layout and contribution for larger park space off-site.

Site Plan and Architecture

The proposed redevelopment consists of two buildings - the building on the north side of Martway is



referred to as "Building A" and the structure on the south side of Martway is referred to as "Building B." Building A is 304,541 square feet, consisting of 204 residential units with a 1,500 square-foot retail space on the corner of Martway and Beverly. Building B is 53,406 square feet with 57 units. Density of the proposed development is 80 units per acre for Building A and 35 units per acre for Building B. The height of Building A is four stories or 54.5 feet, and three stories or 39.3 feet for Building B. A three-story parking garage with 265 spaces is proposed as part of Building A, and nine parallel on-street public parking spaces along Martway are designated for retail use. Surface parking is provided for Building B on the south lot with 83 stalls; a total of 16 ADA stalls are included in the total count. Garage ingress/egress is mid-block on Dearborn, and trash pickup is just south of the garage entry. Architectural elements break up the garage expanse on the east elevation of Building A by varying materials and openings. Each facade includes balconies or patios, windows, and architectural articulation with varying setbacks. Exterior materials consist of white, beige, green and terra cotta colors using fiber cement board, concrete, lap siding, and brick veneer. Roof-mounted equipment is screened by a parapet. Street frontage external to the retail use includes a potential outdoor seating area, and a pedestrian plaza is incorporated into the street frontage at the northwest corner of Martway and Dearborn.

Landscaping and Materials

Landscaping consists of shade trees and decorative trees along street frontage and in parking areas, bushes used for beautification and screening, and ground cover including sod and a riparian buffer seed mix in flood-prone areas. Existing trees on the site will be removed prior to construction. Trees along Beverly and Dearborn are located in the public right-of-way in tree pits. Species are native to NE Kansas.

Amenities and Safety Features

Amenities include a central courtyard with pool and lounge areas, which will receive landscaping details that shall be provided when a final development plan is submitted, along with photometric study and lighting plan. Other amenities include a fitness room and dog wash station. The Rock Creek Trail is currently located on the south side of Martway, where it crosses from the north side at just east of Dearborn, but the plan proposes continuing the trail along the north side of the street, fronting the retail location, before crossing to the south side of the street at Beverly. This crossing will include rectangular rapid flashing beacons (RRFBs) and a new crosswalk from the corner of Martway and Beverly to the south side of the street. Other pedestrian amenities include sidewalks around each building in the public right-of-way and connecting to building entrances, and a reduced number of curb cuts throughout the redevelopment site to improve pedestrian safety, as well as park benches. Bike racks are included in the plan near the retail location at Building A, and on the east side of Building B.

Infrastructure Improvements

Other proposed improvements include new stormwater and sanitary sewer infrastructure, including new tie-ins via street inlets and other on-site inlets, and new 60" stormwater pipe on the south property,



a 48" stormwater pipe on the north property, and a hydrodynamic separator to treat water from each building's roof. Proposed overhead and underground electrical infrastructure, as well as water lines are also part of the proposed improvements. A public access easement on the south property's westernmost boundary with a new 10' sidewalk is proposed to provide access to the south parking lot and designed to provide a potential future connection to Andersen Park.

Sustainability

The proposed plan includes elements that address sustainability. Measures included in the plan address the "Three Es" of Sustainability - Environment, Equity, and Economy. Environmental sustainability efforts include Energy-Star appliances, high R-value insulation and windows, water-control irrigation, native vegetation, and EV chargers in residential parking areas. Other community benefits that improve social equity include improving pedestrian connections, proximity to public transit and the community center, improved safety features for pedestrians as well as vehicles, and contribution through purchase of the open green space ("Beverly Park") toward a larger community gathering space along the Rock Creek Trail east of Woodson. Economic sustainability improvements consist of the build-out of end-of-life underground infrastructure, population density adjacent to Mission's downtown commercial shopping district, and redevelopment of blighted structures to reduce the likelihood of continued blight in the area.

The developer included a Sustainability Scorecard in its submittal, and met with the Sustainability Commission to discuss the project's goals toward meeting Mission's goals. At its April 1st meeting earlier this month, the Sustainability Commission provided feedback about the plan's elements that meet Mission's goals, and ways that the project could increase the sustainability score with additional measures.(waiting on a summary of this meeting to be included here)......

PLAN REVIEW AND ANALYSIS

Site Plan, Height, and Density

MS-2 zoning districts allow residential uses as part of a commercial or office building or complex, under Section 410.230 "Permitted Uses." Height and area regulations under Section 410.240 state that a maximum of three stories and/or 45 feet is permitted, and minimum lot area for multi-family dwellings is 1,245 square feet per unit or 35 units per acre.

Parking regulations at Section 410.250 state that four off-street parking spaces shall be provided on premises for each 1,000 square feet of gross floor area (pertaining to retail uses), or on-street parking may be constructed where adequate right-of-way is available, subject to good traffic engineering design principles. For residential uses, the minimum number of off-street parking spaces shall be provided as follows:

1. Studios and one-bedroom units - one space per unit



- 2. Two- or three-bedroom units two spaces per unit
- 3. Four-bedroom units two and one-half spaces per unit

Additionally, per Section 410.260 "Development and Performance Standards," residential uses shall not consist of more than 50% of the ground level street frontage within any commercial complex. MS-2 districts also must adhere to the development standards of MS-1 as stated in Section 410.200. Specific to the proposal, restaurants may have an outdoor service area that is accessory to the main restaurant function. The outdoor service area must be well-defined and designed to keep debris from blowing off premises. Patrons must gain entrance through the main entrance to the restaurant, but one exit must be provided for fire safety. The outdoor seating area shall be enclosed by a low wall and/or hedge located at the right-of-way line.

Analysis: A deviation from the height requirements of MS-2 districts is requested by the applicant, as the height of Building A is four stories, one story higher than permitted by-right. The area-to-unit ratio also requires a deviation, as both Building A and Building B exceed the maximum densities allowed by current municipal code. The future land use plan as part of the comprehensive plan indicates the property as mixed-use medium density (Building A property) and high-density residential (Building B property). Mixed-use medium density is defined in the Comprehensive Plan as 12-45 units per acre, and high-density residential includes 12 or more dwelling units per acre. These definitions are not currently reflected in the municipal code, which will be undergoing an update in the near future. Building B is proposed for a 35 units per acre density and Building A is proposed for 80 units per acre.

The deviation requests are a reciprocal exchange of the two properties for this project. Staff considers the project as a whole as being within the reasonable intention of the comprehensive plan's future land use plan for overall density within the context of the surrounding downtown area and adjacent uses. The four story height is more appropriate on the north property since adjacent buildings, block configuration, and massing provides a more realistic context for that density and height. Building A on the south property is a three-story height that is considerate of the residential properties nearby and has been adjusted according to the desires of residents along 61st Street. Previous development plans received input from neighbors that a three-story building is more desirable on the south property, and area residents stated that this building configuration was preferred to previous iterations of development plans.

Parking meets or exceeds the minimum for each use on-site. Since the project has a residential focus as part of mixed-use, the development standard requirement for 50% of a commercial complex to be retail or commercial on the ground floor does not apply. All other design elements of the site are within the parameters set forth by the zoning code.

Landscaping

Landscaping requirements stated in Sections 415.090 and 415.100-110 of the municipal code require



street trees along property frontage at average intervals every 50 feet and minimum sizes of plantings for trees, shrubs, and ground cover. The planting requirements for parking areas is a minimum 6% of landscaped area with one tree for every 20 cars of parking area within the parking area and shall be reasonably dispersed. The provisions recommend native plantings according to the Kansas Forestry Service/Kansas State Extension Office.

The Comprehensive Plan recommends an update to zoning code that stipulates enhancing outdoor amenity spaces within large-scale developments. The Comprehensive Plan also recommends adopting a native plants ordinance - these recommendations have not been codified, but the applicant has provided outdoor amenity space and specified native species in the plan

Analysis: Landscaping proposed in the plan meets the requirements of the municipal code and honors the Comprehensive Plan's recommendations for amenity space and native species.

Materials

The Johnson Drive Design Guidelines address exterior materials and colors. Buildings facades should have similar (complimentary) colors, materials, form, and detailing. Visible facades should respect the scale of adjacent buildings and located to enhance pedestrian access points. Wall surfaces should incorporate features that create a pattern of shade and shadow. Building proportion and scale should be compatible in scale and proportion with other buildings in the immediate context and relate to the human scale for passing pedestrians. Architectural rhythm should be used by incorporating columns, fenestration, or other design elements. Materials should be durable and maintenance free such as stone, brick, tile, and textured CMU. Predominant colors should be neutral tones such as yellow, tan, beige, brick, and brown tones and accent colors compliment these with no more than four colors on the facade. Roof-mounted mechanical equipment should be screened by parapets, and if parapets are used, should be on all facades. Building entrances should engage the street and on-site parking should be convenient to access main entries. Large buildings facing multiple streets should have several entrances. Parking structure facades should adhere to the building and site design guidelines and include features that mask the building as a parking structure. Views of cars should be screened from pedestrian view.

Analysis: Materials, scale and proportion, architectural detail, and colors are consistent with the Johnson Drive Design Guidelines. Roof-mounted equipment is screened by parapets, and pedestrian entrances are included on all sides. The parking structure is well-integrated into the building facade. The screening elements of the garage at ground level should be detailed with the final development plan to ensure that cars are not visible by passing pedestrians.

Amenities

The Johnson Drive Design Guidelines address pedestrian amenities. Benches, trash receptacles, etc. should be provided to enhance the streetscape. Sidewalks on side streets should be a minimum of four feet wide and should be a minimum of eight feet wide on major streets. All sidewalks and curb ramps



shall be ADA compliant.

Analysis: Benches, bike racks, and a pedestrian plaza with an outdoor seating area are provided on site. The outdoor seating area is enclosed by a low wall in accordance with development standards for the zoning district (see Section 410.200 of the municipal code cited previously). Engineering of curb ramps and ADA requirements of sidewalks will be evaluated during construction permitting review.

Traffic Impact Study

The traffic impact study conducted by Kimley-Horn and Associates determined trip generation of the proposed development, analyzed various scenarios to determine the impacts of traffic circulation around the site, and evaluates potential mitigation measures to achieve acceptable operations. The following intersections were evaluated:

- Johnson Drive & Lamar Avenue (Signalized)
- Johnson Drive & Beverly Avenue (Side Street Stop)
- Johnson Drive & Dearborn Street (Side Street Stop)
- Johnson Drive & Woodson Road (Signalized)
- Martway Street & Lamar Avenue (Signalized)
- Martway Street & Beverly Avenue (Side Street Stop)
- Martway Street & Dearborn Street (Side Street Stop)
- Martway Street & Woodson Road (Multiway Stop)

The proposed development has three access points for vehicles. Building A has garage access on Dearborn, and Building B has two access points on Martway. The Rock Creek Trail will also be realigned to run along the north side of Martway until the Beverly intersection where it will turn south to the opposite side of the street.

Total vehicle trips generated with the proposed development for the residential units is expected to be 1,748 on a daily basis. For the retail location, a total daily trip count is expected to be 293 vehicles. Future conditions scenarios included site trips from the Lanes at Mission Bowl development (5399 Martway) and the Mission Gateway site (5901 Roeland Dr.)

Analysis of the existing traffic volumes with development conditions indicates that intersections at Martway and Lamar and Johnson Drive and Lamar will operate at Level of Service (LOS) D during peak hour conditions for certain lanes. The memo states that for arterial streets, LOS D is a minimally acceptable LOS with signalization. Overall, these intersections when evaluated for all lanes gain a



qualification of LOS C and LOS D respectively. All other lanes at these intersections generally gained LOS between A and B., with the exception of the Johnson Drive and Dearborn intersection in the Northbound lane receiving an LOS F.

By 2024, future conditions at Northbound Johnson Drive and Beverly Avenue are expected to reach LOS E with the assumption of a yearly .5% growth rate of vehicle trips. The Northbound lane of the Johnson Drive and Beverly intersection receives a LOS E and the northbound lane of the Johnson Drive and Dearborn Street intersection receives a LOS F with longer queue and waiting time compared to the LOS F conditions in the 2023 analysis model. Martway and Lamar Avenue receives a LOS E in the eastbound right turn lane in future conditions.

Conclusion: Peak LOS function of existing conditions with the proposed development show acceptable levels of service for all but one intersection at northbound Dearborn and Johnson Drive. If delays are unacceptable to drivers, alternate routs are available. Significant changes are not noted by the traffic modeling scenario for future conditions, although slight increase in queues and wait times are likely. Therefore, no mitigation measures are indicated by the traffic study.

Stormwater/Drainage Memo

Kimley-Horn also prepared the drainage memo for the development site. Stormwater generally flows from north to south on the site. As noted in the memo, the southern edge of the site is located within the floodway. Structures are not within the floodway and at least two feet above base flood elevation (BFE). Kimley-Horn will complete a no-rise analysis for the proposed development site and will design the site to meet no-rise conditions. Assumptions during the design of the site will require a 1:1 compensatory storage scenario. The proposed development decreases the total impervious surface area within project limits. Therefore, no additional stormwater flow management facilities are required. Underground stormwater infrastructure will be replaced where the pipes are at the end-of-life. This includes a new 48" and a new 60" stormwater line in the middle of Beverly Avenue. Two hydrodynamic separators are included in the project proposal to achieve required level of service per the Mid-America Regional Council's (MARC) Best Management Practice (BMP) Manual.

RECOMMENDATION

Staff recommends that the Planning Commission recommend approval of the Mission Beverly Preliminary Development Plan, Case # 24-07, to the City Council with the following conditions:

- 1. A maintenance agreement is required for all site improvements on the property, including landscaping, and for on-street parking; this shall be recorded prior to recording the plat and the referenced book number applied to the final plat.
- 2. Final development plan shall include a photometric study and a lighting plan for all exterior and



courtyard light fixtures; to include International Dark Sky standards.

- 3. Screening of the cars within the parking garage shall be included in material facade treatments and detailed in the elevation plans.
- 4. Engineering and grading on the south property shall be designed and implemented to obtain a no-rise certificate from the city's consulting floodplain manager.
- 5. Buildings shall be a minimum two feet above base flood elevation (BFE)
- 6. All construction drawings shall be approved by the Building Official and Fire District #2 Fire Marshall prior to permitting.
- 7. All landscaping shall be native to NE Kansas according to the Kansas Forestry Service/Kansas State Extension Office and details provided in a final development plan.
- 8. All exterior and courtyard lighting shall be provided in a final development plan and follow standards set forth by the International Dark Sky Association.
- 9. All signage will be submitted as a package with a separate sign permit application.
- 10. A Final Development Plan will be submitted to the City and approved by the Planning Commission prior to the issuance of any building permits. The Final Development Plan shall be in conformance with the Preliminary Development Plan including but not limited to architectural features and details, materials used, and amenities.
- 11. The applicant shall submit a Final Site Plan and construction documents to the City for review and approval prior to building permit issuance.
- 12. The applicant shall obtain all approvals from the Consolidated Fire District No. 2 prior to building permit issuance.
- 13. The applicant shall obtain all approvals from Johnson County Wastewater and Johnson County Water District #1 prior to building permit issuance.
- 14. The applicant shall be responsible for all damage to existing City infrastructure, including roads, curbs, and sidewalks during construction. Repairs shall be of a quality like or better than existing conditions before final Certificate of Occupancy issuance.
- 15. The applicant shall provide a two (2) year warranty bond on all public infrastructure installed as part of this Preliminary Development Plan; bond(s) will be placed on file with the City of Mission Community Development Department.
- 16. This Preliminary Development Plan approval shall lapse in five (5) years from the effective date of this ordinance if construction on the project has not begun; provided, however, that the applicant



may request a hearing before the City Council to request an extension of this time period for up to 12 months.

PLANNING COMMISION ACTION

The Planning Commission will consider Case #24-07 Mission Beverly Preliminary Development Plan at its April 29, 2024 meeting.

CITY COUNCIL ACTION

The City Council will consider Case #24-07 Mission Beverly Preliminary Development Plan at its June 26, 2024 meeting.



Community Development Department 6090 Woodson Street Mission, KS 66202 913-676-8360

Development Application

Permit	-44		
Permit	ш.		

	· · · · · · · · · · · · · · · · · · ·
Applicant Name: DEVON COFFEY	Company: MILHAUS DEVELOPMENT, LLC
Address: 1656 WASHINGTON STREET, SU	ITE 230
City/State/Zip: KANSAS CITY, MO 64108	
Telephone: 913-915-2700	
Email: DEVON.COFFEY@MILHAUS.COM	
Property Owner Name: MULTIPLE OWNERS	Company:
Address:	
City/State/Zip:	
Telephone:	
Email:	
Firm Preparing Application: KIMLEY-HORN Address: 805 PENNSYLVANIA AVENUE, SU	Company: KIMLEY-HORN JITE 150
City/State/Zip: KANSAS CITY, MO 64108	
Telephone: 913-909-6503	
Email: TYLER.WYSONG@KIMLEY-HORN.C	COM
*All correspondence on this application should be se	ent to (check one)ApplicantOwner_X_Firm
At	oplication Type
Rezoning □ SUP ☒ Plat □ Site Plan ☒ PDP □	
Desc	ription of Request
Please provide a brief description of the request:	
PRELIMINARY DEVELOPMENT PLAN & F	PRELIMINARY PLAT APPROVAL FOR NEW
MIXED-USE DEVELOPMENT NEAR MAR	TWAY STREET & BEVERLY AVENUE

F	Project Details
General Location or Address of Property: MARTW	/AY STREET & BEVERLY AVENUE
Present zoning of property: MS2	
Present use of property: MS2	
A	
Agreement to Pay Expenses	munity Dayslanmant Danartmant of the City of Missian Kanasa
(City). As a result of the filing of said application, City publication costs, consulting fee, attorney fee, and c	munity Development Department of the City of Mission, Kansas y may incur certain expenses, such as but not limited to court reporter fees. Applicant hereby agrees to be responsible for a result of said application. Said costs shall be paid within ten
,	to Applicant. It is understood that no requests granted by City or
1	s have been paid. Costs will be owed whether or not Applicant
obtains the relief requested in the application.	
Affidavit of Ownership and/or Authorization of A	
I, DEVON COFFEY	certify that I am the owner or contract purchaser of the
being submitted.	rsigned to act as my agent on behalf of the application hereby
x Devon M Coffey	Date 2024-02-22
Signature (Owner)	
x Juli Wyley	Date 2024-02-22
Signature (Owner's Agent)	
*************	R OFFICE USE ONLY************************************
T CIV	Total de de diver
File Fee: \$	Meeting Date
	PC CC
	Date Notices Sent
Total: Receipt #	
Notes:	Date Published
	Decision



MISSION BEVERLY PROJECT SUMMARY

Milhaus is an award-winning, mixed-use development, construction, and property management company that specializes in Class A multifamily residential buildings. We develop and acquire high-quality projects that are financially responsible, withstand the passage of time, improve lives, and transform communities.

We are excited to share our latest multifamily development, which is the Mission Beverly Apartments in Mission, KS. Milhaus is under contract to assemble multiple properties to facilitate this development, including Beverly Park at 5935 Beverly Avenue, 5945 Beverly Avenue, 6040 Martway St., 6000 Martway St., 6045 Martway St, 6025 Martway St, 6005 Martway St., and 5960 Dearborn.

Milhaus has partnered with Architecture Firm NSPJ Architects and Kimley Horn Engineering to bring you this mixed-use project. The project will consist of two residential buildings comprised of 261 units. On the property north of Martway St., we envision a four-story residential building which will also house our parking garage, leasing office, amenities and approximately 1,500 SF of retail. The apartment homes will wrap around a courtyard and the structured parking garage. For the second building south of Martway, we propose a 3-story walk-up building with a surface parking lot. The buildings will be constructed as slab on grade with wood framing (Fire-protected by a sprinkler system), and a pre-cast concrete garage. The structured parking garage will house approximately 265 parking stalls, with 83 surface parking stalls on the south lot, and 9 parallel spaces of street parking. Electric vehicle chargers will be located in the residential parking areas. The amenity package includes a pool, indoor and outdoor lounge areas, a 24-hour fitness center, and dog wash station.

Milhaus recognizes how special the community of Mission is, and we are focused on creating a positive impact by improving the sustainability, walkability, and community sentiment overall. Our design contribution improves the safety of the pedestrian and bike traffic along Martway and the Rock Creek Trail. Our sustainability efforts are further exemplified with energy saving features including Energy-Star appliances, high quality insulation, windows and lighting, water use-control irrigation and native vegetation, EV chargers, and the removal of blighted structures. The project is also contributing Community Benefit through funding of a nearly \$1m sewer improvement project and financial contribution for the city to use funds and strengthen their current public park programming along the Rock Creek Trail.

We look forward to your feedback and appreciate your review of our PDP application.

Sincerely,

Devon M Coffey

Director of Development

Devon M Coffey

Milhaus

MISSION BEVERLY MIXED-USE DEVELOPMENT

NE CORNER OF MARTWAY STREET & BEVERLY AVENUE MISSION, KANSAS

PROJECT TEAM

CLIENT:

MILHAUS CONTACT: DEVON M. COFFEY TEL: (913)-915-2700

CIVIL ENGINEER

KIMLEY-HORN AND ASSOCIATES, INC.
PRIMARY CONTACT: TYLER WYSONG, P.E.
TEL: (816)-652-2334
EMAIL: TYLER.WYSONG@KIMLEY-HORN.COM
SECONDARY CONTACT: MARIA PTAK
TEL: (816)-319-2701

AIL. WANIA.F TANWAIMLE T-HONN.COI

SURVEYOR:
MINNEY SURVEYING
CONTACT: ANNE SMOKE

TEL: (913) 766-5141

ARCHITECT:

NSPJ CONTACT: CADE BRUMMER TEL: (913) 831-1415

TEL: (816)-652-0350

LANDSCAPE:
KIMLEY-HORN AND ASSOCIATES, INC.
CONTACT: ASHLEY SERR

POINT OF BEGINNING, EXCEPT ANY PART IN ROAD, IF ANY.



LEGAL DESCRIPTION

PARCEL 1

BEGINNING AT A POINT 827.19 FEET EAST AND 401.58 FEET SOUTH OF THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 25, JOHNSON COUNTY, KANSAS; THENCE SOUTH 0 DEGREES 01 MINUTE 40 SECONDS WEST, 282.14 FEET; THENCE SOUTH 89 DEGREES 58 MINUTES 20 SECONDS EAST 140 FEET TO A POINT ON THE WEST TO A POINT ON THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE, SAID POINT BEING 82.84 FEET NORTH OF THE INTERSECTION OF THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE AND THE NORTH RIGHT OF WAY LINE OF MARTWAY: THENCE NORTH 0 DEGREES 01 MINUTES 40 SECONDS

EAST ALONG THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE 281.91 FEET; THENCE NORTH 89 DEGREES 52 MINUTES 00 SECONDS

WEST, 140 FEET TO THE POINT OF BEGINNING, EXCEPT ANY PART IN ROAD, IF ANY.

PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 25, IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS, SAID TRACT BEING DESCRIBED AS FOLLOWS:BEGINNING AT A POINT 533.96 FEET SOUTH AND 687.19 FEET EAST OF THE NORTHWEST CORNER OF SAID 1/4 1/4 SECTION, SAID POINT BEING ON THE EAST RIGHT OF WAY LINE OF BEVERLY STREET; THENCE SOUTH 0 DEGREES 01 MINUTE 40 SECONDS WEST, 180 FEET; THENCE SOUTH 89 DEGREES 58 MINUTES 20 SECONDS EAST, 140 FEET TO THE NORTH 0 DEGREES 01 MINUTE 40 SECONDS EAST, 180 FEET; THENCE NORTH 89 DEGREES 58 MINUTES 20 SECONDS WEST, 140 FEET TO THE

PARCEL

BEGINNING AT A POINT 824.33 FEET SOUTH AND 686.97 FEET EAST OF THE NORTHWEST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 12, RANGE 25, IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS; THENCE, NORTH 80 DEGREES, 24 MINUTES EAST, 121.72 FEET; THENCE NORTH 0 DEGREES, 1 MINUTE, 40 SECONDS EAST, 90.0 FEET; THENCE, NORTH 89 DEGREES, 28 MINUTES, 20 SECONDS WEST, 120 FEET; THENCE SOUTH 0 DEGREES, 1 MINUTE, 40 SECONDS WEST, 110.37 FEET TO THE

PARCEL 3

TRACT 1: LOT 1, MARTWAY OFFICE BUILDINGS, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

TRACT 2:

LOT 2, MARTWAY OFFICE BUILDINGS, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

LOT 3, MARTWAY OFFICE BUILDINGS, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

TRACT 3

PARCEL 4: ALL THAT PART OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 25 IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS,

MORE PARTICULARLY DESCRIBED AS FOLLOWS:

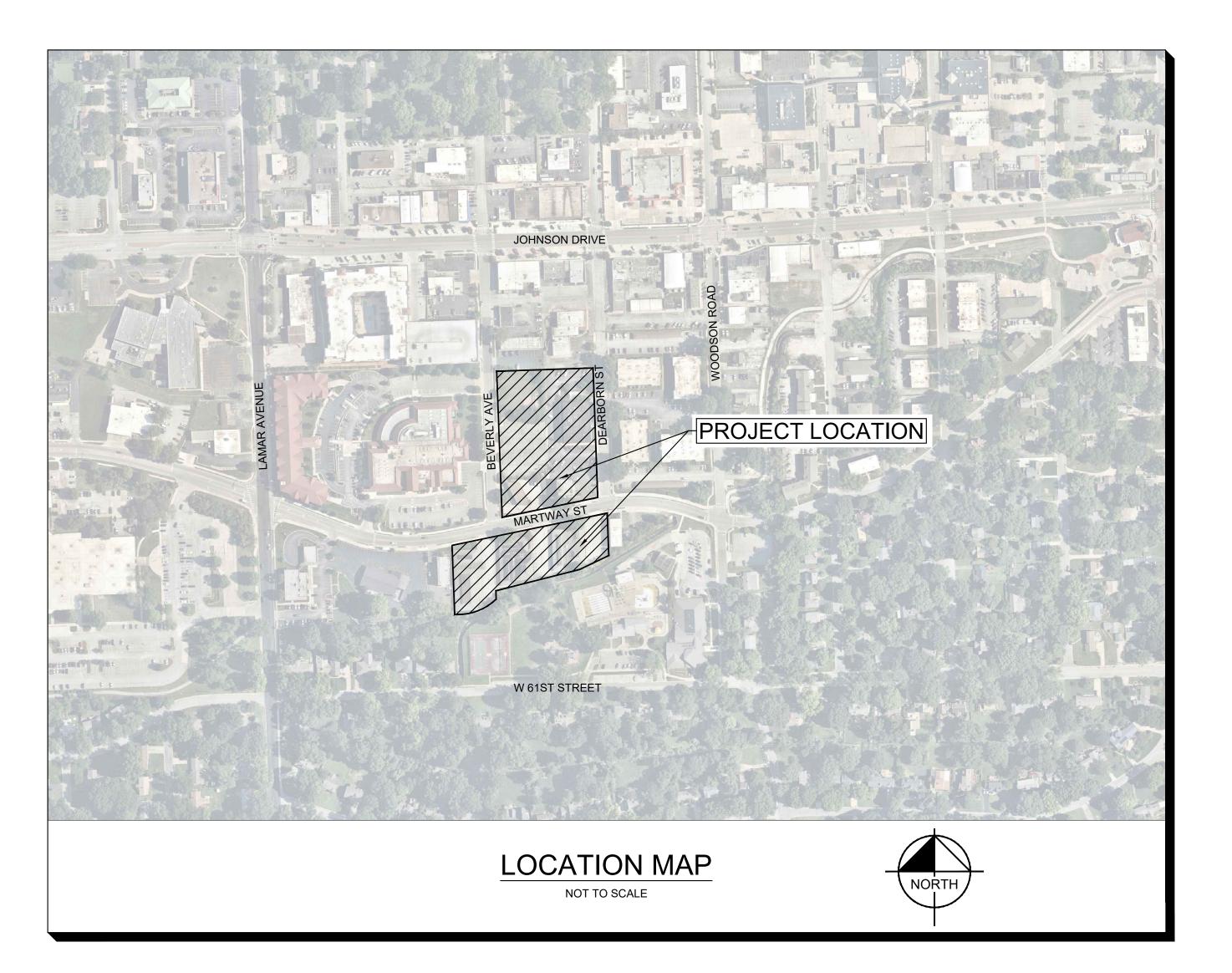
BEGINNING AT THE POINT OF INTERSECTION OF THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE AND THE NORTHERLY RIGHT OF WAY LINE OF MARTWAY, SAID POINT BEING 776.33 FEET SOUTH AND 967.19 FEET EAST OF THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 25, JOHNSON COUNTY, KANSAS; THENCE NORTH 0 DEGREES, 01 MINUTES, 04 SECONDS EAST, 62.84 FEET ALONG THE WEST RIGHT OF WAY LINE OF SAID DEARBORN AVENUE; THENCE NORTH 89 DEGREES, 52 MINUTES, 20 SECONDS WEST, 160 FEET; THENCE SOUTH 0 DEGREES, 01 MINUTES, 04 SECONDS WEST, 90 FEET TO A POINT ON THE NORTHERLY LINE OF SAID MARTWAY; THENCE NORTH 80 DEGREES, 24 MINUTES EAST, 162.25 FEET ALONG SAID NORTHERLY LINE TO THE POINT OF BEGINNING AND COMMENCING AT THE POINT OF INTERSECTION OF THE WEST RIGHT OF WAY LINE OF. DEARBORN AVENUE AND THE NORTHERLY RIGHT OF WAY OF MARTWAY; THENCE NORTH ALONG SAID WEST RIGHT OF WAY LINE 62.84 FEET TO THE TRUE POINT OF BEGINNING, SAID TRUE POINT OF BEGINNING BEING 967.19 FEET EAST AND 713.49 FEET SOUTH OF THE NORTHWEST CORNER OF THE

NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 24, JOHNSON COUNTY, KANSAS; THENCE NORTH 0 DEGREES 01 MINUTES, 40 SECONDS EAST ALONG THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE 30.0 FEET; THENCE NORTH 89 DEGREES, 58 MINUTES, 20 SECONDS WEST, 140 FEET; THENCE SOUTH 0 DEGREES, 01 MINUTES, 40 SECONDS WEST, 30 FEET; THENCE SOUTH 89 DEGREES, 58 MINUTES, 20 SECONDS EAST, 140 FEET TO THE TRUE POINT OF BEGINNING. EXCEPT ANY PART USED ROADS OR PUBLIC

RIGHTS OF WA

ALL THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 12, RANGE 25, NOW IN THE CITY OF MISSION JOHNSON COUNTY, KANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

MISSION, JOHNSON COUNTY, KANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT 635 FEET WEST OF THE EAST LINE, AND 400 FEET SOUTH OF THE NORTH LINE OF THE NORTHWEST QUARTER OF
THE SOUTHEAST QUARTER OF SAID SECTION 8, SAID POINT ALSO BEING ON THE EAST RIGHT-OF-WAY LINE OF BEVERLY AS NOW
ESTABLISHED; THENCE SOUTH, ALONG A LINE 635 FEET WEST OF AND PARALLEL TO THE EAST LINE OF THE NORTHWEST QUARTER OF THE
SOUTHEAST QUARTER OF SAID SECTION 8, SAID LINE ALSO BEING THE EAST LINE OF SAID BEVERLY, A DISTANCE OF 132.38 FEET; THENCE
EAST, ALONG A LINE PERPENDICULAR TO THE LAST DESCRIBED COURSE, A DISTANCE OF 140 FEET TO A POINT 495 FEET WEST OF THE
EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8; THENCE NORTH, ALONG A LINE 495 FEET
WEST OF AND PARALLEL TO THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8, A DISTANCE
OF 132.14 FEET TO A POINT 400 FEET SOUTH OF THE NORTH LINE THEREOF; THENCE WEST, ALONG A LINE 400 FEET SOUTH OF AND
PARALLEL TO THE NORTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8, A DISTANCE OF 140 FEET
TO THE POINT OF BEGINNING, EXCEPT ANY PART IN STREETS, ROADS OR HIGHWAYS.

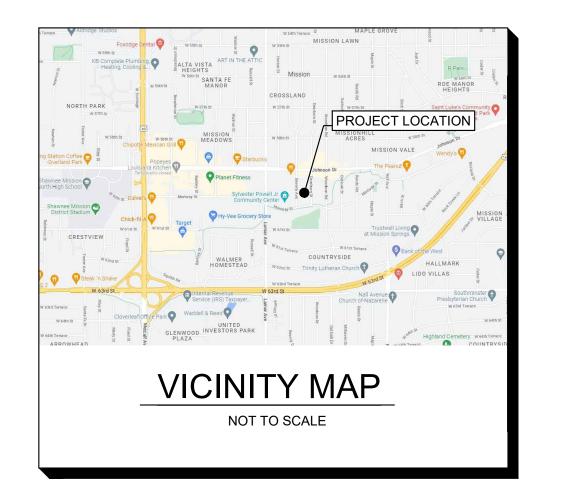


	SURVE	Y CONTROL	POINTS		9	267815.7500	2262356.0100	961.6100	"+" CUT IN ISLAND
POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION	10	267687.1500	2262335.0300	960.6000	"+" CUT IN CURB
1	268013.6500	2262206.2300	967.9800	"+" CUT IN SIDEWALK	11	267473.6500	2262460.5500	957.7400	"+" CUT IN SIDEWALK
2	267853.6000	2262209.2000	967.1000	SQUARE CUT IN CURB INLET	12	267934.8400	2262493.3600	959.9400	"+" CUT IN SIDEWALK
3	267559.8400	262199.6400	960.2800	SQUARE CUT IN CURB INLET	13	267442.9000	2262359.9500	956.9400	NAIL IN ASPHALT
4	267583.4900	2262363.9600	958.4900	"+" CUT IN SIDEWALK	196	267411.5600	2262257.8200	958.2100	"+" CUT IN STEP
5	267626.7400	2262527.9900	956.4600	"+" CUT IN SIDEWALK	197	267388.4300	2262181.4400	960.3200	NAIL IN ASPHALT
6	267823.3900	2262496.4400	57.2700	"+" CUT IN SIDEWALK					/ CITINET
7	268040.6600	2262489.4100	961.6200	"+" CUT IN SIDEWALK					

SHEET LIST TABLE						
SHEET NUMBER	SHEET TITLE					
C0	COVER SHEET					
C1	EXISTING CONDITIONS					
C2	SITE PLAN					
C3	GRADING & UTILITY PLAN					
L1	OVERALL LANDSCAPE PLAN					
L2	ENLARGED LANDSCAPE PLAN					
L3	ENLARGED LANDSCAPE PLAN					
L4	TREE PRESERVATION DETAILS					
L5	LANDSCAPE DETAILS					
L6	LANDSCAPE DETAILS					
A1	BUILDING "A" OVERALL ELEVATIONS					
A2	BUILDING "A" WEST ELEVATIONS					
A3	BUILDING "A" EAST ELEVATIONS					
A4	BUILDING "A" NORTH ELEVATIONS					
A5	BUILDING "A" SOUTH ELEVATIONS					
A6	BUILDING "A" NORTH & SOUTH COURTYARD ELEVATIONS					
A7	BUILDING "A" EAST & WEST COURTYARD ELEVATIONS					
A8	BUILDING "B" NORTH & EAST ELEVATIONS					
A9	BUILDING "B" SOUTH & WEST ELEVATIONS					
A10	PERSPECTIVE FROM MARTWAY ST LOOKING EAST					

UTILITY AND GOVERNING AGENCY CONTACTS

WATER		
	WATERONE	913-895-1850
GAS		
	KANSAS GAS	800-794-4780
ELECTRICITY		
	EVERGY	816-471-5275
WASTEWATER		
	JOCO WASTEWATER	913-715-8500



No. REVISIONS DATE B

Kimley >>> Horr © 2024 KIMLEY-HORN AND ASSOCIATES, INC. 805 PENNSYLVANIA AVENUE, SUITE 150 KANSAS CITY, MO 64105

DESIGNED BY: MTP
DRAWN BY: MTP
CHECKED BY: TAW





SOVER

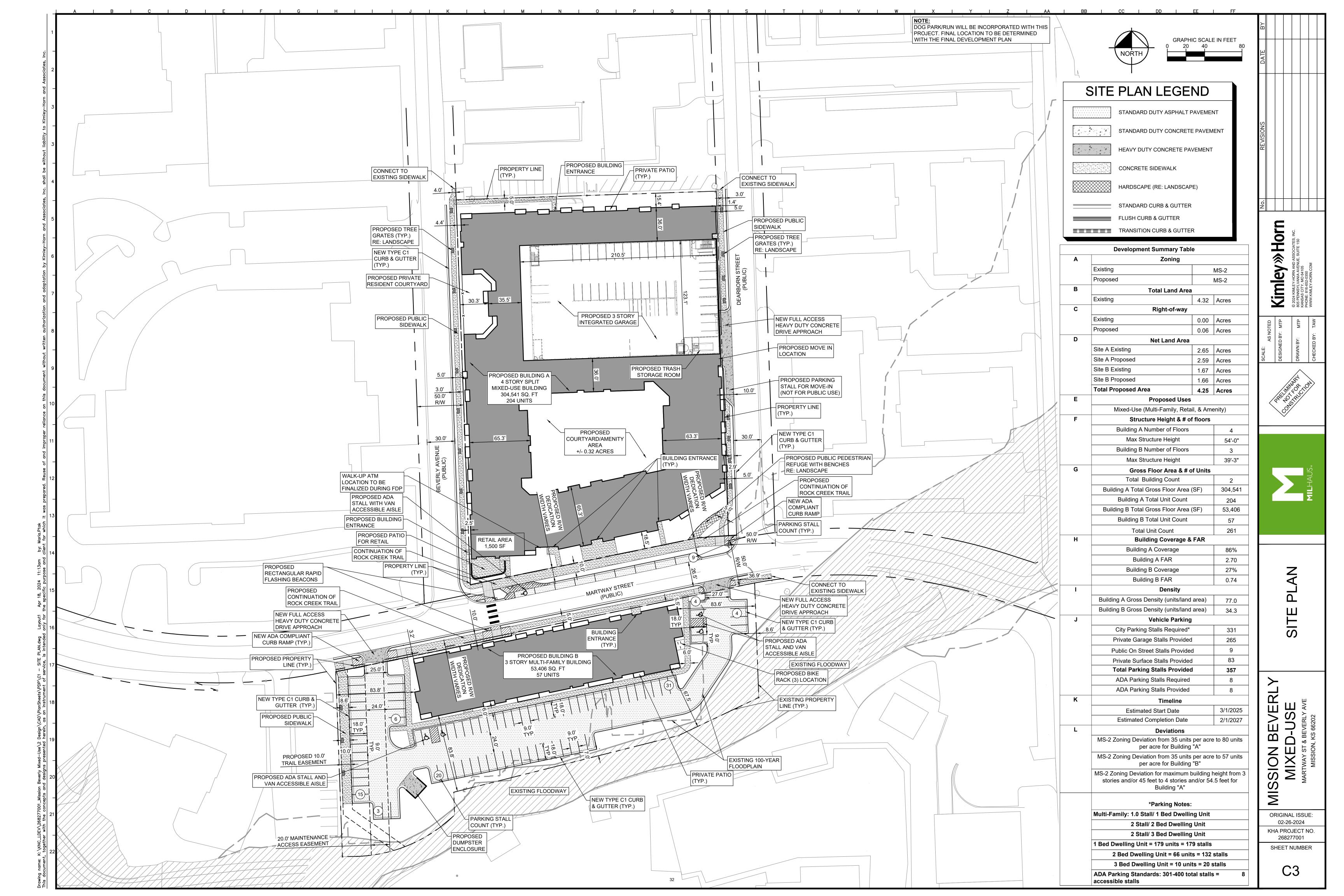
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MIXED-USE

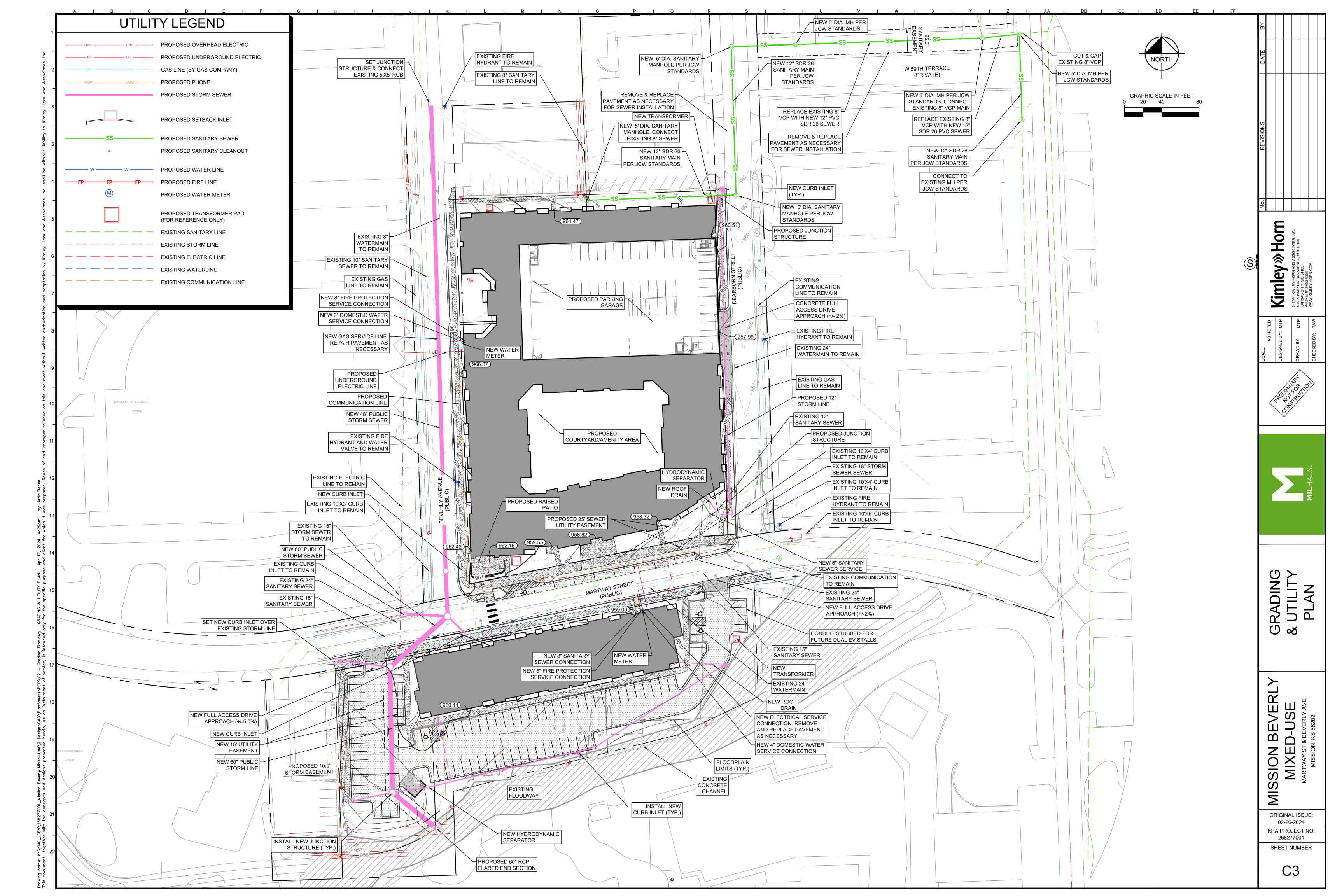
ORIGINAL ISSUE: 02-26-2024 KHA PROJECT NO

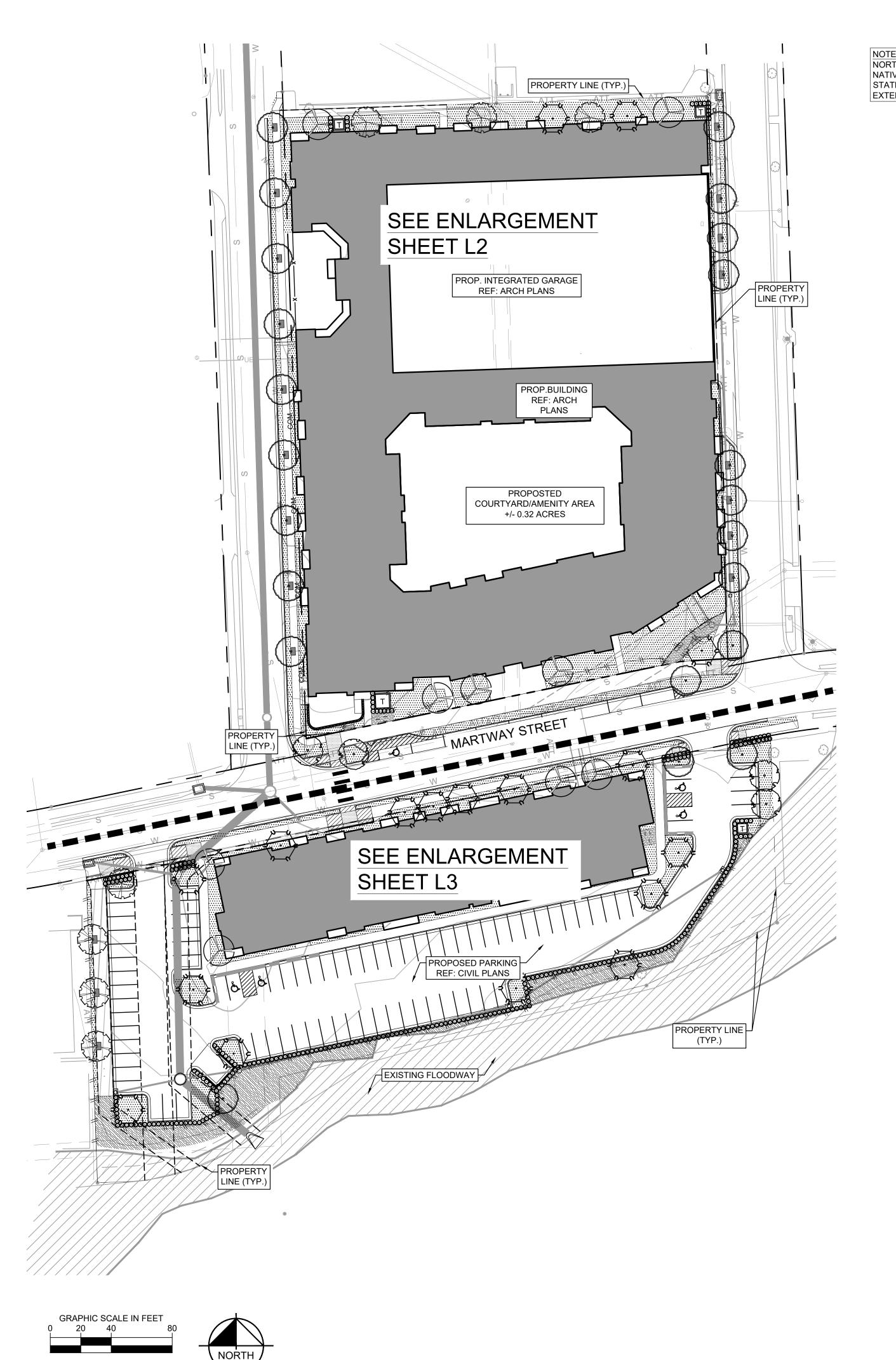
268277001 SHEET NUMBER

C0









NOTE: TREES TO BE NORTHEAST KANSAS NATIVES PER KANSAS STATE UNIVERSITY EXTENSION OFFICE.

	PLANT SCH	IEDUL	.E	<u>NOTE</u> : PLANT QUA IN THE CASE OF A I				NVENIENCE ONLY. HALL TAKE PRECEDENCE.
	TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	CALIPER	<u>HEIGHT</u>	REMARKS
		GB	7	GINKGO BILOBA / MAIDENHAIR TREE	B & B	2 " CAL. (MIN)	12` - 14` HT.	SINGLE STRAIGHT LEADER. FULL AND MATCHING.
₹ <u>.</u>		QA	17	QUERCUS ALBA / WHITE OAK	B & B	2 " CAL. (MIN)	12` - 14` HT.	SINGLE STRAIGHT LEADER. FULL AND MATCHING.
<u>س</u> ر		QM	4	QUERCUS MONTANA / CHESTNUT OAK	B & B	2 " CAL. (MIN)	12` - 14` HT.	SINGLE STRAIGHT LEADER. FULL AND MATCHING.
$\left(\cdot \right)$		QS	23	QUERCUS SHUMARDII / SHUMARD OAK	B & B	2 " CAL. (MIN)	12` - 14` HT.	SINGLE STRAIGHT LEADER. FULL AND MATCHING.
		TD	9	TAXODIUM DISTICHUM VAR. DISTICHUM / COMMON BALDCYPRESS	B & B	2 " CAL. (MIN)	12` - 14` HT.	SINGLE STRAIGHT LEADER. FULL AND MATCHING.
	SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING	REMARKS
	0	BG	38	BUXUS × 'GREEN GEM' / GREEN GEM BOXWOOD	5 GAL	3` HT. MIN.	36" O.C.	FULL & MATCHING.
	\Diamond	IG	229	ILEX GLABRA 'CHAMZIN' / NORDIC™ INKBERRY HOLLY	5 GAL	3` HT. X 3` W. MIN.	36" O.C.	FULL & MATCHING.
	0	JV	24	JUNIPERUS VIRGINIANA 'GREY OWL' / GREY OWL REDCEDAR	5 GAL	5` HT. MIN.	36" O.C.	FULL AND MATCHING
	GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	ROOT	SIZE	SPACING	REMARKS
		НА	582 SF	HARDSCAPE AREA	N/A	N/A	N/A	REFER TO LANDSCAPE DETAILS
		LA	20,904 SF	LANDSCAPE AREA / GROUND COVERS / SOD	N/A	N/A	N/A	GROUND COVERS TO BE FULL AND MATCHING. SOD TO HAVE TIGHT, SAND-FILLED JOINTS, ROLLED. TO BE FREE OF WEEDS, PESTS, AND DISEASE.
		SEED	5,016 SF	STREAM BUFFER MIX	SEED			WEED FREE SEE SEED NOTES

City of Mission, Kansas - Landscape Data Table		
Site Area: 4.32 acres - Zoning (MS2) Multi Use		
	REQUIRED	<u>PROVIDED</u>
Chapter 415 - Supplemental District Regulations		
Section 415.090 Minimum Tree Requirements		
In all zones one (1) tree is required for each fifty (50) feet of street frontage and shall be planted within the landscape setback.	Yes	Yes
Martway Street South: 462 Inft Street Frontage / 50 = 10 Street Trees	10 Street Trees	10 Street Trees
Martway Street North: 284 Inft Street Frontage / 50 = 6 Street Trees	6 Street Trees	6 Street Trees
Beverly Avenue: 423 Inft Street Frontage $/50 = 9$ Street Trees	9 Street Trees	9 Street Trees
Dearborn Street: 375 Inft Street Frontage / 50 = 8 Street Trees	8 Street Trees	8 Street Trees
In addition, provide one (1) tree for every three thousand (3,000) SF of landscape open space	Yes	Yes
39,500 SF Landscape Open Space / 3000 = 14 Open Space Trees	14 Open Space Trees	14 Open Space Trees
In addition, provide one (1) tree for every 20 cars of parking area located throughout the parking lot	Yes	Yes
106 Parking Spaces / 20 = 6 Parking Lot Trees	6 Parking Lot Trees	6 Parking Lot Trees
Section 415.110 Planting Requirements within Parking and Vehicular Use Areas		
All parking lots containing more than 25 spaces shall provide not less than 6% of the interior of a parking lot as landscaping. The interior parking lot shall be calculated by multiplying the number of parking spaces by 270 SF. Planting which is required along the perimeter of the parking lot shall not be considered as part of the interior landscaping requirements.	Yes	Yes
106 Parking Spaces x 270 SF = 18,630 SF x 6% =1,718 SF Landscape Parking Area	1,718 SF Landscape Parking Area	≥ 1,718 SF Landscape Parking Area

PLANTING NOTES:

- CONTRACTOR TO SOD TO LIMITS OF DISTURBANCE OUTSIDE OF FLOODWAY.
- 2. CONTRACTOR TO SEED ALL DISTURBED AREAS WITHIN THE EXISTING FLOODWAY WITH FLOODWAY SEED MIX.
- 3. ALL PLANT MATERIAL SHALL BE INSTALLED ACCORDING TO SOUND NURSERY PRACTICES AND SHALL MEET ALL STANDARDS AS STATED IN THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF
- 4. NO SUBSTITUTIONS IN PLANT MATERIALS SHALL BE MADE WITHOUT WRITTEN AUTHORIZATION FROM OWNER OR LANDSCAPE ARCHITECT. IN THE EVENT OF DISCREPANCIES BETWEEN DRAWING AND PLANT LIST, THE DRAWING SHALL PREVAIL.
- 5. LOCATE ALL UTILITIES PRIOR TO ANY DIGGING OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO
- EXISTING UTILITIES INCURRED BY HIS WORK.
- 6. STAKING AND GUYING: REFER TO LANDSCAPE DETAILS AND SPECIFICATIONS FOR TREE STAKING. PLANTS MASSED IN BEDS SHALL BE ARRANGED USING TRIANGULAR SPACING.
- PROVIDE A STEEL EDGE BETWEEN ALL PLANTING BEDS AND LAWN AREAS—REFERENCE LANDSCAPE PLAN.
- 9. ALL PLANTING BEDS TO BE TOP DRESSED WITH A MINIMUM OF 3" SHREDDED HARDWOOD MULCH—REFERENCE LANDSCAPE PLAN. 10. LAY TALL FESCUE FOR PROPOSED LAWN AREAS TO ALL EDGES OF PAVEMENT AND/OR LIMITS SPECIFIED IN LANDSCAPE PLAN. ALL AREAS WITHIN CITY R.O.W. SHALL RECEIVE SOD.
- 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING UNTIL FINAL ACCEPTANCE. ALL REQUIRED LANDSCAPING SHALL BE MAINTAINED IN A NEAT AND ORDERLY MANNER AT ALL TIMES. THE WORK SHALL INCLUDE, BUT NOT TO BE LIMITED TO, MOWING, EDGING, PRUNING, FERTILIZING, WATERING, WEEDING, AND OTHER SUCH ACTIVITIES COMMON TO THE MAINTENANCE OF LANDSCAPING. ALL PLANT MATERIALS SHALL BE MAINTAINED IN A HEALTHY AND GROWING CONDITION AS IS APPROPRIATE FOR THE SEASON OF THE YEAR. PLANT MATERIAL THAT DIES SHALL BE REPLACED WITH PLANT MATERIAL OF
- SIMILAR SIZE AND VARIETY. 12. CONTRACTOR SHALL WARRANTY PLANT MATERIAL TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. WARRANTY SHALL NOT INCLUDE DAMAGE FOR LOSS OF PLANT MATERIAL DUE TO ACTS OF VANDALISM OR NEGLIGENCE ON THE PART OF OWNER.
- 13. ALL LANDSCAPE BED AREAS TO BE PREPARED USING "ORGANICALLY ENRICHED TOP SOIL" BY MISSOURI ORGANIC (OR APPROVED EQUAL). INSTALL TO DEPTHS PER PLANTING DETAILS (12" DEPTH MIN.). FINISHED GRADES OF PLANTING BEDS TO BE 2" BELOW FINISHED GRADE OF ADJACENT PAVING OR AS SHOWN ON GRADING PLAN.
- 14. ALL SOD AREAS TO RECEIVE 4" DEPTH (MIN.) TOPSOIL PRIOR TO INSTALLATION. TOPSOIL SHALL BE NATURAL, FRIABLE, AND FERTILE; POSSES A pH RANGE OF 7.0-7.5; AND BE FREE OF TRASH, DEBRIS, STONES, WEEDS, AND TWIGS/BRANCHES.

TREE PROTECTION NOTES:

THE APPROPRIATE PERMITTING AGENCY.

- 1. CONTRACTOR SHALL ADHERE TO ALL TREE PRESERVATION REQUIREMENTS LISTED IN THE TREE PRESERVATION SPECIFICATIONS AND/OR
- THE CITY OR COUNTY ZONING CODE (LATEST EDITION)—WHICHEVER IS MORE STRINGENT SHALL APPLY.
- CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION PROCEDURES WITH THE PROJECT ARBORIST PRIOR TO BEGINNING WORK 3. ANY DEMOLITION OR EXCAVATION WITHIN THE DRIP LINE OF AN EXISTING TREE SHALL PROCEED WITH EXTREME CARE EITHER BY THE USE OF HAND TOOLS, DIRECTIONAL BORING, AIR KNIFE EXCAVATION, AND/OR WITH OTHER LOW IMPACT EQUIPMENT THAT WILL NOT CAUSE
- DAMAGE TO THE TREE, ROOTS, OR SOIL; CONTRACTOR SHALL COORDINATE SUCH PROCEDURES WITH THE PROJECT ARBORIST. 4. EXISTING TREE LOCATIONS AND SIZES ARE ESTIMATES BASED ON A SURVEY PROVIDED BY THE OWNER SELECTED SURVEYOR. 5. NO SIGNS, BUILDING PERMITS, WIRES, OR OTHER ATTACHMENTS OF ANY KIND SHALL BE ATTACHED TO ANY TREE. GUY WIRES DESIGNED
- TO PROTECT TREES ARE EXCLUDED FROM THIS PROHIBITION. 6. CONTRACTOR SHALL COORDINATE TREE REMOVAL WITH PERMITTING AGENCY AND PROJECT ARBORIST PRIOR TO CONSTRUCTION. NO PERSON MAY REMOVE OR CAUSE TO BE REMOVED ANY PROTECTED TREE WITHOUT FIRST HAVING PROCURED A PERMIT AS PROVIDED BY
- 7. DO NOT INSTALL CONDUIT, DRAIN OR IRRIGATION LINE, OR ANY UTILITY LINE WITHIN THE TREE PROTECTION ZONE WITHOUT THE APPROVAL OF THE PROJECT ARBORIST. IF LINES MUST TRAVERSE THE PROTECTION AREA, THEY SHALL BE TUNNELED OR BORED UNDER THE TREE UNLESS OTHERWISE NOTED—REFERENCE TREE PRESERVATION DETAILS.
- 8. CONSTRUCTION ACTIVITY SHALL NOT DESTROY OR IRREVERSIBLY HARM THE ROOT SYSTEM OF PROTECTED TREES. POST HOLES AND
- TRENCHES LOCATED CLOSE TO PROTECTED TREES SHALL BE ADJUSTED TO AVOID DAMAGE TO MAJOR ROOTS. 9. IF TREE ROOT ZONE IS TO BE DISTURBED, AFFECTED ROOTS MUST BE SEVERED BY CLEAN PRUNING CUTS AT THE POINT WHERE
- CONSTRUCTION IMPACTS THE ROOTS.
- 10. ROOT PRUNING/TRENCHING LOCATIONS SHALL BE APPROVED IN THE FIELD BY THE PROJECT ARBORIST. 11. CONTRACTOR TO COORDINATE ALL EARTHWORK OPERATIONS WITH THE PROJECT ARBORIST PRIOR TO BEGINNING WORK.
- 12. IF ANY DAMAGE TO TREE PROTECTION FENCING SHOULD OCCUR BY ACCIDENT OR NEGLIGENCE, THE CONTRACTOR SHALL BE
- RESPONSIBLE FOR IMMEDIATE REPAIRS.
- 13. CONTRACTOR'S ACCESS TO FENCED TREE PROTECTION AREAS SHALL BE PERMITTED ONLY WITH APPROVAL OF THE PROJECT ARBORIST. 14. NO MATERIALS, EQUIPMENT, SPOIL, WASTE, OR WASHOUT WATER MAY BE DISPOSED, STORED, OR PARKED WITHIN 20 FEET OF ANY TREE
- 15. CONTRACTOR SHALL COORDINATE WITH THE PROJECT ARBORIST PRIOR TO REMOVAL OF TREE PROTECTION FENCING.

STREAM BUFFER SEED MIX NOTES

KS 643 Rare & Declining Habitat (Eastern KS Savanna Wet-Mesic 10/20):

- GENERAL SEED MIX NOTES:

 1. STREAM BUFFER SEED MIX SHALL BE PROVIDED WHERE INDICATED ON THE PLAN.
- 2. THE MIX INDICATED ABOVE IS TO BE SEEDED AT 60 PLS/ft² OR AS RECOMMENDED BY SEED SUPPLIER. 3. CONTRACTOR IS RESPONSIBLE FOR PROPER WATERING
- AND SOIL MOISTURE DURING THE GERMINATION PERIOD, AS RECOMMENDED BY THE SEEDING SUPPLIER. 4. CONTRACTOR SHALL MAINTAIN NATIVE SEED AREAS PER SEED SUPPLIER'S RECOMMENDATION.
- CONTRACTOR TO SUBMIT SUPPLIER-PROVIDED MAINTENANCE/ESTABLISHMENT PLAN TO LANDSCAPE
- ARCHITECT PRIOR TO PURCHASE CONTRACTOR TO SUBMIT SUPPLIER-PROVIDED SPECIES

DATA AS PART OF THE RECORD DRAWINGS PACKAGE.

SEED MIX ESTABLISHMENT NOTES

- 1. ESTABLISH SEED MIX AS FOLLOWS UNLESS OTHERWISE
- RECOMMENDED BY SEED SUPPLIER(S): 2 ENSURE ALL WEED COMPETITION IS CONTROLLED PRIOR TO PLANTING THE NATIVE SEED. WHEN POSSIBLE, ALLOW TIME FOR WEEDS TO SPROUT PRIOR TO ESTABLISHING SEEDS. ONCE WEEDS SPROUT, SPRAY THE ENTIRE AREA THAT IS BEING PREPARED FOR SEED ESTABLISHMENT WITH HERBICIDE BASED ON WEED TYPES. ALLOW THE HERBICIDE TO SETTLE FOR THE RECOMMENDED TIME AS STATED BY THE HERBICIDE MANUFACTURER BEFORE PROCEEDING WITH SEED ESTABLISHMENT. WHEN USING HERBICIDES
- FOLLOW ALL LABELED RECOMMENDATIONS. 3. DO NOT LIME TO MODIFY SOIL CONDITIONS.
- 4. FERTILIZE PER LANDSCAPE SPECIFICATIONS UNLESS OTHERWISE RECOMMENDED BY SEED SUPPLIER(S). BROADCASTING - APPLY SEED EVENLY IN TWO INTERSECTING DIRECTIONS. REMOVE ANY THATCH OR
- MATERIAL THAT MAY PREVENT SEED TO SOIL CONTACT. AFTER BROADCASTING ROLL THE SITE WITH A ROLLER OR CUI TI-PACKER TO ENSURE GOOD SEED TO SOIL CONTACT IF USING STRAW MULCH ON SEEDED AREAS STRAW IS TO BE OATS OR WHEAT STRAW FREE FROM WEEDS. FOREIGN MATTER DETRIMENTAL TO PLANT LIFE AND HAY, OR CHOPPED CORNSTALKS ARE NOT ACCEPTABLE. TAKE SPECIAL CARE TO SPREAD A THIN LAYER OF STRAW AND DO NOT LEAVE CLUMPS OR PIECES OF BALES UNSPREAD. WHEN USING EROSION CONTROL BLANKETS, ENSURE THE USE OF OAT OR WHEAT STRAW FREE OF WEEDS. THE
- GENERALLY, NATURAL RAINFALL EVENTS PROVIDE SUFFICIENT WATER BUT LIGHT WATERING MAY BE NEEDED IN PERIODS OF DROUGHT TO START THE GERMINATION PROCESS. CHECK SOIL MOISTURE WEEKLY WITH A MOISTURE PROBE FOR 6 WEEKS AFTER SEEDING. SHOULD THE SOIL MOISTURE LEVEL FALL BELOW 15%, WATER ALL SEEDED AREAS, BUT DO NOY EXCEED 45% MOISTURE AT ANY GIVEN TIME.

EROSION CONTROL BLANKET MESH + MATERIAL MUST BE THIN IN NATURE AS TO ALLOW SUNLIGHT THROUGH.

CONTRACTOR TO SUBMIT NATIVE SEED AREA MANAGEMENT PLAN(S) PROVIDED BY THE NATIVE SEED SUPPLIER(S) TO THE OWNER/OWNER'S REPRESENTATIVE FOR THE LONG-TERM MAINTENANCE/CARE OF NATIVE SEED AREAS.

KS 643 Rare and Declining Habitat (Eastern Kansas Savanna Wet-Mesic 10/20)

Taylor Creek Restoration Nurseries

(785) 594-2245

	224 East 1260 Road, Baldwin City, KS 66006							
	https://www.taylorcreeknurseries.com/							
% seed psf	Botanical Name	Common Name						
2.25%	Andropogon gerardii	Big bluestem						
3.27%	Carex cristatella	Crested sedge						
0.47%	Carex molesta	Field oval sedge						
1.69%	Carex normalis	Spreading oval sedge						
3.15%	Carex scoparia	Broom sedge						
0.64%	Carex shortiana	Short's sedge						
7.51%	Carex vulpinoidea	Fox sedge, Brown fox sedge						
1.17%	Elymus canadensis	Canada wild rye						
1.42%	Elymus virginicus	Virginia wild rye						
6.00%	Juncus effusus	Common rush						
0.32%	Panicum virgatum	Switch grass						
3.38%	Schizachyrium scoparium	Little bluestem						
1.80%	Sorghastrum nutans	Indian grass						
2.03%	Agastache nepetoides	Yellow giant hyssop						
0.25%	Allium cernuum	Nodding wild onion						

Anemone canadensis |Meadow anemone rnoglossum atriplicifolium Pale Indian plantain l Asclepias incarnata Swamp milkweed Campanulastrum 0.64% Tall bellflower mericanum Cephalanthus occidentalis |Buttonbush Chamaecrista fasciculata | Partridge pea |Coreopsis tripteris Tall coreopsis

3.04% Dalea purpurea ²urple prairie clover Desmodium canadense Showy tick trefoil 0.45% odecatheon meadia ilobium coloratum innamon willow herb patorium altissimum Eupatorium perfoliatum Common boneset Eutrochium purpureum | Purple joe pye weed Geum aleppicum strictum | Yellow avens pericum punctatum Liatris pycnostachya Prairie blazing star Lobelia cardinalis Cardinal flower

5.63% Lobelia siphilitica Great blue lobelia ligoneuron rigidum |Stiff goldenrod Pvcnanthemum tenuifolium | Slender mountain mint 0.16% Rudbeckia laciniata |Wild golden glow ilphium perfoliatum Sup plant Solidago speciosa Showy goldenrod Symphyotrichum Panicled aster lanceolatum

0.66% Symphyotrichum .50% |Sky-blue aster lentangiense Thalictrum dasycarpum Purple meadow rue (Venus's looking glass Triodanis perfoliata |Verbesina alternifolia

Veronicastrum virginicum | Culver's root

Blue vervain

Golden alexanders

3.96%

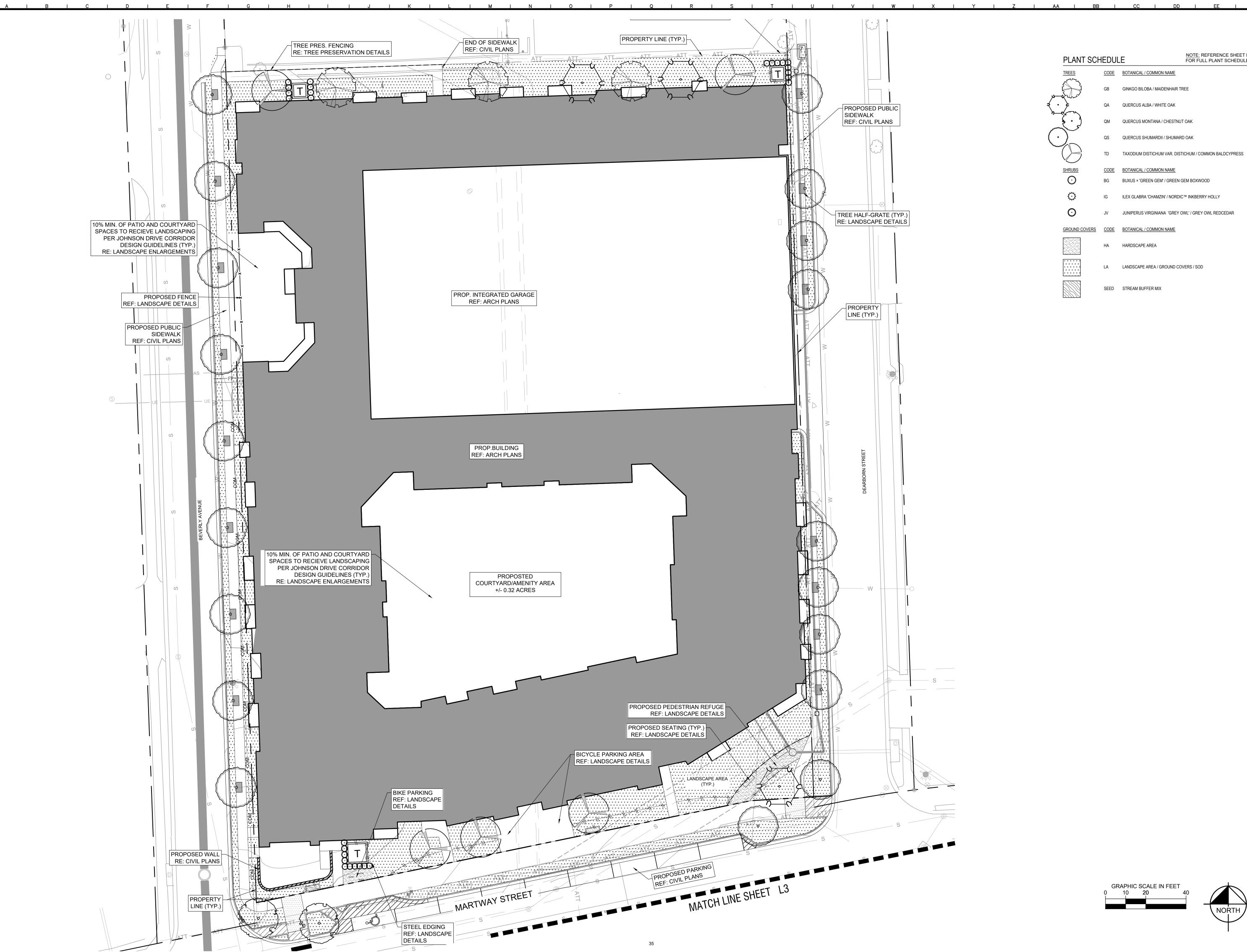
|Verbena hastata

ORIGINAL ISSUE: 08-02-2023 KHA PROJECT NO.

268277001



SHEET NUMBER



NOTE: REFERENCE SHEET L1 FOR FULL PLANT SCHEDULE.

Kimley » Hor



ORIGINAL ISSUE: 08-02-2023 KHA PROJECT NO.

268277001 SHEET NUMBER



NOTE: REFERENCE SHEET L1 FOR FULL PLANT SCHEDULE.

CODE BOTANICAL / COMMON NAME GB GINKGO BILOBA / MAIDENHAIR TREE

QA QUERCUS ALBA / WHITE OAK

QS QUERCUS SHUMARDII / SHUMARD OAK

TD TAXODIUM DISTICHUM VAR. DISTICHUM / COMMON BALDCYPRESS

CODE BOTANICAL / COMMON NAME

BG BUXUS × 'GREEN GEM' / GREEN GEM BOXWOOD

IG ILEX GLABRA 'CHAMZIN' / NORDIC™ INKBERRY HOLLY

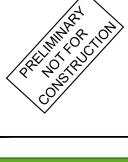
GROUND COVERS CODE BOTANICAL / COMMON NAME

HA HARDSCAPE AREA

LA LANDSCAPE AREA / GROUND COVERS / SOD

SEED STREAM BUFFER MIX

Kimley » Horn





MISSION BEVERLY
MIXED-USE
MARTWAY ST & BEVERLY AVE

ORIGINAL ISSUE: 08-02-2023 KHA PROJECT NO. 268277001

SHEET NUMBER

THIS DETAIL FOR CURB DEMOLITION IS FOR DESIGN INTENT ONLY. FINAL MEANS AND METHODS OF DEMOLITION TO BE DETERMINED AND FIELD COORDINATED BY THE PROJECT ARBORIST, CONTRACTOR, AND OWNER'S REPRESENTATIVE PRIOR TO AND DURING DEMOLITION OPERATIONS. CONTINUOUS COORDINATION BETWEEN THESE PARTIES DURING THE CURB DEMOLITION PHASE IS REQUIRED FOR TREE PRESERVATION AND LONG TERM HEALTH OF THE PROTECTED TREES. HAND REMOVAL OF CURB MAY BE REQUIRED AS DETERMINED BY PROJECT ARBORIST.

DEMOLITION SEQUENCE:

1. COORDINATE ALL DEMOLITION OPERATIONS
AROUND PROTECTED TREES WITH LANDSCAPE
ARCHITECT, ENGINEER, AND PROJECT ARBORIST.

2. INSTALL TREE PROTECTION FENCING.

3. PERFORM ANY ROOT PRUNING.

4. BREAK OR CUT 6' SECTIONS OF CURB.

CAREFULLY ROTATE CURB SECTIONS AWAY

FROM ROOTS.

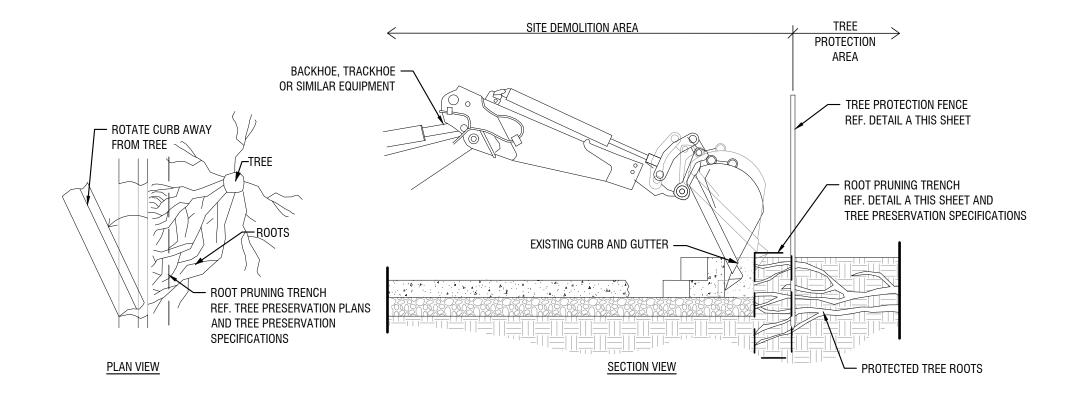
NOTES:

1. COORDINATE WITH OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION ACTIVITIES.

2. ALL TREE PROTECTION MEASURES MUST BE IN PLACE AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION ACTIVITIES.

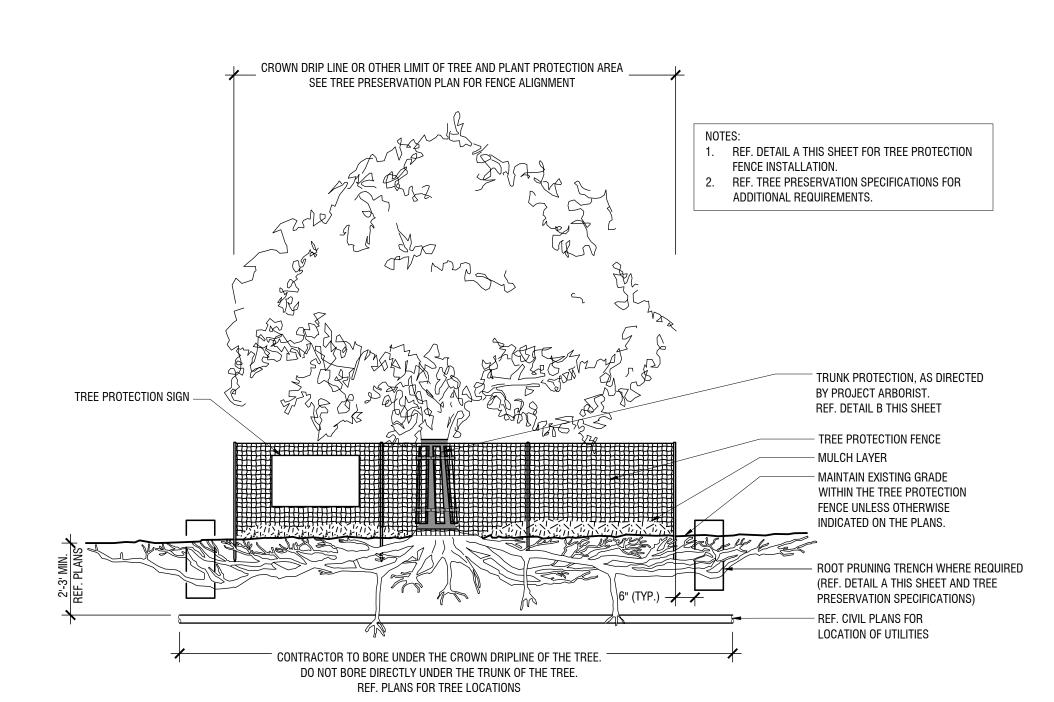
3. OWNER'S REPRESENTATIVE TO APPROVE ANY CANOPY THINNING AND/OR CANOPY RAISING PRUNING TO ALLOW FOR DEMOLITION ACTIVITIES PRIOR TO

CONSTRUCTION.

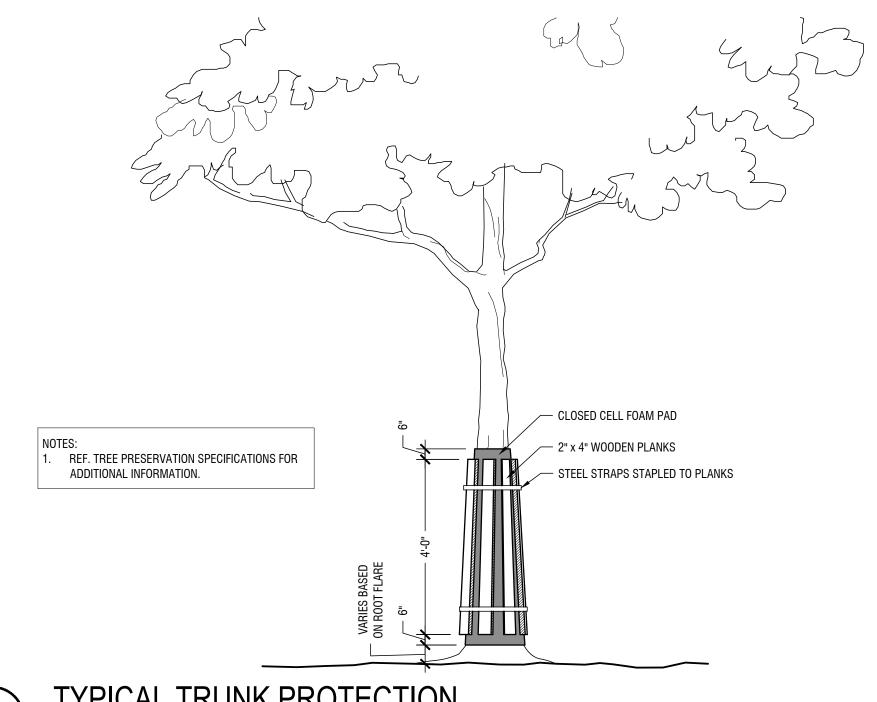


CURB DEMOLITION AROUND EXISTING TREE ROOTS

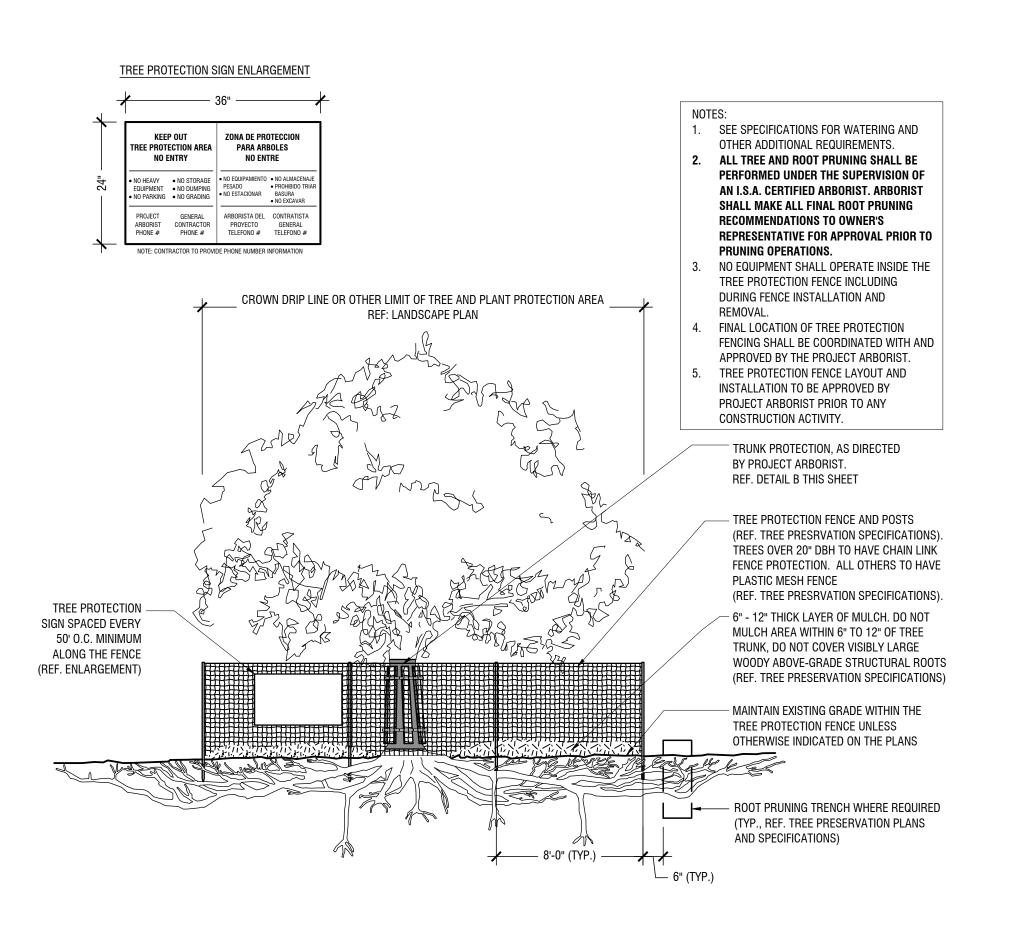
NTS



C TYPICAL UTILITY BORING TREE PROTECTION



TYPICAL TRUNK PROTECTION



TYPICAL TREE PROTECTION FENCING

1/4" = 1'

DESIGNED BY: MTP

DESIGNED BY: MTP

DESIGNED BY: MTP

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Series Se



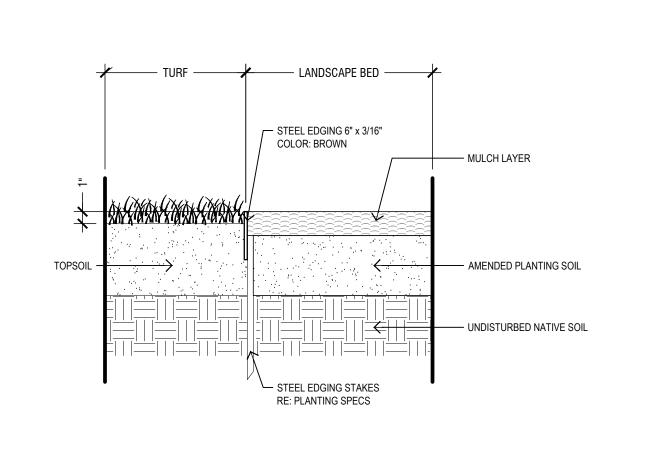
TREE RESERVATION

SSION BEVERLY MIXED-USE

ORIGINAL ISSUE: 02-26-2024 KHA PROJECT NO. 268277001

SHEET NUMBER

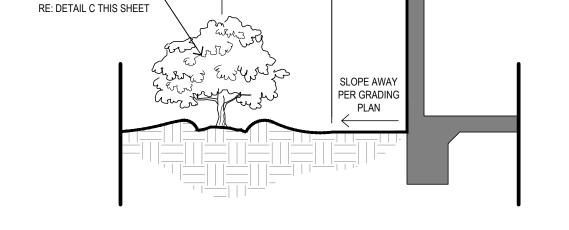
L4



MIN. 1/2 MATURE SHRUB WIDTH

SHRUB PLANTING

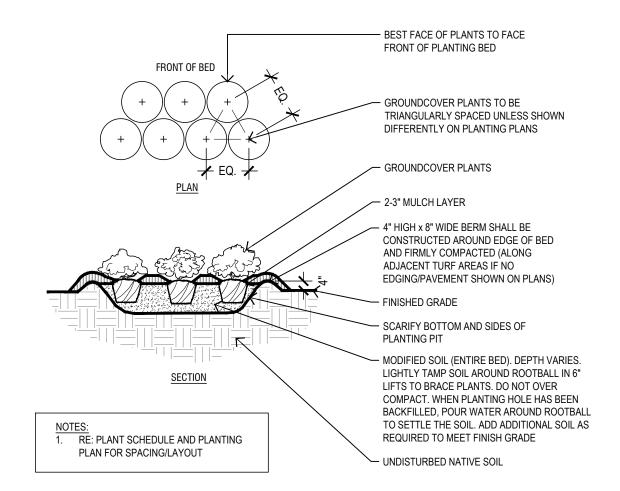
STEEL EDGING



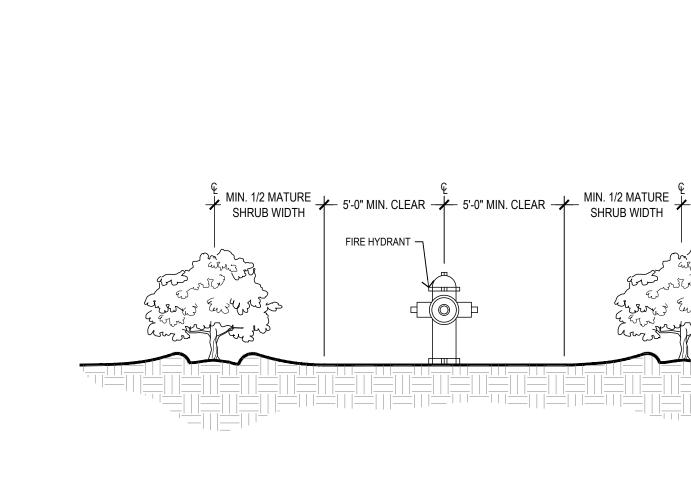
SHRUB PLANTING -

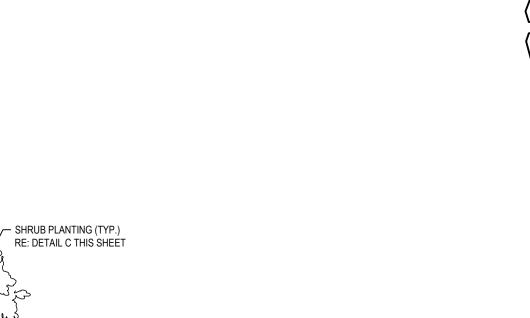
MIN. 1/2 MATURE 2'-0" BUILDING
SHRUB WIDTH MIN. CLEAR

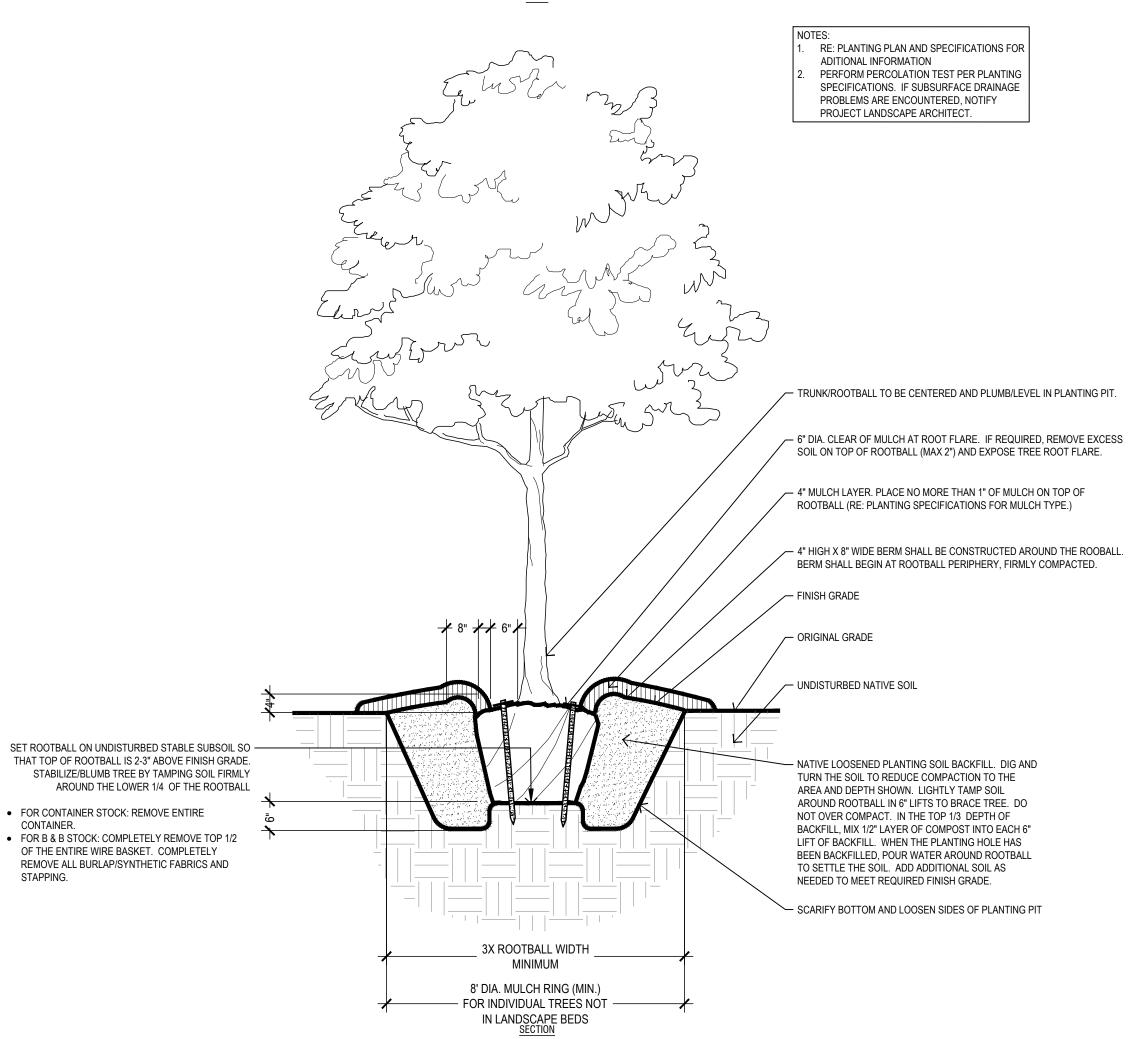












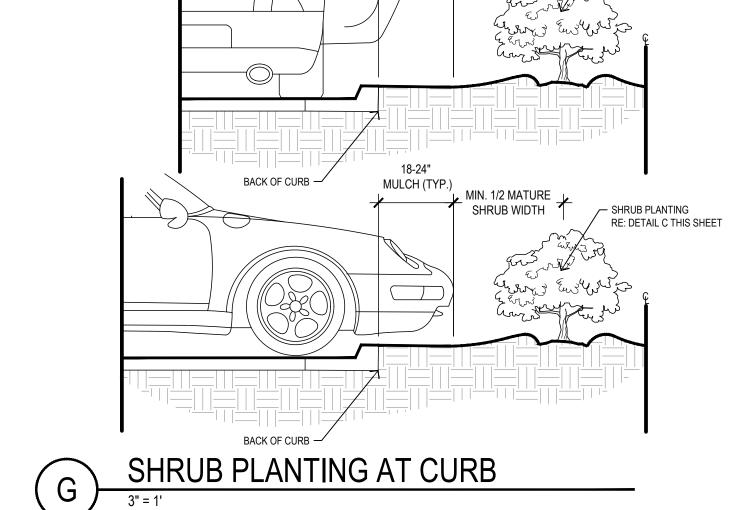
ARBOR STAKE (TPY.) INSTALL 4" MIN. FROM

EDGE OF ROOTBALL

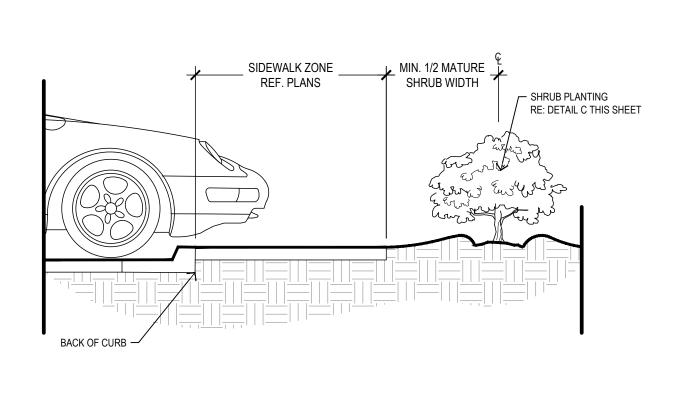
- ROOTBALL

- TREE TRUNK

TREE CANOPY

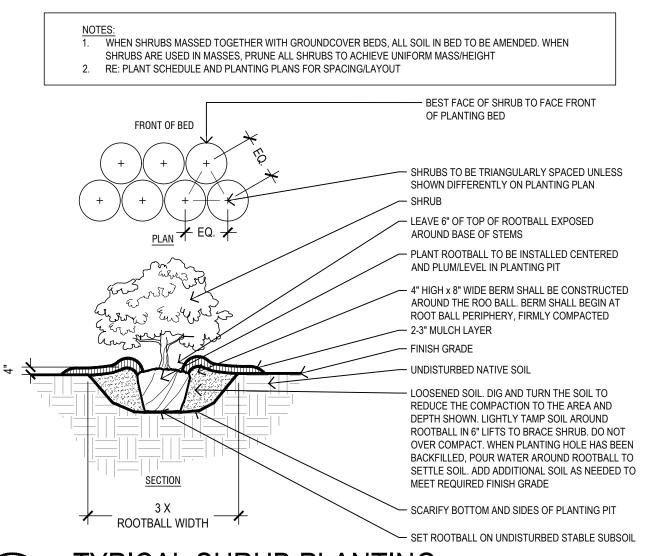






TYPICAL SHRUB PLANTING

SHRUB PLANTING AT SIDEWALK



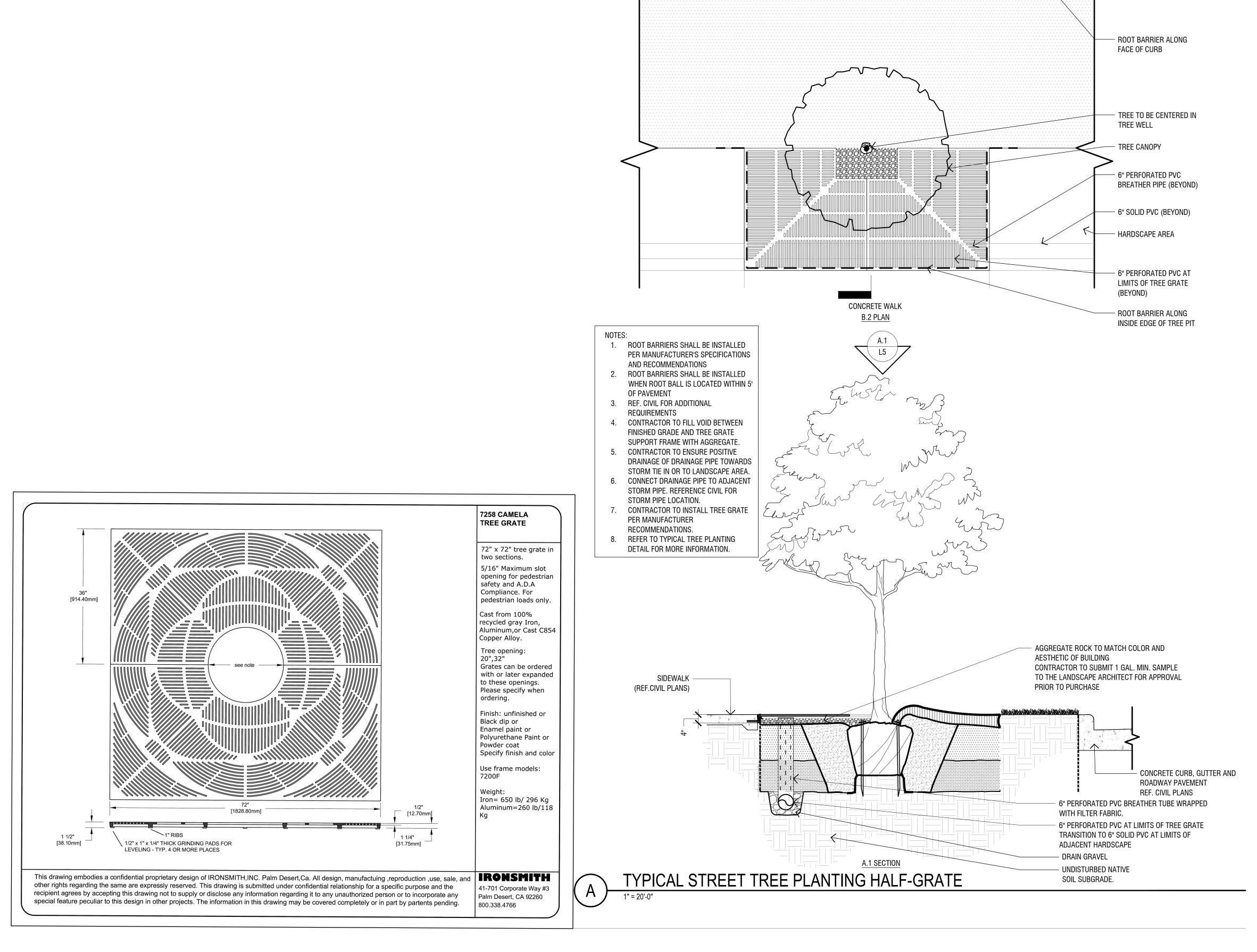
TYPICAL TREE PLANTING

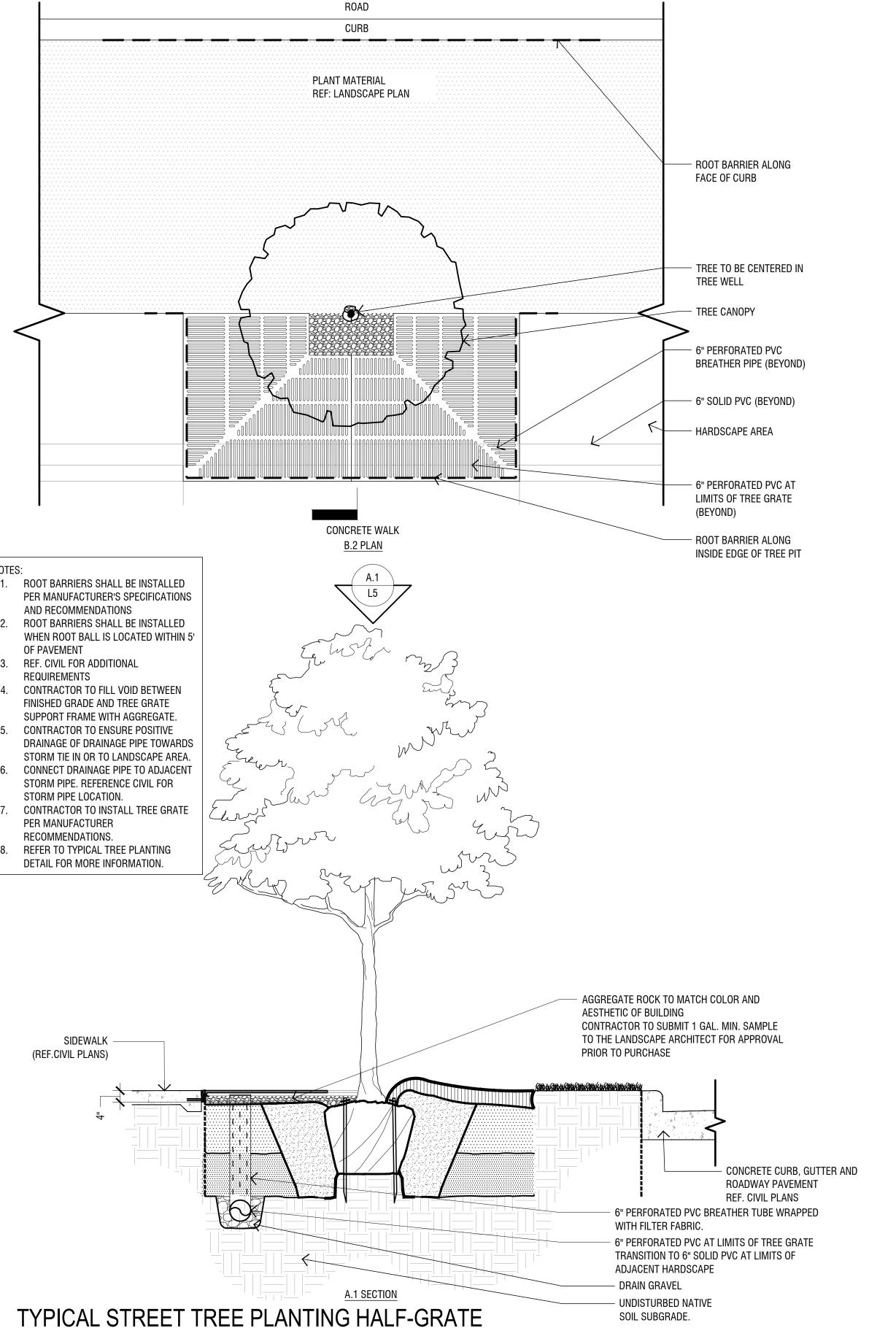
CONTAINER.

MIS ORIGINAL ISSUE: 02-26-2024

Kimley » Horn

KHA PROJECT NO. 268277001 SHEET NUMBER



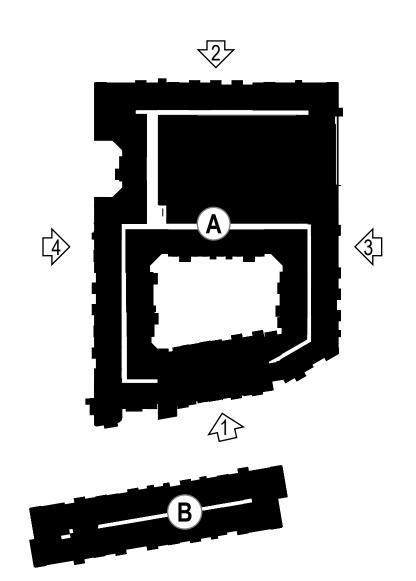


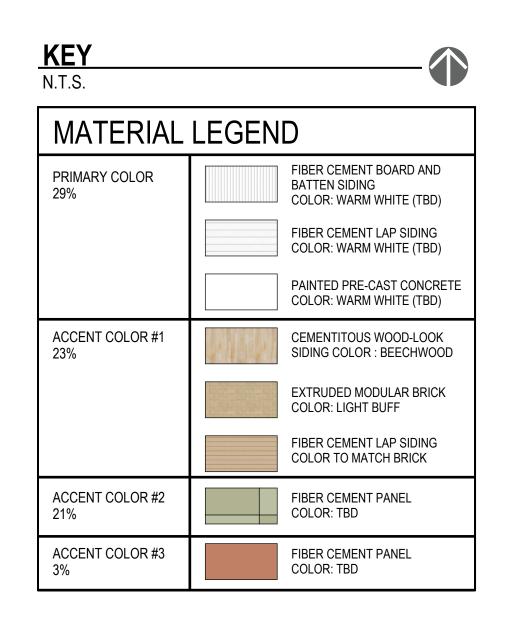
Kimley » Horn



ORIGINAL ISSUE: 02-26-2024 KHA PROJECT NO. 268277001

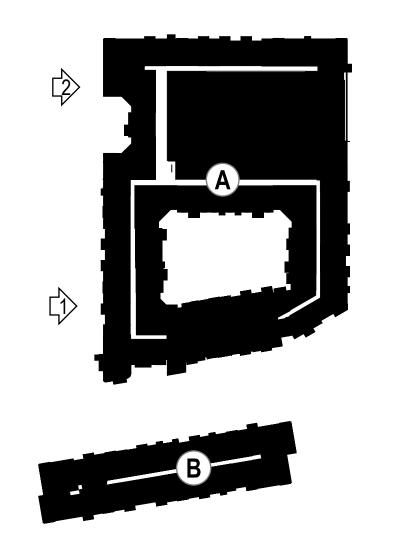
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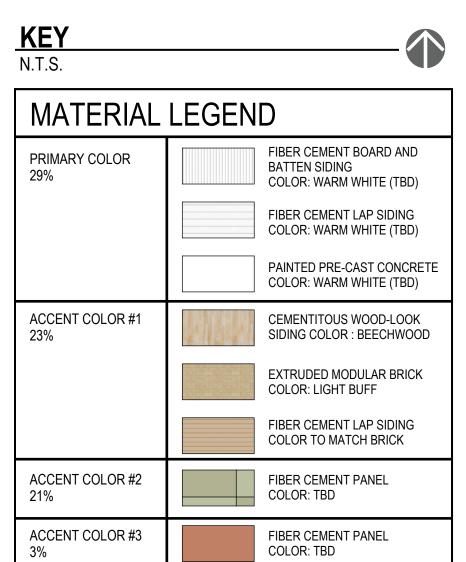








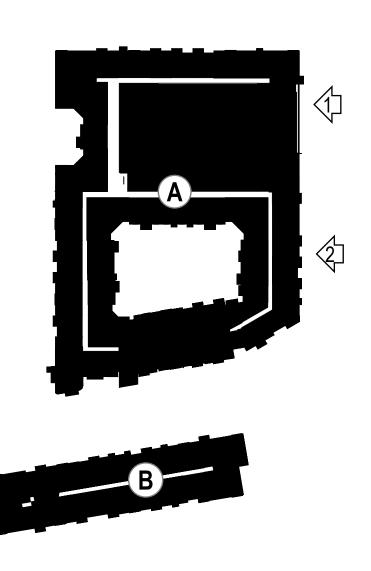


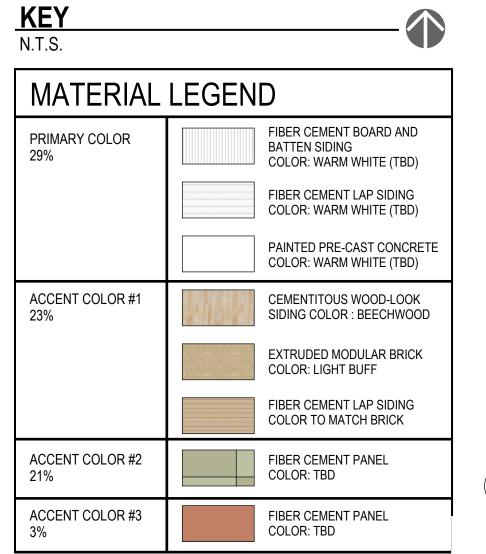










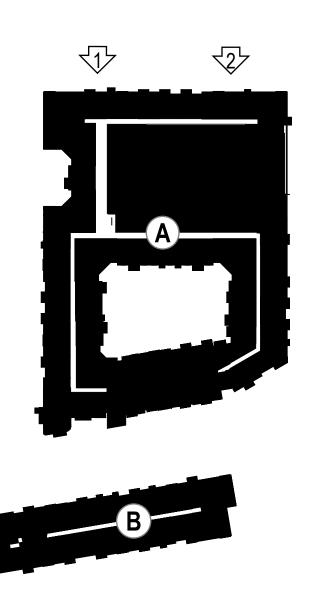


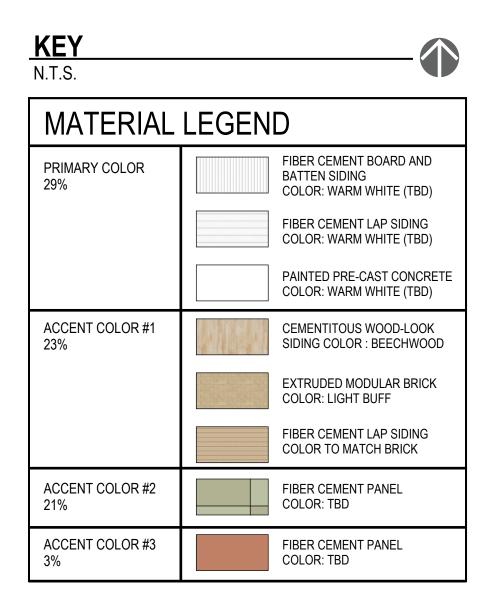






BUILDING "A" EAST ELEVATIONS







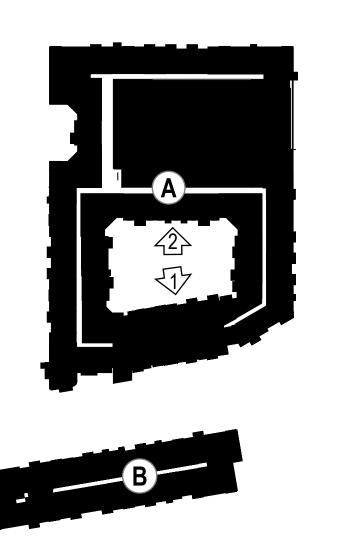


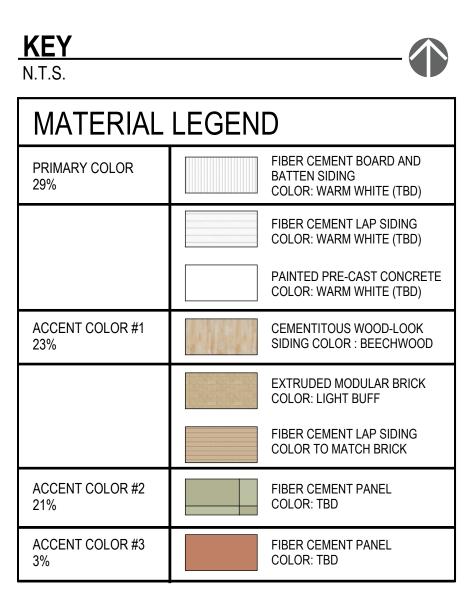






ARCHITECTS







37'-0"

24'-0"

6'-0" BUILDING STEP LOCATION ●--



BUILDING "A" NORTH & SOUTH COURTYARD ELEVATIONS

20'-8"

24'-0"

NORTH COURTYARD ELEVATION - BUILDING A

Scale: 1/8" = 1'-0"

24'-0"

PRIMARY CLUBHOUSE ENTRY FROM AMENITY COURTYARD •

SECONDARY PARAPET

PARAPET

LEVEL 4.1

LEVEL 4.1 T<u>/SUBFLR.</u>

LEVEL 3.1 T<u>/SUBFLR.</u>

LEVEL 2.1 T<u>/SUBFLR.</u>

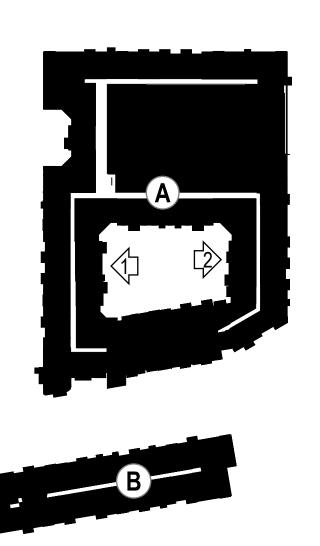
LEVEL 1.3 PLATELINE

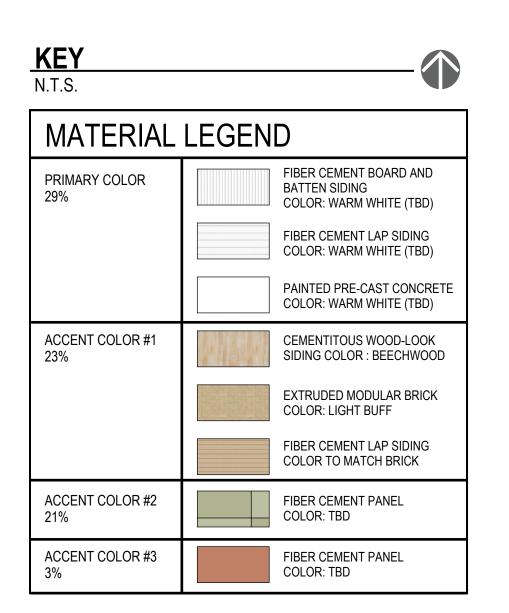
LEVEL 2.1 PLATELINE

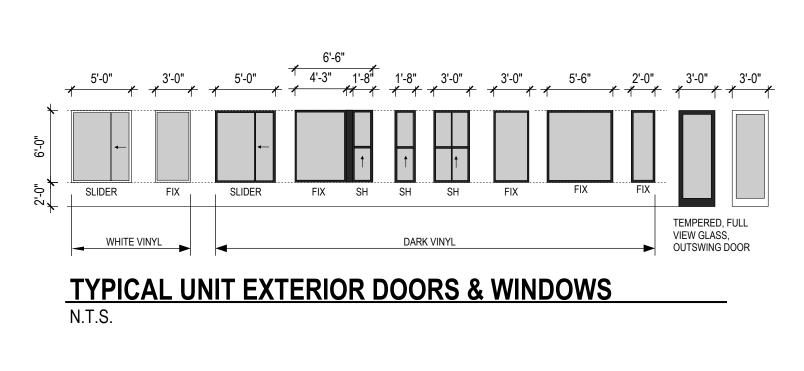
LEVEL 3.1 PLATELINE

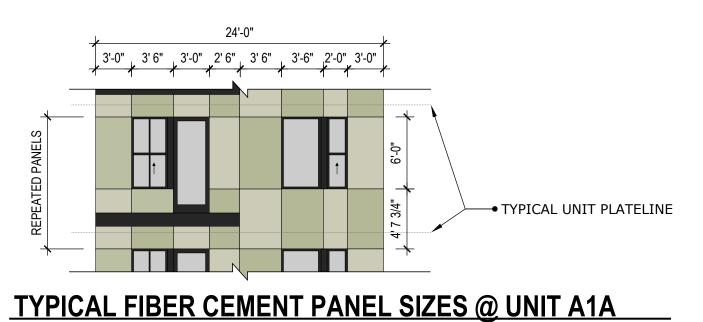
PLATELINE

LEVEL 1.6 T/SLAB











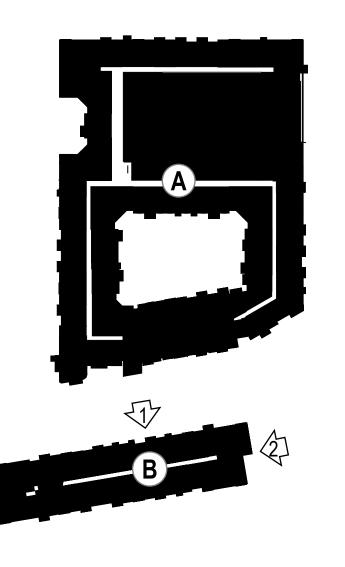
SCREENED ROOFTOP CONDENSER UNITS -

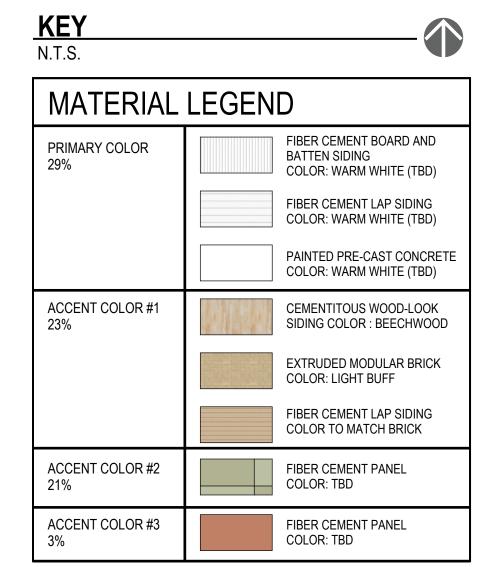
UNIT A1A

UNIT A3



NSPJ BUILDING "A" EAST & WEST COURTYARD ELEVATIONS









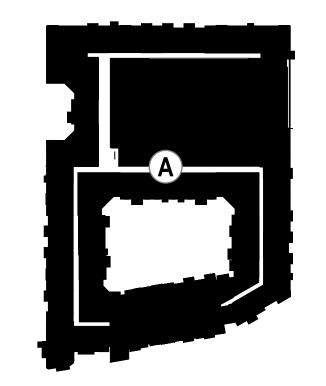
NORTH ELEVATION (BLDG B)

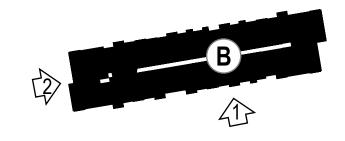


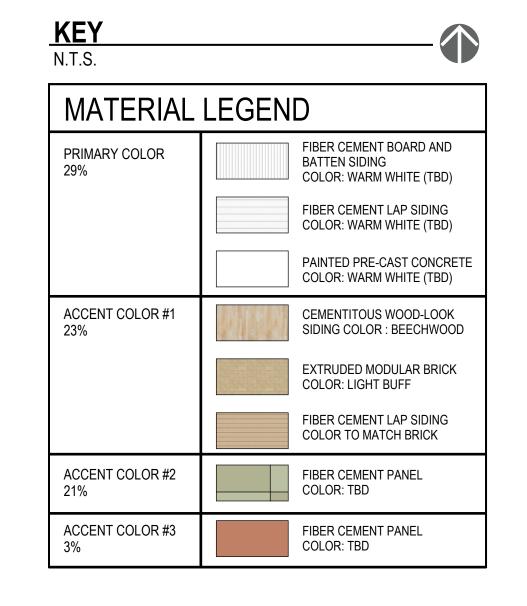
NORTH ELEVATION (BLDG B)



NSPJ BUILDING "B" NORTH & EAST ELEVATIONS











South Elevation (BLDG B)
Scale: 1/8" = 1'-0"

— SCREENED ROOFTOP CONDENSER UNITS UNIT B2 UNIT C1 UNIT A1A SECONDARY PARAPET PARAPET LEVEL 2
PLATELINE 37'-0" 37'-0" 24'-0" 18'-0" 24'-0" 39'-0" Scale: 1/8" = 1'-0"



ARCHITECTS

BUILDING "B" SOUTH & WEST ELEVATIONS





PERSPECTIVE FROM MARTWAY ST. LOOKING EAST





PERSPECTIVE FROM MARTWAY ST. LOOKING EAST

Milhaus 3/20/2023 Neighborhood Meeting Notes

Milhaus Feedback Notes

- Maintain site lighting so as not to spill off property, kept low so not noticeable to neighbors.
- Bury utility lines
- Exterior finishes white exterior metal panels
- Positive feedback upon learning the interior garage was fully shielded from view.
- People were pleased that Milhaus is aware of sewer capacity issues and damaged culvert.
- Surface parking concerns for Bldg. B residents parking problems with summer swim meets
- Would like to see pedestrian bridge connecting new Beverly Park to Victor X. Anderson Park
- Concerns for how trash will be concealed at building B
- Concerns for Bldg. B south facing balcony sight lines into 61st St neighborhood homes
- Happy about setbacks allowing green space & outdoor seating along south side of Bldg A.
- Happy about walk-ups on Bldg B and scale/height vs. prior Arnold proposal.
- Brandon Haverty (Property Owner), Bob Fagan (Downs Syndrome Innovations) commented that they would like to see the current park remain in place.
- Debbie Kring requested detailed information on the dimensions of the old vs. new park site. Also requested exact building height measurements.

In summary, the feedback from the meeting was very positive as it related to the design, scale, and community benefits of this project. The three vocal neighbors who live close to the project commented that they felt Milhaus heard their design concerns was sympathetic to the desire for reduced scale, particularly the south building, pro-actively addressing their concerns. The city's presence and partnership set the tone for Milhaus' effective engagement with neighbors. The negative feedback revolved around the park being relocated and making sure that the new park offers an increased benefit to the city in both its size and programming. The Milhaus team will work with Staff to develop some exhibits that will speak to this issue and plans to share those soon with City Manager, Planning Staff, and neighborhood stakeholders.

Staff Feedback Notes

- Will residents in Bldg B have access to amenities in Bldg A?
- Parking garage (for Bldg A) will help with containing spillover from headlights onto neighboring properties
- One of the attendees is a resident across from City Hall on Woodson was interested in the project and thinks it would be a great thing for the community; asked if we would like her to attend the public hearing to show support (I told her that would be appreciated)
- Like the crosswalk location
- All three residents that attended that are on the north side of 61st street (abutting the site) like the idea of a bridge from the new park to Anderson Park
- The setback from residential to the south is a plus
- Green buffer between the structure and the creek is a plus

Traffic Impact Study

Mission Beverly Apartments

Mission, Kansas

Prepared For:

Milhaus

Date:

April 5, 2024

Traffic Impact Study

Beverly Apartments

Mission, Kansas

Prepared for: Milhaus

1656 Washington St, Ste. 230 Kansas City, MO 64108

Prepared by:

Kimley-Horn and Associates, Inc. 805 Pennsylvania Avenue, Suite 150 Kansas City, Missouri 64105



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EXHIBITS (SEE APPENDIX A)

EXHIBIT 1: PROJECT SITE LOCATION AND STUDY AREA

EXHIBIT 2: EXISTING CONDITIONS (YEAR 2023) PEAK HOUR TRAFFIC VOLUMES

EXHIBIT 3: EXISTING GEOMETRY AND INTERSECTION CONTROL

EXHIBIT 4: SITE TRIP DISTRIBUTION

EXHIBIT 5: TOTAL PROJECT TRAFFIC

EXHIBIT 6: EXISTING PLUS DEVELOPMENT PEAK HOUR TRAFFIC VOLUMES

EXHIBIT 7: FUTURE (YEAR 2043) PEAK HOUR TRAFFIC VOLUMES

1.0 INTRODUCTION

This report serves as the traffic analysis for the Beverly Apartments development, generally located in the northeast and southeast corners of the Beverly Avenue & Martway Street intersection in Mission, Kansas. The location of the development is shown on **Exhibit 1** in **Appendix A**.

1.1 REPORT PURPOSE AND OBJECTIVES

The purpose of this study is to address traffic and transportation impacts of the proposed development on surrounding streets and intersections. This traffic impact study was prepared based on criteria set forth by the City of Mission. The following information is provided:

- A description and map of the existing and proposed street network to be affected by the proposed development. This information includes existing and proposed roadway characteristics and existing traffic volumes.
- Trip generation calculations based on the Institute of Traffic Engineers (ITE) Trip Generation Manual, 11th Edition, for the proposed development. In addition, projected trip distributions onto the street network are provided.
- Analysis of impacts of the traffic generated by the proposed development on the street network, including analysis of peak period levels of service (LOS), delay times, and queuing at study area intersections.
- Evaluation of site access points.
- Discussion of potential improvements and traffic management measures identified to mitigate operational concerns.

In summary, the study is to determine the trip generation of the Beverly Apartments development, assign new development trips to the street network, analyze various scenarios to determine the impacts of proposed site traffic, and identify potential mitigation measures needed to achieve acceptable operations at the study intersections.

2.0 EXISTING CONDITIONS

2.1 STUDY AREA

The proposed 3.75-acre site is in Mission, Kansas, and currently consists of several parcels on the north and south sides of Martway Street. The northern portion of the site is occupied by a vacant office building and a large surface parking lot. At the northwest corner of the site there is an existing 0.5-acre park known as Beverly Park. There are also commercial buildings for Security Bank and Credit World Services located along the north side of Martway Street. To the south across Martway Street, there are several more vacant office buildings and surface parking lots on the site.

The proposed development site is surrounded by a variety of land uses. To the west of the site across Beverly Avenue is the Sylvester Powell Jr. Community Center and the Locale apartments. The Mission Hills Apartments and commercial buildings are located east of the proposed site across Dearborn Street. The north side of the site is bounded by commercial uses located on the same block. South of Martway Street, the site is bounded by Rock Creek and Victor X. Alexander Park.

Through discussion with the City of Mission, the following intersections were included within the study area for the traffic analysis. The list provides the existing intersection control for each of the study intersections.

- Johnson Drive & Lamar Avenue (Signalized)
- Johnson Drive & Beverly Avenue (Side Street Stop)
- Johnson Drive & Dearborn Street (Side Street Stop)
- Johnson Drive & Woodson Road (Signalized)
- Martway Street & Lamar Avenue (Signalized)
- Martway Street & Beverly Avenue (Side Street Stop)
- Martway Street & Dearborn Street (Side Street Stop)
- Martway Street & Woodson Road (Multiway Stop)

2.2 STREET NETWORK

The existing street network within the study area includes Johnson Drive, Lamar Avenue, Beverly Avenue, Dearborn Street, Woodson Road, and Martway Street. Each of these roadways are part of one or more of the study intersections. The following provides a summary of the characteristics of the existing streets within the study area:

Johnson Drive is an east-west minor arterial roadway that is a commercial corridor providing access to Downtown Mission. The roadway has one through lane in each direction and a center two-way left-turn lane to the east of Lamar Avenue. West of Lamar Avenue, the roadway widens to a five-lane section. There is a partial interchange with Metcalf Avenue (US-69 Highway) at Johnson Drive, approximately 0.6 miles west of the proposed development site. The posted speed limit is 25 miles per hour (mph) through the study network.

Lamar Avenue is a north-south major collector roadway located west of the proposed development site. The three-lane undivided roadway has a center two-way left-turn lane. The posted speed limit is 30 mph.

Beverly Avenue is a north-south local roadway that bounds the west side of the proposed development site. Beverly Avenue is a two-lane undivided roadway with a sidewalk on both sides of the street. There is no posted speed limit.

Dearborn Street is a two-lane, undivided local roadway that runs north-south and bounds the east side of the proposed development site. Dearborn Street has a sidewalk on both sides of the street, but the sidewalk on the west side of the street is not continuous to Johnson Drive. There is no posted speed limit.

Woodson Road is a north-south minor collector roadway that runs east of the proposed development site. Woodson Road is a two-lane undivided roadway with a sidewalk along the east side of the street and a speed limit of 25 mph.

Martway Street is an east-west major collector road that bisects the development site. The two-lane, undivided roadway has a posted speed limit of 25 mph. The Rock Creek Trail is a shared use path that runs along the south side of Martway Street from Lamar Avenue to Dearborn Street. At the east side of the Martway Street & Dearborn Street intersection, the trail crosses Martway Street and runs along the north side of the street to Woodson Street. There are sidewalks along both sides of Martway Street opposite the Rock Creek Trail.

2.3 DATA COLLECTION

Turning Movement Counts (TMCs) were collected the study intersections on Tuesday, January 10th, 2023. The turning movement count data collected is included in **Appendix B**. The AM peak hour occurred between 7:30 AM and 8:30 AM, and the PM peak hour occurred between 4:45 PM and 5:45 PM. The existing conditions peak hour turning movement volumes are shown on **Exhibit 2**. The existing geometry with lane configurations and intersection control at the study intersections is shown in **Exhibit 3**.

3.0 PROPOSED DEVELOPMENT

3.1 SITE DESCRIPTION

The proposed Beverly Apartments development includes two multi-story, buildings. The building to the north of Martway Street is four stories and includes 204 multifamily units that wrap around an amenity courtyard and an integrated parking garage. Along Martway Street, 1,500 square feet of retail space is included at the street level. The building to the south of Martway Street is three stories and includes 57-unit multi-family units. Surface parking is provided in a lot for visitors and guests around the east, south, and west sides of this building. The proposed development site plan is included in **Appendix C** for reference.

3.2 SITE CIRCULATION

The proposed development has three access points. The parking garage has one proposed full access (Access A) on Dearborn Street, located approximately 250 feet north of the intersection at Dearborn Street & Martway Street. There are two proposed full-access drives to the southern portion of the site, located along Martway Street. Access B is proposed to be located approximately 90 feet west of the intersection at Martway Street & Beverly Avenue. Access C will be located approximately 40 feet west of the Martway Street & Dearborn Street intersection.

The Rock Creek Trail is to be modified with the proposed development. The trail will cross Martway Street at the east side of the Martway Street & Beverly Street intersection. The trail will then continue east along the north side of Martway Street. A crosswalk will be installed at the trail crossing.

3.3 TRIP GENERATION

Total Site Trips

Trip generation estimates were prepared using the *ITE Trip Generation Manual*, 11th Edition. **Table 1** shows the expected trips to be generated by the proposed development. The total trip generation is anticipated to be 2,041 daily trips, 108 trips during the AM peak hour (27 entering and 81 exiting), and 143 trips during the PM peak hour (89 entering and 54 exiting).

AM Peak Hour PM Peak Hour **ITE Land Use Description Intensity / Units Daily** LUC Out **Total** Out **Total** In In 220 261 Dwelling Units 1,748 25 79 84 Multifamily Housing (Low-Rise) 104 49 133 2 5 Strip Retail (<40k) 822 1,500 Square Feet 293 2 4 5 10

TABLE 1: TRIP GENERATION

Appendix D provides the calculations from the *ITE Trip Generation Manual* that were used to determine the trip generation for the proposed development. The low-rise multifamily housing land use code was used even though one of the proposed buildings has more than three stories. This land use category provides a more conservative estimate of trip generation.

2,041

27

81

108

89

54

143

3.4 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The estimated trips generated by the proposed development were assigned to the street network based on the trip distribution summarized in **Table 2**. This distribution is based on existing traffic patterns, the surrounding street network, and engineering judgment.

TABLE 2: TRIP DISTRIBUTION

Direction To/From	Percentage
North on Lamar Avenue	20%
East on Johnson Drive	20%
East on Martway Street	10%
West on Johnson Drive	20%
West on Martway Street	10%
South on Lamar Avenue	20%
Total	100%

The detailed distribution patterns through the study intersections are shown in Exhibit 4.

Exhibit 5 shows the total development trip assignment. The proposed development trip assignments were added to the Existing Conditions traffic volumes. **Exhibit 6** illustrates the Existing plus Development peak hour traffic volumes.

4.0 FUTURE CONDITIONS

The traffic analysis focused on two analysis years: Existing (Year 2023) and Future (Year 2043).

4.1 FUTURE TRAFFIC FORECASTING

For the horizon year, background traffic growth was added to the existing traffic volumes, then the proposed development and approved development site trips were added. To estimate background traffic growth, the existing traffic volumes at the study intersections were assumed to increase at a rate of 0.5% per year for a 20-year planning horizon. The annual growth rate of 0.5% is indicative of the mature development in the surrounding area.

Several developments have been approved in recent years in the vicinity of the development site but are not yet constructed and occupied. There are two such approved developments in the surrounding area. The Mission Bowl Apartments development is located on the site of the former Mission Bowl building, along the south side of Martway Street to the east of Nall Avenue. It is a proposed five-story multifamily building with 166 total units. The Mission Gateway development is located east of Mission Bowl Apartments, at the southeast corner of the Johnson Drive & Roeland Drive intersection. This development includes commercial, residential, office, and entertainment uses.

Traffic studies were prepared for both approved developments. The site trips from each development were tabulated and included at the study intersections in the Future Conditions scenario.

Exhibit 7 provides the Future Conditions peak hour traffic volumes.

5.0 ACCESS MANAGEMENT

The City of Mission does not have access management guidelines. For the purposes of this study, the Kansas Department of Transportation's *Access Management Policy* was used to evaluate access spacing and the need for turn lanes at intersections.

5.1 ACCESS SPACING

The Access Management Policy includes criteria for minimum spacing between access points. The criteria depend on the type of roadway, area type, and posted speed limit. For unsignalized access points in developed areas, the minimum spacing is generally 90 feet for a 25-mph roadway.

Access A is located approximately 250 feet north of the intersection at Martway Street & Dearborn Street and 150 feet south of the existing private driveway to the north of the site. These spacings exceed the minimum spacing guidelines. There is an existing driveway to an apartment development that is located on the east side of Dearborn Street approximately 50 feet north of Access A. While the offset intersections are generally undesirable, it should be noted that Dearborn Street is a low speed and low volume environment. Drivers will have ample time to identify and react to any conflicting traffic. The proposed development will eliminate two existing access points along the west side of Dearborn Street. Overall, this will improve access management along Dearborn Street.

The centerline of Access B is located roughly 90 feet west of the centerline of Beverly Avenue, and the centerline of Access C is located roughly 40 feet west of the centerline of Dearborn Street. Again, offset intersections are not generally desirable. However, there are some factors that should be considered. Access B and C are essentially in the same locations where there have been existing driveways for many years. Sight lines are clear looking in both directions along Martway Street. Speeds are also low along Martway Street which will give drivers ample time to identify and react to conflicting traffic. The proposed development is eliminating two existing driveways on the north side of Martway Street and one existing driveway on the south side of Martway Street. The proposed development should improve access management along Martway Street.

5.2 AUXILLARY LANE ANALYSIS

The need for turn lanes are based on capacity, level of service, and safety factors. The *Access Management Policy* provides turn lane warrants for right- and left-turn lanes based on traffic volumes and operating speeds. The traffic volumes developed for this study were compared to the turn warranting volume thresholds. All traffic volumes at the site accesses were found to be well below the warranting thresholds. Therefore, turn lanes are not warranted at any of the site driveway intersections.

6.0 INTERSECTION CAPACITY ANALYSIS

6.1 LEVEL OF SERVICE OVERVIEW

Intersection capacity analysis was performed at the study intersections for the following scenarios:

- Existing (Year 2023) Conditions
- Existing plus Development Conditions
- Future (Year 2043) Conditions

The capacity analysis was performed for the weekday AM and PM peak hours using Synchro traffic modeling software to determine intersection delay and level of service (LOS). Calculations were performed based on the methodologies outlined in the *Highway Capacity Manual (HCM)*, 6th Edition, which is published by the Transportation Research Board.

LOS is a qualitative measure used by traffic engineers to describe the operations of an intersection. It ranges from A to F, with A being the best and F being the worst level of operation. LOS A conditions are characterized by minimal vehicle delay and free-flow conditions, while LOS F is characterized by long vehicle delay – usually when demand exceeds available roadway capacity. **Table 3** shows the definition of LOS for unsignalized and signalized intersections.

Average Control Delay (seconds/vehicle) at: Level of Service **Unsignalized Intersections Signalized Intersections** 0 - 100 - 10Α > 10 - 15 > 10 - 20В C > 15 - 25 > 20 - 35D > 25 - 35> 35 - 55 Ε > 35 - 50 > 55 - 80F > 50 > 80

TABLE 3: LEVEL OF SERVICE

Levels of service are evaluated based on the movement groupings which are required to yield to other traffic. Typically, these are left turns off the major street and the side street approaches for two-way stop-controlled intersections. For signalized intersections each movement grouping is evaluated, and LOS is evaluated for the intersection as a whole.

LOS D is generally considered the minimum acceptable level of service on arterial streets and LOS C is the minimum at other locations. At unsignalized intersections LOS E, or even F are often considered acceptable for low to moderate traffic volumes where the installation of a traffic signal is not warranted by the conditions at the intersection, or the location has been deemed undesirable for signalization.

Traffic queues were also evaluated as part of the analyses. Long traffic queues which extend beyond the amount of storage available, either between intersections or within turn lanes, can have significant impacts on operations. The 95th percentile vehicular queues were analyzed to ensure the analyses are reflective of the physical constraints of the study intersections and to identify if additional storage is needed for turn lanes. The 95th percentile queue represents the queue length that has only a 5% chance of being exceeded during the analysis period.

6.2 EXISTING (YEAR 2023) ANALYSIS

Capacity analysis was conducted for existing traffic conditions at the study intersections to determine baseline conditions for the existing analysis year and to calibrate the models. The analysis was performed for weekday AM and PM peak hours and is based on the lane configurations, and traffic volumes shown on **Exhibits 2** and **3**. The Synchro reports are provided in **Appendix E**.

Table 4 provides a summary of the capacity analysis at the study intersections.

The results in **Table 4** indicate that the study intersections currently operate acceptably during the AM and PM peak hours. All queues are contained within the available storage length at turn lanes.

TABLE 4: EXISTING (YEAR 2023) PEAK HOUR CONDITIONS

			Operational Analysis Results									
Intersection	Control	0		AM	Peak Hour			PM Peak Hour				
intersection	Control	Approach	Delay	ıns	LOS 95% V/		Delay	LOS	95%	V/C		
			(sec/veh)	103	Queue	Ratio	(sec/veh)	103	Queue	Ratio		
		EBL	8.7	Α	< 50'	0.10	12.5	В	84'	0.27		
		EBT	12.4	В	212'	0.28	19.0	В	310′	0.46		
		EBR	10.9	В	< 50'	0.11	15.3	В	< 50'	0.18		
la busan		WBL	9.1	Α	< 50'	0.09	13.1	В	55'	0.20		
Johnson Drive &		WBT/R	11.2	В	85'	0.14	3.4	Α	252'	0.42		
Lamar	Signalized	NBL	33.8	D	< 50'	0.29	31.1	С	68'	0.44		
Avenue		NBT	40.2	D	72'	0.26	41.1	D	206'	0.53		
Avenue		NBR	39.3	D	< 50'	0.18	37.0	D	< 50'	0.22		
		SBL	31.4	D	< 50'	0.10	27.9	С	55'	0.26		
		SBT/R	45.3	D	218'	0.85	49.5	D	280'	0.88		
		Overall	23.4	С	•		22.0	C				
Johnson	Side	EBL	7.9	Α	< 50'	0.01	9.4	Α	< 50'	0.03		
Drive &	Street	WBL	8.0	Α	< 50'	0.01	8.6	Α	< 50'	0.03		
Beverly	Stop	NB	12.4	В	< 50'	0.04	23.3	С	< 50'	0.22		
Avenue	Згор	SB	12.4	В	< 50'	0.03	18.5	С	< 50'	0.11		
Johnson	Side	EBL	7.9	Α	< 50'	0.01	9.3	Α	< 50'	0.02		
Drive &	Street	WBL	8.0	Α	< 50'	0.01	8.6	Α	< 50'	0.01		
Dearborn	Stop	NB	14.6	В	< 50'	0.03	32.7	D	< 50'	0.19		
Street	Stop	SB	10.0	В	< 50'	0.01	15.4	С	< 50'	0.05		
		EBL	4.4	Α	< 50'	0.02	2.7	Α	< 50'	0.02		
la busan		EBT/R	4.2	Α	54'	0.46	1.9	Α	< 50'	0.34		
Johnson Drive &		WBL	4.7	Α	< 50'	0.02	2.0	Α	< 50'	0.03		
Woodson	Signalized	WBT/R	4.0	Α	< 50'	0.40	2.5	Α	172'	0.46		
Road		NB	7.5	Α	< 50'	0.06	48.5	D	< 50'	0.37		
Noau		SB	7.6	Α	< 50'	0.09	48.7	D	< 50'	0.40		
		Overall	4.4	Α			5.5	Α				

TABLE 4 (CONTINUED): EXISTING (YEAR 2023) PEAK HOUR CONDITIONS

		EBL	39.8	D	< 50'	0.18	34.1	С	84'	0.42
		EBT	44.5	D	77'	0.38	40.7	D	156'	0.56
		EBR	51.8	D	< 50'	0.74	53.2	D	59'	0.84
Martway		WBL	39.6	D	69'	0.31	34.1	С	77'	0.38
Street &	Signalized	WBT/R	42.9	D	68'	0.35	43.0	D	157'	0.67
Lamar	Signalizeu	NBL	5.3	Α	< 50'	0.13	11.2	В	94'	0.33
Avenue		NBT/R	6.7	Α	106′	0.18	12.8	В	220'	0.33
		SBL	6.0	Α	< 50'	0.02	9.9	Α	< 50'	0.11
		SBT/R	0.5	Α	84'	0.27	27.6	С	272'	0.39
		Overall	17.7	В			29.1	С		
Martway Street &	Side Street	EBL	7.6	А	< 50'	0.01	7.9	Α	< 50'	0.02
Beverly Avenue	Stop	SB	9.3	Α	< 50'	0.03	11.5	В	< 50'	0.07
Martway Street &	Side Street	EBL	7.5	Α	< 50'	0001	7.8	Α	< 50′	0.02
Street	Dearborn Ston	SB	9.1	Α	< 50′	0.01	10.6	В	< 50′	0.03
Martway	Cido	EB	7.9	Α	< 50'	0.15	9.6	Α	< 50'	0.34
Street &	Side Street	WB	8.3	Α	< 50'	0.12	9.4	Α	< 50'	0.30
Woodson		NB	7.7	Α	< 50'	0.01	8.5	Α	< 50'	0.01
Road	Stop	SB	7.4	Α	< 50'	0.04	8.7	Α	< 50'	0.08

6.3 EXISTING PLUS DEVELOPMENT ANALYSIS

Capacity analysis was conducted for Existing plus Development Conditions at the study intersections to determine the impact of site generated traffic from the proposed development. The analysis was performed for weekday AM and PM peak hours and is based traffic volumes shown in **Exhibit 6**. The lane configurations and intersection controls remain the same as the Existing Conditions scenario. All site driveways were analyzed as single-lane approaches. The Synchro reports are provided in **Appendix E**.

Table 5 provides a summary of the capacity analysis at the study intersections.

The analysis results indicate that all study intersections are projected to operate at acceptable levels of service with the addition of development traffic, except for one movement. The northbound approach at the Johnson Drive & Dearborn Street intersection is projected to operate at LOS F, with 50.8 seconds of delay during the PM peak hour. The 95th percentile queue length is projected to be approximately 2 vehicles, and volume-to-capacity ratio indicates that the movement is projected to operate under capacity. Signalization would not be appropriate at this intersection since there is an existing signal one block east at Johnson Drive & Woodson Road. If delays are unacceptable to drivers, they can use alternate routes to access Johnson Drive. They can follow Martway Street to Lamar Avenue or to Woodson Street, where acceptable levels of service are projected. As such, no improvements are identified to mitigate the addition of development traffic.

TABLE 5: EXISTING PLUS DEVELOPMENT PEAK HOUR CONDITIONS

					Op	erational A	erational Analysis Results					
Intersection	Control	A		AM	Peak Hour		PM Peak Hour					
intersection	Control	Approach	Delay (sec/veh)	LOS	95% Queue	V/C Ratio	Delay (sec/veh)	LOS	95% Queue	V/C Ratio		
		EBL	8.8	Α	< 50'	0.11	12.5	В	83'	0.27		
		EBT/R	12.0	В	136'	0.22	17.3	В	178'	0.34		
		WBL	9.0	Α	< 50'	0.09	12.5	В	59'	0.18		
		WBT/R	11.6	В	104'	0.17	3.5	Α	271'	0.43		
Johnson Drive	Cianaliand	NBL	33.7	С	< 50'	0.29	31.2	С	72'	0.44		
& Lamar Avenue	Signalized	NBT	40.3	D	80'	0.27	41.8	D	184'	0.55		
Avenue		NBR	39.5	D	< 50'	0.18	37.6	D	< 50'	0.22		
		SBL	31.3	С	< 50'	0.12	27.8	С	66'	0.32		
		SBT/R	45.0	D	217'	0.84	49.4	D	280'	0.88		
		Overall	22.5	С			21.7	С				
Laborator Dutor	C: -l -	EBL	8.1	Α	< 50'	0.01	9.5	Α	< 50'	0.03		
Johnson Drive	Side	WBL	8.2	Α	< 50'	0.02	8.7	Α	< 50'	0.03		
& Beverly Avenue	Street Stop	NB	13.5	В	< 50'	0.05	25.3	D	< 50'	0.24		
Avenue	этор	SB	13.5	В	< 50'	0.04	19.4	С	< 50'	0.12		
Jahmaan Duke-	C: do	EBL	8.0	Α	< 50'	0.01	9.3	Α	< 50'	0.02		
Johnson Drive	Side	WBL	8.2	Α	< 50'	0.01	8.8	Α	< 50'	0.03		
& Dearborn Street	Street	NB	17.0	С	< 50'	0.18	50.8	F	53'	0.46		
JUEEL	Stop	SB	10.2	В	< 50'	0.01	15.6	С	< 50'	0.05		

TABLE 5 (CONTINUED): EXISTING PLUS DEVELOPMENT PEAK HOUR CONDITIONS

		EBL	4.4	Α	< 50'	0.02	2.8	Α	< 50'	0.02
		EBT/R	4.2	A	67'	0.50	2.0	Α	< 50'	0.35
Johnson Drive		WBL	4.8	Α	< 50'	0.02	2.1	Α	< 50'	0.03
& Woodson	Signalized	WBT/R	3.9	Α	< 50'	0.41	2.6	Α	179'	0.47
Road	Ö	NB	8.0	Α	< 50'	0.07	48.5	D	50'	0.37
		SB	8.1	Α	< 50'	0.09	48.7	D	56'	0.40
		Overall	4.3	Α			5.5	Α		
		EBL	39.8	D	< 50'	0.17	33.6	С	81'	0.41
		EBT	44.7	D	80'	0.41	41.1	D	162'	0.60
		EBR	51.7	D	< 50'	0.73	53.1	D	58'	0.83
N. A a setu a		WBL	39.1	D	80'	0.36	33.5	С	82'	0.42
Martway Street & Lamar	Signalized	WBT/R	42.1	D	80'	0.38	42.2	D	157'	0.66
Avenue	Signalizeu	NBL	5.6	Α	< 50'	0.14	11.5	В	98'	0.33
Avenue		NBT/R	7.2	Α	110′	0.19	13.5	В	237'	0.36
		SBL	6.4	Α	< 50'	0.02	10.3	В	< 50'	0.11
		SBT/R	0.4	Α	111′	0.27	27.8	С	230′	0.39
		Overall	18.5	В			29.1	С		
Martway Street &	Side Street	EBL	7.6	Α	< 50′	0.01	7.9	Α	< 50′	0.02
Beverly Avenue	Stop	SB	9.7	Α	< 50'	0.04	11.7	В	< 50'	0.07
Martway Street &	Side Street	EBL	7.5	Α	< 50′	0.01	7.9	А	< 50'	0.03
Dearborn Street	Stop	SB	9.3	Α	< 50′	0.03	10.9	В	< 50′	0.05
Martway	Side	EB	8.0	Α	< 50'	0.16	9.8	Α	< 50'	0.35
Street &	Street	WB	8.4	Α	< 50'	0.13	9.5	Α	< 50'	0.31
Woodson Road	Stop	NB	7.7	Α	< 50'	0.01	8.6	Α	< 50'	0.04
		SB	7.4	Α	< 50'	0.05	8.7	Α	< 50'	0.08
Dearborn Street	Side Street	EB	8.9	Α	< 50'	0.07	9.2	Α	< 50'	0.05
& Access A	Stop	NBL	7.3	Α	< 50'	0.01	7.4	Α	< 50'	0.01
Martway Street	Side Street	WBL	7.5	Α	< 50'	0.01	8.0	Α	< 50'	0.01
& Access B	Stop	NB	10.2	В	< 50′	0.01	12.3	В	< 50′	0.02
Martway Street	Side	WBL	7.5	Α	< 50′	0.01	7.9	Α	< 50'	0.01
& Access C	Street Stop	NB	9.6	Α	< 50'	0.01	11.5	В	< 50'	

6.4 FUTURE (YEAR 2043) ANALYSIS

Capacity analysis was performed for future traffic conditions at the study intersections to determine the need for capacity improvements within the study network in the future. The analysis was performed for weekday AM and PM peak hours and is based on the traffic volumes shown in **Exhibit 7**. The lane configurations and intersection controls remain the same as the Existing plus Development Conditions scenario. The Synchro reports are provided in **Appendix E**.

Table 6 provides a summary of the capacity analysis at the study intersections.

The results in **Table 6** indicate that all study intersections are projected to operate at acceptable levels of service in the future except for three movements. The northbound approach at the Johnson Drive & Dearborn Street intersection is projected to operate at LOS F during the PM peak hour as it does in the Existing Plus Development conditions scenario. The northbound approach at the Johnson Drive & Beverly Avenue is projected to operate at LOS E during the PM peak hour. If delays are unacceptable to drivers, alternate routes are available. The eastbound right turn movement at Martway Street & Lamar Avenue is projected to operate at LOS E during the PM peak hour, however the overall signalized intersection is projected to operate at LOS C.

TABLE 6: FUTURE (YEAR 2043) CONDITIONS

	Control		Operational Analysis Results									
Intersection		Approach		AM F	Peak Hour		PM Peak Hour					
intersection	Control	Approach	Delay	LOS	95%	V/C	Delay	LOS	95%	V/C		
			(sec/veh)	LU3	Queue	Ratio	(sec/veh)	LU3	Queue	Ratio		
		EBL	9.6	Α	55'	0.12	14.1	В	88'	0.34		
		EBT/R	13.3	В	158′	0.26	19.8	В	212′	0.42		
		WBL	9.5	Α	< 50'	0.11	14.3	В	< 50'	0.24		
		WBT/R	0.5	Α	123′	0.19	6.4	Α	311′	0.54		
Johnson Drive &	Signalized	NBL	32.7	С	< 50'	0.32	30.5	С	81'	0.49		
Lamar Avenue	Signanzeu	NBT	39.5	D	72'	0.27	41.3	D	206'	0.56		
		NBR	38.5	D	< 50'	0.18	36.7	D	< 50'	0.23		
		SBL	29.8	С	< 50'	0.12	26.6	С	73′	0.34		
		SBT/R	44.0	D	235′	0.85	51.4	D	221'	0.90		
		Overall	20.1	С			23.2	С				
	Side Street Stop	EBL	8.2	Α	< 50'	0.01	10.0	В	< 50'	0.04		
Johnson Drive &		WBL	8.3	Α	< 50'	0.02	9.1	Α	< 50'	0.03		
Beverly Avenue		NB	14.6	В	< 50'	0.06	37.9	E	< 50'	0.37		
	эсор	SB	14.1	В	< 50'	0.04	24.2	С	< 50'	0.16		
	Side	EBL	8.1	Α	< 50'	0.01	9.8	Α	< 50'	0.02		
Johnson Drive &	Street	WBL	8.3	Α	< 50'	0.01	9.2	Α	< 50'	0.03		
Dearborn Street	Stop	NB	18.7	С	< 50'	0.20	99.0	F	88'	0.69		
	Згор	SB	10.4	В	< 50'	0.01	18.0	С	< 50'	0.06		
		EBL	0.1	Α	< 50'	0.02	3.7	Α	< 50'	0.03		
		EBT/R	0.4	Α	< 50'	0.27	2.3	Α	353'	0.42		
Johnson Drive &		WBL	0.9	Α	< 50'	0.02	2.6	Α	< 50'	0.04		
Woodson Road	Signalized	WBT/R	1.4	Α	56′	0.22	3.2	Α	244'	0.55		
vv oodson nodd		NB	47.7	Α	< 50'	0.23	48.3	D	54'	0.39		
		SB	48.6	Α	< 50'	0.32	48.6	D	59'	0.42		
		Overall	4.2	Α			5.8	Α				

TABLE 6 (CONTINUED): FUTURE (YEAR 2043) CONDITIONS

		EBL	39.1	D	< 50'	0.18	32.6	С	91'	0.43
		EBT	44.1	D	86'	0.42	40.5	D	182′	0.62
		EBR	51.4	D	< 50'	0.75	55.3	E	60'	0.85
		WBL	38.1	D	84'	0.38	32.4	С	91'	0.44
Martway Street &	Signalized	WBT/R	41.4	D	86'	0.39	42.4	D	176′	0.68
Lamar Avenue	Signanzeu	NBL	6.3	Α	56′	0.17	13.0	В	102'	0.40
		NBT/R	7.9	Α	124′	0.21	15.1	В	245'	0.41
		SBL	6.9	Α	< 50'	0.03	11.6	В	< 50'	0.14
		SBT/R	4.6	Α	154′	0.31	30.3	С	278′	0.45
		Overall	19.6	В			30.3	С		
Martway Street &	Side Street	EBL	7.6	Α	< 50'	0.01	8.0	Α	< 50'	0.03
Beverly Avenue	Stop	SB	9.6	Α	< 50'	0.04	12.4	В	< 50'	0.09
Martway Street &	Side Street Stop	EBL	7.5	Α	< 50'	0.01	8.0	Α	< 50'	0.03
Dearborn Street		SB	9.4	Α	< 50'	0.03	11.3	В	< 50'	0.05
	Side	EB	8.1	Α	< 50'	0.18	10.4	Α	< 50'	0.39
Martway St &		WB	8.5	Α	< 50'	0.14	10.0	Α	< 50'	0.36
Woodson Road	Street Stop	NB	7.8	Α	< 50'	0.02	8.8	Α	< 50'	0.05
	3top	SB	7.5	Α	< 50'	0.05	9.0	Α	< 50'	0.09
Dearborn St &	Side	EB	9.0	Α	< 50'	0.07	9.2	Α	< 50'	0.05
Access A	Street Stop	NBL	7.3	Α	< 50'	0.01	7.4	Α	< 50'	0.01
Martway Street &	Side Street	WBL	7.6	Α	< 50′	0.01	8.1	Α	< 50′	0.01
Access B	Stop	NB	10.4	В	< 50′	0.01	13.0	В	< 50′	0.02
Martway Street &	Side Street	WBL	7.5	Α	< 50'	0.01	8.0	Α	< 50'	0.01
Access C	Stop	NB	9.7	Α	< 50′	0.01	12.0	В	< 50'	0.01

7.0 CONCLUSIONS AND RECOMMENDATIONS

A traffic impact study for the Beverly Apartments has been prepared by Kimley-Horn. The proposed development site is located in the northeast and southeast corners of the Martway Street & Beverly Avenue intersection in Mission, Kansas. The purpose of this study was to assess the impact of the proposed development on the surrounding transportation system.

Intersection capacity analysis was performed at the study intersections for the following scenarios:

- Existing Conditions (Year 2023)
- Existing plus Development Conditions
- Future Conditions (Year 2043)

All existing study intersections currently operate at acceptable levels of service.

The proposed development is projected to generate 2,041 daily trips, 108 trips in the AM peak hour (27 entering and 81 exiting), and 143 trips in the PM peak hour (89 entering and 54 exiting). The site trips were added to the street network and all study intersections except one are projected to operate at acceptable levels of service. During the PM peak hour, delays are projected to increase to LOS F for the northbound approach at the Dearborn Street & Johnson Drive intersection. If delays are unacceptable to drivers alternate routes are available. As such, no improvements are identified to mitigate the addition of development traffic.

In the Future Conditions scenario, the existing traffic volumes were grown at a rate of 0.5% per year. Trips from approved developments and the proposed site trips were also included. The capacity analysis results were similar to the Existing plus Development conditions scenario, with some slight increases in delays at the study intersections.

APPENDIX

Appendix A: EXHIBITS

Appendix B: TURNING MOVEMENT COUNTS

Appendix C: SITE PLAN

Appendix D: ITE TRIP GENERATION MANUAL SHEETS

Appendix E: SYNCHRO REPORTS

Appendix A: Exhibits

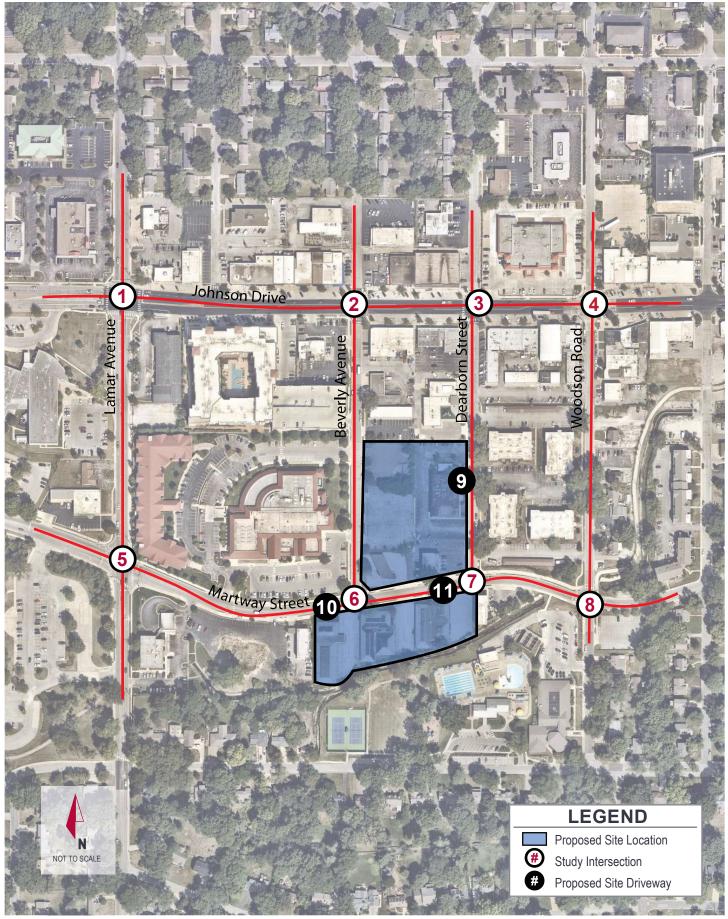
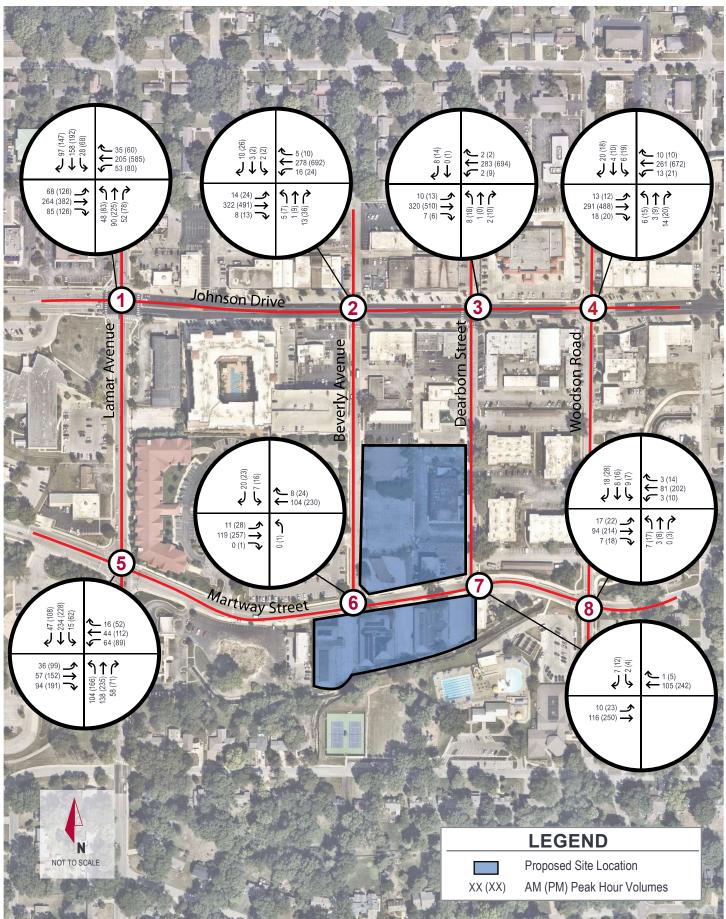
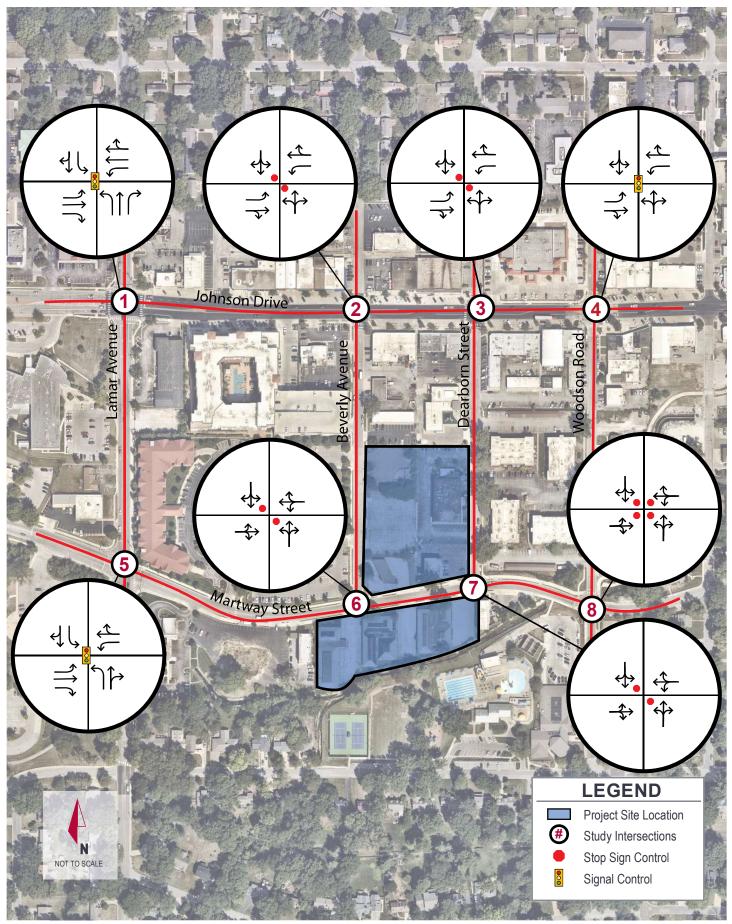


EXHIBIT 1





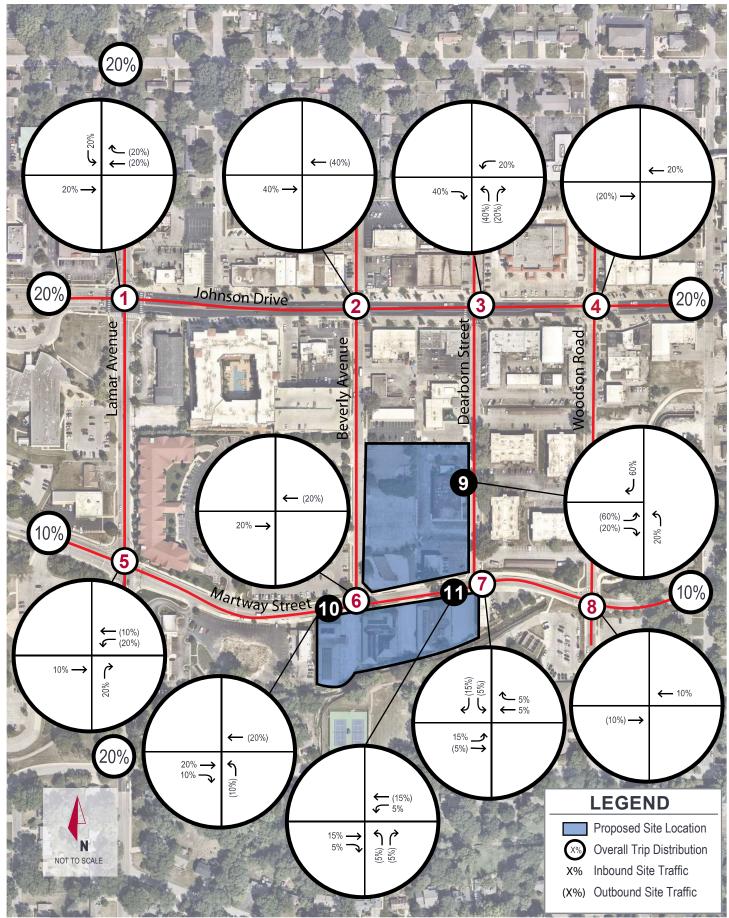


EXHIBIT 4
SITE TRIP DISTRIBUTION

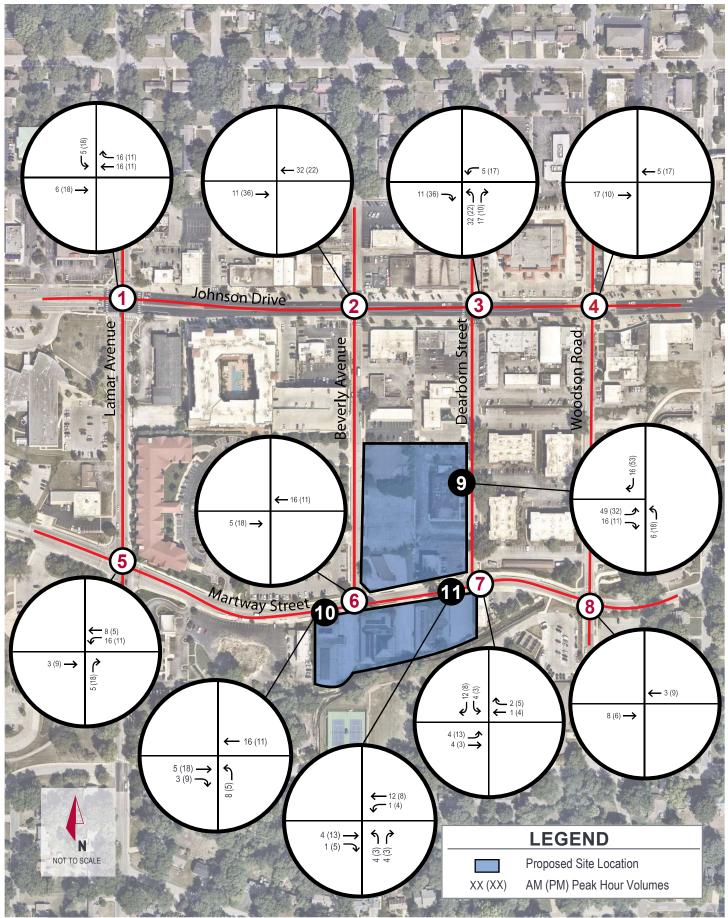


EXHIBIT 5
PROJECT TRAFFIC

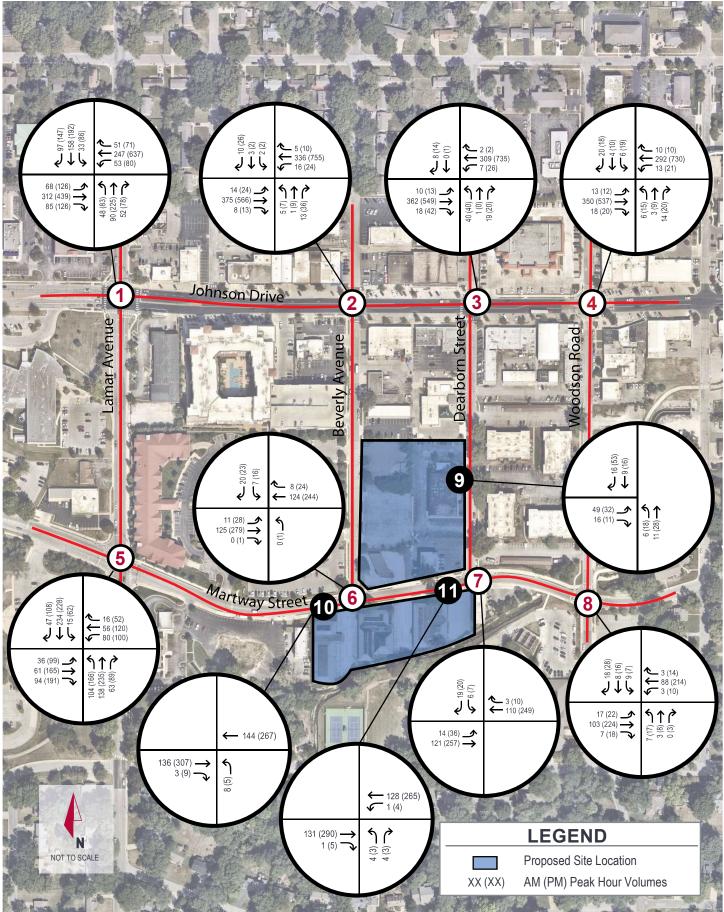
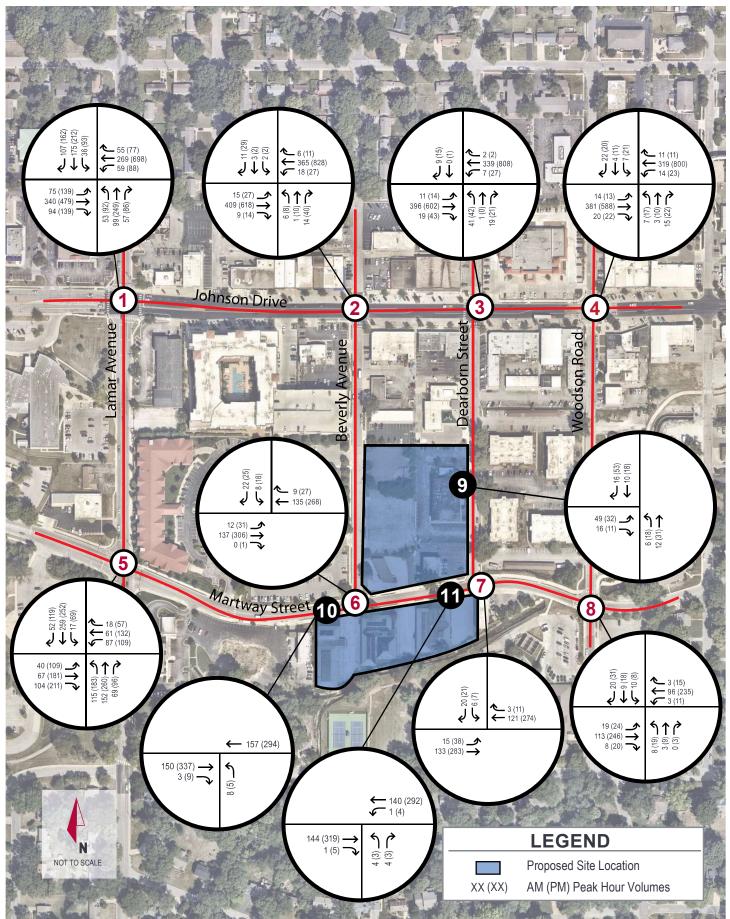


EXHIBIT 6
EXISTING PLUS DEVELOPMENT
PEAK HOUR TRAFFIC VOLUMES



Appendix B: Turning Movement Counts

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso						Johnson						Lamar						Lamar						1
Direction	Eastbo						Westbo						Northbo						Southbo						
Time	L	Т		U		Ped*	L	Т	R	U	App		L	Т			App	Ped*	L	Т		U	App		Int
2023-01-10 7:00AM	_	33	12	0	59	0	8	31	4	0	43	0	13	13	5	0	31	0	2	21	18	0	41	0	174
7:15AM		64	10	0	82	0	6	58	8	0	72	0	17	11	9	0	37	0	4	36	22		62	0	253
7:30AM	_	70	26	0	116	0	18	66	7	0	91	0	15	13	11		39	0	5	43	36	0	84	0	330
7:45AM	_	79	20	0	116	0	10	45	5	0	60	0	12	23	15	0	50	1	8	51	14	0	73	0	299
Hourly Total	-	246	68	0	373	0	42	200	24	0	266	0	57	60		0	157	1	19	151	90	0	260	0	1056
8:00AM		60	21	0	94	0	7	46	12	0	65	1	13	37	17	0	67	0	7	25	20	0	52	0	278
8:15AM	_	55	18	0	91	1	18	47	11	0	76	1	8	17	8	0	33	0	8	39	27	0	74	0	274
8:30AM	_	76	13	0	102	1	4	40	10	0	54	0	13	27	16	0	56	0	13	29	23	0	65	0	277
8:45AM		65	18	0	107	0	16	54	10	0	80	0	14	14	20	0	48	0	12	28	19	0	59	0	294
Hourly Total	_	256	70	0	394	2	45	187	43	0	275	2	48	95	61		204	0	40	121	89	0	250	0	1123
4:00PM		83	30	0	143	0	27	130	14	1	172	3	16	34	21	0	71	0	18	33	34	0	85	2	471
4:15PM		92	21	1	146	0	23	107	15	0	145	1	12	47	17	0	76	0	14	28	35	0	77	0	444
4:30PM		83	30	0	137	0	29	114	14	0	157	2	14	46	19	0	79	1	9	36	39	0	84	4	457
4:45PM		90	30	0	159 585	0	23 102	150 501	9	0	182	0	21	48	13	0	82	0	17	45	138	0	92 338	I	515 1887
Hourly Total	_	348	111	1		0			52	1	656	6	63	175	70		308	1	58	142		0		/	
5:00PM	_	100	30	0	150 171	0	17	183	15	1	216	2	19	48	17	_	84	0	20	50	35	0	105	0	555 540
5:15PM	_	104	34	0		0	23	118	16	0	157	0	23	56	27	0	106	0	12	52	42	0		0	503
5:30PM 5:45PM	+	88 85	32 51	1	154 165	0	17 31	108 117	20 16	0	146 164	0	20 16	58 46	21	0	99 88	0	19 24	45 52	40 38	0	104 114	2	503
Hourly Total		377	147	1	640	0	88	526	67	2	683	2	78	208			377	1	75	199	155	0	429	4	2129
Total		1227	396		1992	2	277	1414	186		1880	10	246	538	262		1046	3	192	613	472	0	1277	11	6195
% Approach					1332		14.7%		9.9% (1000	10			25.0% (_	1040	J	15.0% 4				12//	11	0133
% Total	+	19.8%			32.2%	_		22.8%	3.0%		30.3%		4.0%	8.7%	4.2% (16 9%	_			7.6%		20.6%		
Lights	+	1212	388		1963	_	275	1396	181		1855	_	242	534	259		1035	_	190	603	469			_	6115
% Lights	+		98.0% 1			_			97.3% 1			_			98.9% (_	99.0% 9			_		_	98.7%
Articulated Trucks	+	1	1	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0		0	-	2
% Articulated Trucks	0%	0.1%	0.3%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0% (0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit	ı																								
Trucks	6	14	7	0	27	-	2	18	5	0	25	-	4	4	3	0	11	-	2	10	3	0	15	-	78
% Buses and Single-Unit Trucks		1 10/	1.8%	00/	1.4%		0.70/	1.3%	2.70/	00/	1.3%		1.00/	0.70/	1.1% (20/	1 10/		1.0%	1 60/	0.60/	00/	1 20/		1.3%
Pedestrians	_	1.1%		0%		2		1.5%		0%		10	1.0%				1.1%	2	1.0%	1.0%		U%		10	1.5%
% Pedestrians	_	-				100%						100%	-			-		66.7%				-	-	90.9%	<u> </u>
Bicycles on Crosswalk	+					0						100%	-				- '	1				_	- :	1	<u> </u>
% Bicycles on Crosswalk	_					0%						0%	<u> </u>			-		33.3%	_			-		9.1%	\vdash
*Dedestrians and Ri	1											U 70				_		0/،د.دد	_			_		J.170	

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

83 1 of 6

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

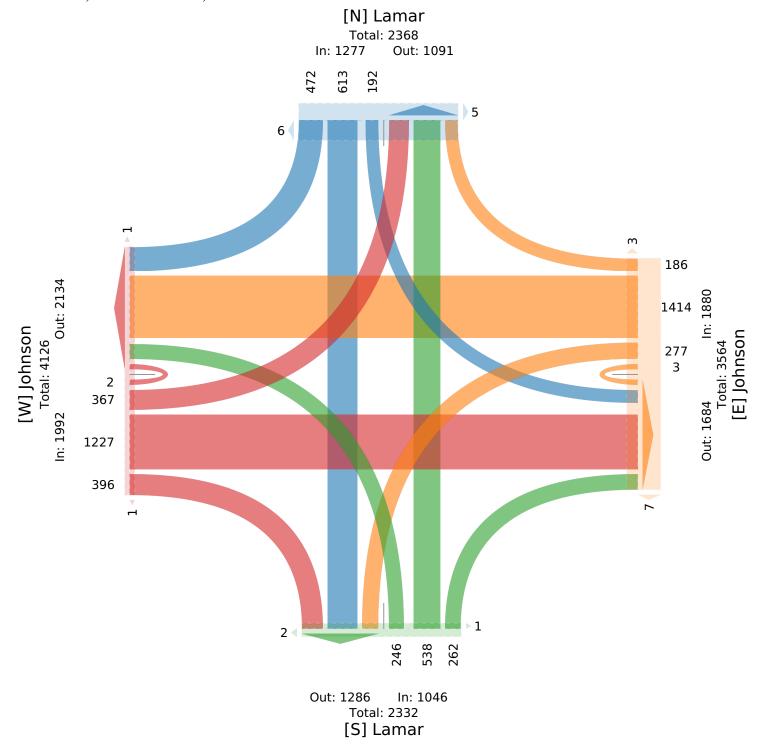
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352



625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnson	n					Lamar						Lamar					Т	
Direction	Eastbo						Westbo	-					Northb	ound					Southb						
Time	L	Т	D	U	App	Ped*	L	Т	R	U	App	Ped*	L	Т	R	U	App	Ped*		Т	R	U	App Ped	1* 1	Ínt
																_			_					1 1	
2023-01-10 7:30AM	20	70	26	_	116	0	18	66	7	0	91	0	15	13	11	0	39	0		43	36	0	84	0	330
7:45AM	17	79	20		116	0	10	45		0	60	0	12	23	15	0	50	1	8	51	14		73	0	299
8:00AM	13	60	21	0	94	0	7	46	12	0	65	1	13	37	17	0	67	0	7	25	20	0	52	0	278
8:15AM	18	55	18	0	91	1	18	47	11	0	76	1	8	17	8	0	33	0	8	39	27	0	74	0	274
Total	68	264	85	0	417	1	53	204	35	0	292	2	48	90	51	0	189	1	28	158	97	0	283	0	1181
% Approach	16.3%	63.3%	20.4%	0%	-	-	18.2%	69.9%	12.0%	0%	-	-	25.4%	47.6%	27.0%	0%	-	-	9.9%	55.8%	34.3% ()%	-	-	-
% Total	5.8%	22.4%	7.2%	0% 3	35.3%	-	4.5%	17.3%	3.0%	0% 2	24.7%	-	4.1%	7.6%	4.3%	0% :	16.0%	-	2.4%	13.4%	8.2% ()% 2	4.0%	-	-
PHF	0.850	0.835	0.817	-	0.899	-	0.736	0.773	0.729	-	0.802	-	0.800	0.608	0.750	-	0.705	-	0.875	0.775	0.674	- (0.842	-	0.895
Lights	67	257	79	0	403	-	52	203	34	0	289	-	47	88	50	0	185	-	28	154	96	0	278	-	1155
% Lights	98.5%	97.3%	92.9%	0% 9	96.6%	-	98.1%	99.5%	97.1%	0% 9	99.0%	-	97.9%	97.8%	98.0%	0% 9	97.9%	-	100%	97.5%	99.0% ()% 9	8.2%	- 9	97.8%
Articulated Trucks	0	1	1	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	2
% Articulated Trucks	0%	0.4%	1.2%	0%	0.5%	-	0%	0%	0% (0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0.2%
Buses and Single-Unit																								T	
Trucks	1	6	5	0	12	-	1	1	1	0	3	-	1	2	1	0	4	-	0	4	1	0	5	-	24
% Buses and Single-Unit																									
Trucks	1.5%	2.3%	5.9%	0%	2.9%	-	1.9%	0.5%	2.9%	0%	1.0%	-	2.1%	2.2%	2.0%	0%	2.1%	-	0%	2.5%	1.0% ()%	1.8%	-	2.0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-[_

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

85 3 of 6

Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

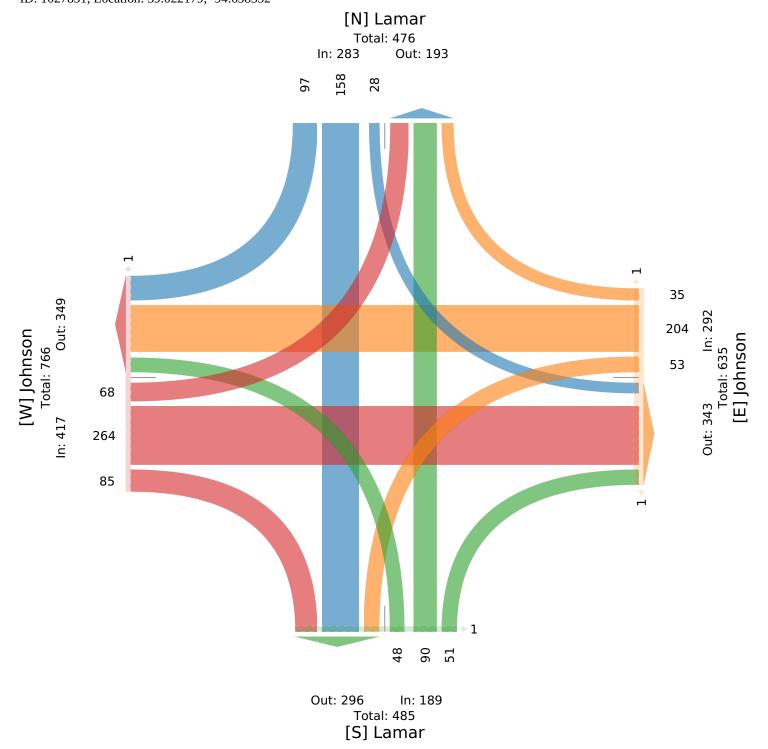
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352

GEWALT HAMILTON ASSOCIATES, INC. Provided by: Gewalt Hamilton Associates Inc.

Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



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Tue Jan 10, 2023

PM Peak (5 PM - 6 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352



Leg	Johnso	n					Johnson	n					Lamar						Lamar						
Direction	Eastbo	und					Westbo	ound					Northb	ound					Southb	ound					
Time	L	T	R	U	App P	ed*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 5:00PM	20	100	30	0	150	0	17	183	15	1	216	2	19	48	17	0	84	0	20	50	35	0	105	0	555
5:15PM	33	104	34	0	171	0	23	118	16	0	157	0	23	56	27	0	106	0	12	52	42	0	106	0	540
5:30PM	34	88	32	0	154	0	17	108	20	1	146	0	20	58	21	0	99	0	19	45	40	0	104	2	503
5:45PM	28	85	51	1	165	0	31	117	16	0	164	0	16	46	26	0	88	1	24	52	38	0	114	2	531
Total	115	377	147	1	640	0	88	526	67	2	683	2	78	208	91	0	377	1	75	199	155	0	429	4	2129
% Approach	18.0%	58.9%	23.0%	0.2%	-	-	12.9%	77.0%	9.8%	0.3%	-	-	20.7%	55.2%	24.1%	0%	-	-	17.5%	46.4%	36.1% (0%	-	-	-
% Total	5.4%	17.7%	6.9%	0% 3	30.1%	-	4.1%	24.7%	3.1%	0.1% 3	32.1%	-	3.7%	9.8%	4.3%	0%	17.7%	-	3.5%	9.3%	7.3% (0% 2	0.2%	-	-
PHF	0.846	0.906	0.721	0.250	0.936	-	0.710	0.719	0.838	0.500	0.791	-	0.848	0.897	0.843	-	0.889	-	0.781	0.957	0.923	- (0.941	-	0.959
Lights	115	377	145	1	638	-	88	521	67	2	678	-	77	208	90	0	375	-	75	195	155	0	425	-	2116
% Lights	100%	100%	98.6%	100% 9	99.7%	-	100%	99.0%	100%	100% 9	99.3%	-	98.7%	100%	98.9%	0% 9	99.5%	-	100%	98.0%	100% (0% 9	9.1%	-	99.4%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0% (0%	0%	-	0%
Buses and Single-Unit Trucks	0	0	2	0	2	-	0	5	0	0	5	-	1	0	1	0	2	-	0	4	0	0	4	-	13
% Buses and Single-Unit Trucks	0%	0%	1.4%	0%	0.3%	-	0%	1.0%	0%	0%	0.7%	-	1.3%	0%	1.1%	0%	0.5%	-	0%	2.0%	0% (0%	0.9%	_	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tue Jan 10, 2023

PM Peak (5 PM - 6 PM) - Overall Peak Hour

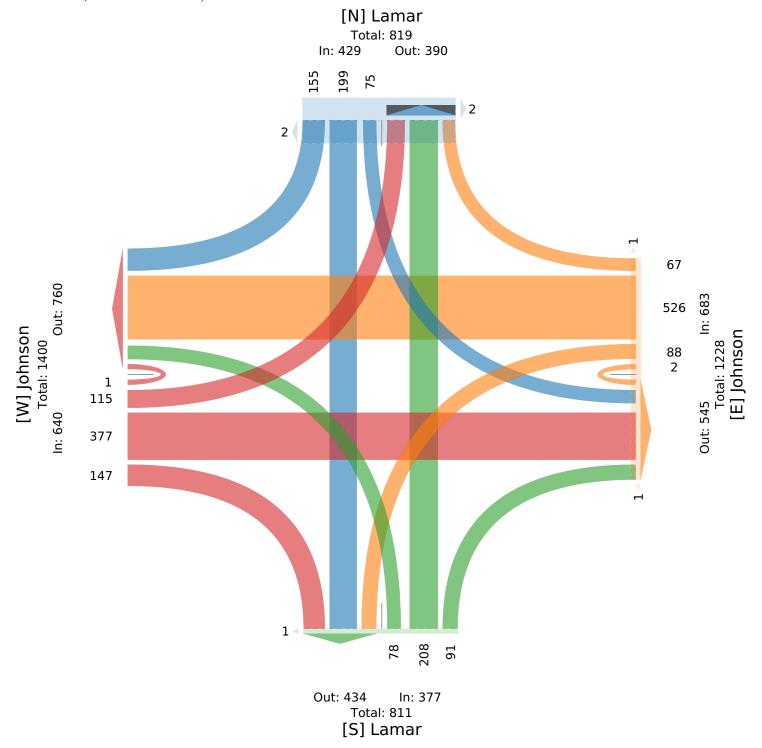
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027851, Location: 39.022179, -94.658352





Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049



625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Johnson Eastbou						Johnso Westb						Beverly Northb	,					Beverly Southbo						
Time	L	T	R	U	Арр	Ped*	L	T	R	U	Арр	Ped*	L	T	R	U	Арр	Ped*	L	Т	R	U	App	Ped*	Int
2023-01-10 7:00AM	2	37	0	0	39	0	1	39	0	0	40	0	0	1	4	0	5	0	1	0	2	0	3	1	87
7:15AM	5	70	2	0	77	0	1	60	2	0	63	0	2	0	0	0	2	0	0	0	4	0	4	0	146
7:30AM	3	89	2	0	94	0	3	86	0	0	89	0	2	0	4	0	6	0	0	0	3	0	3	0	192
7:45AM	3	93	4	0	100	0	5	55	2	0	62	1	1	0	4	0	5	2	1	3	1	0	5	0	172
Hourly Total	13	289	8	0	310	0	10	240	4	0	254	1	5	1	12	0	18	2	2	3	10	0	15	1	597
8:00AM	5	82	0	0	87	0	5	61	1	0	67	0	0	0	3	0	3	0	1	0	3	0	4	1	161
8:15AM	3	65	2	0	70	0	3	66	2	0	71	0	1	1	2	0	4	0	0	0	3	0	3	1	148
8:30AM	5	89	3	0	97	0	0	49	1	0	50	0	0	0	2	0	2	0	0	0	3	0	3	0	152
8:45AM	0	95	3	0	98	1	4	72	1	0	77	0	3	0	1	0	4	1	1	0	1	0	2	2	181
Hourly Total	13	331	8	0	352	1	12	248	5	0	265	0	4	1	8	0	13	1	2	0	10	0	12	4	642
4:00PM	4	120	0	0	124	2	2	145	2	0	149	1	1	1	5	0	7	3	0	0	6	0	6	4	286
4:15PM	4	108	2	0	114	2	4	147	4	0	155	0	1	1	1	0	3	2	0	0	8	0	8	1	280
4:30PM	5	108	4	0	117	3	6	141	1	0	148	0	0	0	4	0	4	2	1	0	6	0	7	3	276
4:45PM	1	115	2	0	118	0	3	189	0	0	192	2	3	3	3	0	9	0	0	1	5	0	6	3	325
Hourly Total	14	451	8	0	473	7	15	622	7	0	644	3	5	5	13	0	23	7	1	1	25	0	27	11	1167
5:00PM	9	124	4	0	137	0	7	200	3	0	210	4	1	2	5	0	8	3	0	0	11	0	11	3	366
5:15PM	3	123	4	0	130	2	6	146	3	0	155	1	2	2	8	0	12	2	1	1	5	0	7	3	304
5:30PM	11	119	3	0	133	0	8	159	4	0	171	3	1	2	6	0	9	2	1	0	5	0	6	3	319
5:45PM	14	115	4	0	133	2	6	146	3	0	155	0	2	0	4	0	6	6	0	3	9	0	12	1	306
Hourly Total	37	481	15	0	533	4	27	651	13	0	691	8	6	6	23	0	35	13	2	4	30	0	36	10	1295
Total	77	1552	39	0	1668	12	64	1761	29	0	1854	12	20	13	56	0	89	23	7	8	75	0	90	26	3701
% Approach	4.6%	93.0%	2.3%	0%	-	-	3.5%	95.0%	1.6%	0%	-	-	22.5%	14.6%	62.9% 0	%	-	-	7.8%	8.9%	83.3%	0%	-	-	
% Total	2.1%	41.9%	1.1%	0% 4	45.1%	-	1.7%	47.6%	0.8%	0% 5	50.1%	-	0.5%	0.4%	1.5% 0	%	2.4%	-	0.2%	0.2%	2.0%	0%	2.4%	-	
Lights	75	1535	38	0	1648	-	64	1738	29	0	1831	-	20	13	54	0	87	-	6	8	73	0	87	-	3653
% Lights	97.4%	98.9%	97.4% (0% 9	98.8%	-	100%	98.7%	100%	0% 9	98.8%	-	100%	100% 9	96.4% 0	% <u>9</u>	7.8%	-	85.7%	100%	97.3%	0% 9	96.7%	-	98.7%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Articulated Trucks	0%	0.1%	0% (0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0% 0	%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	2	16	1	0	19	_	0	23	0	0	23		0	0	2	0	2	_	1	0	2	0	3	_	47
% Buses and Single-Unit																									
Trucks	2.6%	1.0%	2.6%	0%	1.1%	-	0%	1.3%	0%	0%	1.2%	-	0%	0%	3.6% 0	%	2.2%	-	14.3%	0%	2.7%	0%	3.3%	-	1.3%
Pedestrians	-	-	-	-	-	12	-	-	-	-	-	12	-	-	-	-	-	22	-	-	-	-	-	26	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	- !	95.7%	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-		0	-	-	-	-		1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	4.3%	-	-	-	-	-	0%	

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1 of 6

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

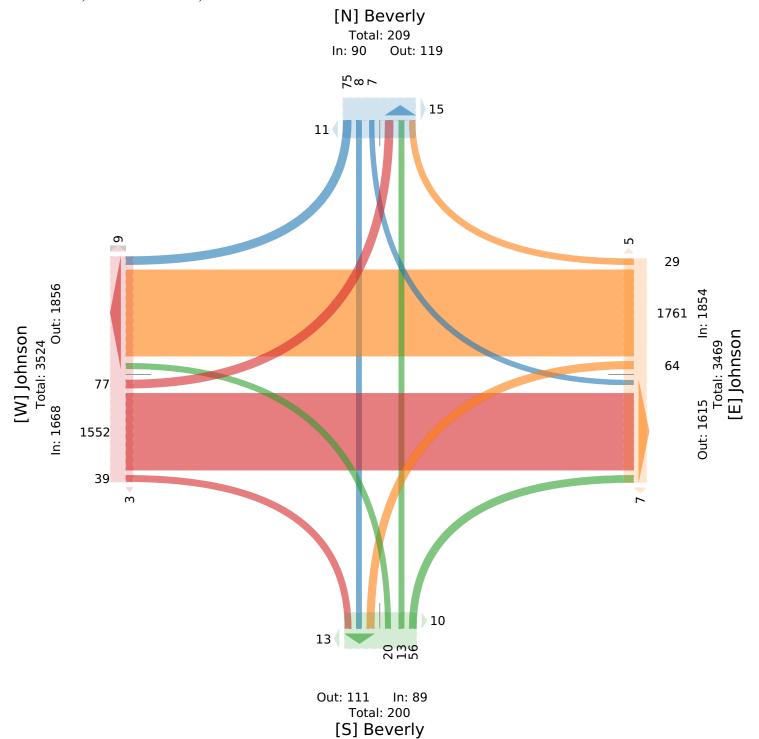
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049



625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnso	n					Beverly	y					Beverly	7					
Direction	Eastbo	und					Westb	ound					Northb	ound					Southb	ound					
Time	L	T	R	U	App Pe	·d*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 7:30AM	3	89	2	0	94	0	3	86	0	0	89	0	2	0	4	0	6	0	0	0	3	0	3	0	192
7:45AM	3	93	4	0	100	0	5	55	2	0	62	1	1	0	4	0	5	2	1	3	1	0	5	0	172
8:00AM	5	82	0	0	87	0	5	61	1	0	67	0	0	0	3	0	3	0	1	0	3	0	4	1	161
8:15AM	3	65	2	0	70	0	3	66	2	0	71	0	1	1	2	0	4	0	0	0	3	0	3	1	148
Total	14	329	8	0	351	0	16	268	5	0	289	1	4	1	13	0	18	2	2	3	10	0	15	2	673
% Approach	4.0%	93.7%	2.3%	0%	-	-	5.5%	92.7%	1.7% ()%	-	-	22.2%	5.6%	72.2%	0%	-	-	13.3%	20.0%	66.7%	0%	-	-	-
% Total	2.1%	48.9%	1.2%	0% 5	52.2%	-	2.4%	39.8%	0.7%)% 4	12.9%	-	0.6%	0.1%	1.9%	0%	2.7%	-	0.3%	0.4%	1.5%	0%	2.2%	-	-
PHF	0.700	0.884	0.500	-	0.878	-	0.800	0.779	0.625	-	0.812	-	0.500	0.250	0.813	-	0.750	-	0.500	0.250	0.833	-	0.750	-	0.876
Lights	14	321	7	0	342	-	16	264	5	0	285	-	4	1	12	0	17	-	1	3	10	0	14	-	658
% Lights	100%	97.6%	87.5%	0% 9	97.4%	-	100%	98.5%	100% ()% 9	98.6%	-	100%	100%	92.3%	0% 9	94.4%	-	50.0%	100%	100%	0% 9	93.3%	-	97.8%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.1%
Buses and Single-Unit Trucks	0	7	1	0	8	_	0	4	0	0	4	_	0	0	1	0	1	-	1	0	0	0	1	-	14
% Buses and Single-Unit Trucks	0%	2.1%	12.5%	0%	2.3%	_	0%	1.5%	0% ()%	1.4%	-	0%	0%	7.7%	0%	5.6%	-	50.0%	0%	0%	0%	6.7%	-	2.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

 $^{^{*}}$ Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3 of 6

Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

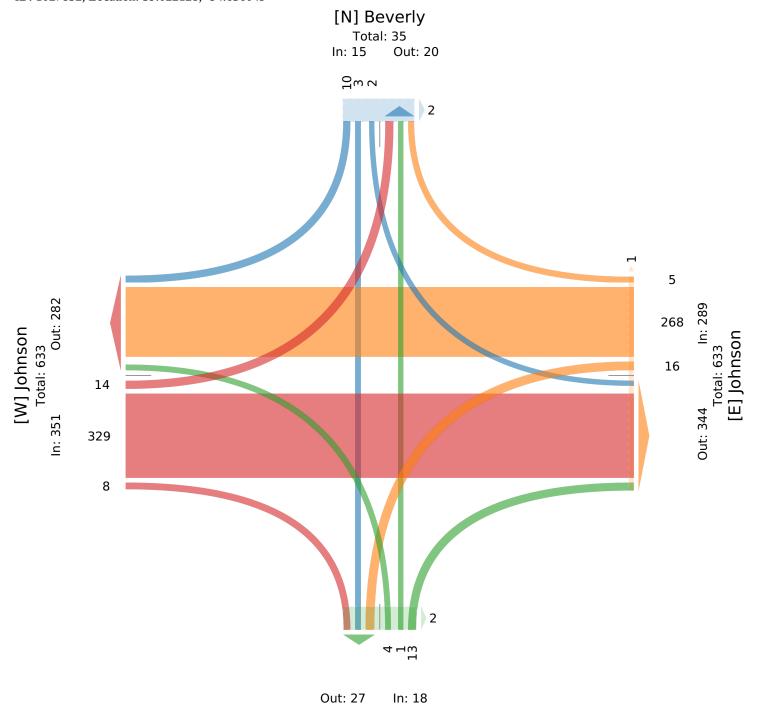
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Total: 45 [S] Beverly

92

Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	on					Johnso	n					Beverly	7					Beverl	y					
Direction	Eastbo	ound					Westb	ound					Northbo	ound					Southb	ound					
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 4:45PM	1	115	2	0	118	0	3	189	0	0	192	2	3	3	3	0	9	0	0	1	5	0	6	3	325
5:00PM	9	124	4	0	137	0	7	200	3	0	210	4	1	2	5	0	8	3	0	0	11	0	11	3	366
5:15PM	3	123	4	0	130	2	6	146	3	0	155	1	2	2	8	0	12	2	1	1	5	0	7	3	304
5:30PM	11	119	3	0	133	0	8	159	4	0	171	3	1	2	6	0	9	2	1	0	5	0	6	3	319
Total	24	481	13	0	518	2	24	694	10	0	728	10	7	9	22	0	38	7	2	2	26	0	30	12	1314
% Approach	4.6%	92.9%	2.5%	0%	-	-	3.3%	95.3%	1.4% ()%	-	-	18.4%	23.7%	57.9% (0%	-	-	6.7%	6.7%	86.7% (0%	-	-	-
% Total	1.8%	36.6%	1.0%	0%:	39.4%	-	1.8%	52.8%	0.8%)% !	55.4%	-	0.5%	0.7%	1.7% (0%	2.9%	-	0.2%	0.2%	2.0%	0%	2.3%	-	-
PHF	0.545	0.970	0.813	-	0.945	-	0.750	0.868	0.625	-	0.867	-	0.583	0.750	0.688	- 1	0.792	-	0.500	0.500	0.591	- ().682	-	0.898
Lights	24	479	13	0	516	-	24	688	10	0	722	-	7	9	22	0	38	-	2	2	26	0	30	-	1306
% Lights	100%	99.6%	100%	0% 9	99.6%	-	100%	99.1%	100% ()% 9	99.2%	-	100%	100%	100% (0%	100%	-	100%	100%	100%	0% 1	100%	-	99.4%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0% (0%	0%	-	0%	0%	0% (0%	0%	-	0%
Buses and Single-Unit Trucks	0	2	0	0	2	-	0	6	0	0	6	-	0	0	0	0	0	-	0	0	0	0	0	-	8
% Buses and Single-Unit																									
Trucks	0%	0.4%	0%	0%	0.4%	-	0%	0.9%	0% ()%	0.8%	-	0%	0%	0% (0%	0%	-	0%	0%	0%	0%	0%	-	0.6%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	10	-	-	-	-	-	7	-	-	-	-	-	12	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	- 1	.00%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

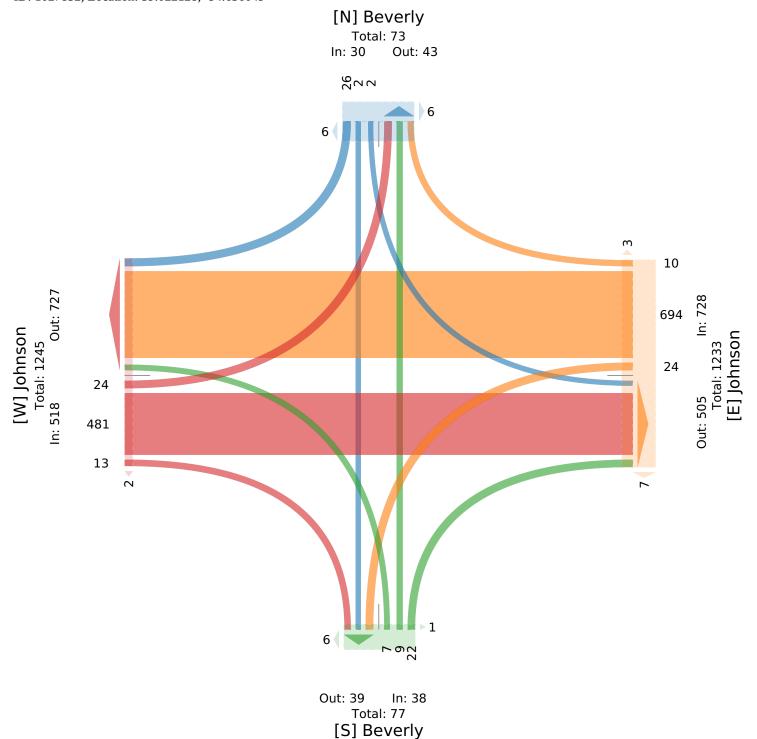
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027852, Location: 39.022128, -94.656049





Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488



Leg	Johnso						Johnso						Dearbo						Dearbo						
Direction	Eastbo						Westbo						Northbo						Southb					- 1	
Time	L	T	R			Ped*	L	T	R	U	App		L	T	R	U	App	Ped*	L	T	R	U		Ped*	
2023-01-10 7:00AM	+	42	0		42	0	0	40	0	0	40	0		0	1	0	1	0	0	0	2	0	2	1	85
7:15AM	3	65	0		68	0	0	60	1	0	61	0		0	0	0	1	0	0	0	1	0	1	0	131
7:30AM	4	90	0		94	0	2	86	1	0	89	0		1	0	0	1	0	0	0	3	0	3	0	187
7:45AM	_	88	6	0	98	0	0	58	0	0	58	0	0	0	1	0	1	1	0	0	4	0	4	2	161
Hourly Total	11	285	6		302	0	2	244	2	0	248	0		1	2		4	1	0	0	10	0	10	3	564
8:00AM	1	85	0		86	0	0	67	1	0	68	0	0	0	1	0	1	0	0	0	1	0	1	1	156
8:15AM	_	66	1		68	0	0	71	0	0	71	0	1	0	0	0	1	1	0	0	0	0	0	1	140
8:30AM		87	2		90	0	2	48	4	0	54	1	2	0	2	0	4	0	1	0	0	0	1	0	149
8:45AM	4	90	3	0	97	2	6	73	0	0	79	0	1	0	4	0	5	0	0	0	2	0	2	1	183
Hourly Total	7	328	6	0	341	2	8	259	5	0	272	1	4	0	7	0	11	1	1	0	3	0	4	3	628
4:00PM	3	123	2	0	128	0	2	136	1	0	139	0	3	0	0	0	3	3	1	0	5	0	6	8	270
4:15PM	3	110	1	0	114	0	1	152	1	0	154	0	1	0	1	0	2	4	0	0	3	0	3	1	27
4:30PM	2	106	5	0	113	0	2	134	1	0	137	0	4	0	3	0	7	2	1	0	6	0	7	2	26
4:45PM	1	118	2	0	121	0	5	183	0	0	188	0	1	0	2	0	3	1	0	0	3	0	3	4	31
Hourly Total	9	457	10	0	476	0	10	605	3	0	618	0	9	0	6	0	15	10	2	0	17	0	19	15	112
5:00PM	5	123	2	0	130	1	2	201	0	0	203	0	3	0	3	0	6	0	0	0	5	0	5	3	34
5:15PM	2	132	2	0	136	0	2	150	2	0	154	0	3	0	1	0	4	3	0	0	2	0	2	2	29
5:30PM	5	120	0	0	125	0	0	162	0	0	162	0	3	0	4	0	7	2	0	1	4	0	5	5	29
5:45PM	1	108	7	0	116	1	5	155	1	0	161	0	3	0	4	0	7	2	0	0	3	0	3	5	28
Hourly Tota	13	483	11	0	507	2	9	668	3	0	680	0	12	0	12	0	24	7	0	1	14	0	15	15	1220
Tota	40	1553	33	0	1626	4	29	1776	13	0	1818	1	26	1	27	0	54	19	3	1	44	0	48	36	3540
% Approach	2.5%	95.5%	2.0%	0%	-	-	1.6%	97.7%	0.7%	0%	-	-	48.1%	1.9% 5	50.0% ()%	-	-	6.3%	2.1% 9	91.7%	0%	-	-	
% Total	1.1%	43.8%	0.9%	0% 4	45.9%	-	0.8%	50.1%	0.4%	0% 5	51.3%	-	0.7%	0%	0.8% ()%	1.5%	-	0.1%	0%	1.2%	0%	1.4%	-	
Lights	40	1534	33	0	1607	-	29	1754	13	0	1796	-	26	1	26	0	53	-	3	1	44	0	48	-	350
% Lights	100%	98.8%	100%	0% 9	98.8%	-	100% 9	98.8%	100%	0% 9	98.8%	-	100%	100% 9	96.3% ()% 9	98.1%	-	100% 1	100%	100%	0%	100%	- /	98.89
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
% Articulated Trucks	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	09
Buses and Single-Unit																									
Trucks		18	0	0	18	-	0	22	0	0	22	-	0	0	1	0	1	-	0	0	0	0	0		4
% Buses and Single-Unit Trucks	1	1.2%	0%	በ%	1.1%	_	0%	1.2%	0%	በ%	1.2%	_	0%	0%	3.7% (1%	1 9%	_	0%	0%	0%	በ%	0%	_	1.29
Pedestrians	-	1.270		-		4			370	-		1		-	5.7 70 (-	-	18	-	-		-	-	35	
% Pedestrians	-			_		100%	_			-		100%	_			_		94.7%	_			_	. (97.2%	
Bicycles on Crosswalk	+			_		0				-		0	-			_	- :	1	-				- :	1	
% Bicycles on Crosswalk	+			-		0%	-			-		0%	_			-		5.3%	-					2.8%	
*Podostrians and Bi					-					_			_			_		3.3%	_					2.8%	

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

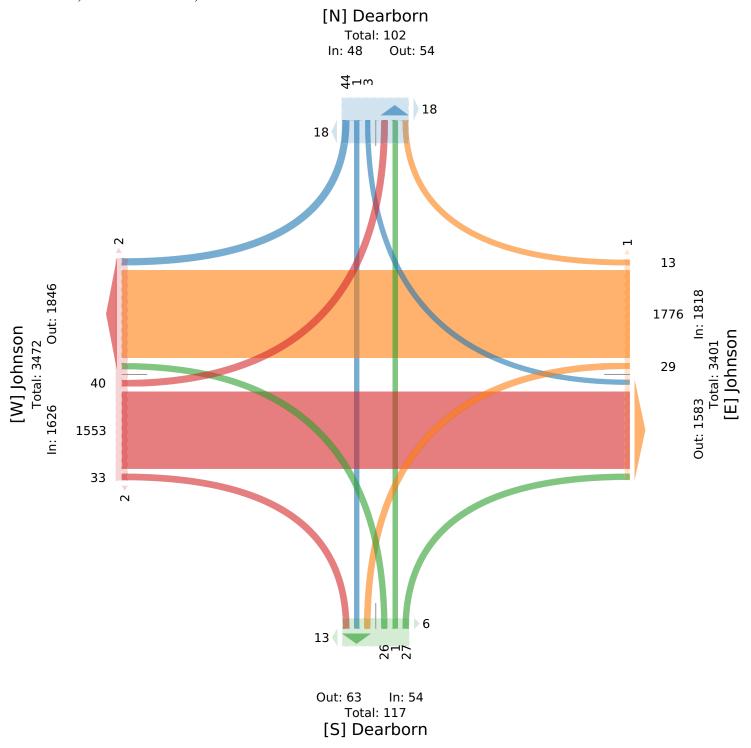
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488





Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnso	n					Dearbo	rn					Dea	rborr	1				
Direction	Eastbo	ound					Westb	ound					Northb	ound					Sou	thbou	ınd				
Time	L	T	R	U	App Pe	d*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 7:30AM	4	90	0	0	94	0	2	86	1	0	89	0	0	1	0	0	1	0	0	0	3	0	3	0	187
7:45AM	4	88	6	0	98	0	0	58	0	0	58	0	0	0	1	0	1	1	0	0	4	0	4	2	161
8:00AM	1	85	0	0	86	0	0	67	1	0	68	0	0	0	1	0	1	0	0	0	1	0	1	1	156
8:15AM	1	66	1	0	68	0	0	71	0	0	71	0	1	0	0	0	1	1	0	0	0	0	0	1	140
Total	10	329	7	0	346	0	2	282	2	0	286	0	1	1	2	0	4	2	0	0	8	0	8	4	644
% Approach	2.9%	95.1%	2.0%	0%	-	-	0.7%	98.6%	0.7%	0%	-	-	25.0%	25.0%	50.0%	0%	-	-	0%	0% 1	.00%	0%	-	-	-
% Total	1.6%	51.1%	1.1%	0% !	53.7%	-	0.3%	43.8%	0.3%	0% 4	14.4%	-	0.2%	0.2%	0.3%	0%	0.6%	-	0%	0% :	1.2%	0%	1.2%	-	-
PHF	0.625	0.914	0.292	-	0.883	-	0.250	0.820	0.500	-	0.803	-	0.250	0.250	0.500	- :	1.000	-	-	- 0	.500	- ().500	-	0.861
Lights	10	320	7	0	337	-	2	278	2	0	282	-	1	1	2	0	4	-	0	0	8	0	8	-	631
% Lights	100%	97.3%	100%	0% 9	97.4%	-	100%	98.6%	100%	0% 9	98.6%	-	100%	100%	100%	0% :	100%	-	0%	0% 1	.00%	0% 1	100%	-	98.0%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0% (0%	0%	-	0.2%
Buses and Single-Unit																									
Trucks	0	8	0	0	8	-	0	4	0	0	4	-	0	0	0	0	0	-	0	0	0	0	0	-	12
% Buses and Single-Unit																									
Trucks	0%	2.4%	0%	0%	2.3%	-	0%	1.4%	0%	0%	1.4%	-	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		1.9%
Pedestrians	-		-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	- 7	75.0%	-
Bicycles on Crosswalk	-		-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	- 2	25.0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

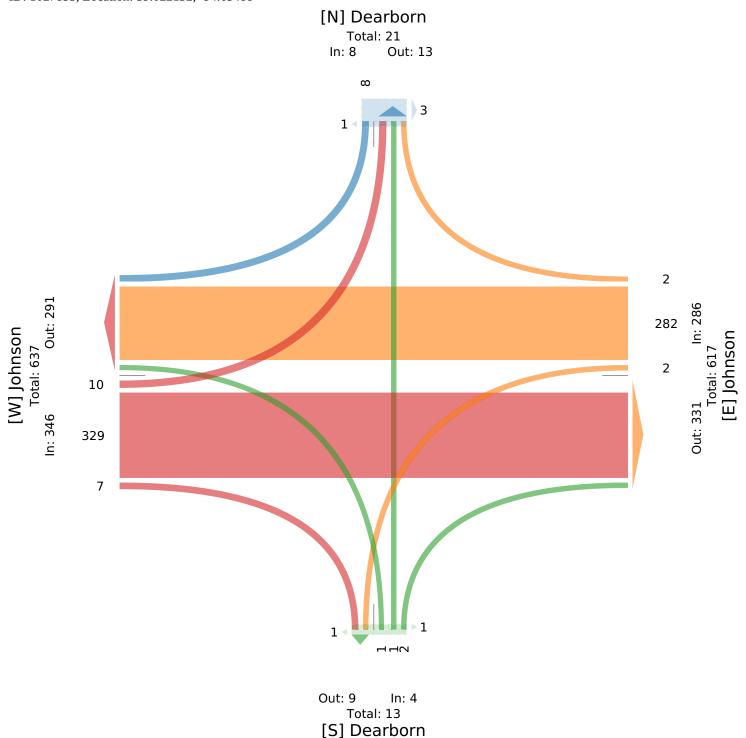
AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488





Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnso	n					Dearbo	rn					Dearbo	orn					
Direction	Eastbo	und					Westb	ound					Northbo	ound	i				Southb	oun	d				
Time	L	Т	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App I	Ped*	L	Т	R	U	App	Ped*	Int
2023-01-10 4:45PM	1	118	2	0	121	0	5	183	0	0	188	0	1	0	2	0	3	1	0	0	3	0	3	4	315
5:00PM	5	123	2	0	130	1	2	201	0	0	203	0	3	0	3	0	6	0	0	0	5	0	5	3	344
5:15PM	2	132	2	0	136	0	2	150	2	0	154	0	3	0	1	0	4	3	0	0	2	0	2	2	296
5:30PM	5	120	0	0	125	0	0	162	0	0	162	0	3	0	4	0	7	2	0	1	4	0	5	5	299
Total	13	493	6	0	512	1	9	696	2	0	707	0	10	0	10	0	20	6	0	1	14	0	15	14	1254
% Approach	2.5%	96.3%	1.2%	0%	-	-	1.3%	98.4%	0.3%	0%	-	-	50.0% (0% 5	50.0% ()%	-	-	0% 6.7	7% :	93.3%	0%	-	-	-
% Total	1.0%	39.3%	0.5%	0% 4	40.8%	-	0.7%	55.5%	0.2%	0% 5	6.4%	-	0.8% (0%	0.8%)%	1.6%	-	0% 0.1	1%	1.1%	0%	1.2%	-	-
PHF	0.650	0.934	0.750	-	0.941	-	0.450	0.866	0.250	-	0.871	-	0.833	-	0.625	-	0.714	-	- 0.2	50	0.700	- ().750	-	0.911
Lights	13	491	6	0	510	-	9	690	2	0	701	-	10	0	9	0	19	-	0	1	14	0	15	-	1245
% Lights	100%	99.6%	100%	0% 9	99.6%	-	100%	99.1%	100%	0% S	9.2%	-	100% (0% 9	90.0% ()% 9	95.0%	-	0% 100	0%	100%	0% 1	100%	-	99.3%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0% (0%	0% 0)%	0%	-	0% (0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	2	0	0	2	-	0	6	0	0	6	-	0	0	1	0	1	-	0	0	0	0	0	-	9
% Buses and Single-Unit Trucks		0.4%	0%	0%	0.4%	-	0%	0.9%	0%	0%	0.8%	-	0% (0% :	10.0% ()%	5.0%	-	0% (0%	0%	0%	0%	-	0.7%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	14	
% Pedestrians	-	-	-	-	- 1	100%	-	-	-	-	-	-		-	-	-	- 1	00%	-	-	-	-	- 1	.00%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

99 5 of 6

Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

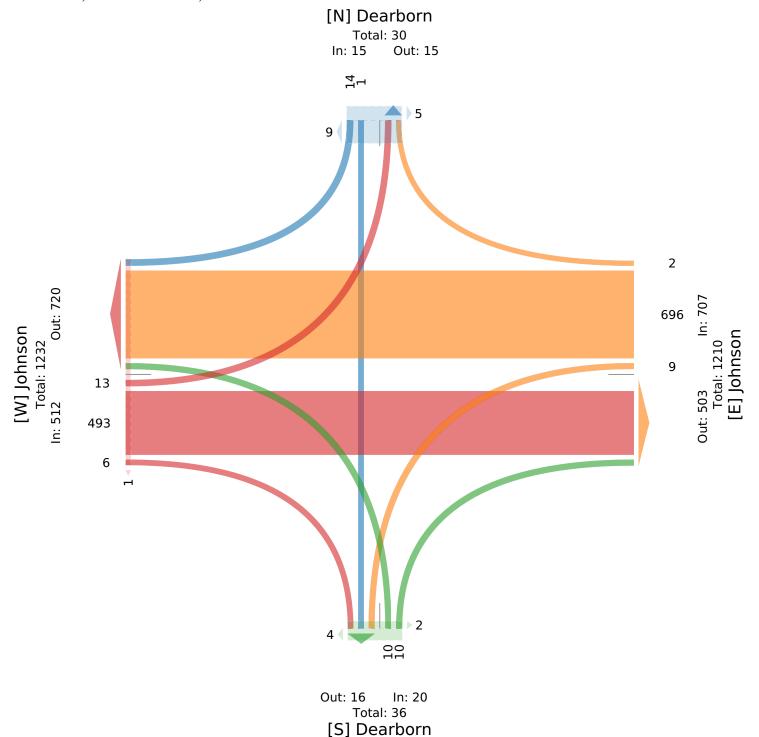
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027853, Location: 39.022132, -94.65488





Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027858, Location: 39.02212, -94.653709



625 Forest Edge Drive, Vernon Hills, IL, 60061, US

	Johnsor Eastbou						Johnsor Westbo						Woods Northb						Woods						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 7:00AM	2	37	3	0	42	0	1	36	0	0	37	0	3	0	0	0	3	0	1	0	2	0	3	0	85
7:15AM	3	60	1	0	64	0	3	52	0	0	55	0	1	0	2	0	3	0	0	1	7	0	8	0	130
7:30AM	3	80	4	0	87	0	2	76	2	0	80	0	2	0	2	0	4	0	0	1	9	0	10	0	181
7:45AM	2	79	7	0	88	2	7	53	2	0	62	0	3	0	10	0	13	1	2	1	4	0	7	0	170
Hourly Total	10	256	15	0	281	2	13	217	4	0	234	0	9	0	14	0	23	1	3	3	22	0	28	0	566
8:00AM	5	69	3	0	77	0	3	65	4	0	72	0	1	2	5	0	8	2	3	0	1	0	4	0	161
8:15AM	3	61	4	0	68	0	1	67	2	0	70	0	0	1	3	0	4	1	1	2	6	0	9	1	151
8:30AM	3	79	3	0	85	0	1	51	1	0	53	0	0	0	1	0	1	0	0	0	1	0	1	0	140
8:45AM	3	84	6	0	93	0	1	73	3	0	77	0	2	2	5	0	9	0	4	3	4	0	11	1	190
Hourly Total	14	293	16	0	323	0	6	256	10	0	272	0	3	5	14	0	22	3	8	5	12	0	25	2	642
4:00PM	6	104	3	0	113	0	1	137	4	0	142	0	0	2	3	0	5	3	2	2	6	0	10	7	270
4:15PM	4	102	3	0	109	1	6	148	3	0	157	0	0	4	2	0	6	3	3	2	4	0	9	1	281
4:30PM	1	100	3	0	104	1	2	130	2	0	134	0	2	0	2	0	4	0	4	1	4	0	9	1	251
4:45PM	3	108	7	0	118	0	5	185	2	0	192	1	2	5	3	0	10	1	3	1	7	0	11	2	331
Hourly Total	14	414	16	0	444	2	14	600	11	0	625	1	4	11	10	0	25	7	12	6	21	0	39	11	1133
5:00PM	4	120	3	0	127	0	3	194	5	0	202	0	5	2	5	0	12	0	6	5	4	0	15	2	356
5:15PM	3	126	3	0	132	0	4	141	1	0	146	0	2	1	1	0	4	3	3	2	4	0	9	1	291
5:30PM	2	109	7	0	118	1	9	152	2	0	163	1	6	1	3	0	10	3	7	2	3	0	12	3	303
5:45PM	4	107	6	0	117	0	4	153	3	0	160	0	2	2	4	0	8	1	2	4	6	0	12	1	297
Hourly Total	13	462	19	0	494	1	20	640	11	0	671	1	15	6	13	0	34	7	18	13	17	0	48	7	1247
Total	51	1425	66	0	1542	5	53	1713	36	0	1802	2	31	22	51	0	104	18	41	27	72	0	140	20	3588
% Approach	3.3% 9	92.4%	4.3%)%	-	-	2.9% 9	95.1%	2.0% ()%	-	-	29.8%	21.2%	49.0% 0	%	-	-	29.3%	19.3%	51.4%	0%	-	-	-
% Total	1.4%	39.7%	1.8%)% 4	43.0%	-	1.5%	47.7%	1.0% ()% !	50.2%	-	0.9%	0.6%	1.4% 0	%	2.9%	-	1.1%	0.8%	2.0%	0%	3.9%	-	-
Lights	47	1412	65	0	1524	-	51	1694	36	0	1781	-	30	22	51	0	103	-	39	27	72	0	138	-	3546
% Lights	92.2%	99.1%	98.5%)% 9	98.8%	-	96.2%	98.9%	100% ()% 9	98.8%	-	96.8%	100%	100% 0	% 9	9.0%	-	95.1%	100%	100%	0% 9	98.6%	-	98.8%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Articulated Trucks	0%	0.1%	0%	0%	0.1%	-	0%	0%	0% ()%	0%	-	0%	0%	0% 09	%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit																									
Trucks	4	12	1	0	17	-	2	19	0	0	21	-	1	0	0	0	1	-	2	0	0	0	2	-	41
% Buses and Single-Unit Trucks	7.8%	0.8%	1.5%	0%	1.1%	-	3.8%	1.1%	0% (0%	1.2%	-	3.2%	0%	0% 0	%	1.0%	-	4.9%	0%	0%	0%	1.4%	-	1.1%
Pedestrians	-	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	-	18	-	-	-	-	-	20	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	- 1	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

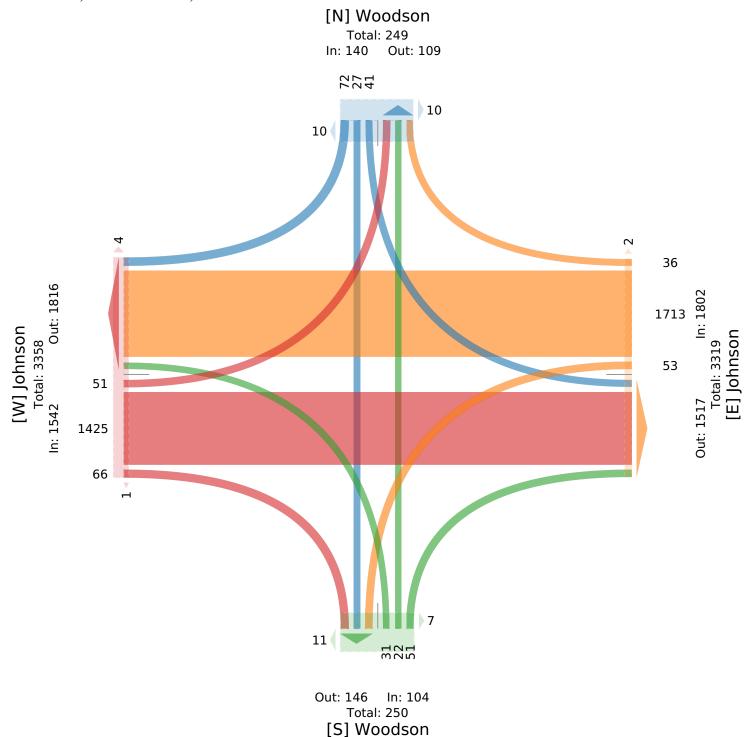
Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027858, Location: 39.02212, -94.653709



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



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Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027858, Location: 39.02212, -94.653709



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnso	n					Woodso	on					Woods	on					
Direction	Eastbo	und					Westbo	ound					Northbo	ound					Southbo	ound					
Time	L	T	R	U	App	Ped*	L	T	R	U	App I	ed*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 7:30AM	3	80	4	0	87	0	2	76	2	0	80	0	2	0	2	0	4	0	0	1	9	0	10	0	181
7:45AM	2	79	7	0	88	2	7	53	2	0	62	0	3	0	10	0	13	1	2	1	4	0	7	0	170
8:00AM	5	69	3	0	77	0	3	65	4	0	72	0	1	2	5	0	8	2	3	0	1	0	4	0	161
8:15AM	3	61	4	0	68	0	1	67	2	0	70	0	0	1	3	0	4	1	1	2	6	0	9	1	151
Total	13	289	18	0	320	2	13	261	10	0	284	0	6	3	20	0	29	4	6	4	20	0	30	1	663
% Approach	4.1%	90.3%	5.6%	0%	-	-	4.6%	91.9%	3.5% (0%	-	-	20.7%	10.3%	69.0%	0%	-	-	20.0%	13.3%	66.7%	0%	-	-	-
% Total	2.0%	43.6%	2.7%	0% 4	48.3%	-	2.0%	39.4%	1.5% (0% 4	42.8%	-	0.9%	0.5%	3.0%	0%	4.4%	-	0.9%	0.6%	3.0%	0%	4.5%	-	-
PHF	0.650	0.903	0.643	-	0.909	-	0.464	0.859	0.625	-	0.888	-	0.500	0.375	0.500	-	0.558	-	0.500	0.500	0.556	-	0.750	-	0.916
Lights	12	282	18	0	312	-	12	259	10	0	281	-	5	3	20	0	28	-	5	4	20	0	29	-	650
% Lights	92.3%	97.6%	100%	0% 9	97.5%	-	92.3%	99.2%	100% (0% 9	98.9%	-	83.3%	100%	100%	0% 9	96.6%	-	83.3%	100%	100%	0% 9	96.7%	-	98.0%
Articulated Trucks	0	1	0	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Articulated Trucks	0%	0.3%	0%	0%	0.3%	-	0%	0%	0% (0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Buses and Single-Unit Trucks	1	6	0	0	7	-	1	2	0	0	3	_	1	0	0	0	1	-	1	0	0	0	1	-	12
% Buses and Single-Unit	l .	2.1%	00/	00/	2.2%		7.7%	0.8%	00/ /	20/	1.1%		16.7%	0%	00/	00/	3.4%		16.7%	0%	00/	00/	3.3%		1.8%
Trucks	7.7%	2.1%	0%	0%	2.2%	-		0.8%	0% (J%	1.1%		16./%	0%	0%	0%	3.4%	-		0%			3.3%	- 1	1.8%
Pedestrians	-			_		1000/	-			_		0	-			_		1000/	-			_		1	\longrightarrow
% Pedestrians	-			_		100%	-			_		-	-			-		100%	-			_		100%	-
Bicycles on Crosswalk	-		-	-	-	0	-	-		-	-	0	-	-	-	-	-	0	-	-		-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

 $^{^*\}mbox{Pedestrians}$ and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

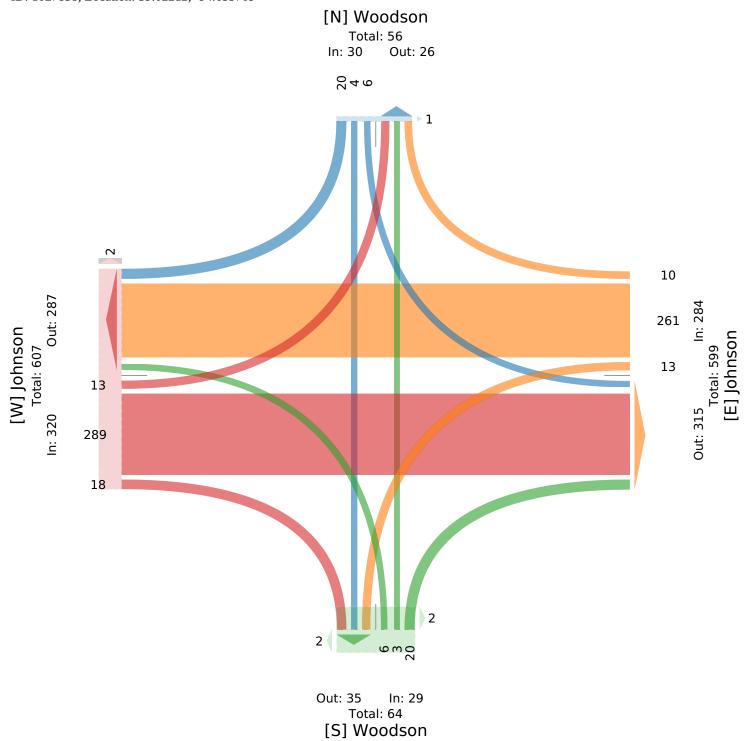
AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027858, Location: 39.02212, -94.653709





Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027858, Location: 39.02212, -94.653709



625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Johnso	n					Johnso	n					Woods	on					Woods	on					
Direction	Eastbo	und					Westbo	ound					Northb	ound					Southb	ound					
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App P	ed*	Int
2023-01-10 4:45PM	3	108	7	0	118	0	5	185	2	0	192	1	2	5	3	0	10	1	3	1	7	0	11	2	331
5:00PM	4	120	3	0	127	0	3	194	5	0	202	0	5	2	5	0	12	0	6	5	4	0	15	2	356
5:15PM	3	126	3	0	132	0	4	141	1	0	146	0	2	1	1	0	4	3	3	2	4	0	9	1	291
5:30PM	2	109	7	0	118	1	9	152	2	0	163	1	6	1	3	0	10	3	7	2	3	0	12	3	303
Total	12	463	20	0	495	1	21	672	10	0	703	2	15	9	12	0	36	7	19	10	18	0	47	8	1281
% Approach	2.4%	93.5%	4.0%	0%	-	-	3.0%	95.6%	1.4% ()%	-	-	41.7%	25.0%	33.3%	0%	-	-	40.4%	21.3%	38.3% 0)%	-	-	-
% Total	0.9%	36.1%	1.6%	0% 3	38.6%	-	1.6%	52.5%	0.8% ()% 5	54.9%	-	1.2%	0.7%	0.9%	0%	2.8%	-	1.5%	0.8%	1.4% 0	% :	3.7%	-	-
PHF	0.750	0.919	0.714	-	0.938	-	0.583	0.866	0.500	-	0.870	-	0.625	0.450	0.600	- (0.750	-	0.679	0.500	0.643	- 0).783	-	0.900
Lights	11	462	19	0	492	-	20	667	10	0	697	-	15	9	12	0	36	-	19	10	18	0	47	-	1272
% Lights	91.7%	99.8%	95.0%	0% 9	9.4%	-	95.2%	99.3%	100% ()% 9	99.1%	-	100%	100%	100%	0%	100%	-	100%	100%	100% 0)% 1	100%	-	99.3%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0% 0)%	0%	-	0%
Buses and Single-Unit Trucks	1	1	1	0	3	-	1	5	0	0	6	_	0	0	0	0	0	-	0	0	0	0	0	-	9
% Buses and Single-Unit Trucks	8.3%	0.2%	5.0%	0%	0.6%	-	4.8%	0.7%	0% ()%	0.9%	-	0%	0%	0%	0%	0%	-	0%	0%	0% 0)%	0%	_	0.7%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	7	-	-	-	-	-	8	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	- 10	00%	-
Bicycles on Crosswalk	-	-	-	-		0	-	-	-	-	-	0	-	-	-	-	-	0	-	_	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

 $^{^*\}mbox{Pedestrians}$ and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

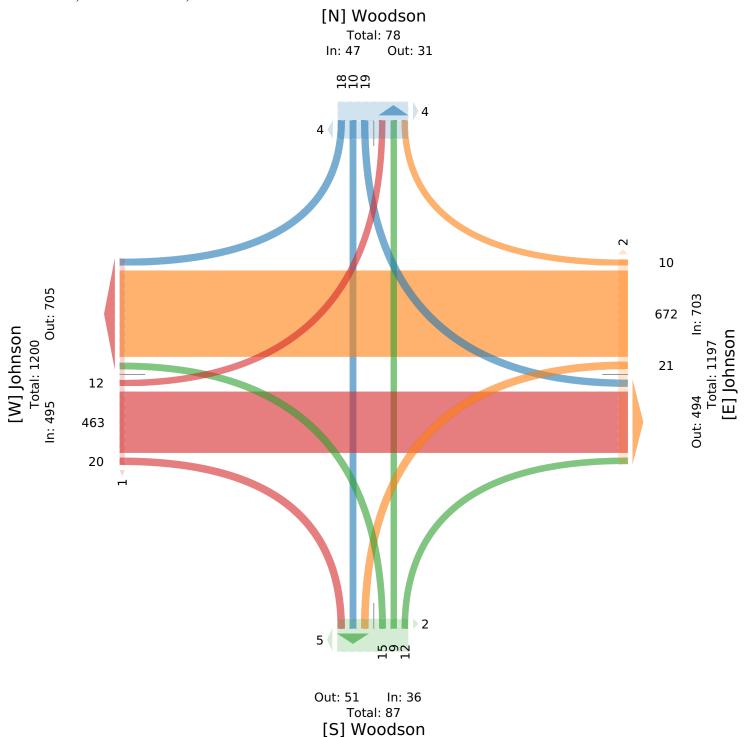
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All M

All Movements

ID: 1027858, Location: 39.02212, -94.653709





4_Martway Street & Lamar Avenue - TMC

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martwa	,					Martwa	-					Lamar						Lamar						
Direction	Eastbo						Westbo						Northb						Southbo						
Time	L	T		U	App I		L	Т	R		App	Ped*	L	T		U	App	Ped*		T	R	_	App	Ped*	_
2023-01-10 7:00AM		4	15		25	0		10	5	0	24	0	15	22	9		46	0	_	25	10	0	39	0	134
7:15AM	4	8	16	0	28	0		8	2	0	22	0	18	42	11	0	71	1		39	7	0	49	0	170
7:30AM	4	11	23	0	38	0		12	3	0	34	0	29	30	10	0	69	0		77	8	0	89	0	230
7:45AM		13	19		41	0		14	5	0	44	0	22	37	20	0	79	1		69	12	0	83	0	247
Hourly Total	23	36	73	0	132	0		44	15	0	124	0	84	131	50	0	265	2		210	37	0	260	0	781
8:00AM	13	17	23	0	53	0		17	6	0	31	0	28	45	18	0	91	0		38	14	0	56	0	231
8:15AM	10	16	29	0	55	0		15	2	0	29	0	25	26	10	0	61	0		49	13	0	67	0	212
8:30AM	11	10	23	_	44	0		23	2	_	36	0	25	47	12	_	84	0		37	10	0	54	0	218
8:45AM	10	20	22	0	52	0		16	3	0	33	0	17	37	22	0	76	0		40	14	0	59	0	220
Hourly Total	44	63	97	0	204	0		71	13	0	129	0	95	155	62	0	312	0		164	51	0	236	0	881
4:00PM	27	26	38	0	91	-		38	3	0	54 53		44	42	13	0	99	4		59	23	0	92	2	336
4:15PM	24	32	54	0	110	0		35	4	0		3	24	47	15	0	86	4		44	18	0	67		316
4:30PM	18	29 35	50	0	97 99	0		37	20	0	74 74	0	22 40	48	13	0	83 101	3		53 58	30 26	0	95 103	0	349 377
4:45PM	23		41	_	397	0		42	15	0		3		47	14 55	0		_	_			0		5	
Hourly Total	92	122 38	183 53	0	109	0	_	152 59	42	0	255 93	3 1	130	184 54	12	0	369 105	13		214 56	97	0	357 86	0	1378 393
5:00PM			49	0	123	0		41	10		62	0	39		18	0	137	2		69	31	0	115	0	437
5:15PM		44				_				_				75		0		0				_			_
5:30PM 5:45PM	_	35 27	48	0	111 94	0		42	19 5	0	96 58	0	43 54	59 61	27 19	0	129 134	3		45 54	29 39	0	85 117	0	421 403
	102	144	191	0	437	0	_	182	42	0	309	3	180	249	76	0	505	5		224	121	0	403	0	1654
Hourly Total				-		_				_						-						-		-	
Total	261	365	544	_	1170	0		449	112	0	817	6		719	243	0	1451	20		812	306	_	1256	5	4694
**	22.3% 31.2% 46.5% 0% 5.6% 7.8% 11.6% 0% 24.9% -										33.7% 49.6% 16.7% 0% 10.4% 15.3% 5.2% 0% 30.9 % -					11.0% 64.6% 24.4% 0% 2.9% 17.3% 6.5% 0% 26.8% -					-				
% Total	5.6%					-	5.5%	9.6%																-	-
Lights	259	352	539	0			249	440	109	0	798		486	712	238	0	1436		134	798	305		1237	-	4621
% Lights							97.3% 9							99.0%					97.1% 9					-	98.4%
Articulated Trucks	0	0		0	0		0	0	0		0		1	0		0	1		0	1	0		1	-	2 0%
% Articulated Trucks	0%	0%	0%	0%	0%		0%	0%	0% (J%	0%		0.2%	0%	0%	J%	0.1%		0%	0.1%	0% (J%	0.1%	-	0%
Buses and Single-Unit Trucks		13	5	0	20	-	7	9	3	0	19	-	2	7	5	0	14	-	4	13	1	0	18	-	71
% Buses and Single-Unit Trucks	1	3.6%	0.9%	0%	1 7%	_	2.7%	2.0%	2.7% ()%	2 3%	_	0.4%	1.0%	2 1%	0%	1 0%	_	2 9%	1.6%	0.3%	7%	1 4%	_	1.5%
Pedestrians	-	-	-	-		0			,0 (-	-	5	-			-	-	18			-	-	-	4	2.373
% Pedestrians	-	_	-	_	_		-	-	_	_	-	83.3%	-	_	_	_	_ (90.0%		_	_	_	- 8	30.0%	-
Bicycles on Crosswalk	-	-	-	_	_	0	-	-	-	_	-	1	-	_	_	_	_	2		_	_	-		1	
% Bicycles on Crosswalk	-	-	-	_	_	_	-	-	-	_	-	16.7%	-	_	_	_		10.0%		_	_	-	- 2	20.0%	_
												, 0	<u> </u>				-								

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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4_Martway Street & Lamar Avenue - TMC

Tue Jan 10, 2023

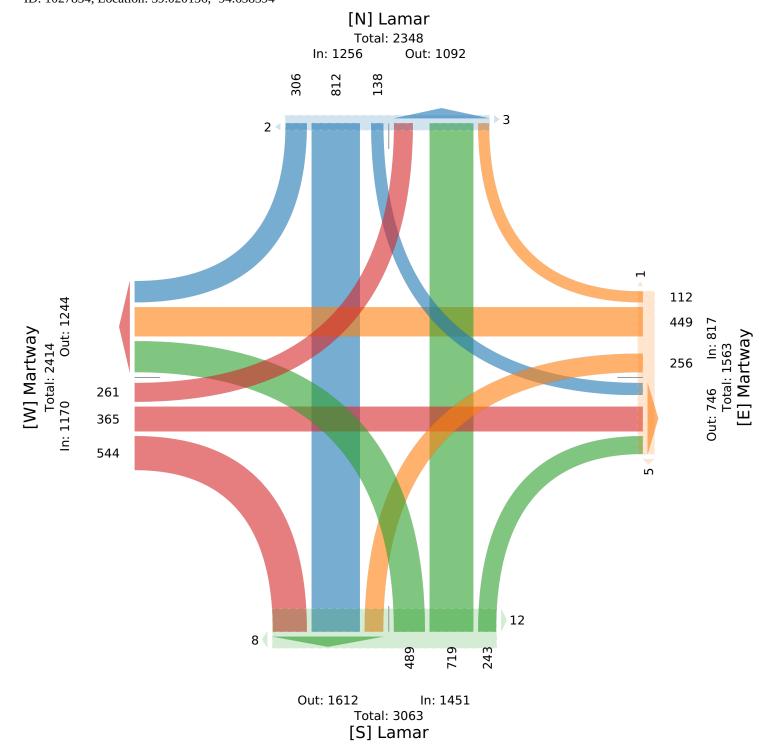
Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394

GEWALT HAMILTON ASSOCIATES, INC. Provided by: Gewalt Hamilton Associates Inc.



Tue Jan 10, 2023

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians,

Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394



625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martwa	ay				Martwa	ay					Lamar						Lamar						
Direction	Eastbo	und				Westbo	ound					Northb	ound					Southb	ound					ł
Time	L	T	R	U	App Ped*	L	T	R	U	App 1	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App Pe	ed*	Int
2023-01-10 7:30AM	4	11	23	0	38 0	19	12	3	0	34	0	29	30	10	0	69	0	4	77	8	0	89	0	230
7:45AM	9	13	19	0	41 0	25	14	5	0	44	0	22	37	20	0	79	1	2	69	12	0	83	0	247
8:00AM	13	17	23	0	53 0	8	17	6	0	31	0	28	45	18	0	91	0	4	38	14	0	56	0	231
8:15AM	10	16	29	0	55 0	12	15	2	0	29	0	25	26	10	0	61	0	5	49	13	0	67	0	212
Total	36	57	94	0	187 0	64	58	16	0	138	0	104	138	58	0	300	1	15	233	47	0	295	0	920
% Approach	19.3%	30.5%	50.3%	0%		46.4%	42.0%	11.6% ()%	-	-	34.7%	46.0%	19.3% ()%	-	-	5.1%	79.0%	15.9% ()%	-	-	-
% Total	3.9%	6.2%	10.2%	0% 2	.0.3% -	7.0%	6.3%	1.7% ()% 1	15.0%	-	11.3%	15.0%	6.3% ()% 3	32.6%	-	1.6%	25.3%	5.1% ()% 3	32.1%	-	-
PHF	0.692	0.838	0.810	-	0.850 -	0.640	0.853	0.667	-	0.784	-	0.897	0.767	0.725	-	0.824	-	0.750	0.756	0.839	-	0.829	-	0.931
Lights	35	54	90	0	179 -	62	56	15	0	133	-	103	136	56	0	295	-	13	226	46	0	285	-	892
% Lights	97.2%	94.7%	95.7%	0% 9	5.7% -	96.9%	96.6%	93.8% ()% 9	96.4%	-	99.0%	98.6%	96.6% ()% 9	98.3%	-	86.7%	97.0%	97.9% ()% 9	96.6%	-	97.0%
Articulated Trucks	0	0	0	0	0 -	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
% Articulated Trucks	0%	0%	0%	0%	0% -	0%	0%	0% ()%	0%	-	0%	0%	0% ()%	0%	-	0%	0.4%	0% ()%	0.3%	-	0.1%
Buses and Single-Unit Trucks	1	3	4	0	8 -	2	2	1	0	5	-	1	2	2	0	5	-	2	6	1	0	9	-	27
% Buses and Single-Unit Trucks	2.8%	5.3%	4.3%	0%	4.3% -	3.1%	3.4%	6.3% ()%	3.6%	-	1.0%	1.4%	3.4% (0%	1.7%	-	13.3%	2.6%	2.1% ()%	3.1%	-	2.9%
Pedestrians	-	-	-	-	- 0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	- 0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

 $^{^*\}mbox{Pedestrians}$ and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

109 3 of 6

Tue Jan 10, 2023

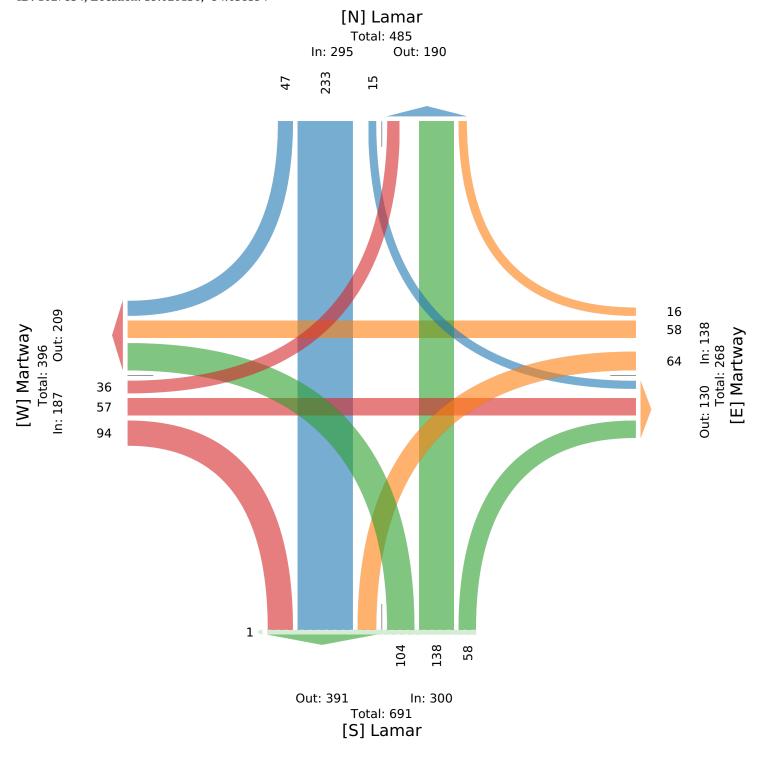
AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394





Tue Jan 10, 2023

PM Peak (5 PM - 6 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martwa	av				Martwa	av					Lamar						Lamar					Т	
Direction	Eastbo	-				Westbo						Northb	ound					Southb	ound					
Time	L	T	R	U	App Ped*	L	T	R	U	Арр	Ped*	L	T	R	U	App	Ped*	L	Т	R	U	App Ped	l*]	Int
2023-01-10 5:00PM	18	38	53	0	109 0	24	59	10	0	93	1	39	54	12	0	105	0	8	56	22	0	86	0	393
5:15PM	30	44	49	0	123 0	13	41	8	0	62	0	44	75	18	0	137	2	15	69	31	0	115	0	437
5:30PM	28	35	48	0	111 0	35	42	19	0	96	0	43	59	27	0	129	0	11	45	29	0	85	0	421
5:45PM	26	27	41	0	94 0	13	40	5	0	58	2	54	61	19	0	134	3	24	54	39	0	117	0	403
Total	102	144	191	0	437 0	85	182	42	0	309	3	180	249	76	0	505	5	58	224	121	0	403	0	1654
% Approach	23.3%	33.0%	43.7% (0%		27.5%	58.9%	13.6% ()%	-	-	35.6%	49.3%	15.0%	0%	-	-	14.4%	55.6%	30.0% ()%	-	-	-
% Total	6.2%	8.7%	11.5% (0% 2	.6.4% -	5.1%	11.0%	2.5% ()% 1	18.7%	-	10.9%	15.1%	4.6%	0%:	30.5%	-	3.5%	13.5%	7.3% ()% 2	4.4%	-	-
PHF	0.850	0.818	0.901	- (0.888 -	0.607	0.771	0.553	-	0.805	-	0.833	0.830	0.704	-	0.922	-	0.604	0.812	0.776	- (0.861	-	0.946
Lights	102	142	191	0	435 -	83	180	41	0	304	-	179	248	74	0	501	-	57	219	121	0	397	-	1637
% Lights	100%	98.6%	100% (0% 9	9.5% -	97.6%	98.9%	97.6% ()% 9	98.4%	-	99.4%	99.6%	97.4%	0% 9	99.2%	-	98.3%	97.8%	100% ()% 9	8.5%	- 9	99.0%
Articulated Trucks	0	0	0	0	0 -	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	C
% Articulated Trucks	0%	0%	0% (0%	0% -	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0%
Buses and Single-Unit Trucks	0	2	0	0	2 -	2	2	1	0	5		1	1	2	0	4		1	5	0	0	6		17
	0		0	U	<u> </u>			1	U	- 3		1	1		U	4		1	5	U	U	0	-	1/
% Buses and Single-Unit Trucks	0%	1.4%	0% (0%	0.5% -	2.4%	1.1%	2.4% ()%	1.6%	_	0.6%	0.4%	2.6%	0%	0.8%	_	1.7%	2.2%	0% (0%	1.5%	_	1.0%
Pedestrians	-	-	-	-	- 0	-	-	-	-	-	3	-	-	-	-	_	5	-	_	-	-	-	0	
% Pedestrians	-	-	-	-		-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	- 0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-		-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

111

Tue Jan 10, 2023

PM Peak (5 PM - 6 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

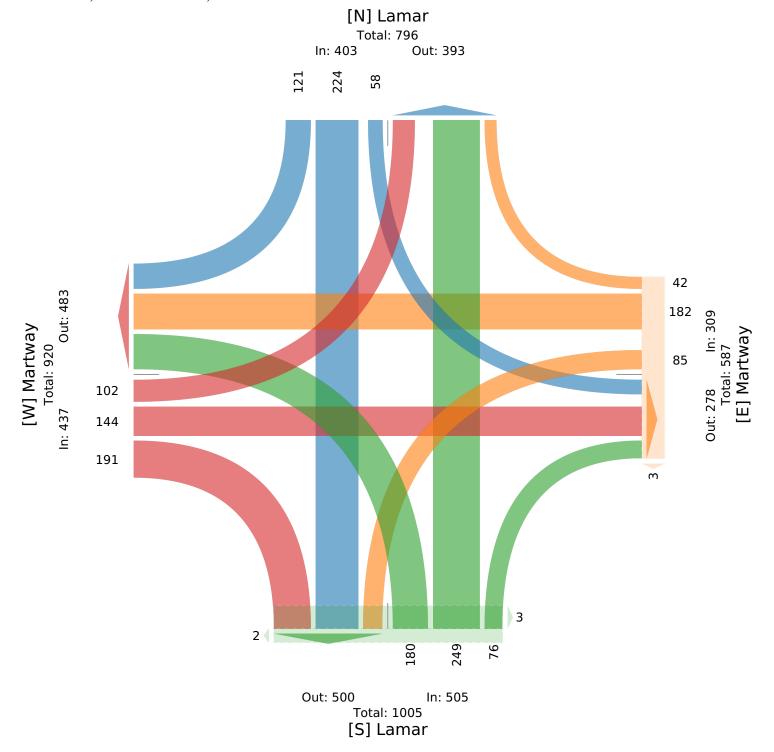
Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027854, Location: 39.020136, -94.658394



625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039



Leg Direction	Martwa Eastbou	,					Mart Wes	way tbound					Appart Northb			omp]	lex		Beverly Southbo						
Time	L	T	R	U	App	Ped*	L	T	R	U	App P	ed*	L	T	R	U	Арр	Ped*	L	Т	R	U	App	Ped*	Int
2023-01-10 7:00AM	2	6	0	0	8	0	0	15	2	0	17	0	0	0	0	0	0	1	3	0	3	0	6	0	31
7:15AM	4	11	0	0	15	0	0	10	2	0	12	0	0	0	0	0	0	0	1	0	3	0	4	0	31
7:30AM	2	17	0	0	19	1	0	26	2	0	28	0	0	0	0	0	0	1	1	0	7	0	8	0	55
7:45AM	2	23	0	0	25	0	0	34	2	0	36	0	0	0	0	0	0	0	3	0	8	0	11	1	72
Hourly Total	10	57	0	0	67	1	0	85	8	0	93	0	0	0	0	0	0	2	8	0	21	0	29	1	189
8:00AM	4	27	0	0	31	0	0	22	2	0	24	0	0	0	0	0	0	0	1	0	5	0	6	1	61
8:15AM	3	18	0	0	21	0	0	22	2	0	24	0	0	0	0	0	0	0	2	0	4	0	6	0	51
8:30AM	1	21	0	0	22	0	0	28	1	0	29	0	0	0	0	0	0	0	2	0	5	0	7	0	58
8:45AM	3	28	0	0	31	0	0	26	1	0	27	0	0	0	0	0	0	0	5	0	2	0	7	0	65
Hourly Total	11	94	0	0	105	0	0	98	6	0	104	0	0	0	0	0	0	0	10	0	16	0	26	1	235
4:00PM	1	44	0	0	45	0	0	46	4	0	50	0	0	0	0	0	0	0	1	0	6	0	7	1	102
4:15PM	4	45	0	0	49	0	0	45	3	0	48	0	0	0	0	0	0	5	5	0	3	0	8	3	105
4:30PM	1	41	0	0	42	0	0	54	0	0	54	0	2	0	0	0	2	2	3	0	7	0	10	0	108
4:45PM	4	61	0	0	65	0	0	66	7	0	73	0	0	0	0	0	0	3	3	0	9	0	12	0	150
Hourly Total	10	191	0	0	201	0	0	211	14	0	225	0	2	0	0	0	2	10	12	0	25	0	37	4	465
5:00PM	6	52	0	0	58	0	0	65	5	0	70	0	0	0	0	0	0	0	9	0	14	0	23	0	151
5:15PM	8	58	0	0	66	0	0	50	7	0	57	0	0	0	0	0	0	1	4	0	3	0	7	0	130
5:30PM	10	65	1	0	76	0	0	62	5	0	67	0	1	0	0	0	1	0	10	0	13	0	23	2	167
5:45PM	6	54	0	0	60	0	0	52	9	0	61	0	0	0	0	0	0	0	7	0	7	0	14	0	135
Hourly Total	30	229	1	0	260	0	0	229	26	0	255	0	1	0	0	0	1	1	30	0	37	0	67	2	583
Total	61	571	1	0	633	1	0	623	54	0	677	0	3	0	0	0	3	13	60	0	99	0	159	8	1472
% Approach	9.6%	90.2%	0.2%	0%	-	-	0% 9	92.0%	8.0%	0%	-	-	100% ()%	0% ()%	-	-	37.7% (0% 6	2.3%	0%	-	-	-
% Total	4.1%	38.8%	0.1%	0% 4	13.0%	-	0% 4	12.3%	3.7%	0% 4	16.0%	-	0.2% ()%	0% ()%	0.2%	-	4.1% ()%	6.7%	0% 1	0.8%	-	-
Lights	60	550	1	0	611	-	0	604	53	0	657	-	3	0	0	0	3	-	60	0	98	0	158	-	1429
% Lights	98.4%	96.3%	100% (0% 9	96.5%	-	0% 9	97.0%	98.1% (0% 9	97.0%	-	100% ()%	0% ()% :	100%	-	100% (0% 9	9.0%	0% 9	9.4%	-	97.1%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0% (0%	0%	-	0%	0%	0% (0%	0%	-	0% ()%	0% ()%	0%	-	0% ()%	0%	0%	0%	-	0%
Buses and Single-Unit																									
Trucks	1	21	0	0	22	-	0	19	1	0	20	_	0	0	0	0	0	-	0	0	1	0	1	-	43
% Buses and Single-Unit Trucks	1.6%	2.70/	00/ /	20/	3.5%		00/	2.00/	1.9% (00/	2.00/		0% (20/	00/ /	20/	0%		00/ (20/	1.0%	00/	0.00/		2.9%
Pedestrians	1.070	3.770	070	J 70	3.370	1	070	3.070	1.970		3.070	0	070 (J70	U 70 (J70	U70	11	076 (1.0%	070	0.076	8	2.970
% Pedestrians	-			_		100%	Ë			_		U	<u> </u>	_	-	_	-	11 34.6%	_	-		_	- 1	.00%	
Bicycles on Crosswalk	_			_		100%	H					0	<u> </u>	-	÷	_	- (2		_		_	- 1	00%	\dashv
% Bicycles on Crosswalk	-					0%	_					U	<u> </u>					2 15.4%						0%	
*Dedoctrions and Dis			-	-				- ا ماد ا	-	_	- 		_	_	_	-		J.4%	-	-		-	-	U%0	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

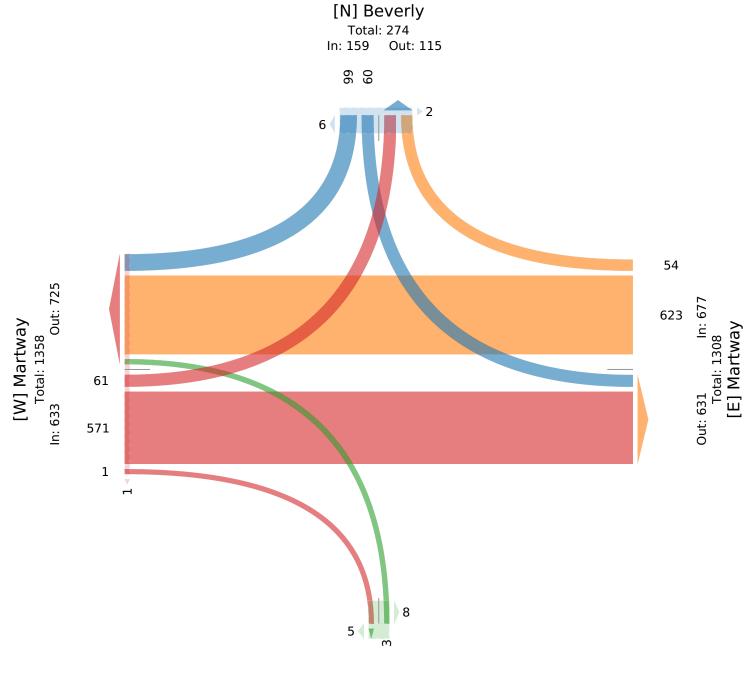
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039





Out: 1 In: 3
Total: 4
[S] Appartment Complex

Tue Jan 10, 2023

AM Peak (7:45 AM - 8:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martwa	ay					Mar	tway					Арј	partr	nent	Cor	nplex		Beverly	,					
Direction	Eastbo	und					Wes	stbound					Noi	thbo	ound	l			Southbo	ound	l				
Time	L	T	R	U	App Pe	ed*	L	T	R	U	App I	Ped*	L	T	R	U.	App P	ed*	L	T	R	U	App	Ped*	Int
2023-01-10 7:45AM	2	23	0	0	25	0	0	34	2	0	36	0	0	0	0	0	0	0	3	0	8	0	11	1	72
8:00AM	4	27	0	0	31	0	0	22	2	0	24	0	0	0	0	0	0	0	1	0	5	0	6	1	61
8:15AM	3	18	0	0	21	0	0	22	2	0	24	0	0	0	0	0	0	0	2	0	4	0	6	0	51
8:30AM	1	21	0	0	22	0	0	28	1	0	29	0	0	0	0	0	0	0	2	0	5	0	7	0	58
Total	10	89	0	0	99	0	0	106	7	0	113	0	0	0	0	0	0	0	8	0	22	0	30	2	242
% Approach	10.1%	89.9%	0%	0%	-	-	0%	93.8%	6.2%	0%	-	-	0%	0%	0%	0%	-	-	26.7% (0% 7	73.3% ()%	-	-	-
% Total	4.1%	36.8%	0%	0% 4	40.9%	-	0%	43.8%	2.9%	0% 4	46.7%	-	0%	0%	0%	0%	0%	-	3.3% (0%	9.1% (0% 1	12.4%	-	-
PHF	0.625	0.824	-	-	0.798	-	-	0.779	0.875	-	0.785	-	-	-	-	-	-	-	0.667	-	0.688	-	0.682	-	0.840
Lights	9	83	0	0	92	-	0	102	7	0	109	-	0	0	0	0	0	-	8	0	21	0	29	-	230
% Lights	90.0%	93.3%	0%	0% 9	92.9%	-	0%	96.2%	100%	0% 9	96.5%	-	0%	0%	0%	0%	-	-	100% (0% 9	95.5% ()% 9	96.7%	-	95.0%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0% (0%	0% ()%	0%	-	0%
Buses and Single-Unit Trucks	1	6	0	0	7	-	0	4	0	0	4	-	0	0	0	0	0	-	0	0	1	0	1	-	12
% Buses and Single-Unit Trucks	10.0%	6.7%	0%	0%	7.1%	-	0%	3.8%	0%	0%	3.5%	-	0%	0%	0%	0%	-	-	0% (0%	4.5% ()%	3.3%	-	5.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-		_	-	-	-	-	-	_	-	_	-	-		-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	_	-	-	-	-	0		-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	_	_	-	-	-	-	-	_	-	-	-	-		-	_	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

115 3 of 6

Tue Jan 10, 2023

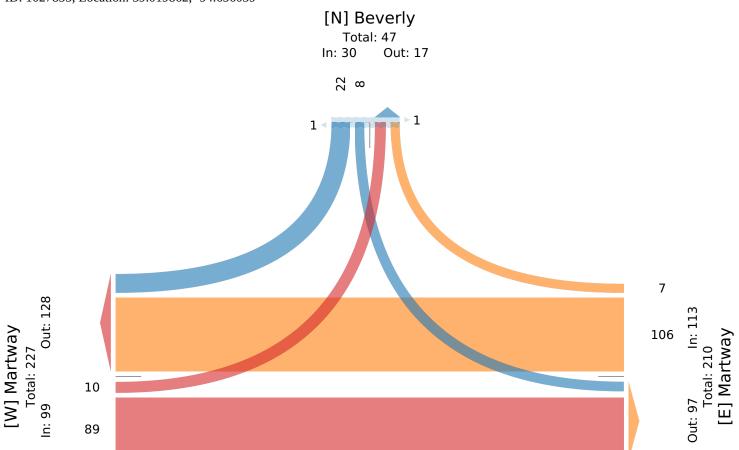
AM Peak (7:45 AM - 8:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039

GEWALT HAMILTON ASSOCIATES, INC. Provided by: Gewalt Hamilton Associates Inc.



Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Martwa Eastbou							tway stbound					Appart Northb			mpl	ex		Beverly Southbo		ì				
Time	L	Т	R	U	App I	ed*	L	T	R	U	App I	ed*	L	Т	R	U	App	Ped*	L	Т	R	U	App	Ped*	Int
2023-01-10 4:45PM	4	61	0	0	65	0	0	66	7	0	73	0	0	0	0	0	0	3	3	0	9	0	12	0	150
5:00PM	6	52	0	0	58	0	0	65	5	0	70	0	0	0	0	0	0	0	9	0	14	0	23	0	151
5:15PM	8	58	0	0	66	0	0	50	7	0	57	0	0	0	0	0	0	1	4	0	3	0	7	0	130
5:30PM	10	65	1	0	76	0	0	62	5	0	67	0	1	0	0	0	1	0	10	0	13	0	23	2	167
Total	28	236	1	0	265	0	0	243	24	0	267	0	1	0	0	0	1	4	26	0	39	0	65	2	598
% Approach	10.6%	89.1%	0.4%	0%	-	-	0%	91.0%	9.0%	0%	-	-	100%)%(0% ()%	-	-	40.0% ()%	60.0% (0%	-	-	-
% Total	4.7%	39.5%	0.2%	0% 4	14.3%	-	0%	40.6%	4.0%	0% 4	14.6%	-	0.2%)%(0% ()% (0.2%	-	4.3% ()%	6.5% ()% 1	0.9%	-	-
PHF	0.700	0.908	0.250	-	0.872	-	-	0.920 (0.857	-	0.914	-	0.250	-	-	- ().250	-	0.650	-	0.696	-	0.707	-	0.895
Lights	28	232	1	0	261	-	0	235	24	0	259	-	1	0	0	0	1	-	26	0	39	0	65	-	586
% Lights	100%	98.3%	100%	0% 9	98.5%	-	0%	96.7%	100%	0% 9	97.0%	-	100%)%(0% ()% 1	100%	-	100% ()%	100% ()%	100%	-	98.0%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%)%(0% ()%	0%	-	0% ()%	0% ()%	0%	-	0%
Buses and Single-Unit Trucks	0	4	0	0	4	-	0	8	0	0	8	-	0	0	0	0	0	-	0	0	0	0	0	-	12
% Buses and Single-Unit Trucks		1.7%	0%	0%	1.5%	-	0%	3.3%	0%	0%	3.0%	-	0% ()% (0% ()%	0%	-	0% ()%	0% (0%	0%	-	2.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	- 1	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

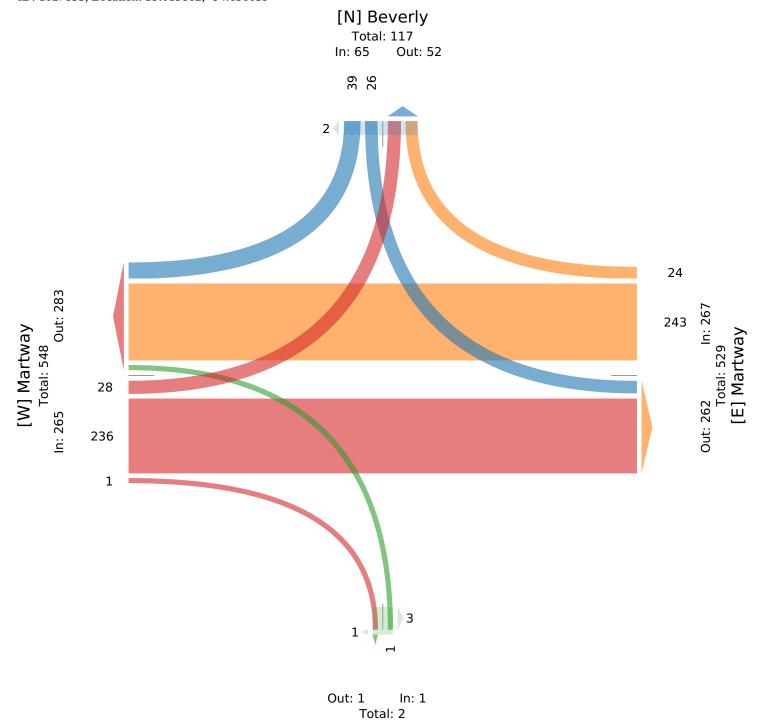
Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027855, Location: 39.019862, -94.656039



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



[S] Appartment Complex

118

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027856, Location: 39.020011, -94.654876



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martway					Martway					Dearborn					
Direction	Eastboun	d				Westbour	nd				Southbour	nd				
Time	L	T	U	App	Ped*	Т	R	U	App	Ped*	L	R	U	App	Ped*	Int
2023-01-10 7:00 <i>A</i>	M 1	8	0	9	0	15	0	0	15	0	0	2	0	2	0	26
7:15 <i>A</i>	M 1	11	0	12	0	9	0	0	9	0	0	3	0	3	0	24
7:30 <i>A</i>	M 2	14	0	16	0	26	0	0	26	0	0	4	0	4	0	46
7:45 <i>A</i>	M 5	19	0	24	0	31	1	0	32	0	1	3	0	4	1	60
Hourly To	tal 9	52	0	61	0	81	1	0	82	0	1	12	0	13	1	156
8:00 <i>A</i>	M 3	25	0	28	0	18	0	0	18	0	1	5	0	6	1	52
8:15 <i>A</i>	M 0	20	0	20	0	24	0	0	24	0	0	0	0	0	0	44
8:30 <i>A</i>	M 4	17	0	21	0	27	1	0	28	0	1	1	0	2	0	51
8:45 <i>A</i>	M 6	28	0	34	0	26	1	0	27	0	0	1	0	1	0	62
Hourly To	tal 13	90	0	103	0	95	2	0	97	0	2	7	0	9	1	209
4:001	M 4	41	0	45	0	43	0	0	43	1	1	6	0	7	0	95
4:15	M 4	46	0	50	0	41	1	0	42	0	0	6	0	6	4	98
4:301	M 0	44	0	44	0	51	0	0	51	0	1	3	0	4	1	99
4:451	M 5	57	0	62	0	66	3	0	69	3	1	5	0	6	0	137
Hourly To	tal 13	188	0	201	0	201	4	0	205	4	3	20	0	23	5	429
5:001	M 4	56	0	60	0	59	1	0	60	0	1	7	0	8	0	128
5:15I	M 4	58	0	62	0	55	1	0	56	1	2	5	0	7	0	125
5:301	M 10	63	0	73	0	62	0	0	62	0	0	3	0	3	2	138
5:45I	M 5	55	0	60	0	55	3	0	58	0	2	4	0	6	1	124
Hourly To	tal 23	232	0	255	0	231	5	0	236	1	5	19	0	24	3	515
To	tal 58	562	0	620	0	608	12	0	620	5	11	58	0	69	10	1309
% Approa	ch 9.4%	90.6%	0%	-	-	98.1%	1.9%	0%	-	-	15.9%	84.1%	0%	-	-	
% To	tal 4.4%	42.9%	0%	47.4%	-	46.4%	0.9%	0%	47.4%	-	0.8%	4.4%	0%	5.3%	-	
Lig	its 57	542	0	599	-	588	11	0	599	-	11	58	0	69	-	1267
% Lig	ts 98.3%	96.4%	0%	96.6%	-	96.7%	91.7%	0%	96.6%	-	100%	100%	0%	100%	-	96.8%
Articulated True	ks 0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Truc	ks 0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Truc	cs 1	20	0	21	-	20	1	0	21	-	0	0	0	0	-	42
% Buses and Single-Unit Truc	s 1.7%	3.6%	0%	3.4%	-	3.3%	8.3%	0%	3.4%	-	0%	0%	0%	0%	-	3.2%
Pedestria	ns -	-	-	-	0	-	-	-	-	5	-	-	-	-	9	
% Pedestria	ns -	-	-	-	-	-	-	-	-	100%	-	-	-	-	90.0%	
Bicycles on Crosswa	lk -	-	-	-	0	-	-	-	-	0	-	-	-	-	1	
% Bicycles on Crosswa	lk -	-	_	_		-	_	_	_	0%	-	_	_	-	10.0%	

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1 of 6

Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

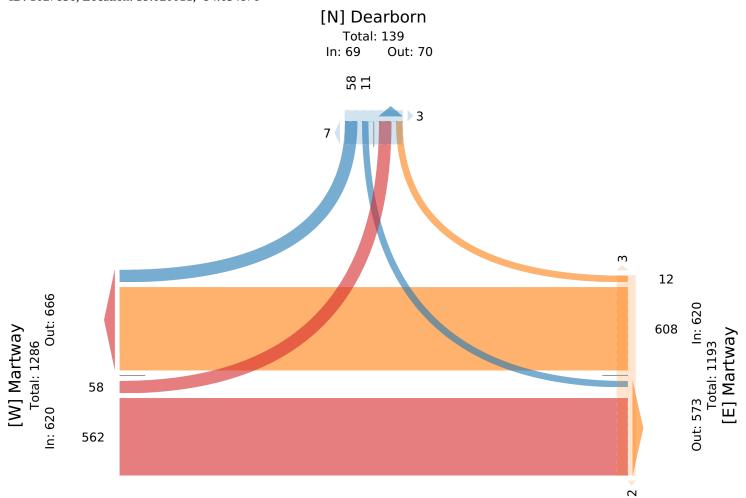
Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027856, Location: 39.020011, -94.654876



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



120

Tue Jan 10, 2023 AM Peak (8 AM - 9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027856, Location: 39.020011, -94.654876



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martway					Martway					Dearborn					
Direction	Eastbound	l				Westboun	d				Southboun	ıd				
Time	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	Int
2023-01-10 8:00AM	3	25	0	28	0	18	0	0	18	0	1	5	0	6	1	52
8:15AM	0	20	0	20	0	24	0	0	24	0	0	0	0	0	0	44
8:30AM	4	17	0	21	0	27	1	0	28	0	1	1	0	2	0	51
8:45AM	6	28	0	34	0	26	1	0	27	0	0	1	0	1	0	62
Total	13	90	0	103	0	95	2	0	97	0	2	7	0	9	1	209
% Approach	12.6%	87.4%	0%	-	-	97.9%	2.1%	0%	-	-	22.2%	77.8%	0%	-	-	-
% Total	6.2%	43.1%	0%	49.3%	-	45.5%	1.0%	0%	46.4%	-	1.0%	3.3%	0%	4.3%	-	
PHF	0.542	0.804	-	0.757	-	0.880	0.500	-	0.866	-	0.500	0.350	-	0.375	-	0.843
Lights	13	86	0	99	-	92	2	0	94	-	2	7	0	9	-	202
% Lights	100%	95.6%	0%	96.1%	-	96.8%	100%	0%	96.9%	-	100%	100%	0%	100%	-	96.7%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	4	0	4	-	3	0	0	3	-	0	0	0	0	-	7
% Buses and Single-Unit Trucks	0%	4.4%	0%	3.9%	-	3.2%	0%	0%	3.1%	-	0%	0%	0%	0%	-	3.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

AM Peak (8 AM - 9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

Out: 102

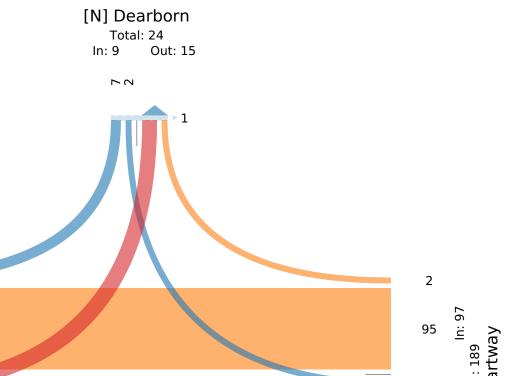
13

90

[W] Martway Total: 205

ID: 1027856, Location: 39.020011, -94.654876

GEWALT HAMILTON ASSOCIATES, INC. Provided by: Gewalt Hamilton Associates Inc.



Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027856, Location: 39.020011, -94.654876



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martway	,				Martway					Dearborn					
Direction	Eastbour	nd				Westbour	nd				Southbou	nd				
Time	L	T	U	App	Ped*	T	R	U	Арр	Ped*	L	R	U	App	Ped*	Int
2023-01-10 4:45PM	5	57	0	62	0	66	3	0	69	3	1	5	0	6	0	137
5:00PM	4	56	0	60	0	59	1	0	60	0	1	7	0	8	0	128
5:15PM	4	58	0	62	0	55	1	0	56	1	2	5	0	7	0	125
5:30PM	10	63	0	73	0	62	0	0	62	0	0	3	0	3	2	138
Total	23	234	0	257	0	242	5	0	247	4	4	20	0	24	2	528
% Approach	8.9%	91.1%	0%	-	-	98.0%	2.0%	0%	-	-	16.7%	83.3%	0%	-	-	-
% Total	4.4%	44.3%	0%	48.7%	-	45.8%	0.9%	0%	46.8%	-	0.8%	3.8%	0%	4.5%	-	-
PHF	0.575	0.929	-	0.880	-	0.917	0.417	-	0.895	-	0.500	0.714	-	0.750	-	0.957
Lights	23	230	0	253	-	234	4	0	238	-	4	20	0	24	-	515
% Lights	100%	98.3%	0%	98.4%	-	96.7%	80.0%	0%	96.4%	-	100%	100%	0%	100%	-	97.5%
Articulated Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	4	0	4	-	8	1	0	9	-	0	0	0	0	-	13
% Buses and Single-Unit Trucks	0%	1.7%	0%	1.6%	-	3.3%	20.0%	0%	3.6%	-	0%	0%	0%	0%	-	2.5%
Pedestrians	-	-	-	-	0	1	-	-	-	4	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

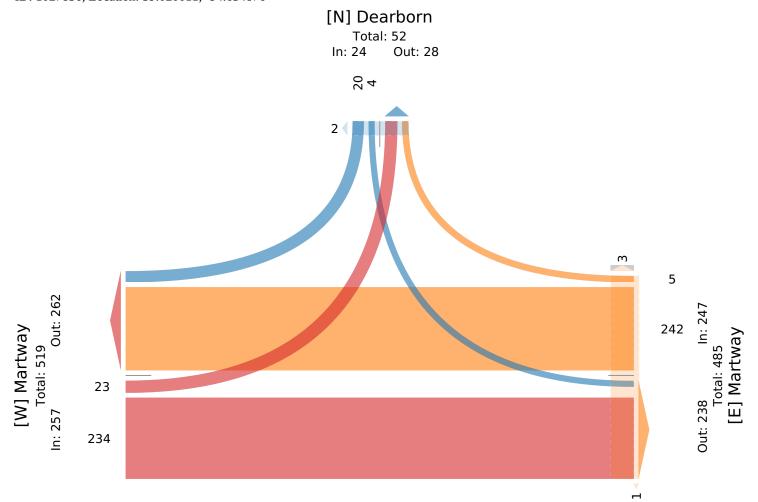
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027856, Location: 39.020011, -94.654876





Tue Jan 10, 2023

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729



625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Martwa Eastbou						Martwa Westbo	,					Woodso Northbo						Woodso Southbo						
Time	L	T	R	U	Арр	Ped*	L	T	R	U	Арр	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2023-01-10 7:00AM	1	5	2	0	8	1	0	14	1	0	15	1	1	1	0	0	2	0	5	1	0	0	6	1	31
7:15AM	3	6	0	0	9	0	0	6	1	0	7	0	1	0	0	0	1	0	0	2	2	0	4	1	21
7:30AM	1	14	0	0	15	0	0	21	0	0	21	0	2	1	0	0	3	0	1	3	3	0	7	1	46
7:45AM	4	9	4	0	17	0	0	26	2	0	28	0	2	1	0	0	3	0	4	2	4	0	10	0	58
Hourly Total	9	34	6	0	49	1	0	67	4	0	71	1	6	3	0	0	9	0	10	8	9	0	27	3	156
8:00AM	10	13	2	0	25	0	2	14	1	0	17	0	2	0	0	0	2	0	3	1	2	0	6	1	50
8:15AM	2	16	1	0	19	0	1	20	0	0	21	0	1	1	0	0	2	0	1	2	3	0	6	0	48
8:30AM	2	16	2	0	20	0	0	22	2	0	24	0	4	0	0	0	4	0	4	1	3	0	8	1	56
8:45AM	7	17	5	0	29	0	0	21	5	0	26	0	3	1	1	0	5	0	1	2	3	0	6	0	66
Hourly Total	21	62	10	0	93	0	3	77	8	0	88	0	10	2	1	0	13	0	9	6	11	0	26	2	220
4:00PM	5	36	1	0	42	3	1	33	1	0	35	2	5	1	1	0	7	0	4	4	4	0	12	6	96
4:15PM	4	38	4	0	46	4	2	32	2	0	36	2	5	2	1	0	8	2	6	1	5	0	12	5	102
4:30PM	3	39	2	0	44	0	0	45	6	0	51	2	1	2	0	0	3	1	0	1	3	0	4	1	102
4:45PM	9	50	1	0	60	0	2	58	3	0	63	0	4	3	1	0	8	0	2	5	7	0	14	3	145
Hourly Total	21	163	8	0	192	7	5	168	12	0	185	6	15	8	3	0	26	3	12	11	19	0	42	15	44
5:00PM	6	49	2	0	57	2	1	50	6	0	57	0	4	1	2	0	7	0	1	2	8	0	11	0	132
5:15PM	2	53	5	0	60	1	2	43	3	0	48	0	5	1	0	0	6	0	2	3	7	0	12	2	120
5:30PM	5	51	10	0	66	1	5	51	2	0	58	1	4	3	0	0	7	0	4	6	6	0	16	2	14
5:45PM	4	46	9	0	59	2	4	47	2	0	53	0	3	4	1	0	8	0	0	4	8	0	12	2	13
Hourly Total	. 17	199	26	0	242	6	12	191	13	0	216	1	16	9	3	0	28	0	7	15	29	0	51	6	53
Total	68	458	50	0	576	14	20	503	37	0	560	8	47	22	7	0	76	3	38	40	68	0	146	26	1358
% Approach	11.8%	79.5%	8.7%	0%	-	-	3.6% 8	39.8%	6.6% ()%	-	-	61.8% 2	28.9%	9.2% 0	%	-	-	26.0% 2	27.4%	46.6%	0%	-	-	
% Total	5.0%	33.7%	3.7%	0% 4	12.4%	-	1.5% 3	37.0%	2.7% ()% 4	41.2%	-	3.5%	1.6%	0.5% 0	% !	5.6%	-	2.8%	2.9%	5.0%	0% 1	10.8%	-	
Lights	67	439	50	0	556	-	18	482	37	0	537	-	47	22	7	0	76	-	35	40	68	0	143	-	1312
% Lights	98.5%	95.9%	100%	0% 9	96.5%	-	90.0% 9	95.8%	100% ()% 9	95.9%	-	100%	100%	100% 0	% 1	100%	-	92.1%	100%	100%	0% 9	97.9%	-	96.6%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	(
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0% 0	%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	1	19	0	0	20	-	2	21	0	0	23	-	0	0	0	0	0	-	3	0	0	0	3	-	4
% Buses and Single-Unit Trucks		4.1%	0%	0%	3.5%	_	10.0%	4.2%	0% (0%	4.1%	-	0%	0%	0% 0	%	0%	_	7.9%	0%	0%	0%	2.1%	_	3.4%
Pedestrians	-	-	-	-	-	13	-	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	25	
% Pedestrians	-	-	-	-	- !	92.9%	-	-	-	-	-	100%	-	-	-	-	- 1	00%	-	-	-	-	- 9	96.2%	
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	7.1%	_	-	-	_	-	0%	-	-	-	-	_	0%	-	-	_	-	-	3.8%	

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

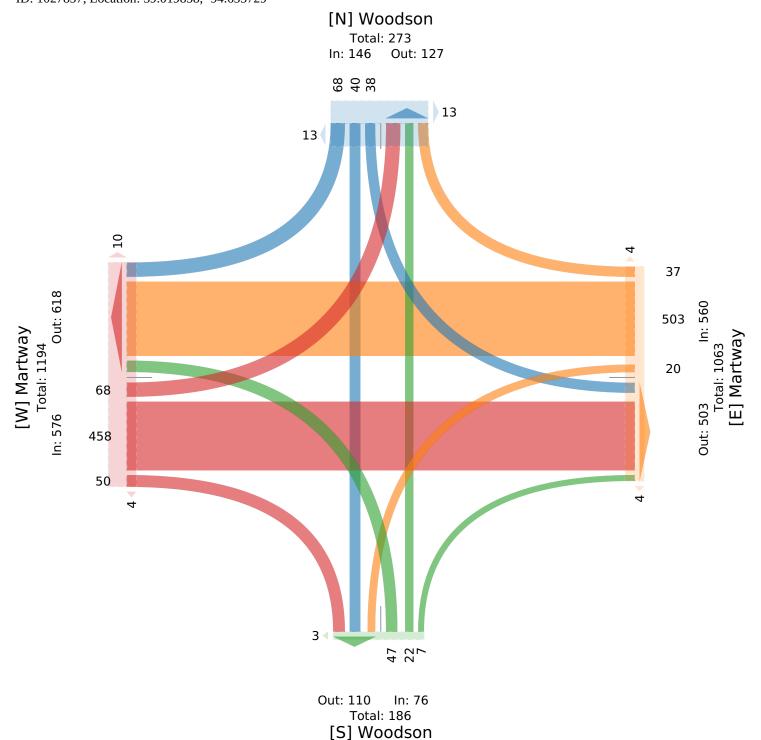
Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729





Tue Jan 10, 2023

AM Peak (8 AM - 9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martwa	ay				Martwa	ay					Woods	on					Woods	on					
Direction	Eastbo	und				Westbo	ound					Northbo	ound					Southbo	ound					
Time	L	T	R	U	App Ped*	L	T	R	U	App I	ed*	L	T	R	U	App Pe	d*	L	T	R	U	App	Ped*	Int
2023-01-10 8:00AM	10	13	2	0	25 0	2	14	1	0	17	0	2	0	0	0	2	0	3	1	2	0	6	1	50
8:15AM	2	16	1	0	19 0	1	20	0	0	21	0	1	1	0	0	2	0	1	2	3	0	6	0	48
8:30AM	2	16	2	0	20 0	0	22	2	0	24	0	4	0	0	0	4	0	4	1	3	0	8	1	56
8:45AM	7	17	5	0	29 0	0	21	5	0	26	0	3	1	1	0	5	0	1	2	3	0	6	0	66
Total	21	62	10	0	93 0	3	77	8	0	88	0	10	2	1	0	13	0	9	6	11	0	26	2	220
% Approach	22.6%	66.7%	10.8%	0%		3.4%	87.5%	9.1% (0%	-	-	76.9%	15.4%	7.7% ()%	-	-	34.6%	23.1%	42.3%	0%	-	-	-
% Total	9.5%	28.2%	4.5%	0% 4	2.3% -	1.4%	35.0%	3.6% (0% 4	10.0%	-	4.5%	0.9%	0.5% ()% :	5.9%	-	4.1%	2.7%	5.0%	0% 1	1.8%	-	-
PHF	0.525	0.912	0.500	- (0.802 -	0.375	0.875	0.400	-	0.846	-	0.625	0.500	0.250	- ().650	-	0.563	0.750	0.917	-	0.813	-	0.833
Lights	20	59	10	0	89 -	2	74	8	0	84	-	10	2	1	0	13	-	9	6	11	0	26	-	212
% Lights	95.2%	95.2%	100%	0% 9	5.7% -	66.7%	96.1%	100% (0% 9	95.5%	-	100%	100%	100% ()% 1	100%	-	100%	100%	100%	0%	100%	-	96.4%
Articulated Trucks	0	0	0	0	0 -	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0% -	0%	0%	0% (0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	1	3	0	0	4 -	1	3	0	0	4	-	0	0	0	0	0	-	0	0	0	0	0	-	8
% Buses and Single-Unit Trucks	4.8%	4.8%	0%	0%	4.3% -	33.3%	3.9%	0% (0%	4.5%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	3.6%
Pedestrians	-	-	-	-	- 0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 1	.00%	-
Bicycles on Crosswalk	-	-	-	-	- 0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	_	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

AM Peak (8 AM - 9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks,

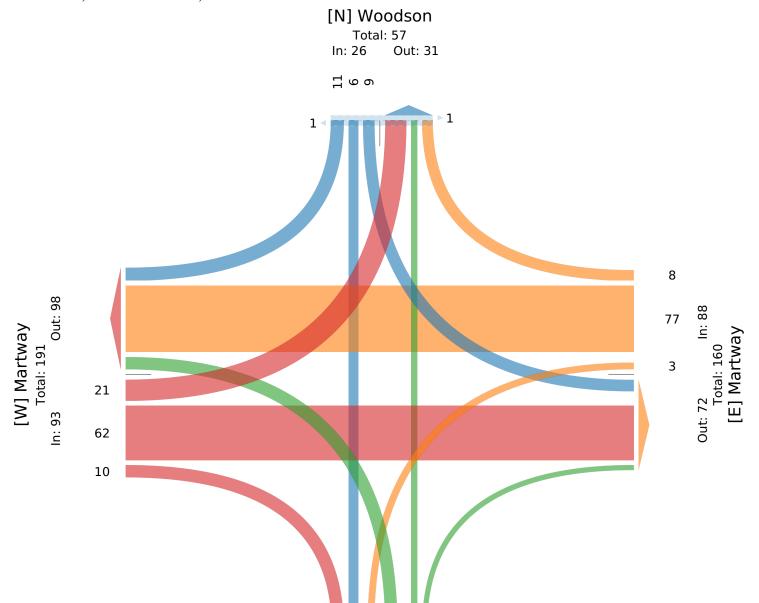
Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Out: 19 In: 13 Total: 32 [S] Woodson

7

Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

 $All\ Classes\ (Lights,\ Articulated\ Trucks,\ Buses\ and\ Single-Unit\ Trucks,\ Pedestrians,$

Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729



Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg	Martw	/ay					Martw	ay					Woods	on					Woods	on					
Direction	Eastbo	ound					Westb	ound					Northb	ound					Southb	ound					
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App P	ed*	L	T	R	U	App	Ped*	Int
2023-01-10 4:45PM	9	50	1	0	60	0	2	58	3	0	63	0	4	3	1	0	8	0	2	5	7	0	14	3	145
5:00PM	6	49	2	0	57	2	1	50	6	0	57	0	4	1	2	0	7	0	1	2	8	0	11	0	132
5:15PM	2	53	5	0	60	1	2	43	3	0	48	0	5	1	0	0	6	0	2	3	7	0	12	2	126
5:30PM	5	51	10	0	66	1	5	51	2	0	58	1	4	3	0	0	7	0	4	6	6	0	16	2	147
Total	22	203	18	0	243	4	10	202	14	0	226	1	17	8	3	0	28	0	9	16	28	0	53	7	550
% Approach	9.1%	83.5%	7.4%	0%	-	-	4.4%	89.4%	6.2% (0%	-	-	60.7%	28.6%	10.7% ()%	-	-	17.0%	30.2%	52.8%	0%	-	-	-
% Total	4.0%	36.9%	3.3%	0% 4	44.2%	-	1.8%	36.7%	2.5% ()% 4	11.1%	-	3.1%	1.5%	0.5% ()%	5.1%	-	1.6%	2.9%	5.1%	0%	9.6%	-	-
PHF	0.611	0.958	0.450	-	0.920	-	0.500	0.871	0.583	-	0.897	-	0.850	0.667	0.375	- ().875	-	0.563	0.667	0.875	-	0.828	-	0.935
Lights	22	199	18	0	239	-	10	193	14	0	217	-	17	8	3	0	28	-	7	16	28	0	51	-	535
% Lights	100%	98.0%	100%	0% 9	98.4%	-	100%	95.5%	100% ()% 9	96.0%	-	100%	100%	100% ()% 1	100%	-	77.8%	100%	100%	0% 9	96.2%	-	97.3%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0%	0% (0%	0%	-	0%	0%	0% ()%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses and Single-Unit Trucks	0	4	0	0	4	-	0	9	0	0	9	-	0	0	0	0	0	-	2	0	0	0	2	-	15
% Buses and Single-Unit Trucks	0%	2.0%	0%	0%	1.6%	-	0%	4.5%	0% (0%	4.0%	-	0%	0%	0% ()%	0%	-	22.2%	0%	0%	0%	3.8%	-	2.7%
Pedestrians	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	7	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	- 1	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-

^{*}Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

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Tue Jan 10, 2023

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

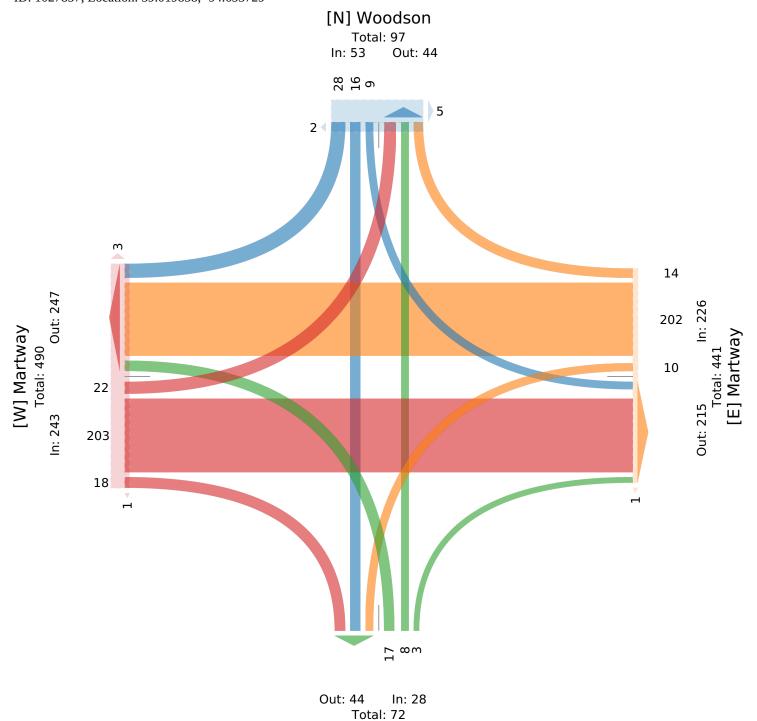
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1027857, Location: 39.019858, -94.653729



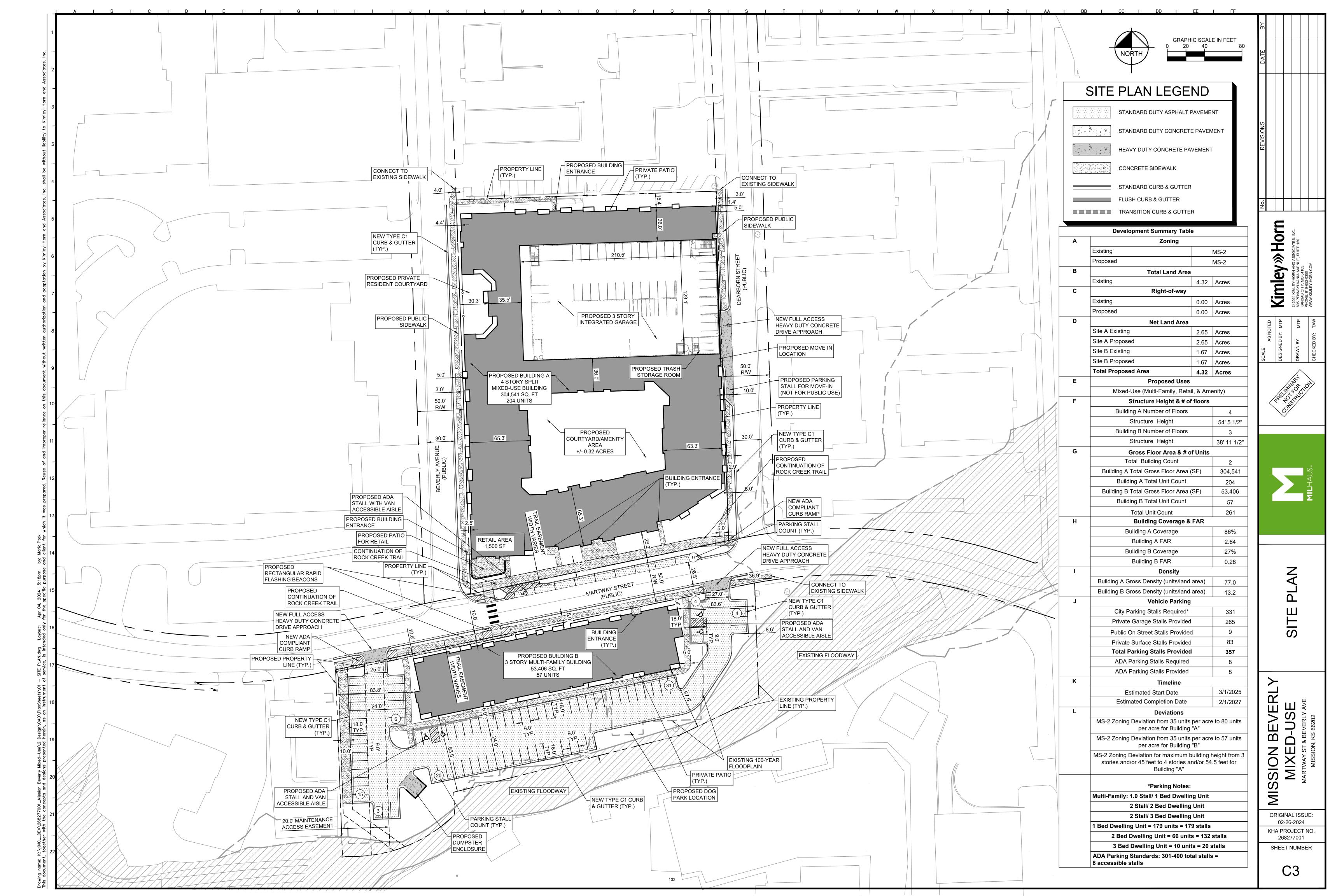
Provided by: Gewalt Hamilton Associates Inc. 625 Forest Edge Drive, Vernon Hills, IL, 60061, US



[S] Woodson

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Appendix C: Site Plan



Appendix D: ITE Trip Generation Manual Sheets

Land Use: 220 **Multifamily Housing (Low-Rise)**

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.
- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.
- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.
- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip



generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/tripand-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076



Multifamily Housing (Low-Rise)

Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban

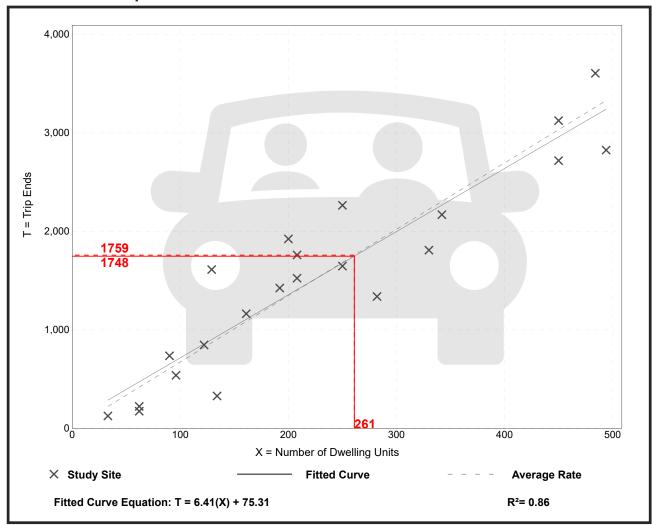
Number of Studies: 22 Avg. Num. of Dwelling Units: 229

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Trip Gen Manual, 11th Edition

Multifamily Housing (Low-Rise)

Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

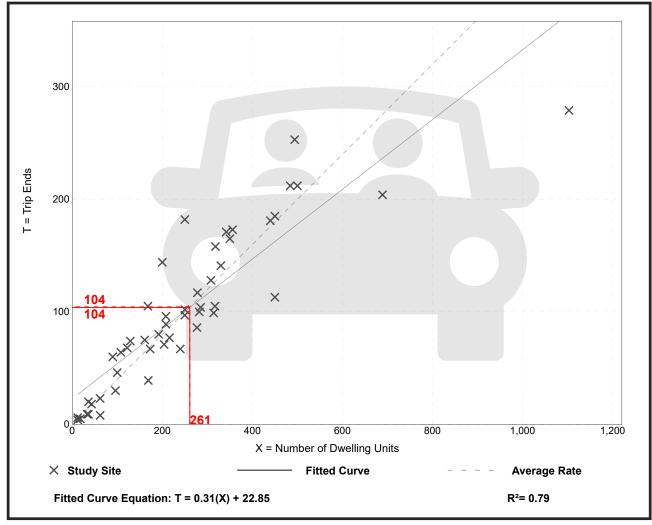
Number of Studies: 49 Avg. Num. of Dwelling Units: 249

Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate		Range of Rates	Standard Deviation		
	0.40	0.13 - 0.73	0.12		

Data Plot and Equation



Trip Gen Manual, 11th Edition

Multifamily Housing (Low-Rise)

Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

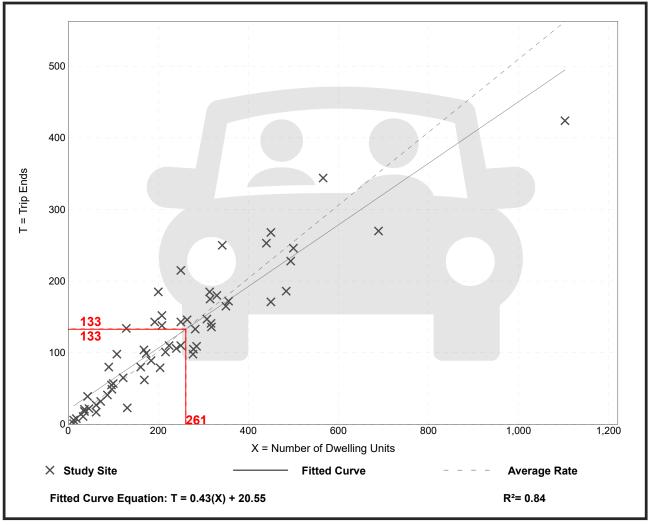
Number of Studies: 59 Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation		
0.51	0.08 - 1.04	0.15		

Data Plot and Equation



Trip Gen Manual, 11th Edition

Land Use: 822 Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/tripand-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009



Strip Retail Plaza (<40k)

(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. 1000 Sq. Ft. GLA: 19

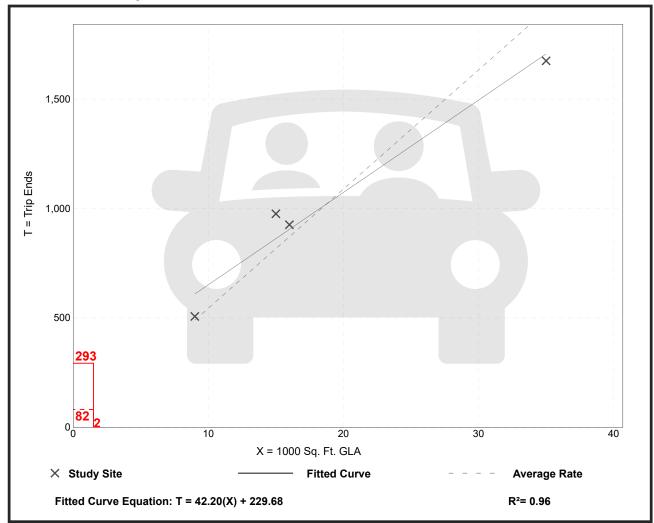
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation		
54.45	47.86 - 65.07	7.81		

Data Plot and Equation

Caution - Small Sample Size



Trip Gen Manual, 11th Edition

Strip Retail Plaza (<40k)

(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 5 Avg. 1000 Sq. Ft. GLA: 18

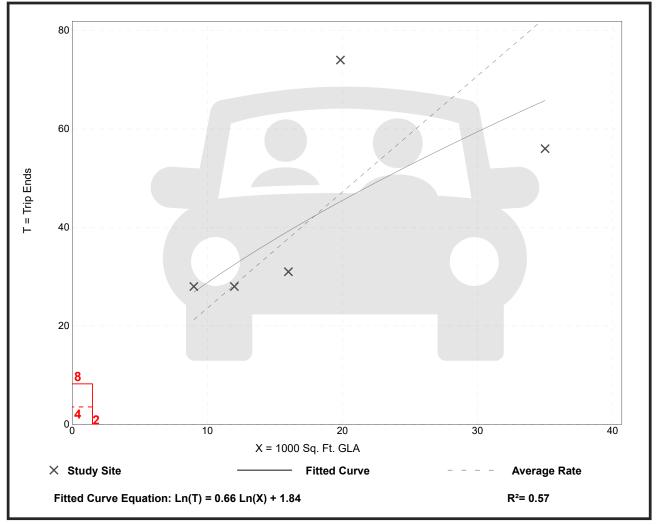
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate 2.36		Range of Rates	Standard Deviation		
		1.60 - 3.73	0.94		

Data Plot and Equation

Caution - Small Sample Size



Trip Gen Manual, 11th Edition

Strip Retail Plaza (<40k)

(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

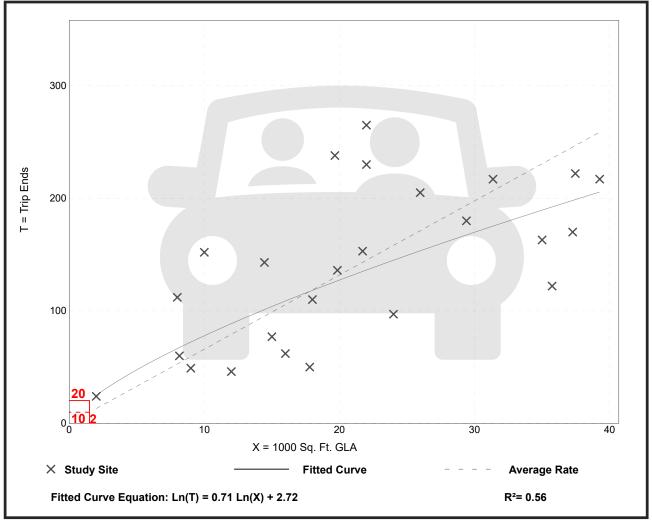
Number of Studies: 25 Avg. 1000 Sq. Ft. GLA: 21

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation		
6.59	2.81 - 15.20	2.94		

Data Plot and Equation



Trip Gen Manual, 11th Edition

Appendix E: Synchro Reports

1: Lamar Avenue & Johnson Drive

	ၨ	→	•	•	←	•	†	<i>></i>	\	ļ	
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	74	287	92	58	261	52	98	57	30	277	
v/c Ratio	0.11	0.30	0.11	0.09	0.15	0.21	0.23	0.13	0.08	0.75	
Control Delay	11.3	18.8	2.9	11.5	15.5	18.6	25.5	1.5	21.1	45.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.3	18.8	2.9	11.5	15.5	18.6	25.5	1.5	21.1	45.7	
Queue Length 50th (ft)	19	109	0	15	43	21	46	1	13	148	
Queue Length 95th (ft)	48	212	22	40	85	37	72	0	29	218	
Internal Link Dist (ft)		658			585		667			624	
Turn Bay Length (ft)	160			100		100		130	135		
Base Capacity (vph)	689	962	835	616	1779	244	605	592	359	589	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.30	0.11	0.09	0.15	0.21	0.16	0.10	0.08	0.47	
Intersection Summary											

Kimley-Horn Synchro 11 Report 03/20/2023 Page 1

HCM 6th Signalized Intersection Summary 1: Lamar Avenue & Johnson Drive

	۶	→	•	•	←	4	1	†	~	/	†	✓
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	†	7	ሻ	∱ ∱		7	↑	7	ሻ	₽	
Traffic Volume (veh/h)	68	264	85	53	205	35	48	90	52	28	158	97
Future Volume (veh/h)	68	264	85	53	205	35	48	90	52	28	158	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	74	287	92	58	223	38	52	98	57	30	172	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	7	2	2	3	2	2	2	2	3	2
Cap, veh/h	724	1035	843	618	1674	281	178	371	314	305	203	124
Arrive On Green	0.04	0.55	0.55	0.04	0.55	0.55	0.01	0.07	0.07	0.03	0.19	0.19
Sat Flow, veh/h	1781	1870	1522	1781	3044	511	1781	1870	1585	1781	1079	658
Grp Volume(v), veh/h	74	287	92	58	129	132	52	98	57	30	0	277
Grp Sat Flow(s), veh/h/ln	1781	1870	1522	1781	1777	1778	1781	1870	1585	1781	0	1737
Q Serve(g_s), s	1.8	8.1	2.9	1.4	3.5	3.6	2.3	5.0	3.4	1.3	0.0	15.4
Cycle Q Clear(g_c), s	1.8	8.1	2.9	1.4	3.5	3.6	2.3	5.0	3.4	1.3	0.0	15.4
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00	_	0.38
Lane Grp Cap(c), veh/h	724	1035	843	618	977	978	178	371	314	305	0	327
V/C Ratio(X)	0.10	0.28	0.11	0.09	0.13	0.14	0.29	0.26	0.18	0.10	0.00	0.85
Avail Cap(c_a), veh/h	780	1035	843	662	977	978	226	608	515	371	0	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	11.8	10.6	9.0	10.9	10.9	32.9	39.8	39.1	31.3	0.0	39.2
Incr Delay (d2), s/veh	0.1	0.7	0.3	0.1	0.3	0.3	0.9	0.4	0.3	0.1	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	6.3	1.8	1.0	2.6	2.7	1.9	4.3	2.5	1.1	0.0	11.4
Unsig. Movement Delay, s/veh		10 /	10.0	0.1	11.7	11 0	22.0	40.0	20.2	21.4	0.0	4F 2
LnGrp Delay(d),s/veh	8.7	12.4 B	10.9 B	9.1	11.2 B	11.2 B	33.8 C	40.2 D	39.3 D	31.4 C	0.0	45.3
LnGrp LOS	A		Б	A		В	U		U	C	A 207	<u>D</u>
Approach Vol, veh/h		453			319			207			307	
Approach LOS		11.5			10.8			38.3			43.9	
Approach LOS		В			В			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	24.3	8.5	59.9	8.3	23.3	8.9	59.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	32.5	6.5	36.5	6.5	32.5	7.5	35.5				
Max Q Clear Time (g_c+l1), s	3.3	7.0	3.4	10.1	4.3	17.4	3.8	5.6				
Green Ext Time (p_c), s	0.0	0.7	0.0	2.2	0.0	1.4	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			23.4									
HCM 6th LOS			С									

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Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	f)		¥	f)			4			4	
Traffic Vol, veh/h	14	322	8	16	278	5	5	1	13	2	3	10
Future Vol, veh/h	14	322	8	16	278	5	5	1	13	2	3	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	13	2	2	2	2	2	8	50	2	2
Mvmt Flow	15	350	9	17	302	5	5	1	14	2	3	11
Major/Minor N	/lajor1			Major2		1	Minor1		N	/linor2		
Conflicting Flow All	307	0	0	359	0	0	731	726	355	731	728	305
Stage 1	-	-	-	-	-	-	385	385	-	339	339	-
Stage 2			_	_			346	341	_	392	389	_
Critical Hdwy	4.12	_	_	4.12	_	-	7.12	6.52	6.28	7.6	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.6	5.52	-
3 3	2.218	-	-	2.218	-	-	3.518	4.018	3.372	3.95	4.018	3.318
Pot Cap-1 Maneuver	1254	-	-	1200	-	-	337	351	676	283	350	735
Stage 1	-	-	-	-	-	-	638	611	-	586	640	-
Stage 2	-	-	-	-	-	-	670	639	-	547	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1254	-	-	1200	-	-	323	342	676	271	341	735
Mov Cap-2 Maneuver	-	-	-	-	-	-	323	342	-	271	341	-
Stage 1	-	-	-	-	-	-	630	604	-	579	631	-
Stage 2	-	-	-	-	-	-	647	630	-	528	601	-
Ŭ												
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			12.4			12.4		
HCM LOS							В			В		
Minor Lane/Major Mvm	it N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1			
Capacity (veh/h)		505	1254	-	-	1200	-	-	504			
HCM Lane V/C Ratio		0.041	0.012	-		0.014	_		0.032			
HCM Control Delay (s)		12.4	7.9	-	-	8	-	-				
HCM Lane LOS		В	A	_	_	A	_	_	В			
HCM 95th %tile Q(veh))	0.1	0	-	-	0	-	-	0.1			
		311										

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	(ř	f)			4			4	
Traffic Vol, veh/h	10	320	7	2	283	2	8	1	2	0	0	8
Future Vol, veh/h	10	320	7	2	283	2	8	1	2	0	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	e,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	348	8	2	308	2	9	1	2	0	0	9
Major/Minor N	Major1		١	Major2		1	Minor1		N	Minor2		
Conflicting Flow All	310	0	0	356	0	0	692	688	352	689	691	309
Stage 1	-	-	-	-	-	-	374	374	-	313	313	-
Stage 2	-	-	-	-	-	-	318	314	-	376	378	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1250	-	-	1203	-	-	358	369	692	360	368	731
Stage 1	-	-	-	-	-	-	647	618	-	698	657	-
Stage 2	-	-	-	-	-	-	693	656	-	645	615	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1203	-	-	351	365	692	355	364	731
Mov Cap-2 Maneuver	-	-	-	-	-	-	351	365	-	355	364	-
Stage 1	-	-	-	-	-	-	641	612	-	692	656	-
Stage 2	-	-	-	-	-	-	684	655	-	636	609	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			14.6			10		
HCM LOS							В			В		
Minor Lane/Major Mvm	nt N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1			
Capacity (veh/h)		387	1250	_		1203	_					
HCM Lane V/C Ratio			0.009	_		0.002	_		0.012			
HCM Control Delay (s)		14.6	7.9	-	-	8	-	-				
HCM Lane LOS		В	A	_	_	A	_	_	В			
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0			
	,	3.7										

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Queues

4: Woodson Road & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	336	14	295	25	33
v/c Ratio	0.02	0.20	0.02	0.18	0.07	0.09
Control Delay	2.2	2.0	2.2	1.9	8.2	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	2.0	2.2	1.9	8.2	7.6
Queue Length 50th (ft)	0	0	0	0	1	1
Queue Length 95th (ft)	5	54	5	47	12	14
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	1020	1846	982	1852	1458	1459
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.18	0.01	0.16	0.02	0.02
Intersection Summary						

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	₽		7	₽			- 4			- ↔	
Traffic Volume (veh/h)	13	291	18	13	261	10	6	3	14	6	4	20
Future Volume (veh/h)	13	291	18	13	261	10	6	3	14	6	4	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	.=	No		.=0.	No	40=0	4440	No	40=0	4440	No	
Adj Sat Flow, veh/h/ln	1781	1870	1870	1781	1870	1870	1648	1870	1870	1648	1870	1870
Adj Flow Rate, veh/h	14	316	20	14	284	11	7	3	15	7	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	2	2	8	2	2	17	2	2	17	2	2
Cap, veh/h	719	694	44	689	714	28	304	14	69	281	14	76
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1033	1740	110	995	1789	69	455	195	974	344	196	1080
Grp Volume(v), veh/h	14	0	336	14	0	295	25	0	0	33	0	0
Grp Sat Flow(s), veh/h/ln	1033	0	1851	995	0	1858	1624	0	0	1620	0	0
Q Serve(g_s), s	0.2	0.0	2.3	0.2	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	2.3	2.4	0.0	1.9	0.2	0.0	0.0	0.3	0.0	0.0
Prop In Lane	1.00	0	0.06	1.00	0	0.04	0.28	0	0.60	0.21	0	0.67
Lane Grp Cap(c), veh/h	719	0	738	689	0	741	386	0	0	371	0	0
V/C Ratio(X)	0.02	0.00	0.46	0.02	0.00	0.40	0.06	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	4295	1.00	7145	4132	1.00	7174	2608	1.00	1.00	2619	1.00	1.00
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00 0.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	4.4	0.00	1.00	1.00 4.6	0.00	1.00 3.6	1.00 7.4	0.00	0.00	1.00 7.5	0.00	0.00
Uniform Delay (d), s/veh Incr Delay (d2), s/veh	0.0	0.0	0.4	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/ver		0.0	0.5	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0
LnGrp Delay(d),s/veh	4.4	0.0	4.2	4.7	0.0	4.0	7.5	0.0	0.0	7.6	0.0	0.0
LnGrp LOS	Α.4	Α	4.2 A	Α.7	Α	4.0 A	7.5 A	Α	Α	7.0 A	Α	Α
Approach Vol, veh/h		350			309			25			33	
Approach Delay, s/veh		4.2			4.0			7.5			7.6	
Approach LOS		4.Z A			4.0 A			7.5 A			7.0 A	
					А						А	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		5.7		11.3		5.7		11.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		65.5		25.5		65.5				
Max Q Clear Time (g_c+l1), s		2.2		4.3		2.3		4.4				
Green Ext Time (p_c), s		0.1		2.5		0.1		2.2				
Intersection Summary												
HCM 6th Ctrl Delay			4.4									
HCM 6th LOS			Α									

5: Lamar Avenue & Martway Street

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	39	62	102	70	65	113	213	16	305	
v/c Ratio	0.17	0.39	0.42	0.28	0.28	0.15	0.17	0.02	0.28	
Control Delay	31.1	49.5	12.1	33.2	34.0	6.3	8.1	4.1	6.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.1	49.5	12.1	33.2	34.0	6.3	8.1	4.1	6.5	
Queue Length 50th (ft)	20	38	0	37	29	21	36	2	42	
Queue Length 95th (ft)	44	77	40	69	68	47	103	m6	84	
Internal Link Dist (ft)		558			611		498		667	
Turn Bay Length (ft)			120	200		100		100		
Base Capacity (vph)	240	407	438	259	426	765	1247	745	1103	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.15	0.23	0.27	0.15	0.15	0.17	0.02	0.28	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	+	7	7	₽		ሻ	₽		ሻ	1•	
Traffic Volume (veh/h)	36	57	94	64	44	16	104	138	58	15	234	47
Future Volume (veh/h)	36	57	94	64	44	16	104	138	58	15	234	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1841	1856	1856	1811	1870	1870	1856	1707	1856	1870
Adj Flow Rate, veh/h	39	62	102	70	48	17	113	150	63	16	254	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	3	3	6	2	2	3	13	3	2
Cap, veh/h	223	162	138	225	136	48	840	832	349	762	953	191
Arrive On Green	0.03	0.09	0.09	0.05	0.10	0.10	0.05	0.67	0.67	0.04	1.00	1.00
Sat Flow, veh/h	1767	1826	1560	1767	1309	463	1781	1251	525	1626	1500	301
Grp Volume(v), veh/h	39	62	102	70	0	65	113	0	213	16	0	305
Grp Sat Flow(s), veh/h/ln	1767	1826	1560	1767	0	1772	1781	0	1776	1626	0	1801
Q Serve(g_s), s	2.0	3.2	6.4	3.6	0.0	3.4	2.1	0.0	4.6	0.3	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.2	6.4	3.6	0.0	3.4	2.1	0.0	4.6	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00	_	0.26	1.00	_	0.30	1.00	_	0.17
Lane Grp Cap(c), veh/h	223	162	138	225	0	184	840	0	1182	762	0	1145
V/C Ratio(X)	0.18	0.38	0.74	0.31	0.00	0.35	0.13	0.00	0.18	0.02	0.00	0.27
Avail Cap(c_a), veh/h	297	411	351	291	0	416	942	0	1182	839	0	1145
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.84	0.00	0.84
Uniform Delay (d), s/veh	39.4	43.0	44.4	38.9	0.0	41.7	5.2	0.0	6.4	6.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	1.5	7.4	0.8	0.0	1.2	0.1	0.0	0.3	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	2.7	5.0	2.9	0.0	2.8	1.3	0.0	3.0	0.2	0.0	0.3
Unsig. Movement Delay, s/veh		44 5	F1 0	20.7	0.0	42.0	5.3	0.0	6.7	6.0	0.0	ΛΓ
LnGrp Delay(d),s/veh	39.8	44.5 D	51.8	39.6 D	0.0	42.9		0.0 A	6.7 A		0.0	0.5
LnGrp LOS	D		D	U	A 125	D	A		A	A	A 221	A
Approach Vol, veh/h		203			135			326			321	
Approach LOS		47.3			41.2			6.2			0.8	
Approach LOS		D			D			А			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	71.0	9.3	13.4	9.3	68.0	7.8	14.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	44.5	8.5	22.5	10.5	40.5	7.5	23.5				
Max Q Clear Time (g_c+l1), s	2.3	6.6	5.6	8.4	4.1	2.0	4.0	5.4				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.5	0.1	2.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			В									

Int Delay, s/veh 1.2 Movement EBL EBT WBT WBR SBL SBR Lane Configurations ♣ ♣ ♣ ★ 20 Conflicting Peds, #/hr 0
Movement
Lane Configurations ♣ ♣ Traffic Vol, veh/h 11 119 104 8 7 20 Future Vol, veh/h 11 119 104 8 7 20 Conflicting Peds, #/hr 0 0 0 0 0 0 0 Sign Control Free Free Free Free Free Free Stop Stop RT Channelized - None
Traffic Vol, veh/h 11 119 104 8 7 20 Future Vol, veh/h 11 119 104 8 7 20 Conflicting Peds, #/hr 0 0 0 0 0 0 Sign Control Free Free Free Free Free Free Stop RT Channelized - None - None - None Storage Length - - - 0 - 0 - Veh in Median Storage, # - 0 0 - 0 - Grade, % - 0 0 - 0 - Peak Hour Factor 92
Future Vol, veh/h 11 119 104 8 7 20 Conflicting Peds, #/hr 0 0 0 0 0 0 Sign Control Free Free Free Free Free Free Stop Stop RT Channelized - None - 0 - 0 - 0 - 0 - 2 - 2 -<
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 Stop Stop Stop RT Channelized - None - O - O - O - D - D - D - - - - - - - -
Sign Control Free Free Free Free Stop Stop RT Channelized - None - None - None - None Storage Length - 0 0 0 - 0 - 0 - O - O - O - O - O - O - O - O - O - O
RT Channelized - None - None - None Storage Length 0 - Veh in Median Storage, # - 0 0 0 - 0 - 0 0 - 0 - Grade, % - 0 0 0 - 0 - 0 - 0 - Peak Hour Factor 92 92 92 92 92 92 92 92 Heavy Vehicles, % 10 7 4 2 2 2 5
Storage Length - - - 0 - 0 - Grade, % - 0 0 - 0 - 0 - Peak Hour Factor 92 93 93 92 92 92 92 92 153 92 92 93 93 92 92 92 92 92 92 92 92 92 92 92 92 92 92 92
Weh in Median Storage, # - 0 0 - 0 2 0 - 0 2 1 1 0 0 - 1 1 1 0 0 0 1 1 1 0 0 0 1
Grade, % - 0 0 - 0 - Peak Hour Factor 92 93 92 92 93
Peak Hour Factor 92 55 50 92 92 92 92 92 93 22 92 93 93 92 92 93 93 93 92 93 93 93 93 93 93 93 93 93 93 93 93 93 94
Heavy Vehicles, % 10 7 4 2 2 5 Mvmt Flow 12 129 113 9 8 22 Major/Minor Major1 Major2 Minor2 Conflicting Flow All 122 0 - 0 271 118 Stage 1 - - - - 118 - Stage 2 - - - - 118 - Critical Hdwy 4.2 - - - 6.42 6.25 Critical Hdwy Stg 1 - - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - - - - - Mov Cap-1 Maneuver 1417 - -
Heavy Vehicles, % 10 7 4 2 2 5 Mvmt Flow 12 129 113 9 8 22 Major/Minor Major1 Major2 Minor2 Conflicting Flow All 122 0 - 0 271 118 Stage 1 - - - - 118 - Stage 2 - - - - 118 - Critical Hdwy 4.2 - - - 6.42 6.25 Critical Hdwy Stg 1 - - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - - - - - Mov Cap-1 Maneuver 1417 - -
Momental Major Majo
Major/Minor Major1 Major2 Minor2 Conflicting Flow All 122 0 - 0 271 118 Stage 1 - - - 118 - Stage 2 - - - 153 - Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - - - - Platoon blocked, % -
Conflicting Flow All 122 0 - 0 271 118 Stage 1 - - - - 118 - Stage 2 - - - - 153 - Critical Hdwy 4.2 - - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 5.42 - Follow-up Hdwy 2.29 - - 7.82 - Follow-up Hdwy 2.29 - - - 7.18 926 Stage 1 - - - - 907 - Stage 2 - - - - - Mov Cap-2 Maneuver - - - - - - - - - - - - -
Conflicting Flow All 122 0 - 0 271 118 Stage 1 - - - 118 - Stage 2 - - - 153 - Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 2 - - - - - - Platoon blocked, % - - - - - - Mov Cap-1 Maneuver 1417 - - 712 - - - - - - - - - - - </td
Stage 1 - - - 118 - Stage 2 - - - 153 - Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 875 - Platoon blocked, % - - - 712 926 Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 899 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 2 - - - 153 - Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 875 - Platoon blocked, % - - - - 712 926 Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 899 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 2 - - - 153 - Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 875 - Platoon blocked, % - - - - 712 926 Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 899 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Critical Hdwy 4.2 - - 6.42 6.25 Critical Hdwy Stg 1 - - - 5.42 - Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 875 - Platoon blocked, % - - - - 712 926 Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Critical Hdwy Stg 1 5.42 - Critical Hdwy Stg 2 5.42 - Follow-up Hdwy 2.29 3.518 3.345 Pot Cap-1 Maneuver 1417 718 926 Stage 1 907 - Stage 2 875 - Platoon blocked, % Mov Cap-1 Maneuver 1417 712 926 Mov Cap-2 Maneuver 712 926 Mov Cap-2 Maneuver 899 - Stage 1 899 - Stage 2 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Critical Hdwy Stg 2 - - - 5.42 - Follow-up Hdwy 2.29 - - 3.518 3.345 Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 907 - Stage 2 - - - 875 - Platoon blocked, % - - - - Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Follow-up Hdwy 2.29 3.518 3.345 Pot Cap-1 Maneuver 1417 718 926 Stage 1 907 - 875 - Platoon blocked, % 712 926 Mov Cap-1 Maneuver 1417 712 926 Mov Cap-2 Maneuver 712 - 899 - Stage 1 899 - Stage 2 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Pot Cap-1 Maneuver 1417 - - 718 926 Stage 1 - - - 907 - Stage 2 - - - 875 - Platoon blocked, % - - - - Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 1 - - - 907 - Stage 2 - - - 875 - Platoon blocked, % - - - - Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 2 - - - 875 - Platoon blocked, % - - - - - Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Platoon blocked, %
Mov Cap-1 Maneuver 1417 - - 712 926 Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Mov Cap-2 Maneuver - - - 712 - Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 1 - - - 899 - Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Stage 2 - - - 875 - Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
Approach EB WB SB HCM Control Delay, s 0.6 0 9.3
HCM Control Delay, s 0.6 0 9.3
HCM Control Delay, s 0.6 0 9.3
HCM Control Delay, s 0.6 0 9.3
y :
HCM LOS A
Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1
Capacity (veh/h) 1417 859
HCM Lane V/C Ratio 0.008 0.034
HCM Control Delay (s) 7.6 0 9.3
HCM Lane LOS A A A
HCM 95th %tile Q(veh) 0 0.1

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL	<u> </u>		WDK	SDL ₩	SDK
	10		1 0E	1		7
Traffic Vol, veh/h Future Vol, veh/h	10	116	105	1	2	7
·	10	116	105	1 0	2	7
Conflicting Peds, #/hr	0	0	0		0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-		-		-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	:,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	11	126	114	1	2	8
Major/Minor N	/lajor1	N	Major2		Minor2	
						115
Conflicting Flow All	115	0	-	0	263	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1474	-	-	-	726	937
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	880	-
Platoon blocked, %		_	_	_		
Mov Cap-1 Maneuver	1474	_	_	_	720	937
Mov Cap-2 Maneuver	-	_	_	_	720	737
Stage 1	_	<u> </u>		-	903	_
		-	-	-	880	
Stage 2	-	-	-	-	880	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.6		0		9.1	
HCM LOS	0.0				A	
110111 200					,,	
Minor Lane/Major Mvm	t	EBL	EBT	WBT	WBR :	SBLn1
Capacity (veh/h)		1474	-	-	-	878
HCM Lane V/C Ratio		0.007	-	-	-	0.011
HCM Control Delay (s)		7.5	0	-	-	9.1
HCM Lane LOS		Α	Α	-	-	Α
HCM 95th %tile Q(veh))	0	-	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	17	94	7	3	81	3	7	3	0	9	8	18
Future Vol, veh/h	17	94	7	3	81	3	7	3	0	9	8	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	2	33	4	2	2	2	2	2	2	2
Mvmt Flow	18	102	8	3	88	3	8	3	0	10	9	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	7.9			8.3			7.7			7.4		
HCM LOS	Α			Α			Α			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	70%	14%	3%	26%	
Vol Thru, %	30%	80%	93%	23%	
Vol Right, %	0%	6%	3%	51%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	10	118	87	35	
LT Vol	7	17	3	9	
Through Vol	3	94	81	8	
RT Vol	0	7	3	18	
Lane Flow Rate	11	128	95	38	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.014	0.147	0.122	0.044	
Departure Headway (Hd)	4.631	4.136	4.631	4.204	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	777	859	770	857	
Service Time	2.632	2.196	2.688	2.204	
HCM Lane V/C Ratio	0.014	0.149	0.123	0.044	
HCM Control Delay	7.7	7.9	8.3	7.4	
HCM Lane LOS	Α	Α	Α	Α	
HCM 95th-tile Q	0	0.5	0.4	0.1	

Queues

1: Lamar Avenue & Johnson Drive

	۶	→	\rightarrow	•	•	4	†	/	>	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	137	415	137	87	701	90	245	85	74	369	
v/c Ratio	0.36	0.48	0.17	0.19	0.47	0.39	0.53	0.18	0.23	0.82	
Control Delay	15.6	24.4	4.4	12.2	22.3	22.8	33.3	8.1	20.9	45.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	24.4	4.4	12.2	22.3	22.8	33.3	8.1	20.9	45.9	
Queue Length 50th (ft)	43	199	0	27	176	34	139	6	30	199	
Queue Length 95th (ft)	84	310	38	55	252	68	206	30	55	280	
Internal Link Dist (ft)		658			585		667			624	
Turn Bay Length (ft)	160			100		100		130	135		
Base Capacity (vph)	401	883	822	450	1519	233	607	593	319	577	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.47	0.17	0.19	0.46	0.39	0.40	0.14	0.23	0.64	
Intersection Summary											

Kimley-Horn 03/20/2023

HCM 6th Signalized Intersection Summary 1: Lamar Avenue & Johnson Drive

	۶	→	•	•	-	4	4	†	<i>></i>	/	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	†	7	ሻ	∱ ∱		ሻ	↑	7	ሻ	₽	
Traffic Volume (veh/h)	126	382	126	80	585	60	83	225	78	68	192	147
Future Volume (veh/h)	126	382	126	80	585	60	83	225	78	68	192	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1070	No	4070	4070	No	4070	4070	No	4070	1070	No	4070
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	415	137	87	636	65	90	245	85	74	209	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	510	899	762	438	1521	155	202	466	395	281	236	181
Arrive On Green	0.06	0.48	0.48	0.09	0.93	0.93	0.02	0.08	0.08	0.04	0.24	0.24
Sat Flow, veh/h	1781	1870	1585	1781	3255	332	1781	1870	1585	1781	983	752
Grp Volume(v), veh/h	137	415	137	87	347	354	90	245	85	74	0	369
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1781	1777	1811	1781	1870	1585	1781	0	1735
Q Serve(g_s), s	3.9	14.8	4.9	2.5	2.1	2.1	3.8	12.6	5.0	3.1	0.0	20.5
Cycle Q Clear(g_c), s	3.9	14.8	4.9	2.5	2.1	2.1	3.8	12.6	5.0	3.1	0.0	20.5
Prop In Lane	1.00	000	1.00	1.00	020	0.18	1.00	A//	1.00	1.00	0	0.43
Lane Grp Cap(c), veh/h	510	899	762	438	830	846	202	466	395	281	0	417
V/C Ratio(X)	0.27	0.46	0.18	0.20	0.42	0.42	0.44	0.53	0.22	0.26	0.00	0.88
Avail Cap(c_a), veh/h	576	899	762	464	830	846	224	610	517	300	0	548
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00 12.2	1.00 17.3	1.00	1.00	1.00	1.00 1.8	0.94 29.7	0.94 40.2	0.94	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.3	17.3	14.8 0.5	12.8 0.2	1.8 1.5	1.5	1.4	0.9	36.8 0.3	27.4 0.5	0.0	36.6 12.9
Incr Delay (d2), s/veh Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.9	0.3	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	10.9	3.4	1.7	1.6	1.6	3.1	10.4	3.7	2.4	0.0	15.2
Unsig. Movement Delay, s/veh		10.9	3.4	1.7	1.0	1.0	ა. I	10.4	3.1	2.4	0.0	13.2
LnGrp Delay(d),s/veh	12.5	19.0	15.3	13.1	3.4	3.3	31.1	41.1	37.0	27.9	0.0	49.5
LnGrp LOS	12.3 B	17.0 B	15.5 B	13.1 B	3.4 A	3.3 A	C C	41.1 D	37.0 D	21.7 C	Α	47.3 D
Approach Vol, veh/h	D	689		<u> </u>	788			420	ט		443	
Approach Delay, s/veh		17.0			4.4			38.1			443	
Approach LOS		17.0 B			4.4 A			30.1 D			40.9 D	
											D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	29.4	9.1	52.6	9.8	28.6	10.4	51.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	32.6	6.0	37.9	6.5	31.6	9.6	34.3				
Max Q Clear Time (g_c+I1), s	5.1	14.6	4.5	16.8	5.8	22.5	5.9	4.1				
Green Ext Time (p_c), s	0.0	1.6	0.0	3.2	0.0	1.5	0.1	5.1				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			С									

Int Delay, s/Neh
Lane Configurations
Traffic Vol, veh/h
Future Vol, veh/h
Conflicting Peds, #/hr Free Stop Sto
Sign Control Free RTChannelized Free RTChannelized Free None Free RTChannelized None Companies
RT Channelized - None - C -
Storage Length 150
Weh in Median Storage, # 0 - 0 0 - 0 0 1418 1408 541 1428 1410 758 282 810 810 0 1418 1408 541 1428 1410 758 543 593 593 810 810 810 9 1810 810 810 9 1810 810 9
Grade, % - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 - 0 0 - 0 0 - 0<
Peak Hour Factor 92 92 92 92 92 92 92 9
Heavy Vehicles, % 2 2 2 2 2 2 2 2 2
Mymt Flow 26 534 14 26 752 11 8 10 39 2 2 28 Major/Minor Major1 Major2 Minor1 Minor2 Conflicting Flow All 763 0 0 548 0 0 1418 1408 541 1428 1410 758 Stage 1 - - - - 593 593 - 810 810 - Stage 2 - - - - 825 815 - 618 600 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12 6.52 6.22 7.12
Major/Minor Major1 Major2 Minor1 Minor2
Conflicting Flow All 763 0 0 548 0 0 1418 1408 541 1428 1410 758
Conflicting Flow All 763 0 0 548 0 0 1418 1408 541 1428 1410 758
Conflicting Flow All 763 0 0 548 0 0 1418 1408 541 1428 1410 758
Stage 1 - - - 593 593 - 810 - Stage 2 - - - - 825 815 - 618 600 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - 2.218 - - 3.518 4.018 3.318 3.518 4.018 3.318 Pot Cap-1 Maneuver 850 - 1021 - 114 139 541 113 138 407 Stage 2 -
Stage 2 - - - 825 815 - 618 600 - Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 3.518 4.018 3.318 Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 3.518 4.018 3.318 Follow-up Hdwy 2.218 - 1021 - 114 139 541 113 138 407 Stage 1 - - - 492 493 - 374 393 - Stage 2 - - 1021 - 100 131
Critical Hdwy
Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 3.318 8.018 8.018 9.02<
Critical Hdwy Stg 2 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 3.518 4.018 3.318 Pot Cap-1 Maneuver 850 - 1021 - 114 139 541 113 138 407 Stage 1 492 493 - 374 393 -
Follow-up Hdwy 2.218 2.218 3.518 4.018 3.318 3.518 4.018 3.318 Pot Cap-1 Maneuver 850 - 1021 - 114 139 541 113 138 407 Stage 1 492 493 - 374 393 -
Pot Cap-1 Maneuver 850 - - 1021 - - 114 139 541 113 138 407 Stage 1 - - - - - 492 493 - 374 393 - Stage 2 - - - - 367 391 - 477 490 - Platoon blocked, % - - - - - - - - - 477 490 - Mov Cap-1 Maneuver 850 - - 1001 131 541 95 130 407 Mov Cap-2 Maneuver - - - - 100 131 - 95 130 - Stage 1 - - - - - 477 478 - 362 383 - Stage 2 - - - - - 331 381 - 420 475
Stage 1 - - - - 492 493 - 374 393 - Stage 2 - - - - 367 391 - 477 490 - Platoon blocked, % -
Stage 2 - - - - 367 391 - 477 490 - Platoon blocked, % - <t< td=""></t<>
Platoon blocked, % - - - Mov Cap-1 Maneuver 850 - 1021 - 100 131 541 95 130 407 Mov Cap-2 Maneuver - - - - 100 131 - 95 130 - Stage 1 - - - - 477 478 - 362 383 - Stage 2 - - - - 331 381 - 420 475 - Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C C
Mov Cap-1 Maneuver 850 - - 1021 - - 100 131 541 95 130 407 Mov Cap-2 Maneuver - - - - - 100 131 - 95 130 - Stage 1 - - - - - 477 478 - 362 383 - Stage 2 - - - - - 331 381 - 420 475 - Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C C
Mov Cap-2 Maneuver - - - - 100 131 - 95 130 - Stage 1 - - - - 477 478 - 362 383 - Stage 2 - - - - 331 381 - 420 475 - Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C C
Stage 1 - - - - 477 478 - 362 383 - Stage 2 - - - - - 331 381 - 420 475 - Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C C
Stage 2 - - - - 331 381 - 420 475 - Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C C
Approach EB WB NB SB HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C
HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C
HCM Control Delay, s 0.4 0.3 23.3 18.5 HCM LOS C C
HCM LOS C C
Minor Lane/Major Mymt NRI n1 FRI FRT FRP WRI WRT WRP SRI n1
MINOCLANE/MAIOCM/MI MIKINI EKI EKI EKR WAKI WAKI WAKINI
,
Capacity (veh/h) 253 850 1021 299
HCM Lane V/C Ratio 0.223 0.031 0.026 0.109
HCM Control Delay (s) 23.3 9.4 8.6 18.5
HCM Lane LOS C A A C
HCM 95th %tile Q(veh) 0.8 0.1 0.1 0.4

Kimley-Horn 03/20/2023 Synchro 11 Report Page 3

Movement
Traffic Vol, veh/h
Traffic Vol, veh/h
Traffic Vol, veh/h
Conflicting Peds, #/hr 0
Sign Control Free Romand Recognition of Channelized Free Romand Recognition of Channe
RT Channelized - None - - None - - None - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - - 0 -<
RT Channelized - None - - None - - None - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - - 0 -<
Weh in Median Storage, # - 0
Grade, % - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 - - 0 0 136 2 3 3 3 3 3 3
Peak Hour Factor 92 93 93 93 94 95 95 95 94
Major/Minor Major1 Major2 Minor1 Minor2 Minor3 Minor4 Major5 Major6 Major6 Major6 Major7 Major8 Minor9 Minor
Mymt Flow 14 554 7 10 754 2 20 0 11 0 1 15 Major/Minor Major1 Major2 Minor1 Minor2 Minor2 Conflicting Flow All 756 0 0 561 0 0 1369 1362 558 1366 1364 755 Stage 1 - - - - - - 586 586 - 775 775 - Stage 2 - - - - - 7.12 6.52 6.3 7.12 6.52 6.22 6.22 6.22 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12
Major/Minor Major1 Major2 Minor1 Minor2 Conflicting Flow All 756 0 0 561 0 0 1369 1362 558 1366 1364 755 Stage 1 - - - - 586 586 - 775 775 - Stage 2 - - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.
Conflicting Flow All 756 0 0 561 0 0 1369 1362 558 1366 1364 755 Stage 1 - - - - - 586 586 - 775 775 - Stage 2 - - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - - 4.12 - - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 <t< td=""></t<>
Conflicting Flow All 756 0 0 561 0 0 1369 1362 558 1366 1364 755 Stage 1 - - - - - 586 586 - 775 775 - Stage 2 - - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - - 4.12 - - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - 2.218 - 3.518 4.018 3.39 3.518 4.018 3.318 Pol Cap-1 Maneuver 855 - 1010
Conflicting Flow All 756 0 0 561 0 0 1369 1362 558 1366 1364 755 Stage 1 - - - - - 586 586 - 775 775 - Stage 2 - - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - - 4.12 - - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 <t< td=""></t<>
Stage 1 - - - - 586 586 - 775 775 - Stage 2 - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - - 2.218 - - 3.518 4.018 3.39 3.518 4.018 3.318 Pot Cap-1 Maneuver 855 - 1010 - 124 148 514 124 148 409 Stage 2 - - - - - - - -
Stage 2 - - - - 783 776 - 591 589 - Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - - 2.218 - - 3.518 4.018 3.39 3.518 4.018 3.318 Pot Cap-1 Maneuver 855 - 1010 - - 124 148 514 124 148 409 Stage 1 - - - - - 496 497 - 391 408 - Platoon blocked, % - - - - - -
Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.3 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 <t< td=""></t<>
Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - - 2.218 - 3.518 4.018 3.39 3.518 4.018 3.318 Pot Cap-1 Maneuver 855 - 1010 - 124 148 514 124 148 409 Stage 1 - - - - - 496 497 - 391 408 - Stage 2 - - - - 387 407 - 493 495 - Platoon blocked, % - - - 116 144 514 119 144 409 Mov Cap-1 Maneuver - - - 116 144 - 119 144 -
Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - - 2.218 - - 3.518 4.018 3.39 3.518 4.018 3.318 Pot Cap-1 Maneuver 855 - 1010 - 124 148 514 124 148 409 Stage 1 - - - - - 496 497 - 391 408 - Stage 2 - - - - 387 407 - 493 495 - Platoon blocked, % - <td< td=""></td<>
Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.39 3.518 4.018 3.318 Pot Cap-1 Maneuver 855 - 1010 - 124 148 514 124 148 409 Stage 1 496 497 - 391 408 - Stage 2 387 407 - 493 495 - Platoon blocked, %
Pot Cap-1 Maneuver 855 - - 1010 - - 124 148 514 124 148 409 Stage 1 - - - - 496 497 - 391 408 - Stage 2 - - - - 387 407 - 493 495 - Platoon blocked, % -
Stage 1 - - - - 496 497 - 391 408 - Stage 2 - - - - 387 407 - 493 495 - Platoon blocked, % -
Stage 2 - - - - - 387 407 - 493 495 - Platoon blocked, % -
Platoon blocked, % -
Mov Cap-1 Maneuver 855 - - 1010 - - 116 144 514 119 144 409 Mov Cap-2 Maneuver - - - - - 116 144 - 119 144 -
Mov Cap-2 Maneuver 116 144 - 119 144 -
5 tag 5 1 5 to 507 500 TOT
Stage 2 368 403 - 475 487 -
Approach EB WB NB SB
HCM Control Delay, s 0.2 0.1 32.7 15.4
HCM LOS D C
TICM LOS
Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1
Capacity (veh/h) 160 855 1010 364
HCM Lane V/C Ratio 0.19 0.017 0.01 0.045
HCM Control Delay (s) 32.7 9.3 8.6 15.4
HCM Lane LOS D A A C
HCM 95th %tile Q(veh) 0.7 0.1 0.1

4: Woodson Road & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	13	552	23	741	48	52
v/c Ratio	0.02	0.35	0.03	0.46	0.34	0.37
Control Delay	0.5	0.9	1.9	3.4	33.4	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.5	0.9	1.9	3.4	33.4	36.9
Queue Length 50th (ft)	0	6	2	89	16	20
Queue Length 95th (ft)	m1	17	7	172	50	56
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	538	1593	693	1602	329	327
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.35	0.03	0.46	0.15	0.16
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽		7	₽			4			- ↔	
Traffic Volume (veh/h)	12	488	20	21	672	10	15	9	20	19	10	18
Future Volume (veh/h)	12	488	20	21	672	10	15	9	20	19	10	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1870	1826	1826	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	530	22	23	730	11	16	10	22	21	11	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	2	5	5	2	2	2	2	2	2	2	2
Cap, veh/h	601	1539	64	745	1586	24	70	21	37	79	21	31
Arrive On Green	0.86	0.86	0.86	0.86	0.86	0.86	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	684	1783	74	836	1838	28	472	454	783	602	440	651
Grp Volume(v), veh/h	13	0	552	23	0	741	48	0	0	52	0	0
Grp Sat Flow(s), veh/h/ln	684	0	1857	836	0	1865	1709	0	0	1693	0	0
Q Serve(g_s), s	0.4	0.0	5.8	0.6	0.0	9.0	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	9.5	0.0	5.8	6.3	0.0	9.0	2.6	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		0.04	1.00	_	0.01	0.33	_	0.46	0.40	_	0.38
Lane Grp Cap(c), veh/h	601	0	1603	745	0	1610	128	0	0	130	0	0
V/C Ratio(X)	0.02	0.00	0.34	0.03	0.00	0.46	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	601	0	1603	745	0	1610	359	0	0	358	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.6	0.0	1.3	2.0	0.0	1.6	46.7	0.0	0.0	46.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	0.9	1.8	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	2.1	0.1	0.0	3.3	2.2	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	1.9	2.0	0.0	2.5	40 F	0.0	0.0	48.7	0.0	0.0
LnGrp Delay(d),s/veh	2.7	0.0	1.9 A	2.0	0.0	2.5 A	48.5	0.0	0.0	48. <i>1</i> D	0.0	0.0
LnGrp LOS	A	A	A	A	A 7/4	A	D	A 40	A	U	<u>A</u>	A
Approach Vol, veh/h		565			764			48			52	
Approach LOS		1.9			2.5			48.5			48.7	
Approach LOS		A			А			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.2		90.8		9.2		90.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		71.5		19.5		71.5				
Max Q Clear Time (g_c+I1), s		4.6		11.5		4.8		11.0				
Green Ext Time (p_c), s		0.1		4.7		0.2		7.3				
Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			А									

5: Lamar Avenue & Martway Street

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	108	165	208	97	179	180	332	67	365	
v/c Ratio	0.37	0.52	0.47	0.31	0.66	0.32	0.35	0.11	0.42	
Control Delay	29.0	44.3	8.8	27.6	47.1	10.9	16.6	6.1	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.0	44.3	8.8	27.6	47.1	10.9	16.6	6.1	14.8	
Queue Length 50th (ft)	52	99	0	46	96	44	114	8	148	
Queue Length 95th (ft)	84	156	59	77	157	94	220	m20	272	
Internal Link Dist (ft)		558			611		498		667	
Turn Bay Length (ft)			120	200		100		100		
Base Capacity (vph)	294	400	503	320	380	606	982	596	875	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.37	0.41	0.41	0.30	0.47	0.30	0.34	0.11	0.42	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•	7	7	1>		ሻ	₽		ሻ	₽	
Traffic Volume (veh/h)	99	152	191	89	112	52	166	235	71	62	228	108
Future Volume (veh/h)	99	152	191	89	112	52	166	235	71	62	228	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	40=0	4000	No		40=0	No	40=6
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	108	165	208	97	122	57	180	255	77	67	248	117
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	3	2	2	2
Cap, veh/h	258	293	249	257	182	85	550	772	233	629	643	303
Arrive On Green	0.07	0.16	0.16	0.06	0.15	0.15	0.07	0.56	0.56	0.01	0.18	0.18
Sat Flow, veh/h	1781	1870	1585	1781	1206	563	1781	1379	416	1781	1201	567
Grp Volume(v), veh/h	108	165	208	97	0	179	180	0	332	67	0	365
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1781	0	1769	1781	0	1795	1781	0	1768
Q Serve(g_s), s	5.0	8.2	12.7	4.5	0.0	9.6	4.5	0.0	10.0	1.7	0.0	18.2
Cycle Q Clear(g_c), s	5.0	8.2	12.7	4.5	0.0	9.6	4.5	0.0	10.0	1.7	0.0	18.2
Prop In Lane	1.00	000	1.00	1.00	•	0.32	1.00	•	0.23	1.00	•	0.32
Lane Grp Cap(c), veh/h	258	293	249	257	0	267	550	0	1005	629	0	946
V/C Ratio(X)	0.42	0.56	0.84	0.38	0.00	0.67	0.33	0.00	0.33	0.11	0.00	0.39
Avail Cap(c_a), veh/h	290	402	341	282	0	363	671	0	1005	656	0	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.79	0.00	0.79
Uniform Delay (d), s/veh	33.0	39.0	40.9	33.2	0.0	40.1	10.8	0.0	11.9	9.9	0.0	26.7
Incr Delay (d2), s/veh	1.1	1.7	12.3	0.9	0.0	2.9	0.3	0.0	0.9	0.1	0.0	0.9
Initial Q Delay(d3),s/veh	4.1	0.0 7.0	0.0 9.8	0.0 3.7	0.0	0.0 7.8	0.0 3.0	0.0	0.0 7.3	0.0 1.2	0.0	0.0 13.2
%ile BackOfQ(95%),veh/ln Unsig. Movement Delay, s/veh		7.0	9.8	3.1	0.0	7.8	3.0	0.0	1.3	1.2	0.0	13.2
	34.1	40.7	53.2	34.1	0.0	43.0	11.2	0.0	12.8	9.9	0.0	27.6
LnGrp Delay(d),s/veh LnGrp LOS	34.1 C	40.7 D	33.2 D	34.1 C	0.0 A	43.0 D	11.2 B	0.0 A	12.0 B			27.0 C
			<u> </u>			U	D		D	A	432	
Approach Vol, veh/h		481			276			512				
Approach Delay, s/veh Approach LOS		44.6 D			39.9 D			12.2 B			24.9 C	
Approacti LOS		D			U			Б			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	60.5	10.6	20.2	11.2	58.0	11.2	19.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.7	47.3	7.5	21.5	13.5	39.5	8.5	20.5				
Max Q Clear Time (g_c+l1), s	3.7	12.0	6.5	14.7	6.5	20.2	7.0	11.6				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.0	0.3	2.2	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			29.1									
HCM 6th LOS			С									

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
	EDL			WDK		SDK
Lane Configurations	00	4	\$	0.4	Y	00
Traffic Vol, veh/h	28	257	230	24	16	23
Future Vol, veh/h	28	257	230	24	16	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	2,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	2
Mvmt Flow	30	279	250	26	17	25
IVIVIIIL I IOVV	30	217	230	20	17	23
Major/Minor I	Major1	<u> </u>	/lajor2	<u> </u>	Minor2	
Conflicting Flow All	276	0	-	0	602	263
Stage 1	-	-	-	-	263	-
Stage 2	_	_	-	_	339	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1		_	_	_	5.42	-
Critical Hdwy Stg 2	_			_	5.42	_
Follow-up Hdwy	2.218	_	_		3.518	3.318
	1287	-	-		463	776
Pot Cap-1 Maneuver	1207	-	-	-		
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1287	-	-	-	450	776
Mov Cap-2 Maneuver	-	-	-	-	450	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	722	-
Annroach	ΓD		WD		CD	
Approach	EB		WB		SB	
HCM Control Delay, s	8.0		0		11.5	
HCM LOS					В	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR :	SBI n1
Capacity (veh/h)		1287	LUI	1101	- VVDIX	598
HCM Lane V/C Ratio			-	-		
		0.024	-	-		0.071
HCM Long LOS		7.9	0	-	-	11.5
HCM Lane LOS	`	A	Α	-	-	В
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
	LDL	4	₩ ₽	אטא	ÿ.	אטכ
Lane Configurations	าา			г		10
Traffic Vol, veh/h	23	250	242	5	4	12
Future Vol, veh/h	23	250	242	5	4	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	20	2	2
Mvmt Flow	25	272	263	5	4	13
IVIVIIIL I IOW	20	212	203	5	4	13
Major/Minor N	/lajor1	N	/lajor2	N	/linor2	
Conflicting Flow All	268	0	-	0	588	266
Stage 1	-	-	-	-	266	-
Stage 2	_	_	_	_	322	_
Critical Hdwy	4.12	_	-	_	6.42	6.22
Critical Hdwy Stg 1	4.12	-	_	-	5.42	0.22
Critical Hdwy Stg 2	-	-	-		5.42	-
		-	-			
. ,	2.218	-	-			3.318
Pot Cap-1 Maneuver	1296	-	-	-	471	773
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	735	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1296	-	-	-	460	773
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	735	-
J						
			1675		0.5	
Approach	EB		WB		SB	
HCM Control Delay, s	0.7		0		10.6	
HCM LOS					В	
Minor Long/Major May	+	LDI	ГРТ	WDT	WDD	CDI ~1
Minor Lane/Major Mvm	ι	EBL	EBT	WBT	WBR :	
Capacity (veh/h)		1296	-	-	-	661
HCM Lane V/C Ratio		0.019	-	-	-	0.026
HCM Control Delay (s)		7.8	0	-	-	10.6
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q(veh)		0.1	-	-	-	0.1

Intersection												
Intersection Delay, s/veh	9.4											
Intersection LOS	А											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	22	214	18	10	202	14	17	8	3	7	16	28
Future Vol, veh/h	22	214	18	10	202	14	17	8	3	7	16	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	5	2	2	2	2	22	2	2
Mvmt Flow	24	233	20	11	220	15	18	9	3	8	17	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
0	4			1			1			1		

прргодоп	LU	VVD	ND	30
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	9.4	8.5	8.7
HCM LOS	Α	A	А	А

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	61%	9%	4%	14%	
Vol Thru, %	29%	84%	89%	31%	
Vol Right, %	11%	7%	6%	55%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	28	254	226	51	
LT Vol	17	22	10	7	
Through Vol	8	214	202	16	
RT Vol	3	18	14	28	
Lane Flow Rate	30	276	246	55	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.044	0.337	0.302	0.08	
Departure Headway (Hd)	5.225	4.394	4.422	5.167	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	684	820	813	692	
Service Time	3.271	2.418	2.446	3.208	
HCM Lane V/C Ratio	0.044	0.337	0.303	0.079	
HCM Control Delay	8.5	9.6	9.4	8.7	
HCM Lane LOS	Α	Α	Α	Α	
HCM 95th-tile Q	0.1	1.5	1.3	0.3	

1: Lamar Avenue & Johnson Drive

	•	-	•	←	•	†	~	-	ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	74	431	58	323	52	98	57	36	277	
v/c Ratio	0.12	0.24	0.10	0.18	0.21	0.23	0.13	0.10	0.75	
Control Delay	11.4	15.8	11.6	15.7	20.2	27.3	1.8	21.3	45.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	15.8	11.6	15.7	20.2	27.3	1.8	21.3	45.3	
Queue Length 50th (ft)	19	75	15	55	20	45	1	16	148	
Queue Length 95th (ft)	48	136	40	104	42	80	1	33	217	
Internal Link Dist (ft)		658		585		667			624	
Turn Bay Length (ft)	160		100		100		130	135		
Base Capacity (vph)	658	1762	589	1769	255	661	636	370	624	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.24	0.10	0.18	0.20	0.15	0.09	0.10	0.44	
Intersection Summary										

	۶	→	•	•	←	4	1	†	~	/	†	✓
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ť	∱ ⊅		ሻ	∱ ∱		7	↑	7	ሻ	₽	
Traffic Volume (veh/h)	68	312	85	53	247	51	48	90	52	33	158	97
Future Volume (veh/h)	68	312	85	53	247	51	48	90	52	33	158	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h	74	339	92	58	268	55	52	98	57	36	172	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	7	2	2	3	2	2	2	2	3	2
Cap, veh/h	682	1532	410	612	1618	327	179	366	310	308	204	124
Arrive On Green	0.04	0.55	0.55	0.04	0.55	0.55	0.01	0.06	0.06	0.03	0.19	0.19
Sat Flow, veh/h	1781	2772	742	1781	2945	595	1781	1870	1585	1781	1079	658
Grp Volume(v), veh/h	74	216	215	58	160	163	52	98	57	36	0	277
Grp Sat Flow(s), veh/h/ln	1781	1777	1737	1781	1777	1763	1781	1870	1585	1781	0	1737
Q Serve(g_s), s	1.8	6.2	6.3	1.4	4.5	4.6	2.3	5.0	3.4	1.6	0.0	15.4
Cycle Q Clear(g_c), s	1.8	6.2	6.3	1.4	4.5	4.6	2.3	5.0	3.4	1.6	0.0	15.4
Prop In Lane	1.00		0.43	1.00		0.34	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	682	982	960	612	976	968	179	366	310	308	0	328
V/C Ratio(X)	0.11	0.22	0.22	0.09	0.16	0.17	0.29	0.27	0.18	0.12	0.00	0.84
Avail Cap(c_a), veh/h	755	982	960	692	976	968	262	664	563	385	0	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.8	11.4	11.4	8.9	11.2	11.2	32.9	40.0	39.2	31.1	0.0	39.1
Incr Delay (d2), s/veh	0.1	0.5	0.5	0.1	0.4	0.4	0.9	0.4	0.3	0.2	0.0	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	4.6	4.6	1.0	3.3	3.4	1.9	4.3	2.5	1.3	0.0	11.4
Unsig. Movement Delay, s/veh		11.0	10.0	0.0	11 [11 /	22.7	40.0	20.5	21.2	0.0	45.0
LnGrp Delay(d),s/veh	8.8	11.9	12.0	9.0	11.5	11.6	33.7	40.3	39.5	31.3	0.0	45.0
LnGrp LOS	A	В	В	A	B	В	С	D 207	D	С	A 212	<u>D</u>
Approach Vol, veh/h		505			381			207			313	
Approach Delay, s/veh		11.5			11.2			38.5			43.5	
Approach LOS		В			В			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	24.1	8.5	59.8	8.3	23.4	8.9	59.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	35.5	8.5	30.5	8.5	34.5	8.5	30.5				
Max Q Clear Time (g_c+l1), s	3.6	7.0	3.4	8.3	4.3	17.4	3.8	6.6				
Green Ext Time (p_c), s	0.0	0.7	0.0	2.7	0.0	1.5	0.1	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			С									

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	4		*	ĵ.			4			4	
Traffic Vol, veh/h	14	375	8	16	336	5	5	1	13	2	3	10
Future Vol, veh/h	14	375	8	16	336	5	5	1	13	2	3	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized		-	None	_	-	None	-	-	None		-	None
Storage Length	150	-	_	150	-	-	-	-	-	-	-	-
Veh in Median Storage		0	_	_	0	-	-	0	-	-	0	-
Grade, %	-	0	_	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	13	2	2	2	2	2	8	50	2	2
Mvmt Flow	15	408	9	17	365	5	5	1	14	2	3	11
Major/Minor N	Major1			Major2		N	Minor1		N	/linor2		
Conflicting Flow All	370	0	0	417	0	0	852	847	413	852	849	368
Stage 1	370	-	-	-	-	-	443	443	-	402	402	-
Stage 2	_	_	_	_	_	_	409	404	-	450	447	_
Critical Hdwy	4.12	_	_	4.12	_	_	7.12	6.52	6.28	7.6	6.52	6.22
Critical Hdwy Stg 1	- 1.12	_	_	- 1.12	_	_	6.12	5.52	-	6.6	5.52	- 0.22
Critical Hdwy Stg 2	_	_	_	-	-	_	6.12	5.52	-	6.6	5.52	-
Follow-up Hdwy	2.218	_	_	2.218	_	_	3.518	4.018		3.95	4.018	3.318
Pot Cap-1 Maneuver	1189	-	-	1142	-	-	280	299	626	232	298	677
Stage 1	,	-	_		_	_	594	576	-	539	600	-
Stage 2	-	_	-	-	-	-	619	599	-	506	573	-
Platoon blocked, %		-	_		_	-					3.3	
Mov Cap-1 Maneuver	1189	_	_	1142	-	-	267	291	626	221	290	677
Mov Cap-2 Maneuver	-	_	_	-	-	-	267	291	-	221	290	-
Stage 1	-	-	-	-	-	-	586	569	-	532	591	-
Stage 2	-	-	-	-	-	-	597	590	-	487	566	-
- 1-go -							- / /	2.3			300	
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			13.5			13.5		
HCM LOS							В			В		
Minor Lane/Major Mvm	nt I	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1			
Capacity (veh/h)		443	1189	_	-	1142	-	-	439			
HCM Lane V/C Ratio			0.013	-	_	0.015	-	_	0.037			
HCM Control Delay (s)		13.5	8.1	0	-	8.2	-	-	13.5			
HCM Lane LOS		В	A	A	-	A	-	-	В			
HCM 95th %tile Q(veh))	0.1	0	-	-	0	-	-	0.1			
2000 2(101)	,											

Int Delay, s/veh	Intersection												
Traffic Vol, velvh	Int Delay, s/veh	1.6											
Traffic Vol, velvh	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol., veh/h	Lane Configurations	¥	ĵ.		¥	f)			4			4	
Conflicting Peds, #/hr O O O O O O O O O	Traffic Vol, veh/h	10	362	18	7	309	2	40		19	0		8
Sign Control Free Free Free Free Free Free Free Free Free Stop Stop Stop Stop Stop Stop None Storage Length 150 -	Future Vol, veh/h	10	362	18	7	309	2	40	1	19	0	0	8
RT Channelized - None - None None <td>Conflicting Peds, #/hr</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td>0</td>	Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0			0
Storage Length 150 - 150 - 150 - 1 0 0 0 0 0 0 0 0 0	Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Veh in Median Storage, # - 0	RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Grade, % - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - 0 - 0 - 9 92 2 2 2 4 2 2 1	Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Peak Hour Factor	Veh in Median Storage	2,# -	0	-	-	0	-	-	0	-	-	0	-
Heavy Vehicles, %	Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Major/Minor Major Major	Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Major/Minor Major Major Minor Minor Minor	Heavy Vehicles, %	2	3	2	2	2	2	2	2	2	2	2	2
Stage 1	Mvmt Flow	11	393	20	8	336	2	43	1	21	0	0	9
Conflicting Flow All 338													
Conflicting Flow All 338	Maior/Minor N	Maior1		ı	Maior2		ľ	Minor1		N	Minor2		
Stage 1			0			0			779			788	337
Stage 2 - - - - 358 354 - 436 435 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - - 6.12 5.52 - 6.12 5.52 - Critical Hdwy Stg 2 - - - - 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 3.518 4.018 3.318 Pollow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.318 4.018 3.018 4.018 3.018 4.018 4.018 4.018 4.018 <td< td=""><td></td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></td<>		-	-	-	-								-
Critical Hdwy 4.12 - 4.12 - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22 Critical Hdwy Stg 1 - - - - - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 5.52 - 6.12 3.318 3.318 3.318 3.318 3.318 3.318 3.318 3.23 705 Stage 1 - - - - - 3.04 3.22 6.47 294 318 705 Stage 1 -	O .	_	_	_	_	_	_			_			_
Critical Hdwy Stg 1 - - - - 6.12 5.52 - 6.02 5.12 2.02 1.02		4.12	_	_	4.12	_				6.22			6.22
Critical Hdwy Stg 2 6.12 5.52 - 6.12 5.52 - Follow-up Hdwy 2.218 2.218 3.518 4.018 3.318 3.518 4.018 3.318 Pot Cap-1 Maneuver 1221 1146 311 327 647 308 323 705 Stage 1 607 586 - 664 631 - Stage 2 660 630 - 599 580 - Platoon blocked, % 660 630 - 599 580 - Platoon blocked, %	•	-	_	_	-	_	_			-			-
Follow-up Hdwy 2.218 - 2.218 - 3.518 4.018 3.318 3.518 4.018 3.318 Pot Cap-1 Maneuver 1221 - 1146 - 311 327 647 308 323 705 Stage 1 - 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	, ,	-	_	_	-	_	_			_			_
Pot Cap-1 Maneuver 1221 - 1146 - - 311 327 647 308 323 705 Stage 1 - - - - - 607 586 - 664 631 - Stage 2 - - - - - 660 630 - 599 580 - Platoon blocked, % - - - - - - 660 630 - 599 580 - Mov Cap-1 Maneuver 1221 - 1146 - - 304 322 647 294 318 705 Mov Cap-2 Maneuver - - - - 304 322 647 294 318 - 5tage 1 658 627 - - 602 581 - 658 627 - - 647 626 - 574 575 - - 8 - <td></td> <td>2.218</td> <td>_</td> <td>_</td> <td>2.218</td> <td>_</td> <td>_</td> <td></td> <td></td> <td>3.318</td> <td></td> <td></td> <td>3.318</td>		2.218	_	_	2.218	_	_			3.318			3.318
Stage 1			_	_		_	_						
Stage 2 - - - - 660 630 - 599 580 - Platoon blocked, % - <t< td=""><td>•</td><td>-</td><td>_</td><td>_</td><td>-</td><td>_</td><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	•	-	_	_	-	_	_						
Platoon blocked, % - <		-	_	_	-	_	_			_			_
Mov Cap-1 Maneuver 1221 - - 1146 - - 304 322 647 294 318 705 Mov Cap-2 Maneuver - - - - - 304 322 - 294 318 - Stage 1 - - - - 602 581 - 658 627 - Stage 2 - - - - 647 626 - 574 575 - Approach EB WB WB NB SB HCM Control Delay, s 0.2 0.2 17 10.2 Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Canter V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 <td>O .</td> <td></td> <td>_</td> <td>_</td> <td></td> <td>_</td> <td></td> <td>000</td> <td>000</td> <td></td> <td>077</td> <td>000</td> <td></td>	O .		_	_		_		000	000		077	000	
Mov Cap-2 Maneuver - - - - 304 322 - 294 318 - Stage 1 - - - - - 602 581 - 658 627 - Stage 2 - - - - 647 626 - 574 575 - Approach EB WB NB NB SB HCM Control Delay, s 0.2 0.2 17 10.2 Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Lane V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 HCM Control Delay (s) 17 8 - 8.2 - - 10.2		1221	_	_	1146	_	_	304	322	647	294	318	705
Stage 1 - - - - 602 581 - 658 627 - Stage 2 - - - - 647 626 - 574 575 - Approach EB WB NB SB HCM Control Delay, s 0.2 0.2 17 10.2 HCM LOS C B Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - 1146 - 705 HCM Lane V/C Ratio 0.178 0.009 - 0.007 - 0.007 - 0.012 HCM Control Delay (s) 17 8 - 8.2 - 10.2	•		-	_	-	_							
Stage 2 - - - - 647 626 - 574 575 - Approach EB WB NB SB HCM Control Delay, s 0.2 0.2 17 10.2 HCM LOS C B Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Lane V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 HCM Control Delay (s) 17 8 - 8.2 - - 10.2	·		-	-	-	-							
Approach EB WB NB SB HCM Control Delay, s 0.2 0.2 17 10.2 HCM LOS C B Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Lane V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 HCM Control Delay (s) 17 8 - 8.2 - - 10.2	~	_	_	_	_	_							
HCM Control Delay, s 0.2 0.2 17 10.2	2.2g0 L							J 1,	323		3, 1	3,3	
HCM Control Delay, s 0.2 0.2 17 10.2	Annroach	ΓD			MD			NID			CD		
Minor Lane/Major Mvmt NBLn1 EBL EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Lane V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 HCM Control Delay (s) 17 8 - 8.2 - - 10.2													
Minor Lane/Major Mvmt NBLn1 EBL EBR WBL WBT WBR SBLn1 Capacity (veh/h) 366 1221 - - 1146 - - 705 HCM Lane V/C Ratio 0.178 0.009 - - 0.007 - - 0.012 HCM Control Delay (s) 17 8 - 8.2 - - 10.2		0.2			U.Z								
Capacity (veh/h) 366 1221 1146 705 HCM Lane V/C Ratio 0.178 0.009 0.007 0.012 HCM Control Delay (s) 17 8 - 8.2 - 10.2	HOW LOS							C			В		
Capacity (veh/h) 366 1221 1146 705 HCM Lane V/C Ratio 0.178 0.009 0.007 0.012 HCM Control Delay (s) 17 8 - 8.2 - 10.2	Minor Long /Maria - Ma		UDL 1	EDI	EDT	EDD	MDI	WOT	WED	CDL 1			
HCM Lane V/C Ratio 0.178 0.009 0.007 0.012 HCM Control Delay (s) 17 8 8.2 10.2		l Jí						WBI					
HCM Control Delay (s) 17 8 8.2 10.2								-					
						-		-					
HCM Lane LOS C A A B						-		-					
					-	-		-					
HCM 95th %tile Q(veh) 0.6 0 0 - 0	HCM 95th %tile Q(veh))	0.6	0	-	-	0	-	-	0			

Queues

4: Woodson Road & Johnson Drive

	•	-	•	←	†	ļ
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	400	14	328	25	33
v/c Ratio	0.02	0.24	0.02	0.19	0.07	0.10
Control Delay	2.1	2.0	2.1	1.9	9.0	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	2.0	2.1	1.9	9.0	8.4
Queue Length 50th (ft)	0	0	0	0	1	1
Queue Length 95th (ft)	5	67	5	53	14	16
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	989	1848	925	1853	1352	1353
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.22	0.02	0.18	0.02	0.02
Intersection Summary						

	۶	→	•	•	-	•	1	†	/	/		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	₽			ĵ»			- ↔			4	
Traffic Volume (veh/h)	13	350	18	13	292	10	6	3	14	6	4	20
Future Volume (veh/h)	13	350	18	13	292	10	6	3	14	6	4	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	4704	No	4070	4704	No	4070	1/10	No	4070	1/10	No	4070
Adj Sat Flow, veh/h/ln	1781	1870	1870	1781	1870	1870	1648	1870	1870	1648	1870	1870
Adj Flow Rate, veh/h	14	380	20	14	317	11	7	3	15	7	4	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8 711	2 766	2 40	8 658	2 781	2 27	17 285	2 14	2 68	17 264	2 14	75
Cap, veh/h Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1002	1761	93	938	1797	62	455	195	975	344	196	1080
	14	0	400	14	0	328	25		0	33	0	0
Grp Volume(v), veh/h Grp Sat Flow(s),veh/h/ln	1002	0	1854	938	0	1859	1625	0	0	1620	0	0
Q Serve(g_s), s	0.2	0.0	2.8	0.2	0.0	2.2	0.0	0.0	0.0	0.1	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	2.8	3.0	0.0	2.2	0.0	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00	0.0	0.05	1.00	0.0	0.03	0.28	0.0	0.60	0.3	0.0	0.67
Lane Grp Cap(c), veh/h	711	0	806	658	0	808	367	0	0.00	353	0	0.07
V/C Ratio(X)	0.02	0.00	0.50	0.02	0.00	0.41	0.07	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	3942	0.00	6785	3683	0.00	6805	2350	0.00	0.00	2359	0.00	0.00
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.3	0.0	3.7	4.8	0.0	3.5	8.0	0.0	0.0	8.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.5	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.4	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh	1											
LnGrp Delay(d),s/veh	4.4	0.0	4.2	4.8	0.0	3.9	8.0	0.0	0.0	8.1	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	Α	<u>A</u>
Approach Vol, veh/h		414			342			25			33	
Approach Delay, s/veh		4.2			3.9			8.0			8.1	
Approach LOS		А			Α			Α			Α	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		5.8		12.4		5.8		12.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		24.5		66.5		24.5		66.5				
Max Q Clear Time (g_c+l1), s		2.2		4.8		2.3		5.0				
Green Ext Time (p_c), s		0.1		3.1		0.1		2.4				
Intersection Summary												
HCM 6th Ctrl Delay			4.3									
HCM 6th LOS			Α									

5: Lamar Avenue & Martway Street

	•	→	\rightarrow	•	•	•	†	>	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	39	66	102	87	78	113	218	16	305	
v/c Ratio	0.17	0.40	0.42	0.33	0.32	0.16	0.19	0.02	0.29	
Control Delay	30.2	49.5	11.8	33.4	35.9	6.8	8.7	6.8	10.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	30.2	49.5	11.8	33.4	35.9	6.8	8.7	6.8	10.4	
Queue Length 50th (ft)	20	40	0	45	39	22	38	3	64	
Queue Length 95th (ft)	43	80	40	80	80	49	110	m9	111	
Internal Link Dist (ft)		558			482		498		667	
Turn Bay Length (ft)			120	200		100		100		
Base Capacity (vph)	241	407	438	281	444	730	1176	726	1049	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.16	0.23	0.31	0.18	0.15	0.19	0.02	0.29	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+	7	7	1•		ሻ	₽		ሻ	₽	
Traffic Volume (veh/h)	36	61	94	80	56	16	104	138	63	15	234	47
Future Volume (veh/h)	36	61	94	80	56	16	104	138	63	15	234	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		4070	No			No	40=6
Adj Sat Flow, veh/h/ln	1856	1826	1841	1856	1856	1811	1870	1870	1856	1707	1856	1870
Adj Flow Rate, veh/h	39	66	102	87	61	17	113	150	68	16	254	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	3	3	6	2	2	3	13	3	2
Cap, veh/h	228	162	139	242	160	45	828	797	361	744	937	188
Arrive On Green	0.03	0.09	0.09	0.06	0.11	0.11	0.05	0.65	0.65	0.04	1.00	1.00
Sat Flow, veh/h	1767	1826	1560	1767	1396	389	1781	1219	552	1626	1500	301
Grp Volume(v), veh/h	39	66	102	87	0	78	113	0	218	16	0	305
Grp Sat Flow(s), veh/h/ln	1767	1826	1560	1767	0	1785	1781	0	1771	1626	0	1801
Q Serve(g_s), s	2.0	3.4	6.4	4.4	0.0	4.0	2.2	0.0	4.9	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.4	6.4	4.4	0.0	4.0	2.2	0.0	4.9	0.4	0.0	0.0
Prop In Lane	1.00	1/0	1.00	1.00	0	0.22	1.00	0	0.31	1.00	0	0.17
Lane Grp Cap(c), veh/h	228	162	139	242	0	205	828	0	1159	744	0	1125
V/C Ratio(X)	0.17	0.41	0.73	0.36	0.00	0.38	0.14	0.00	0.19	0.02	0.00	0.27
Avail Cap(c_a), veh/h	302	411	351 1.00	306 1.00	0 1.00	437	930	1.00	1159	837	2.00	1125 2.00
HCM Platoon Ratio	1.00	1.00 1.00	1.00	1.00	0.00	1.00	1.00 1.00	1.00 0.00	1.00	2.00 0.73	2.00	0.73
Upstream Filter(I) Uniform Delay (d), s/veh	39.4	43.1	44.4	38.2	0.00	41.0	5.6	0.00	6.8	6.4	0.00	0.73
Incr Delay (d2), s/veh	0.4	1.6	7.3	0.9	0.0	1.2	0.1	0.0	0.6	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.4	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4
%ile BackOfQ(95%),veh/ln	1.6	2.9	5.0	3.6	0.0	3.3	1.3	0.0	3.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh		2.7	5.0	3.0	0.0	5.5	1.5	0.0	J.Z	0.2	0.0	0.2
LnGrp Delay(d),s/veh	39.8	44.7	51.7	39.1	0.0	42.1	5.6	0.0	7.2	6.4	0.0	0.4
LnGrp LOS	D	D	D	D	Α	72.1 D	3.0 A	Α	Α.2	Α	Α	A
Approach Vol, veh/h		207			165			331			321	
Approach Delay, s/veh		47.2			40.5			6.7			0.7	
Approach LOS		T7.2			D			Α			Α	
											,,	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	69.9	10.4	13.4	9.3	66.9	7.8	16.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	42.5	9.5	22.5	10.5	39.5	7.5	24.5				
Max Q Clear Time (g_c+l1), s	2.4	6.9	6.4	8.4	4.2	2.0	4.0	6.0				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.5	0.1	2.0	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			18.5									
HCM 6th LOS			В									

Kimley-Horn 02/21/2024

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	1	,,,,,	¥	55.1
Traffic Vol, veh/h	11	125	124	8	7	20
Future Vol, veh/h	11	125	124	8	7	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	7	4	2	2	5
Mvmt Flow	12	136	135	9	8	22
Major/Minor	laior1	, and the second	/laior2		Minora	
	lajor1		Major2		Minor2	140
Conflicting Flow All	144	0	-	0	300	140
Stage 1	-	-	-	-	140	-
Stage 2	4.2	-	-	-	160	- / 2F
Critical Hdwy	4.2	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	2 20	-	-	-	5.42	2 2 4 5
Follow-up Hdwy	2.29	-	-		3.518	
	1391	-	-	-	691	900
Stage 1	-	-	-	-	887	-
Stage 2	-	-	-	-	869	-
Platoon blocked, %	1204	-	-	-	/05	000
	1391	-	-	-	685	900
Mov Cap-2 Maneuver	-	-	-	-	685	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	869	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.6		0		9.5	
HCM LOS	0.0				7.5 A	
.10.11.200					^	
Minor Lane/Major Mvmt		EBL	EBT	WBT	WBR :	CDI n1
			LDI	WDI	WDK	
Capacity (veh/h)		1391	-	-	-	832
HCM Central Delay (c)		0.009	-	-		0.035
HCM Control Delay (s)		7.6	0 A	-	-	9.5
LCM Lana LOC						
HCM Lane LOS HCM 95th %tile Q(veh)		A 0	- A	-	-	0.1

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	1	,,,,,	¥	<u> </u>
Traffic Vol, veh/h	14	121	110	3	6	19
Future Vol, veh/h	14	121	110	3	6	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	4	3	2	2	2
Mvmt Flow	15	132	120	3	7	21
Major/Minor I	Major1	N	Major2	ı	Minor2	
Conflicting Flow All	123	0	viajoi z	0	284	122
Stage 1	123	-	_	-	122	-
Stage 2	_	_	_	_	162	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1	-	_	_	_	5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	2.218	-	-		3.518	3.318
Pot Cap-1 Maneuver	1464	-	-	-	706	929
Stage 1	-	-	-	-	903	-
Stage 2	-	_	-	-	867	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1464	_	-	-	698	929
Mov Cap-2 Maneuver	-	-	-	-	698	-
Stage 1	-	_	_	-	893	_
Stage 2	-	-	-	-	867	-
J.Igo _						
A	ED		WD		CD	
Approach	EB		WB		SB	
HCM Control Delay, s	0.8		0		9.3	
HCM LOS					Α	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR S	SBLn1
Capacity (veh/h)		1464	-	-	-	861
HCM Lane V/C Ratio		0.01	-	-	-	0.032
HCM Control Delay (s)		7.5	0	-	-	9.3
HCM Lane LOS		Α	Α	-	-	Α
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Intersection Delay, s/veh	8.1											
Intersection LOS	Α											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	17	103	7	3	88	3	7	3	0	9	8	18
Future Vol, veh/h	17	103	7	3	88	3	7	3	0	9	8	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	2	33	4	2	2	2	2	2	2	2
Mvmt Flow	18	112	8	3	96	3	8	3	0	10	9	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	8.4	7.7	7.4
HCM LOS	А	A	А	А

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	70%	13%	3%	26%	
Vol Thru, %	30%	81%	94%	23%	
Vol Right, %	0%	6%	3%	51%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	10	127	94	35	
LT Vol	7	17	3	9	
Through Vol	3	103	88	8	
RT Vol	0	7	3	18	
Lane Flow Rate	11	138	102	38	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.014	0.159	0.132	0.045	
Departure Headway (Hd)	4.673	4.142	4.64	4.245	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	770	857	767	849	
Service Time	2.675	2.207	2.701	2.245	
HCM Lane V/C Ratio	0.014	0.161	0.133	0.045	
HCM Control Delay	7.7	8	8.4	7.4	
HCM Lane LOS	А	Α	А	А	
HCM 95th-tile Q	0	0.6	0.5	0.1	

5.8					
	FDD	NDL	NDT	CDT	CDD
	FRK	NRL			SBR
	1/	,			1/
					16
					16
					0
Stop		Free		Free	Free
-	None	-	None	-	None
	-	-	-	-	-
	-	-	0	0	-
0	-	-	0	0	-
92	92	92	92	92	92
2	2	2	2	2	2
53	17	7	12	10	17
Minora		Major1	Λ.	10ior2	
		27	0	-	0
		-	-	-	-
		-	-	-	-
	6.22	4.12	-	-	-
	-	-	-	-	-
5.42	-	-	-	-	-
3.518	3.318	2.218	-	-	-
965	1059	1587	-	-	-
1004	-	-	-	-	-
997	-	-	-	-	-
			-	-	-
961	1059	1587	-	-	-
	-	-	_	_	_
	_	_	_	_	_
	_	_	_	_	_
771					
8.9		2.6		0	
0.9					
6.9 A					
А	NIDI	NDT	EDI n1	CDT	CDD
	NBL 1507		EBLn1	SBT	SBR
А	1587	-	983	-	-
A nt	1587 0.004	-	983 0.072	-	-
А	1587 0.004 7.3	- - 0	983 0.072 8.9	-	- -
A nt	1587 0.004	-	983 0.072	-	-
	0 e, # 0 0 92 2 53	## 16 ## 16 ## 16 ## 16 ## 16 ## 16 ## 0 0 ## 16 ## 0 0 ## 0 ## 0 ## 0 ## 0 ## 92 ## 2 ## 2 ## 2 ## 3 ## 17 ## 17 ## 17 ## 17 ## 17 ## 19	EBL EBR NBL 49 16 6 49 16 6 0 0 0 0 Stop Stop Free - None 0 9, # 0 92 92 92 2 2 2 53 17 7 Minor2 Major1 45 19 27 19 26 6.42 6.22 4.12 5.42 5.42 5.42 5.42 5.42 5.42 9, 40 997 961 1059 1587 961 1000 997	EBL EBR NBL NBT 49 16 6 11 49 16 6 11 0 0 0 0 Stop Stop Free Free - None - None - None 0 0 0 92 92 92 92 2 2 2 2 2 2 2 2 53 17 7 12 Minor2 Major1 Major1 Major1 Major1 A 45 19 27 0 19	EBL EBR NBL NBT SBT Y Image: Control of the control of th

Intersection						
Int Delay, s/veh	0.4					
	EBT	EDD	WBL	WBT	NBL	NBR
		EBR	WDL		NBL	NDK
Lane Configurations Traffic Vol., veh/h	124	2	1	र्दी 144		1
	136	3	1		8	
Future Vol, veh/h	136	3	1	144	8	1
Conflicting Peds, #/hr	0	0	0	0	O Cton	O Cton
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-		-	None
Storage Length	- 4 0	-	-	-	0	
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	3	1	157	9	1
Major/Minor Ma	ajor1	N	Major2	1	Minor1	
Conflicting Flow All	0	0	151	0	309	150
Stage 1	-	-	-	-	150	-
Stage 2	_	-	_	-	159	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-		-		5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
Follow-up Hdwy	_	_	2.218	_		3.318
Pot Cap-1 Maneuver	_	_	1430	_	683	896
Stage 1	_	_	-	_	878	-
Stage 2	_	_	-	_	870	_
Platoon blocked, %	_	_		_	070	
Mov Cap-1 Maneuver	_	_	1430	_	682	896
Mov Cap-1 Maneuver	_		1430	_	682	- 070
Stage 1	_	-	-		878	-
	-	-	-	-	869	
Stage 2	-	-	-	-	809	-
Approach	EB		WB		NB	
			Λ 1		10.2	
HCM Control Delay, s	0		0.1			
HCM Control Delay, s HCM LOS	0		0.1		В	
	0		0.1			
HCM LOS		.IDI n1		EDD	В	WDT
HCM LOS Minor Lane/Major Mvmt		VBLn1	EBT	EBR	B WBL	WBT
Minor Lane/Major Mvmt Capacity (veh/h)	ľ	701	EBT -	-	WBL 1430	-
Minor Lane/Major Mvmt Capacity (veh/h) HCM Lane V/C Ratio	ľ	701 0.014	EBT	-	WBL 1430 0.001	-
Minor Lane/Major Mvmt Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)	ľ	701 0.014 10.2	EBT - -	- - -	WBL 1430 0.001 7.5	- - 0
Minor Lane/Major Mvmt Capacity (veh/h) HCM Lane V/C Ratio	ľ	701 0.014	EBT -	-	WBL 1430 0.001	-

Intersection						
Int Delay, s/veh	0.3					
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			र्स	W	
Traffic Vol, veh/h	131	1	1	128	4	4
Future Vol, veh/h	131	1	1	128	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	1	1	139	4	4
Major/Minor M	olor1		Major2	N	Minor1	
	ajor1					140
Conflicting Flow All	0	0	143	0	284	143
Stage 1	-	-	-	-	143	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1440	-	706	905
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1440	-	705	905
Mov Cap-2 Maneuver	-	-	-	-	705	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	885	-
Ŭ						
Approach	ED		WD		ND	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		9.6	
HCM LOS					Α	
Minor Lane/Major Mvmt	N	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		793			1440	
HCM Lane V/C Ratio		0.011	_	_	0.001	-
HCM Control Delay (s)		9.6	_	_	7.5	0
HCM Lane LOS		7.0 A	_	_	7.5 A	A
HCM 95th %tile Q(veh)		0	-	_	0	- -
HOW FOUT /OUR Q(VEH)		U	-	-	U	-

Queues

1: Lamar Avenue & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	137	572	87	725	90	245	85	93	369	
v/c Ratio	0.36	0.35	0.20	0.49	0.39	0.54	0.17	0.29	0.81	
Control Delay	15.6	19.1	12.6	23.5	22.4	33.8	4.3	22.1	45.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	19.1	12.6	23.5	22.4	33.8	4.3	22.1	45.8	
Queue Length 50th (ft)	42	122	27	183	34	140	4	38	199	
Queue Length 95th (ft)	83	178	59	271	72	184	23	66	280	
Internal Link Dist (ft)		658		585		667			624	
Turn Bay Length (ft)	160		100		100		130	135		
Base Capacity (vph)	419	1633	448	1488	232	599	620	322	579	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.35	0.19	0.49	0.39	0.41	0.14	0.29	0.64	
Intersection Summary										

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		∱ ⊅		ሻ	Φ₽		ሻ	•	7	ሻ	₽	
Traffic Volume (veh/h)	126	400	126	80	596	71	83	225	78	86	192	147
Future Volume (veh/h)	126	400	126	80	596	71	83	225	78	86	192	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1070	No	1070	1070	No	1070	1070	No	1070	1070	No	1070
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h Peak Hour Factor	137 0.92	435 0.92	137 0.92	87 0.92	648 0.92	77 0.92	90 0.92	245 0.92	85 0.92	93 0.92	209 0.92	160 0.92
Percent Heavy Veh, %	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap, veh/h	502	1281	400	471	1492	177	203	448	379	288	236	181
Arrive On Green	0.06	0.48	0.48	0.09	0.93	0.93	0.02	0.08	0.08	0.05	0.24	0.24
Sat Flow, veh/h	1781	2666	832	1781	3199	380	1781	1870	1585	1781	983	752
Grp Volume(v), veh/h	137	289	283	87	360	365	90	245	85	93	0	369
Grp Sat Flow(s), veh/h/ln	1781	1777	1721	1781	1777	1802	1781	1870	1585	1781	0	1735
Q Serve(g_s), s	3.9	10.1	10.2	2.5	2.3	2.3	3.8	12.6	5.0	3.9	0.0	20.5
Cycle Q Clear(g_c), s	3.9	10.1	10.2	2.5	2.3	2.3	3.8	12.6	5.0	3.9	0.0	20.5
Prop In Lane	1.00		0.48	1.00	2.0	0.21	1.00	12.0	1.00	1.00	0.0	0.43
Lane Grp Cap(c), veh/h	502	854	827	471	829	841	203	448	379	288	0	418
V/C Ratio(X)	0.27	0.34	0.34	0.18	0.43	0.43	0.44	0.55	0.22	0.32	0.00	0.88
Avail Cap(c_a), veh/h	607	854	827	506	829	841	227	602	510	301	0	550
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.2	16.1	16.1	12.3	1.9	1.9	29.7	40.8	37.3	27.2	0.0	36.6
Incr Delay (d2), s/veh	0.3	1.1	1.1	0.2	1.7	1.6	1.4	1.0	0.3	0.6	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	7.7	7.6	1.7	1.7	1.7	3.1	10.5	3.7	3.0	0.0	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	17.2	17.3	12.5	3.5	3.5	31.2	41.8	37.6	27.8	0.0	49.4
LnGrp LOS	В	В	В	В	A	A	С	D	D	С	A	<u>D</u>
Approach Vol, veh/h		709			812			420			462	
Approach Delay, s/veh		16.3			4.5			38.7			45.0	
Approach LOS		В			А			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	28.4	9.1	52.6	9.8	28.6	10.5	51.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.2	32.2	6.5	37.1	6.7	31.7	11.9	31.7				
Max Q Clear Time (g_c+I1), s	5.9	14.6	4.5	12.2	5.8	22.5	5.9	4.3				
Green Ext Time (p_c), s	0.0	1.5	0.0	3.9	0.0	1.6	0.2	5.2				
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			С									

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	- 1	सी		7	ĵ.			4			4	
Traffic Vol, veh/h	24	527	13	24	714	10	7	9	36	2	2	26
Future Vol, veh/h	24	527	13	24	714	10	7	9	36	2	2	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	573	14	26	776	11	8	10	39	2	2	28
Major/Minor N	/lajor1		ľ	Major2		ı	Minor1		ľ	Vinor2		
Conflicting Flow All	787	0	0	587	0	0	1481	1471	580	1491	1473	782
Stage 1	-	-	-	_	-	-	632	632	-	834	834	_
Stage 2	-	-	-	-	-	-	849	839	-	657	639	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	832	-	-	988	-	-	103	127	514	102	127	394
Stage 1	-	-	-	-	-	-	468	474	-	362	383	-
Stage 2	-	-	-	-	-	-	356	381	-	454	470	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	832	-	-	988	-	-	90	120	514	85	120	394
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	120	-	85	120	-
Stage 1	-	-	-	-	-	-	453	459	-	351	373	-
Stage 2	-	-	-	-	-	-	320	371	-	398	455	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.3			25.3			19.4		
HCM LOS				3.0			D			C		
Minor Lane/Major Mvm	t N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR:	SBLn1			
Capacity (veh/h)		233	832	-	-	988	-					
HCM Lane V/C Ratio		0.243		_	_	0.026	_		0.115			
HCM Control Delay (s)		25.3	9.5	0	-	8.7	-	-				
HCM Lane LOS		D	A	A	_	A	_	_	С			
HCM 95th %tile Q(veh)		0.9	0.1	-	-	0.1	-	-	0.4			
		3.7	J. 1						J. ;			

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	î,		ች	ĵ.			4			4	
Traffic Vol, veh/h	13	510	42	26	694	2	40	0	20	0	1	14
Future Vol., veh/h	13	510	42	26	694	2	40	0	20	0	1	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None		-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	e,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	10	2	2	2
Mvmt Flow	14	554	46	28	754	2	43	0	22	0	1	15
Major/Minor N	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	756	0	0	600	0	0	1424	1417	577	1427	1439	755
Stage 1	-	-	-	-	-	-	605	605	-	811	811	-
Stage 2	-	-	-	-	-	-	819	812	-	616	628	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.3	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.39	3.518	4.018	3.318
Pot Cap-1 Maneuver	855	-	-	977	-	-	113	137	501	113	133	409
Stage 1	-	-	-	-	-	-	485	487	-	373	393	-
Stage 2	-	-	-	-	-	-	369	392	-	478	476	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	855	-	-	977	-	-	104	131	501	104	127	409
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	131	-	104	127	-
Stage 1	-	-	-	-	-	-	477	479	-	367	382	-
Stage 2	-	-	-	-	-	-	344	381	-	450	468	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			50.8			15.6		
HCM LOS							F			С		
Minor Lane/Major Mvm	nt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1			
Capacity (veh/h)		141	855	-	-	977	-	-	356			
HCM Lane V/C Ratio		0.463		-	_	0.029	-	_	0.046			
HCM Control Delay (s)		50.8	9.3	-	-	8.8	-	-	15.6			
HCM Lane LOS		F	A	-	-	A	-	-	С			
HCM 95th %tile Q(veh))	2.1	0.1	-	-	0.1	-	-	0.1			
	,											

Queues

4: Woodson Road & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	13	563	23	760	48	52
v/c Ratio	0.02	0.35	0.03	0.47	0.34	0.37
Control Delay	8.0	1.9	1.9	3.5	33.4	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.8	1.9	1.9	3.5	33.4	36.9
Queue Length 50th (ft)	0	22	2	93	16	20
Queue Length 95th (ft)	m2	28	7	179	50	56
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	524	1593	683	1602	329	327
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.35	0.03	0.47	0.15	0.16
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽		ሻ	1•			4			4	
Traffic Volume (veh/h)	12	498	20	21	689	10	15	9	20	19	10	18
Future Volume (veh/h)	12	498	20	21	689	10	15	9	20	19	10	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	.=	No		4007	No		4070	No	40=0	40=0	No	4070
Adj Sat Flow, veh/h/ln	1781	1870	1826	1826	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	541	22	23	749	11	16	10	22	21	11	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	2	5	5	2	2	2	2	2	2	2	2
Cap, veh/h	589	1540	63	737	1587	23	70	21	37	79	21	31
Arrive On Green	0.86	0.86	0.86	0.86	0.86	0.86	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	672	1785	73	827	1838	27	472	454	783	602	440	651
Grp Volume(v), veh/h	13	0	563	23	0	760	48	0	0	52	0	0
Grp Sat Flow(s), veh/h/ln	672	0	1857	827	0	1865	1709	0	0	1693	0	0
Q Serve(g_s), s	0.5	0.0	6.0	0.6	0.0	9.4	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	9.9	0.0	6.0	6.5	0.0	9.4	2.6	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00	Λ	0.04	1.00	٥	0.01	0.33	٥	0.46	0.40	٥	0.38
Lane Grp Cap(c), veh/h	589	0	1603 0.35	737	0.00	1610	128 0.37	0	0	130	0	0
V/C Ratio(X)	0.02 589	0.00	1603	0.03 737	0.00	0.47 1610	359	0.00	0.00	0.40 358	0.00	0.00
Avail Cap(c_a), veh/h HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.7	0.00	1.00	2.0	0.00	1.6	46.7	0.00	0.00	46.8	0.00	0.00
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	1.0	1.8	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	2.1	0.0	0.0	3.4	2.2	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	2.1	0.1	0.0	5.⊣	۷.۷	0.0	0.0	۷.٦	0.0	0.0
LnGrp Delay(d),s/veh	2.8	0.0	2.0	2.1	0.0	2.6	48.5	0.0	0.0	48.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D	A	A	D	A	A
Approach Vol, veh/h		576			783			48			52	
Approach Delay, s/veh		2.0			2.6			48.5			48.7	
Approach LOS		A			A			D			D	
				1		4						
Timer - Assigned Phs Phs Duration (G+Y+Rc), s		9.2		90.8		9.2		90.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.5		71.5		19.5		71.5				
Max Q Clear Time (q_c+l1), s		4.6		11.9		4.8		11.4				
Green Ext Time (p_c), s		0.1		4.8		0.2		7.6				
•		0.1		7.0		0.2		7.0				
Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			Α									

Queues

5: Lamar Avenue & Martway Street

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	175	208	109	184	180	352	67	365
v/c Ratio	0.37	0.62	0.50	0.36	0.64	0.32	0.38	0.12	0.43
Control Delay	28.1	48.8	9.3	28.0	44.7	11.4	17.2	6.3	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	48.8	9.3	28.0	44.7	11.4	17.2	6.3	14.3
Queue Length 50th (ft)	52	107	0	52	99	45	122	7	108
Queue Length 95th (ft)	81	162	58	82	157	98	237	m25	230
Internal Link Dist (ft)		558			482		498		667
Turn Bay Length (ft)			120	200		100		100	
Base Capacity (vph)	301	400	503	308	399	591	968	570	866
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.44	0.41	0.35	0.46	0.30	0.36	0.12	0.42
Intersection Summary									

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7		7	ሻ	₽		ሻ	₽		ሻ	₽	
Traffic Volume (veh/h)	99	161	191	100	117	52	166	235	89	62	228	108
Future Volume (veh/h)	99	161	191	100	117	52	166	235	89	62	228	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1070	No	1070	1070	No	1070	1070	No	105/	1070	No	1070
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h Peak Hour Factor	108 0.92	175 0.92	208 0.92	109 0.92	127 0.92	57 0.92	180 0.92	255 0.92	97 0.92	67 0.92	248 0.92	117 0.92
Percent Heavy Veh, %	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap, veh/h	263	294	249	262	193	87	543	714	272	603	634	299
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16	0.07	0.55	0.55	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1223	549	1781	1291	491	1781	1201	567
Grp Volume(v), veh/h	108	175	208	109	0	184	180	0	352	67	0	365
Grp Sat Flow(s), veh/h/ln	1781	1870	1585	1781	0	1772	1781	0	1782	1781	0	1768
Q Serve(g_s), s	5.0	8.7	12.7	5.1	0.0	9.8	4.5	0.0	11.0	1.7	0.0	18.3
Cycle Q Clear(g_c), s	5.0	8.7	12.7	5.1	0.0	9.8	4.5	0.0	11.0	1.7	0.0	18.3
Prop In Lane	1.00	0.7	1.00	1.00	0.0	0.31	1.00	0.0	0.28	1.00	0.0	0.32
Lane Grp Cap(c), veh/h	263	294	249	262	0	279	543	0	986	603	0	934
V/C Ratio(X)	0.41	0.60	0.83	0.42	0.00	0.66	0.33	0.00	0.36	0.11	0.00	0.39
Avail Cap(c_a), veh/h	296	402	341	294	0	381	646	0	986	626	0	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.65	0.00	0.65
Uniform Delay (d), s/veh	32.6	39.2	40.9	32.4	0.0	39.6	11.1	0.0	12.4	10.3	0.0	27.0
Incr Delay (d2), s/veh	1.0	1.9	12.2	1.0	0.0	2.6	0.4	0.0	1.0	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	7.5	9.8	4.1	0.0	7.9	3.1	0.0	7.9	1.2	0.0	12.7
Unsig. Movement Delay, s/veh			== .									
LnGrp Delay(d),s/veh	33.6	41.1	53.1	33.5	0.0	42.2	11.5	0.0	13.5	10.3	0.0	27.8
LnGrp LOS	С	D 101	D	С	A	D	В	A	В	В	A	<u>C</u>
Approach Vol, veh/h		491			293			532			432	
Approach Delay, s/veh		44.5			39.0			12.8			25.1	
Approach LOS		D			D			В			С	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	59.8	11.2	20.2	11.2	57.3	11.2	20.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	46.5	8.5	21.5	12.5	39.5	8.5	21.5				
Max Q Clear Time (g_c+l1), s	3.7	13.0	7.1	14.7	6.5	20.3	7.0	11.8				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.0	0.2	2.2	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			29.1									
HCM 6th LOS			С									

Intersection						
Int Delay, s/veh	1.1					
		EDT	WPT	MDD	CDI	CDD
Movement	EBL	EBT	WBT	WBR	SBL 🙀	SBR
Lane Configurations	20	€	}	24		22
Traffic Vol, veh/h	28	275	241	24	16	23
Future Vol, veh/h	28	275	241	24	16	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-		-	None	-	
Storage Length	-	-	-	-	0	-
Veh in Median Storage		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	2
Mvmt Flow	30	299	262	26	17	25
Major/Minor N	Major1	N	Major2	1	Minor2	
Conflicting Flow All	288	0		0	634	275
Stage 1		_	-	-	275	
Stage 2	_	_		_	359	_
Critical Hdwy	4.12	_	-	-	6.42	6.22
Critical Hdwy Stg 1	-	_		_	5.42	-
Critical Hdwy Stg 2	_	_	-	-	5.42	_
Follow-up Hdwy	2.218	_	-	_	3.518	3.318
Pot Cap-1 Maneuver	1274	-	-	-	443	764
Stage 1	-	_	-	_	771	_
Stage 2	_	_	-	-	707	_
Platoon blocked, %		_		_		
Mov Cap-1 Maneuver	1274	_	_	_	431	764
Mov Cap-2 Maneuver	-	-			431	-
Stage 1	_	_	_	_	749	_
Stage 2	_	_		_	707	_
Stage 2					707	
			10.00			
Approach	EB		WB		SB	
HCM Control Delay, s	0.7		0		11.7	
HCM LOS					В	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR S	SBI n1
Capacity (veh/h)		1274			-	580
HCM Lane V/C Ratio		0.024	-	-		0.073
HCM Control Delay (s)		7.9	0			11.7
HCM Lane LOS		7. 9	A	-	-	В
					_	
HCM 95th %tile Q(veh))	0.1	_	_		0.2

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LDL	4	WB1	WDIX	→ NA	JUK
Traffic Vol, veh/h	36	253	246	10	'T '	20
Future Vol, veh/h	36	253	246	10	7	20
	0	203	0	0	0	0
Conflicting Peds, #/hr		Free	Free			
Sign Control RT Channelized	Free -	None		Free None	Stop	Stop None
		None -	-		-	None -
Storage Length	<u>-</u>		0	-	0	
Veh in Median Storage		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	20	2	2
Mvmt Flow	39	275	267	11	8	22
Major/Minor N	Najor1	N	/lajor2	ľ	Minor2	
Conflicting Flow All	278	0		0	626	273
Stage 1		-	-	-	273	
Stage 2		_	-	_	353	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1	-	_	_	_	5.42	-
Critical Hdwy Stg 2	_	_	_	_	5.42	_
3 3	2.218	_	_	_	3.518	3 318
Pot Cap-1 Maneuver	1285	_	_	_	448	766
Stage 1	-	_		_	773	-
Stage 2	_	_	_	_	711	_
Platoon blocked, %		_	_	_	, , , ,	
Mov Cap-1 Maneuver	1285	_		_	432	766
Mov Cap-1 Maneuver	1205	_	_	_	432	700
Stage 1	_	-	-	_	745	_
Stage 2		-	-	-	711	-
Staye 2	-	-	-		/11	-
Approach	EB		WB		SB	
HCM Control Delay, s					10.0	
ncivi cultiful delay, s	1		0		10.9	
HCM LOS			0		10.9 B	
,			0			
HCM LOS	1	ED!		WDT	В	2DI1
HCM LOS Minor Lane/Major Mvm	1	EBL	0 EBT	WBT		
Minor Lane/Major Mvm Capacity (veh/h)	1	1285	EBT -	WBT -	B WBR:	638
Minor Lane/Major Mvm Capacity (veh/h) HCM Lane V/C Ratio	1 t	1285 0.03	EBT - -	-	B WBR S	638 0.046
Minor Lane/Major Mvm Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)	1 t	1285 0.03 7.9	EBT - - 0	- - -	WBR:	638 0.046 10.9
Minor Lane/Major Mvm Capacity (veh/h) HCM Lane V/C Ratio	1 t	1285 0.03	EBT - -	-	B WBR S	638 0.046

Intersection												
Intersection Delay, s/veh	9.5											
Intersection LOS	Α											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	22	220	18	10	211	14	17	8	3	7	16	28
Future Vol, veh/h	22	220	18	10	211	14	17	8	3	7	16	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	5	2	2	2	2	22	2	2
Mvmt Flow	24	239	20	11	229	15	18	9	3	8	17	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	9.8			9.5			8.6			8.7		
HCM LOS	Α			А			Α			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	61%	8%	4%	14%	
Vol Thru, %	29%	85%	90%	31%	
Vol Right, %	11%	7%	6%	55%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	28	260	235	51	
LT Vol	17	22	10	7	
Through Vol	8	220	211	16	
RT Vol	3	18	14	28	
Lane Flow Rate	30	283	255	55	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.044	0.346	0.314	0.08	
Departure Headway (Hd)	5.261	4.405	4.43	5.202	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	679	817	812	687	
Service Time	3.309	2.429	2.455	3.245	
HCM Lane V/C Ratio	0.044	0.346	0.314	0.08	
HCM Control Delay	8.6	9.8	9.5	8.7	
HCM Lane LOS	А	Α	Α	Α	
HCM 95th-tile Q	0.1	1.6	1.3	0.3	

Intersection						
Int Delay, s/veh	3.3					
					0==	05-
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	ĵ.	
Traffic Vol, veh/h	32	11	18	28	16	53
Future Vol, veh/h	32	11	18	28	16	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	e, # 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	12	20	30	17	58
Major/Minor	Minor2		Major1	N	/lajor2	
Conflicting Flow All	116	46	75	0	- najuiz	0
Stage 1	46	40	75	-		-
Stage 2	70	-	-	-	-	_
Critical Hdwy	6.42	6.22	4.12			
•	5.42		4.12	-		-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2		2 210	2 210	-	-	-
Follow-up Hdwy		3.318 1023		-	-	-
Pot Cap-1 Maneuver	880		1524	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %	0/0	1000	4504	-	-	-
Mov Cap-1 Maneuver	869	1023	1524	-	-	-
Mov Cap-2 Maneuver	869	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.2		2.9		0	
HCM LOS	Α.Σ		2.7		U	
HOW EOS						
Minor Lane/Major Mvn	nt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)		1524	-	904	-	-
HCM Lane V/C Ratio		0.013	-	0.052	-	-
HCM Control Delay (s)		7.4	0	9.2	-	-
HCM Lane LOS		Α	Α	Α	-	-
HCM 95th %tile Q(veh	1)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.2					
		FDD	WDL	WDT	NDL	NDD
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	\$	0	0	4	¥	0
Traffic Vol, veh/h	303	9	2	264	5	2
Future Vol, veh/h	303	9	2	264	5	2
Conflicting Peds, #/hr	0	_ 0	0	_ 0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	329	10	2	287	5	2
N.A : - : / N.A	-!- -1		Ma!a#2		M:1	
	ajor1		Major2		Minor1	
Conflicting Flow All	0	0	339	0	625	334
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1220	-	449	708
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1220	_	448	708
Mov Cap-2 Maneuver	-	-	-	_	448	-
Stage 1	-	_	_	_	725	_
Stage 2	_	_	_	_	757	_
Jugo 2					, , ,	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		12.3	
HCM LOS					В	
						WDT
Minor Long/Maior M	N.	IDI1	LDT	EDD	1///	
Minor Lane/Major Mvmt	N	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		501	-	-	1220	-
Capacity (veh/h) HCM Lane V/C Ratio		501 0.015		-	1220 0.002	-
Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)		501 0.015 12.3	-	-	1220 0.002 8	- - 0
Capacity (veh/h) HCM Lane V/C Ratio		501 0.015	-	-	1220 0.002	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
		LDK	WDL			NDK
Lane Configurations	}	г	1	4	Y	2
Traffic Vol, veh/h	286	5	4	262	3	3
Future Vol, veh/h	286	5	4	262	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	311	5	4	285	3	3
IVIVIII I IOW	011	3	-	200	3	3
Major/Minor Major/Minor	ajor1	N	Major2	1	Minor1	
Conflicting Flow All	0	0	316	0	607	314
Stage 1	-	-	-	-	314	-
Stage 2	_	_	_	_	293	_
Critical Hdwy	_	_	4.12	_	6.42	6.22
Critical Hdwy Stg 1	_	_	1.12	_	5.42	-
Critical Hdwy Stg 2			_		5.42	
	-	-	2 210	-		
Follow-up Hdwy	-	-	2.218		3.518	
Pot Cap-1 Maneuver	-	-	1244	-	460	726
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1244	-	458	726
Mov Cap-2 Maneuver	-	-	-	-	458	-
Stage 1	-	-	_	_	741	-
Stage 2	_	_	_	_	754	_
Jiago Z					, 54	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		11.5	
HCM LOS					В	
Minor Lane/Major Mvmt	1	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		562	-	-	1244	-
HCM Lane V/C Ratio		0.012	-		0.003	-
HCM Control Delay (s)		11.5	-	_	7.9	0
HCM Lane LOS		В	_	_	A	A
HCM 95th %tile Q(veh)		0		-	0	-
How But Build Q(Vell)		U			U	

1: Lamar Avenue & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	82	472	64	352	58	108	62	39	306	
v/c Ratio	0.14	0.28	0.12	0.21	0.24	0.24	0.13	0.10	0.77	
Control Delay	12.5	17.6	12.5	17.4	18.3	24.7	1.6	20.0	45.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.5	17.6	12.5	17.4	18.3	24.7	1.6	20.0	45.1	
Queue Length 50th (ft)	22	88	18	66	23	51	1	17	165	
Queue Length 95th (ft)	55	158	48	123	35	72	2	33	235	
Internal Link Dist (ft)		658		585		667			624	
Turn Bay Length (ft)	160		100		100		130	135		
Base Capacity (vph)	616	1689	543	1692	252	679	650	384	641	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.28	0.12	0.21	0.23	0.16	0.10	0.10	0.48	
Intersection Summary										

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	- 1	∱ ⊅		ሻ	∱ ⊅		ሻ	•	7	*	₽	
Traffic Volume (veh/h)	75	340	94	59	269	55	53	99	57	36	175	107
Future Volume (veh/h)	75	340	94	59	269	55	53	99	57	36	175	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	4.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1070	No	170/	1070	No	105/	1070	No	1070	1070	No	1070
Adj Sat Flow, veh/h/ln	1870	1870	1796	1870	1870	1856	1870	1870	1870	1870	1856	1870
Adj Flow Rate, veh/h Peak Hour Factor	82 0.92	370 0.92	102 0.92	64 0.92	292 0.92	60 0.92	58 0.92	108 0.92	62 0.92	39 0.92	190 0.92	116 0.92
Percent Heavy Veh, %	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Cap, veh/h	696	1468	400	569	1556	315	183	399	338	324	223	136
Arrive On Green	0.04	0.53	0.53	0.08	1.00	1.00	0.01	0.07	0.07	0.03	0.21	0.21
Sat Flow, veh/h	1781	2760	752	1781	2944	596	1781	1870	1585	1781	1079	658
Grp Volume(v), veh/h	82	237	235	64	175	177	58	108	62	39	0	306
Grp Sat Flow(s), veh/h/ln	1781	1777	1735	1781	1777	1763	1781	1870	1585	1781	0	1737
Q Serve(g_s), s	2.1	7.2	7.3	1.6	0.0	0.0	2.5	5.5	3.7	1.7	0.0	17.0
Cycle Q Clear(g_c), s	2.1	7.2	7.3	1.6	0.0	0.0	2.5	5.5	3.7	1.7	0.0	17.0
Prop In Lane	1.00	7.2	0.43	1.00	0.0	0.34	1.00	0.0	1.00	1.00	0.0	0.38
Lane Grp Cap(c), veh/h	696	945	923	569	939	932	183	399	338	324	0	359
V/C Ratio(X)	0.12	0.25	0.26	0.11	0.19	0.19	0.32	0.27	0.18	0.12	0.00	0.85
Avail Cap(c_a), veh/h	767	945	923	646	939	932	245	683	579	381	0	617
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	12.6	12.7	9.4	0.0	0.0	31.7	39.1	38.3	29.7	0.0	38.2
Incr Delay (d2), s/veh	0.1	0.6	0.7	0.1	0.4	0.5	1.0	0.4	0.3	0.2	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	5.4	5.4	1.1	0.2	0.2	2.1	4.7	2.7	1.3	0.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.6	13.3	13.3	9.5	0.4	0.5	32.7	39.5	38.5	29.8	0.0	44.0
LnGrp LOS	A	В	В	A	A	A	С	D	D	С	А	<u>D</u>
Approach Vol, veh/h		554			416			228			345	
Approach Delay, s/veh		12.8			1.8			37.5			42.4	
Approach LOS		В			А			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.8	25.8	8.7	57.7	8.5	25.1	9.0	57.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	36.5	8.5	30.5	7.5	35.5	8.5	30.5				
Max Q Clear Time (g_c+l1), s	3.7	7.5	3.6	9.3	4.5	19.0	4.1	2.0				
Green Ext Time (p_c), s	0.0	8.0	0.0	3.0	0.0	1.7	0.1	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			20.1									
HCM 6th LOS			С									

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	र्स		¥	f)			4			4	
Traffic Vol, veh/h	15	409	9	18	365	6	6	1	14	2	3	11
Future Vol, veh/h	15	409	9	18	365	6	6	1	14	2	3	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	e,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	13	2	2	2	2	2	8	50	2	2
Mvmt Flow	16	445	10	20	397	7	7	1	15	2	3	12
Major/Minor N	Major1			Major2			Minor1		N	/linor2		
Conflicting Flow All	404	0	0	455	0	0	930	926	450	931	928	401
Stage 1	-	-	-	-	-	-	482	482	-	441	441	-
Stage 2	_	_	_	_	_	_	448	444	_	490	487	
Critical Hdwy	4.12	_	_	4.12	_	_	7.12	6.52	6.28	7.6	6.52	6.22
Critical Hdwy Stg 1	-	_	_	-	_	_	6.12	5.52	-	6.6	5.52	-
Critical Hdwy Stg 2	_	_	_	-	_	_	6.12	5.52	_	6.6	5.52	_
	2.218	_	_	2.218	_	_	3.518		3.372	3.95	4.018	3.318
Pot Cap-1 Maneuver	1155	_	_	1106	_	_	248	269	597	204	268	649
Stage 1	-	_	-	-	_		565	553	-	512	577	-
Stage 2	-	-	-	-	-	-	590	575	-	480	550	-
Platoon blocked, %		_	-		_		0,0	0.0				
Mov Cap-1 Maneuver	1155	-	_	1106	-	-	235	260	597	193	259	649
Mov Cap-2 Maneuver	-	_	_	-	_	-	235	260	-	193	259	
Stage 1	-	-	-	-	-	-	557	545	-	505	567	-
Stage 2	-	_	-	-	_	-	565	565	-	460	542	-
3 3 -												
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.4			14.6			14.1		
HCM LOS	0.0			0.1			В			В		
Minor Lane/Major Mvm	nt N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR :	SBLn1			
Capacity (veh/h)		398	1155	-	-	1106	-	-	411			
HCM Lane V/C Ratio			0.014	_		0.018	_		0.042			
HCM Control Delay (s)		14.6	8.2	0	-	8.3	-	-				
HCM Lane LOS		В	A	A	-	A	-	-	В			
HCM 95th %tile Q(veh))	0.2	0	-	-	0.1	-	-	0.1			

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f)		ሻ	f)			4			4	
Traffic Vol, veh/h	11	396	19	7	339	2	41	1	19	0	0	9
Future Vol, veh/h	11	396	19	7	339	2	41	1	19	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	2,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	430	21	8	368	2	45	1	21	0	0	10
Major/Minor N	Major1			Major2		1	Minor1		N	Minor2		
Conflicting Flow All	370	0	0	451	0	0	855	851	441	861	860	369
Stage 1		-	-	-	-	-	465	465	-	385	385	-
Stage 2	-	-	-	-	-	-	390	386	-	476	475	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1189	-	-	1109	-	-	278	297	616	276	294	677
Stage 1	-	-	-	-	-	-	578	563	-	638	611	-
Stage 2	-	-	-	-	-	-	634	610	-	570	557	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1189	-	-	1109	-	-	270	292	616	262	289	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	292	-	262	289	-
Stage 1	-	-	-	-	-	-	572	557	-	632	607	-
Stage 2	-	-	-	-	-	-	620	606	-	544	551	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			18.7			10.4		
HCM LOS	J.E			J.E			C			В		
Minor Lane/Major Mvm	nt N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SRI n1			
Capacity (veh/h)	it I	328	1189	LDT		1109	-	WDK .				
HCM Lane V/C Ratio				-					0.014			
		0.202	0.01	-		0.007	-					
HCM Control Delay (s) HCM Lane LOS		18.7 C		-	-	8.3 A	-	-	10.4 B			
HCM 95th %tile Q(veh	١	0.7	A 0	-	-	0	-	-	0			
HOW FOUR MUNE Q(VEH))	0.7	U	-	-	U	-	-	U			

4: Woodson Road & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	15	436	15	359	27	36
v/c Ratio	0.02	0.26	0.02	0.22	0.23	0.29
Control Delay	0.7	1.5	1.5	1.6	30.7	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.7	1.5	1.5	1.6	30.7	29.0
Queue Length 50th (ft)	0	10	1	28	7	7
Queue Length 95th (ft)	2	38	4	56	33	38
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	866	1665	806	1669	363	371
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.26	0.02	0.22	0.07	0.10
Intersection Summary						

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽		7	₽			ቆ			- ↔	
Traffic Volume (veh/h)	14	381	20	14	319	11	7	3	15	7	4	22
Future Volume (veh/h)	14	381	20	14	319	11	7	3	15	7	4	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1701	No	1070	1701	No	1070	1/40	No	1070	1/40	No	1070
Adj Sat Flow, veh/h/ln	1781	1870	1870	1781	1870	1870	1648	1870	1870	1648	1870	1870
Adj Flow Rate, veh/h	15 0.92	414	22	15	347	12	8	3	16	8	4	24
Peak Hour Factor		0.92	0.92	0.92	0.92	0.92	0.92 17	0.92	0.92	0.92 17	0.92	0.92
Percent Heavy Veh, % Cap, veh/h	8 887	2 1529	2 81	8 860	2 1561	2 54	62	2 12	2 41	55	11	2 45
Arrive On Green	1.00	1.00	1.00	0.87	0.87	0.87	0.04	0.04	0.04	0.04	0.04	0.04
Sat Flow, veh/h	974	1760	94	907	1797	62	376	301	984	275	267	1084
Grp Volume(v), veh/h	15	0	436	15	0	359	27	0	0	36	0	0
Grp Sat Flow(s), veh/h/ln	974	0	1854	907	0	1859	1660	0	0	1626	0	0
Q Serve(g_s), s	0.1	0.0	0.0	0.2	0.0	3.1	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(q_c), s	3.2	0.0	0.0	0.2	0.0	3.1	1.5	0.0	0.0	2.1	0.0	0.0
Prop In Lane	1.00	0.0	0.05	1.00	0.0	0.03	0.30	0.0	0.59	0.22	0.0	0.67
Lane Grp Cap(c), veh/h	887	0	1610	860	0	1615	115	0	0.57	111	0	0.07
V/C Ratio(X)	0.02	0.00	0.27	0.02	0.00	0.22	0.23	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	887	0	1610	860	0	1615	414	0	0	414	0.00	0.00
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.1	0.0	0.0	0.9	0.0	1.1	46.7	0.0	0.0	46.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.0	0.0	0.3	1.0	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	0.3	0.0	0.0	1.0	1.2	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.1	0.0	0.4	0.9	0.0	1.4	47.7	0.0	0.0	48.6	0.0	0.0
LnGrp LOS	A	A	A	А	A	A	D	A	A	D	A	<u>A</u>
Approach Vol, veh/h		451			374			27			36	
Approach Delay, s/veh		0.4			1.4			47.7			48.6	
Approach LOS		Α			А			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		8.6		91.4		8.6		91.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.5		67.5		23.5		67.5				
Max Q Clear Time (g_c+l1), s		3.5		5.2		4.1		5.1				
Green Ext Time (p_c), s		0.1		3.4		0.1		2.7				
Intersection Summary												
HCM 6th Ctrl Delay			4.2									
HCM 6th LOS			Α									

	•	→	\rightarrow	•	←	4	†	>	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	43	73	113	95	86	125	240	18	339	
v/c Ratio	0.18	0.43	0.45	0.35	0.34	0.19	0.21	0.03	0.33	
Control Delay	29.8	49.9	13.7	33.2	35.7	7.2	9.2	7.7	13.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.8	49.9	13.7	33.2	35.7	7.2	9.2	7.7	13.1	
Queue Length 50th (ft)	22	45	0	49	43	25	44	3	81	
Queue Length 95th (ft)	45	86	48	84	86	56	124	m12	154	
Internal Link Dist (ft)		558			482		498		667	
Turn Bay Length (ft)			120	200		100		100		
Base Capacity (vph)	239	389	424	288	443	692	1165	689	1032	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.19	0.27	0.33	0.19	0.18	0.21	0.03	0.33	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	↑	7	ሻ	₽		7	₽		7	₽	
Traffic Volume (veh/h)	40	67	104	87	61	18	115	152	69	17	259	52
Future Volume (veh/h)	40	67	104	87	61	18	115	152	69	17	259	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1841	1856	1856	1811	1870	1870	1856	1707	1856	1870
Adj Flow Rate, veh/h	43	73	113	95	66	20	125	165	75	18	282	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	3	3	6	2	2	3	13	3	2
Cap, veh/h	238	176	150	253	170	52	747	780	355	712	917	185
Arrive On Green	0.03	0.10	0.10	0.06	0.12	0.12	0.05	0.64	0.64	0.03	0.81	0.81
Sat Flow, veh/h	1767	1826	1560	1767	1367	414	1781	1217	553	1626	1498	303
Grp Volume(v), veh/h	43	73	113	95	0	86	125	0	240	18	0	339
Grp Sat Flow(s), veh/h/ln	1767	1826	1560	1767	0	1781	1781	0	1771	1626	0	1801
Q Serve(g_s), s	2.2	3.8	7.1	4.8	0.0	4.4	2.5	0.0	5.6	0.4	0.0	4.7
Cycle Q Clear(g_c), s	2.2	3.8	7.1	4.8	0.0	4.4	2.5	0.0	5.6	0.4	0.0	4.7
Prop In Lane	1.00		1.00	1.00	_	0.23	1.00	_	0.31	1.00	_	0.17
Lane Grp Cap(c), veh/h	238	176	150	253	0	222	747	0	1135	712	0	1103
V/C Ratio(X)	0.18	0.42	0.75	0.38	0.00	0.39	0.17	0.00	0.21	0.03	0.00	0.31
Avail Cap(c_a), veh/h	291	393	335	309	0	436	848	0	1135	786	0	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.00	0.71
Uniform Delay (d), s/veh	38.7	42.5	44.0	37.1	0.0	40.3	6.2	0.0	7.5	6.8	0.0	4.0
Incr Delay (d2), s/veh	0.4	1.6	7.4	0.9	0.0	1.1	0.1	0.0	0.4	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	3.2	5.5	3.8	0.0	3.6	1.6	0.0	3.8	0.2	0.0	2.8
Unsig. Movement Delay, s/veh	1 39.1	44.1	51.4	38.1	0.0	41.4	6.3	0.0	7.9	6.9	0.0	4.6
LnGrp Delay(d),s/veh LnGrp LOS	39.1 D	44.1 D	51.4 D	38.1 D	0.0 A	41.4 D	0.3 A	0.0 A	7.9 A	0.9 A	0.0 A	4.0 A
	U		U	U		U	A		A	A		A
Approach Vol, veh/h		229			181			365			357	
Approach LOS		46.8			39.6			7.3			4.7	
Approach LOS		D			D			А			А	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	68.6	10.8	14.1	9.3	65.7	8.0	17.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	44.5	9.5	21.5	10.5	40.5	6.5	24.5				
Max Q Clear Time (g_c+l1), s	2.4	7.6	6.8	9.1	4.5	6.7	4.2	6.4				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.6	0.1	2.3	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			В									

Kimley-Horn 02/21/2024

Intersection						
Int Delay, s/veh	1.2					
		EDT	WDT	WDD	CDI	CDD
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	10	4 127	125	0	Y	22
Traffic Vol, veh/h	12	137	135	9	8	22
Future Vol, veh/h	12	137	135	9	8	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-		-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage		0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	7	4	2	2	5
Mvmt Flow	13	149	147	10	9	24
Major/Minor N	/lajor1	N	Major2	ı	Minor2	
	157	0	viajuiz -	0	327	152
Conflicting Flow All					152	
Stage 1	-	-	-	-		-
Stage 2	- 4.2	-	-	-	175	- / 25
Critical Hdwy	4.2	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.29	-	-	-	3.518	
Pot Cap-1 Maneuver	1375	-	-	-	667	886
Stage 1	-	-	-	-	876	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1375	-	-	-	660	886
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	855	-
Annracah	ED		MD		CD	
Approach	EB		WB		SB	
HCM Control Delay, s	0.6		0		9.6	
HCM LOS					Α	
Minor Lane/Major Mvm	t	EBL	EBT	WBT	WBR S	SBLn1
Capacity (veh/h)		1375			-	812
HCM Lane V/C Ratio		0.009	_	_	_	0.04
HCM Control Delay (s)		7.6	0			9.6
HCM Lane LOS		Α.	A	-	-	7.0 A
	1					0.1
HCM 95th %tile Q(veh))	0	-	-	-	U. I

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	1		₩	JJI
Traffic Vol, veh/h	15	133	121	3	6	20
Future Vol, veh/h	15	133	121	3	6	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-		-		- -	None
Storage Length	_	-	_	-	0	-
Veh in Median Storage	. # -	0	0	-	0	_
Grade, %	, π -	0	0	-	0	_
Peak Hour Factor	92	92	92	92	92	92
			3			2
Heavy Vehicles, %	2	4		2	2	22
Mvmt Flow	16	145	132	3	7	22
Major/Minor N	Major1	ľ	Major2	N	Minor2	
Conflicting Flow All	135	0	-	0	311	134
Stage 1	_	_	-	_	134	_
Stage 2		_		_	177	_
Critical Hdwy	4.12	_	_	_	6.42	6.22
Critical Hdwy Stg 1	-	_	_	_	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	_
Follow-up Hdwy	2.218	_	_		3.518	
Pot Cap-1 Maneuver	1449			_	681	915
Stage 1	1447	_	_	_	892	713
Stage 2	-	_	-	-	854	-
Platoon blocked, %	-	-	-		034	-
	1449	-	-	-	470	915
Mov Cap-1 Maneuver		-	-	-	673	
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	854	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.8		0		9.4	
HCM LOS	0.0		U		A	
TIGIVI EOS						
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR:	SBLn1
Capacity (veh/h)		1449	-	-	-	845
HCM Lane V/C Ratio		0.011	-	-	-	0.033
HCM Control Delay (s)		7.5	0	-	-	9.4
HCM Lane LOS		A	A	-	-	A
HCM 95th %tile Q(veh))	0	_	-	-	0.1

Intersection												
Intersection Delay, s/veh	8.1											
Intersection LOS	Α											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₩			- ↔			4			4	
Traffic Vol, veh/h	19	113	8	3	96	3	8	3	0	10	9	20
Future Vol, veh/h	19	113	8	3	96	3	8	3	0	10	9	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	5	5	2	33	4	2	2	2	2	2	2	2
Mvmt Flow	21	123	9	3	104	3	9	3	0	11	10	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	8.1			8.5			7.8			7.5		
HCM LOS	Α			Α			Α			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	73%	14%	3%	26%
Vol Thru, %	27%	81%	94%	23%
Vol Right, %	0%	6%	3%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	140	102	39
LT Vol	8	19	3	10
Through Vol	3	113	96	9
RT Vol	0	8	3	20
Lane Flow Rate	12	152	111	42
Geometry Grp	1	1	1	1
Degree of Util (X)	0.016	0.176	0.144	0.051
Departure Headway (Hd)	4.739	4.158	4.661	4.301
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	759	852	763	838
Service Time	2.741	2.233	2.733	2.302
HCM Lane V/C Ratio	0.016	0.178	0.145	0.05
HCM Control Delay	7.8	8.1	8.5	7.5
HCM Lane LOS	Α	Α	Α	А
HCM 95th-tile Q	0	0.6	0.5	0.2

Int Delay, s/veh Movement Lane Configurations Traffic Vol, veh/h Future Vol, veh/h Conflicting Peds, #/l Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve Mov Cap-2 Maneuve	Stop	Stop None - - 92 2	NBL 6 6 0 Free 92 2 7 Major1 28 - 4.12 -	0 0 92 2 13	SBT 10 10 0 Free - 0 0 92 2 11 Major2	SBR 16 16 0 Free None 92 2 17
Lane Configurations Traffic Vol, veh/h Future Vol, veh/h Conflicting Peds, #/l Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	49 49 17 0 Stop 0 ge, # 0 0 92 2 53 Minor2 47 20 27 6.42 5.42 5.42	16 16 0 Stop None - - - 92 2 17	6 6 0 Free - - - 92 2 7 Major1 28 -	12 12 0 Free None - 0 0 92 2 13	10 10 0 Free - 0 0 92 2 11	16 16 0 Free None - - - 92 2 17
Lane Configurations Traffic Vol, veh/h Future Vol, veh/h Conflicting Peds, #/l Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	49 49 17 0 Stop 0 ge, # 0 0 92 2 53 Minor2 47 20 27 6.42 5.42 5.42	16 16 0 Stop None - - - 92 2 17	6 6 0 Free - - - 92 2 7 Major1 28 -	12 12 0 Free None - 0 0 92 2 13	10 10 0 Free - 0 0 92 2 11	16 16 0 Free None - - - 92 2 17
Traffic Vol, veh/h Future Vol, veh/h Conflicting Peds, #/l Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	49 49 17 0 Stop - 0 92 2 53 Minor2 47 20 27 6.42 5.42	16 0 Stop None - - - 92 2 17	6 0 Free - - - 92 2 7 Major1 28 -	12 12 0 Free None - 0 0 92 2 13	10 10 0 Free - 0 0 92 2 11 Major2 - -	16 0 Free None - - - 92 2 17
Future Vol, veh/h Conflicting Peds, #/l Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	49 nr 0 Stop - 0 ge, # 0 0 92 2 53 Minor2 47 20 27 6.42 5.42	16 0 Stop None - - - 92 2 17	6 0 Free - - - 92 2 7 Major1 28 -	12 0 Free None - 0 0 92 2 13	10 0 Free - 0 0 92 2 11 Major2 - -	16 0 Free None - - - 92 2 17
Conflicting Peds, #/I Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	nr 0 Stop - 0 ge, # 0 92 2 53 Minor2 47 20 27 6.42 5.42	0 Stop None - - - 92 2 17	0 Free - - - 92 2 7 Major1 28 -	0 Free None - 0 0 0 92 2 13	0 Free - 0 0 92 2 11 Major2 - -	0 Free None - - - 92 2 17
Sign Control RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	Stop	Stop None - - - 92 2 17 - - - - - - - - - - - - - - - - - -	Free 92 2 7 Major1 28	Free None - 0 0 92 2 13 None	Free 0 92 2 11 Major2	Free None
RT Channelized Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	Minor2 27 6.42 5.42	None 92 2 17 6.22	- - - 92 2 7 Major1 28	None - 0 0 92 2 13	о 0 92 2 11 Мајог2 - -	None 92 2 17 0
Storage Length Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	0 ge, # 0 92 2 53 Minor2 47 20 27 6.42 5.42	92 2 17 17 20 -	- - 92 2 7 Major1 28	0 0 92 2 13	0 92 2 11 мајог2 - -	- - 92 2 17
Veh in Median Stora Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	ge, # 0 0 92 2 53 Minor2 47 20 27 6.42 5.42	92 2 17 20 - 6.22	92 2 7 Major1 28	0 0 92 2 13 13	0 0 92 2 11 мајог2 - - -	92 2 17 0
Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	0 92 2 53 Minor2 47 20 27 6.42 5.42	92 2 17 20 - - 6.22	92 2 7 Major1 28	0 92 2 13 0 -	0 92 2 11 Мајог2 - - -	92 2 17 0 -
Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	92 2 53 Minor2 47 20 27 6.42 5.42	92 2 17 20 - - 6.22	92 2 7 <u>Major1</u> 28 -	92 2 13 0 - -	92 2 11 Мајог2 - - -	92 2 17 0 - -
Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	2 53 Minor2 47 20 27 6.42 5.42	2 17 20 - - 6.22	2 7 <u>Major1</u> 28 -	2 13 0 - - -	2 11 <u>Major2</u> - - -	2 17 0 - -
Mymt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	53 Minor2 47 20 27 6.42 5.42 5.42	17 20 - - 6.22	7 <u>Major1</u> 28 -	13 0 - - -	11 //ajor2 - - - -	0
Mymt Flow Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	53 Minor2 47 20 27 6.42 5.42 5.42	17 20 - - 6.22	7 <u>Major1</u> 28 -	13 0 - - -	11 //ajor2 - - - -	0
Major/Minor Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	Minor2 47 20 27 6.42 5.42 5.42	20 - - 6.22	<u>Major1</u> 28 -	0 - - -	Major2 - - - -	0
Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	47 20 27 6.42 5.42 5.42	20 - - 6.22 -	28 - -	- - -	-	- - -
Conflicting Flow All Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	47 20 27 6.42 5.42 5.42	20 - - 6.22 -	28 - -	- - -	-	- - -
Stage 1 Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	20 27 6.42 5.42 5.42	- - 6.22 -	-	- - - -	- - -	- - -
Stage 2 Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	27 6.42 5.42 5.42	6.22 -	-	- - -	- - -	- - -
Critical Hdwy Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	6.42 5.42 5.42	6.22	4.12 - -	-	-	-
Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	5.42 5.42	-	4.12	-	-	-
Critical Hdwy Stg 1 Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	5.42		-	-		-
Critical Hdwy Stg 2 Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	5.42	-	-	-		
Follow-up Hdwy Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve						-
Pot Cap-1 Maneuve Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuve	3.518	3.318	2 218	_	_	_
Stage 1 Stage 2 Platoon blocked, % Mov Cap-1 Maneuvo		1058	1585	_	_	_
Stage 2 Platoon blocked, % Mov Cap-1 Maneuvo	1003	-	1000	_		_
Platoon blocked, % Mov Cap-1 Maneuve	996		_		_	_
Mov Cap-1 Maneuve	770	-	-	-	_	-
	. OFO	1000	1505	-	-	-
IVIOVICAD DIVIADOLIVA		1058	1585	-	-	-
		-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	996	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay,			2.4		0	
HCM LOS	A					
Minor Lane/Major M	vmt	NBL	NRT	EBLn1	SBT	SBR
Capacity (veh/h)	VIIIC	1585	-		ODI	ODIT
HCM Lane V/C Rati	`	0.004		0.072	_	-
					-	
HCM Long LOS		7.3	0	9	-	-
HCM Lane LOS	(3)	Α	Α	A	-	-
HCM 95th %tile Q(v	` ,	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			ર્ન	Y	
Traffic Vol, veh/h	150	3	1	157	8	1
Future Vol, veh/h	150	3	1	157	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	163	3	1	171	9	1
Major/Minor M	nior1	N	Major2	N	Minor1	
	ajor1				Minor1	1/5
Conflicting Flow All	0	0	166	0	338	165
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	173	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	
Pot Cap-1 Maneuver	-	-	1412	-	658	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1412	-	657	879
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	856	-
Annroach	EB		WB		NB	
Approach						
HCM Control Delay, s	0		0		10.4	
HCM LOS					В	
Minor Lane/Major Mvmt	N	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		676		_	1412	_
HCM Lane V/C Ratio		0.014	_	_	0.001	_
HCM Control Delay (s)		10.4	-	-	7.6	0
HCM Lane LOS		В	_	_	Α	A
HCM 95th %tile Q(veh)		0	-	_	0	-
110111 70111 701110 Q(VCII)		J			0	

Intersection						
Int Delay, s/veh	0.3					
		EDD	WDL	WBT	NIDI	NIDD
	EBT	EBR	WBL		NBL	NBR
Lane Configurations	^	1	1	4	¥	
Traffic Vol, veh/h	144	1	1	140	4	4
Future Vol, veh/h	144	1	1	140	4	4
Conflicting Peds, #/hr	_ 0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	1	1	152	4	4
Major/Minor	olor1		Molera		Nine-1	
	ajor1		Major2		Minor1	4
Conflicting Flow All	0	0	158	0	312	158
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	154	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1422	-	681	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	874	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1422	-	680	887
Mov Cap-2 Maneuver	_	_	-	_	680	-
Stage 1	_	_	_	_	871	_
Stage 2		_	_	_	873	_
Stage 2					073	
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		9.7	
HCM LOS					Α	
				EDD	WBL	WBT
	Ι.	IDI n1	LDT			WBI
Minor Lane/Major Mvmt	N	IBLn1	EBT	EBR		
Capacity (veh/h)		770	-	-	1422	-
Capacity (veh/h) HCM Lane V/C Ratio		770 0.011		-	1422 0.001	-
Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)		770 0.011 9.7	-	-	1422 0.001 7.5	- - 0
Capacity (veh/h) HCM Lane V/C Ratio		770 0.011	-	-	1422 0.001	-

1: Lamar Avenue & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	
Lane Group Flow (vph)	151	672	96	843	100	271	93	101	406	
v/c Ratio	0.46	0.42	0.25	0.58	0.48	0.57	0.19	0.33	0.84	
Control Delay	17.4	20.2	12.3	24.1	26.3	34.6	7.6	23.0	47.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.4	20.2	12.3	24.1	26.3	34.6	7.6	23.0	47.3	
Queue Length 50th (ft)	50	160	32	235	38	155	8	40	221	
Queue Length 95th (ft)	88	212	m49	311	81	206	32	73	317	
Internal Link Dist (ft)		658		585		667			624	
Turn Bay Length (ft)	160		100		100		130	135		
Base Capacity (vph)	350	1606	394	1466	208	571	565	308	576	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.43	0.42	0.24	0.58	0.48	0.47	0.16	0.33	0.70	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		ሻ	∱ ∱		7	↑	7	ሻ	₽	
Traffic Volume (veh/h)	139	479	139	88	698	77	92	249	86	93	212	162
Future Volume (veh/h)	139	479	139	88	698	77	92	249	86	93	212	162
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	521	151	96	759	84	100	271	93	101	230	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	440	1246	360	407	1414	156	204	482	409	295	256	196
Arrive On Green	0.07	0.46	0.46	0.09	0.88	0.88	0.02	0.09	0.09	0.06	0.26	0.26
Sat Flow, veh/h	1781	2721	785	1781	3226	357	1781	1870	1585	1781	983	752
Grp Volume(v), veh/h	151	339	333	96	418	425	100	271	93	101	0	406
Grp Sat Flow(s), veh/h/ln	1781	1777	1729	1781	1777	1806	1781	1870	1585	1781	0	1735
Q Serve(g_s), s	4.6	12.8	12.9	3.0	5.5	5.5	4.1	13.9	5.5	4.1	0.0	22.6
Cycle Q Clear(g_c), s	4.6	12.8	12.9	3.0	5.5	5.5	4.1	13.9	5.5	4.1	0.0	22.6
Prop In Lane	1.00	011	0.45	1.00	770	0.20	1.00	400	1.00	1.00	•	0.43
Lane Grp Cap(c), veh/h	440	814	792	407	779	792	204	482	409	295	0	452
V/C Ratio(X)	0.34	0.42	0.42	0.24	0.54	0.54	0.49	0.56	0.23	0.34	0.00	0.90
Avail Cap(c_a), veh/h	510	814	792	443	779	792	204	574	487	305	0	547
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6 0.5	18.1 1.6	18.2 1.6	14.0 0.3	3.8 2.6	3.8 2.6	28.9 1.7	40.3 0.9	36.5 0.3	25.9 0.7	0.0	35.7 15.7
Incr Delay (d2), s/veh Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.9	0.3	0.7	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	9.4	9.3	2.1	3.3	3.3	3.4	11.3	4.0	3.2	0.0	16.9
Unsig. Movement Delay, s/veh		7.4	7.3	۷.۱	ა.ა	ა.ა	3.4	11.3	4.0	3.2	0.0	10.9
LnGrp Delay(d),s/veh	14.1	19.7	19.8	14.3	6.4	6.4	30.5	41.3	36.7	26.6	0.0	51.4
LnGrp LOS	14.1 B	19.7 B	19.0 B	14.3 B	0.4 A	0.4 A	30.5 C	41.3 D	30.7 D	20.0 C	0.0 A	51.4 D
Approach Vol, veh/h	D	823	D	D	939			464			507	
Approach Delay, s/veh		18.7			7.2			38.0			46.5	
Approach LOS		10.7 B			7.Z A			30.0 D			40.5 D	
<u> </u>					Л						D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	30.3	9.2	50.3	10.0	30.5	11.1	48.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.3	30.7	6.7	38.3	5.5	31.5	10.5	34.5				
Max Q Clear Time (g_c+l1), s	6.1	15.9	5.0	14.9	6.1	24.6	6.6	7.5				
Green Ext Time (p_c), s	0.0	1.6	0.0	4.7	0.0	1.4	0.1	6.3				
Intersection Summary												
HCM 6th Ctrl Delay			23.2									
HCM 6th LOS			С									

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR
Cane Configurations
Traffic Vol, veh/h 27 618 14 27 828 11 8 10 40 2 2 29 Future Vol, veh/h 27 618 14 27 828 11 8 10 40 2 2 29 Conflicting Peds, #/hr 0
Traffic Vol, veh/h 27 618 14 27 828 11 8 10 40 2 2 29 Future Vol, veh/h 27 618 14 27 828 11 8 10 40 2 2 29 Conflicting Peds, #/hr 0
Conflicting Peds, #/hr 0
Sign Control Free Free Free Free Free Free Free Stop None - - None - None - - None - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - 0 -
RT Channelized - None - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 -
Storage Length 150 - - 150 - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - 2 9 9 9 9 9 1 4 3 2 2 2 2 2 2 2 2 2 2 3 2 9
Veh in Median Storage, # - 0
Grade, % - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 - - 0 0 - - 0 92 93 93
Peak Hour Factor 92
Heavy Vehicles, % 2 3 2 2 2 3 3 2 2 2 3 3 3 2 3 2 3 2 9 9 9 1 4 3 2 9 9 9 1 4 3 2 9 9 9 9 1 4 3 2 9 9 9 9 1 3 3 3 4 9
Mvmt Flow 29 672 15 29 900 12 9 11 43 2 2 32 Major/Minor Major1 Major2 Minor1 Minor2 Minor2 Minor2 Conflicting Flow All 912 0 0 687 0 0 1719 1708 680 1729 1709 906 Stage 1 - - - - - 738 738 - 964 964 - Stage 2 - - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Major/Minor Major1 Major2 Minor1 Minor2 Conflicting Flow All Stage 1 912 0 0 687 0 0 1719 1708 680 1729 1709 906 Stage 1 - - - - - 738 738 - 964 964 - Stage 2 - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Conflicting Flow All 912 0 0 687 0 0 1719 1708 680 1729 1709 906 Stage 1 - - - - - 738 - 964 964 - Stage 2 - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Conflicting Flow All 912 0 0 687 0 0 1719 1708 680 1729 1709 906 Stage 1 - - - - - 738 - 964 964 - Stage 2 - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Conflicting Flow All 912 0 0 687 0 0 1719 1708 680 1729 1709 906 Stage 1 - - - - - 738 - 964 964 - Stage 2 - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Stage 1 - - - - - 738 738 - 964 964 - Stage 2 - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Stage 2 - - - - - 981 970 - 765 745 - Critical Hdwy 4.12 - - 4.12 - 7.12 6.52 6.22 7.12 6.52 6.22
Critical Hdwy 4.12 4.12 7.12 6.52 6.22 7.12 6.52 6.22
J
Critical Hdwy Stg 1 6.12 5.52 - 6.12 5.52 -
Critical Hdwy Stg 2 6.12 5.52 - 6.12 5.52 -
Follow-up Hdwy 2.218 2.218 3.518 4.018 3.318 3.518 4.018 3.318
Pot Cap-1 Maneuver 747 907 71 91 451 69 91 334
Stage 1 410 424 - 307 334 -
Stage 2 300 331 - 396 421 -
Platoon blocked, %
Mov Cap-1 Maneuver 747 907 60 85 451 53 85 334
Mov Cap-2 Maneuver 60 85 - 53 85 -
Stage 1 394 407 - 295 323 -
Stage 2 261 320 - 335 405 -
Approach EB WB NB SB
HCM Control Delay, s 0.4 0.3 37.9 24.2
HCM LOS E C
TIGW E03
Minor Lane/Major Mvmt NBLn1 EBL EBT EBR WBL WBT WBR SBLn1
Capacity (veh/h) 171 747 907 223
HCM Lane V/C Ratio 0.369 0.039 0.032 0.161
HCM Control Delay (s) 37.9 10 0 - 9.1 24.2
HCM Lane LOS E B A - A C
HCM 95th %tile Q(veh) 1.6 0.1 0.1 0.6

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	f)		ř	f)			4			4	
Traffic Vol, veh/h	14	602	43	27	808	2	42	0	21	0	1	15
Future Vol, veh/h	14	602	43	27	808	2	42	0	21	0	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage	e,# -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	10	2	2	2
Mvmt Flow	15	654	47	29	878	2	46	0	23	0	1	16
Major/Minor N	Major1		N	Major2		ľ	Minor1		N	Minor2		
Conflicting Flow All	880	0	0	701	0	0	1654	1646	678	1656	1668	879
Stage 1	-	-	-	-	-	-	708	708	-	937	937	-
Stage 2	-	-	-	-	-	-	946	938	-	719	731	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.3	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
	2.218	-	-	2.218	-	-	3.518	4.018	3.39	3.518	4.018	3.318
Pot Cap-1 Maneuver	768	-	-	896	-	-	78	99	439	78	96	347
Stage 1	-	-	-	-	-	-	426	438	-	318	343	-
Stage 2	-	-	-	-	-	-	314	343	-	420	427	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	768	-	-	896	-	-	71	94	439	71	91	347
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	94	-	71	91	-
Stage 1	-	-	-	-	-	-	417	429	-	312	332	-
Stage 2	-	-	-	-	-	-	289	332	-	390	418	-
, and the second se												
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			99			18		
HCM LOS							F			С		
Minor Lane/Major Mvm	nt N	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1			
Capacity (veh/h)		99	768		-	896		-	295			
HCM Lane V/C Ratio		0.692	0.02	_		0.033	_		0.059			
HCM Control Delay (s)		99	9.8			9.2	_					
HCM Lane LOS		F	7.0 A	-	-	7.Z	-	-	C			
HCM 95th %tile Q(veh))	3.5	0.1	_	_	0.1	_		0.2			
110W 70W 70W Q(VCH)		0.0	0.1			J. I			0.2			

4: Woodson Road & Johnson Drive

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Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	14	663	25	882	53	57
v/c Ratio	0.03	0.42	0.04	0.55	0.36	0.39
Control Delay	0.8	3.0	2.0	4.3	33.9	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	3.0	2.0	4.3	33.9	37.2
Queue Length 50th (ft)	0	24	2	124	18	21
Queue Length 95th (ft)	m1	353	7	244	54	59
Internal Link Dist (ft)		237		528	753	688
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	442	1591	605	1598	312	310
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.42	0.04	0.55	0.17	0.18
Intersection Summary						

m Volume for 95th percentile queue is metered by upstream signal.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	₽		ሻ	1•			4			4	
Traffic Volume (veh/h)	13	588	22	23	800	11	17	10	22	21	11	20
Future Volume (veh/h)	13	588	22	23	800	11	17	10	22	21	11	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	.=	No		100/	No	40=0	4000	No	40=0	40=0	No	4070
Adj Sat Flow, veh/h/ln	1781	1870	1826	1826	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	639	24	25	870	12	18	11	24	23	12	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	2	5	5	2	2	2	2	2	2	2	2
Cap, veh/h	512	1540	58	661	1582	22	72	23	39	81	22	33
Arrive On Green	0.86	0.86	0.86	0.86	0.86	0.86	0.05	0.05	0.05	0.05	0.05	0.05
Sat Flow, veh/h	600	1791	67	754	1840	25	478	459	775	596	446	655
Grp Volume(v), veh/h	14	0	663	25	0	882	53	0	0	57	0	0
Grp Sat Flow(s), veh/h/ln	600	0	1858	754	0	1866	1711	0	0	1696	0	0
Q Serve(g_s), s	0.6	0.0	7.8	0.7	0.0	12.6	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	13.2	0.0	7.8	8.5	0.0	12.6	2.9	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00	0	0.04	1.00	0	0.01	0.34	0	0.45	0.40	0	0.39
Lane Grp Cap(c), veh/h	512	0	1597	661	0	1604	134	0	0	136	0	0
V/C Ratio(X)	0.03	0.00	0.42	0.04	0.00	0.55	0.39	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	512 1.00	1.00	1597	661	0 1.00	1604	344	1.00	0 1.00	343 1.00	1.00	1.00
HCM Platoon Ratio	1.00	1.00	1.00	1.00 1.00	0.00	1.00	1.00 1.00	1.00	0.00	1.00	1.00	1.00
Upstream Filter(I) Uniform Delay (d), s/veh	3.6	0.00	1.00	2.5	0.00	1.00	46.5	0.00	0.00	46.6	0.00	0.00
Incr Delay (d2), s/veh	0.1	0.0	0.8	0.1	0.0	1.4	1.9	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	2.9	0.0	0.0	4.8	2.5	0.0	0.0	2.7	0.0	0.0
Unsig. Movement Delay, s/veh		0.0	2.7	0.2	0.0	4.0	2.5	0.0	0.0	2.1	0.0	0.0
LnGrp Delay(d),s/veh	3.7	0.0	2.3	2.6	0.0	3.2	48.3	0.0	0.0	48.6	0.0	0.0
LnGrp LOS	Α.	Α	Α	2.0 A	Α	3.2 A	70.5 D	Α	Α	70.0 D	Α	Α
Approach Vol, veh/h		677			907			53			57	
Approach Delay, s/veh		2.4			3.2			48.3			48.6	
Approach LOS		Α			Α			D			D	
					А	,					D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.5		90.5		9.5		90.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.5		72.5		18.5		72.5				
Max Q Clear Time (g_c+l1), s		4.9		15.2		5.1		14.6				
Green Ext Time (p_c), s		0.2		6.1		0.2		9.9				
Intersection Summary												
HCM 6th Ctrl Delay			5.8									
HCM 6th LOS			Α									

5: Lamar Avenue & Martway Street

	ၨ	→	•	•	←	4	†	\	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	118	197	229	118	205	199	387	75	403	
v/c Ratio	0.41	0.66	0.52	0.40	0.69	0.38	0.41	0.14	0.49	
Control Delay	29.1	49.8	9.1	28.8	47.1	12.1	17.7	6.3	15.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.1	49.8	9.1	28.8	47.1	12.1	17.7	6.3	15.7	
Queue Length 50th (ft)	56	120	0	56	113	52	144	7	141	
Queue Length 95th (ft)	91	182	60	91	176	102	245	m27	278	
Internal Link Dist (ft)		558			482		498		667	
Turn Bay Length (ft)			120	200		100		100		
Base Capacity (vph)	295	400	520	303	398	557	945	533	832	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.49	0.44	0.39	0.52	0.36	0.41	0.14	0.48	
Intersection Summary										

m Volume for 95th percentile queue is metered by upstream signal.

	۶	→	•	•	←	•	4	†	/	/	ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ		7	7	₽		ሻ	₽		*	₽	
Traffic Volume (veh/h)	109	181	211	109	132	57	183	260	96	69	252	119
Future Volume (veh/h)	109	181	211	109	132	57	183	260	96	69	252	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1070	No	1070	1070	No	1070	1070	No	105/	1070	No	1070
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1856	1870	1870	1870
Adj Flow Rate, veh/h	118	197	229	118	143	62	199	283	104	75	274	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2 272	2 318	2 269	2 269	2 210	2 91	2 498	2 698	3	2 554	2 606	2 285
Cap, veh/h Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17	0.07	0.53	256 0.53	0.01	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1237	536	1781	1305	479	1781	1202	566
											0	
Grp Volume(v), veh/h	118	197	229 1585	118 1781	0	205 1774	199	0	387	75 1781		403
Grp Sat Flow(s),veh/h/ln Q Serve(g_s), s	1781 5.4	1870 9.8	14.0	5.4	0.0	10.8	1781 5.2	0.0	1784 12.9	2.0	0.0	1768 20.5
Cycle Q Clear(q_c), s	5.4	9.8	14.0	5.4	0.0	10.8	5.2	0.0	12.9	2.0	0.0	20.5
Prop In Lane	1.00	9.0	1.00	1.00	0.0	0.30	1.00	0.0	0.27	1.00	0.0	0.32
Lane Grp Cap(c), veh/h	272	318	269	269	0	301	498	0	954	554	0	891
V/C Ratio(X)	0.43	0.62	0.85	0.44	0.00	0.68	0.40	0.00	0.41	0.14	0.00	0.45
Avail Cap(c_a), veh/h	314	402	341	311	0.00	381	605	0.00	954	578	0.00	891
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.61	0.00	0.61
Uniform Delay (d), s/veh	31.5	38.5	40.3	31.4	0.0	39.0	12.5	0.0	13.8	11.5	0.0	29.3
Incr Delay (d2), s/veh	1.1	2.0	15.0	1.1	0.0	3.4	0.5	0.0	1.3	0.1	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	8.2	10.8	4.3	0.0	8.7	3.6	0.0	9.1	1.4	0.0	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	40.5	55.3	32.5	0.0	42.4	13.0	0.0	15.1	11.6	0.0	30.3
LnGrp LOS	С	D	Е	С	Α	D	В	Α	В	В	Α	С
Approach Vol, veh/h		544			323			586			478	
Approach Delay, s/veh		45.0			38.7			14.4			27.3	
Approach LOS		D			D			В			С	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	58.0	11.7	21.5	12.0	54.9	11.7	21.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.7	45.3	9.5	21.5	13.5	37.5	9.5	21.5				
Max Q Clear Time (q_c+l1), s	4.0	14.9	7.4	16.0	7.2	22.5	7.4	12.8				
Green Ext Time (p_c), s	0.0	2.6	0.1	1.0	0.3	2.2	0.1	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			С									

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		¥	
Traffic Vol, veh/h	31	306	268	27	18	25
Future Vol, veh/h	31	306	268	27	18	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	2	2	2
Mvmt Flow	34	333	291	29	20	27
Major/Minor N	Major1	N	Major2	- 1	Minor2	
Conflicting Flow All	320	0	viajoiz -	0	707	306
Stage 1	320	Ū	-	-	306	300
Stage 2	-		-	-	401	-
Critical Hdwy	4.12		-	-	6.42	6.22
Critical Hdwy Stg 1	4.12		-	-	5.42	0.22
Critical Hdwy Stg 2	_	_			5.42	
Follow-up Hdwy	2.218	_	_		3.518	
Pot Cap-1 Maneuver	1240	_			402	734
Stage 1	-	_	_	_	747	-
Stage 2	-	-	_	-	676	-
Platoon blocked, %		_	_	_	010	
Mov Cap-1 Maneuver	1240	_	_	_	388	734
Mov Cap-2 Maneuver	-	_	_	_	388	-
Stage 1	_	_	_	_	722	-
Stage 2	<u>-</u>	_	_	<u>-</u>	676	_
Jugo 2					370	
Approach	EB		WB		SB	
HCM Control Delay, s	0.7		0		12.4	
HCM LOS					В	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR :	SBLn1
Capacity (veh/h)		1240				534
HCM Lane V/C Ratio		0.027	_	_	_	0.088
HCM Control Delay (s)		8	0	-	-	12.4
HCM Lane LOS		A	A	_	_	В
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3
TOWN FORTH FORTH CALVOIT	/	0.1				0.0

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	LUL	4	1	7701	Y	ODIN
Traffic Vol, veh/h	38	283	274	11	7	21
Future Vol, veh/h	38	283	274	11	7	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	e,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	20	2	2
Mvmt Flow	41	308	298	12	8	23
Major/Minor N	Major1	N	Major2	ı	Minor2	
Conflicting Flow All	310	0	viajuiz -	0	694	304
Stage 1	310	U	-	-	304	304
Stage 2	-	_	-	-	390	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	4.12	-	-	-	5.42	0.22
Critical Hdwy Stg 2	_			-	5.42	-
Follow-up Hdwy	2.218		-		3.518	
Pot Cap-1 Maneuver	1250		-	-	409	736
Stage 1	1230	_	_	_	748	730
Stage 2			-	-	684	_
Platoon blocked, %	_	-	-	-	004	
Mov Cap-1 Maneuver	1250		-	-	393	736
Mov Cap-1 Maneuver	1230		-	-	393	730
Stage 1	_		-	-	718	-
Stage 2			-	-	684	-
Jiaye Z		_			004	
Approach	EB		WB		SB	
HCM Control Delay, s	0.9		0		11.3	
HCM LOS					В	
Minor Lane/Major Mvm	nt	EBL	EBT	WBT	WBR :	SBLn1
Capacity (veh/h)		1250			-	604
HCM Lane V/C Ratio		0.033	-	_	-	0.05
HCM Control Delay (s)		8	0			11.3
HCM Lane LOS		A	A	_	_	В
HCM 95th %tile Q(veh)	0.1				0.2
110W 70W 70W Q(VCII	1	0,1				0.2

Intersection												
Intersection Delay, s/veh	10											
Intersection LOS	Α											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	24	246	20	11	235	15	19	9	3	8	18	31
Future Vol, veh/h	24	246	20	11	235	15	19	9	3	8	18	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92

i can riour ractor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	2	2	2	2	5	2	2	2	2	22	2	2
Mvmt Flow	26	267	22	12	255	16	21	10	3	9	20	34
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	10.4			10			8.8			9		
HCM LOS	В			Α			Α			Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	61%	8%	4%	14%	
Vol Thru, %	29%	85%	90%	32%	
Vol Right, %	10%	7%	6%	54%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	31	290	261	57	
LT Vol	19	24	11	8	
Through Vol	9	246	235	18	
RT Vol	3	20	15	31	
Lane Flow Rate	34	315	284	62	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.051	0.391	0.355	0.092	
Departure Headway (Hd)	5.424	4.471	4.502	5.351	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	657	804	797	667	
Service Time	3.485	2.506	2.537	3.409	
HCM Lane V/C Ratio	0.052	0.392	0.356	0.093	
HCM Control Delay	8.8	10.4	10	9	
HCM Lane LOS	А	В	Α	Α	
HCM 95th-tile Q	0.2	1.9	1.6	0.3	

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Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	₽	55.1
Traffic Vol, veh/h	32	11	18	31	18	53
Future Vol, veh/h	32	11	18	31	18	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-		-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	12	20	34	20	58
N 4 - 1 - 1/N 41-1 - 11	\ A! O		11-!1		4-!	
	Minor2		Major1		/lajor2	
Conflicting Flow All	123	49	78	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy		3.318		-	-	-
Pot Cap-1 Maneuver	872	1020	1520	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	861	1020	1520	-	-	-
Mov Cap-2 Maneuver	861	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.2		2.7		0	
HCM LOS	9.2 A		2.1		U	
HCWI LOS	A					
Minor Lane/Major Mvm	nt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)		1520	-	897	-	-
HCM Lane V/C Ratio		0.013	-	0.052	-	-
HCM Control Delay (s)		7.4	0	9.2	-	-
HCM Lane LOS		Α	Α	Α	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.2					
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			र्स	¥	
Traffic Vol, veh/h	337	9	2	294	5	2
Future Vol, veh/h	337	9	2	294	5	2
Conflicting Peds, #/hr	0	0	0	0	0	0
	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage,	# 0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	366	10	2	320	5	2
Major/Minor Ma	ajor1	N	Major2		Minor1	
	_		Major2			271
Conflicting Flow All	0	0	376	0	695	371
Stage 1	-	-	-	-	371	-
Stage 2	-	-	- 4.10	-	324	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218		3.518	
Pot Cap-1 Maneuver	-	-	1182	-	408	675
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	733	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1182	-	407	675
Mov Cap-2 Maneuver	-	-	-	-	407	-
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	732	-
Ŭ						
Annroach	EB		WB		NB	
Approach						
HCM Control Delay, s	0		0.1		13	
HCM LOS					В	
Minor Lane/Major Mvmt	ľ	VBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		459	-		1182	-
HCM Lane V/C Ratio		0.017	_	_	0.002	-
HCM Control Delay (s)		13	-	-	8.1	0
HCM Lane LOS		В	-	-	Α	A
HCM 95th %tile Q(veh)		0.1	-	-	0	-
/ 5 / 5 6 2 (1011)		3.1				

Movement E Lane Configurations Traffic Vol, veh/h 3	0.2 BT					
Movement E Lane Configurations Traffic Vol, veh/h 3						
Lane Configurations Traffic Vol, veh/h 3	D I	EDD	\\/DI	WBT	NDI	NDD
Traffic Vol, veh/h 3	•	EBR	WBL		NBL	NBR
	}			4	¥	2
E 1 1/1 1/1 0	319	5	4	292	3	3
	319	5	4	292	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
	ree	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow 3	347	5	4	317	3	3
Major/Minor	0.1		Molera		Nine-1	
Major/Minor Majo			Major2		Minor1	0
Conflicting Flow All	0	0	352	0	675	350
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	325	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1207	-	419	693
Stage 1	-	-	-	-	713	-
Stage 2	-	_	-	-	732	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1207	-	417	693
Mov Cap-2 Maneuver	-	_	-	_	417	-
Stage 1	_	_	_	_	713	_
Stage 2	_	_	_	_	729	_
Stage 2					127	
Approach I	EB		WB		NB	
HCM Control Delay, s	0		0.1		12	
HCM LOS					В	
		IDI1	EDT	EDD	MDI	WDT
Missau Lana (Marian Maria	D 1	IKINI	EBT	EBR	WBL	WBT
Minor Lane/Major Mvmt	N	IBLn1				
Capacity (veh/h)		521	-		1207	-
Capacity (veh/h) HCM Lane V/C Ratio		521 0.013			0.004	-
Capacity (veh/h) HCM Lane V/C Ratio HCM Control Delay (s)		521 0.013 12	-			0
Capacity (veh/h) HCM Lane V/C Ratio		521 0.013	-	-	0.004	

DRAINAGE MEMORANDUM

February 26th, 2024

SUBJECT:

Mission Beverly Mixed-Use

Intersection of Beverly Avenue & Martway Street

Mission, KS 66202 Johnson County, KS

PROJECT AREA: 4.32 Acres

INTRODUCTION:

This drainage memorandum (memo) provides a summary of the existing and proposed conditions, related to the development of the site generally located south and northeast of the Beverly Avenue and Martway Street intersection in Mission, Kansas. The project is anticipated to include multi-family units, commercial/retail space, an integrated 3-story garage, an internal courtyard, and associated surface parking. Additionally, it will include private access drives, public and private storm sewer, erosion control, sanitary sewer, and waterline. The proposed development reduces the total impervious area when compared to the existing condition, thus no additional stormwater detention is required. The overall project site is approximately 4.32 acres. The project limits (disturbed area) will be 4.67 acres, due to sidewalks and drives being removed and replaced in the right-of-way adjacent to the site.

EXISTING CONDITIONS:

The overall project site is just east of the Beverly Avenue and Martway Street intersection, split approximately in half by Martway Street into a "north" and "south" area. The total project area is 4.32 acres, and is located in the Brush Creek watershed. The overall existing site generally drains from north to south, ultimately discharging into Rock Creek.

The project area located north of Martway Street is +/- 2.55 acres and is divided into 5 lots containing three commercial building and their associated surface parking, Beverly Park, and surface parking generally intended to serve Beverly Park. A 5'x5' box culvert runs north-south through the middle of the aforementioned lots. The overall area generally conveys runoff via sheet flow and shallow concentrated flow into area and curb inlets. The flow is then routed to the central box culvert, carrying the runoff across Martway Street and ultimately discharging it into Rock Creek.

The project area located south of Martway Street is +/- 1.67 acres and is divided into 3 lots containing three commercial buildings and their associated surface parking. A 5'x5' box culvert runs north-south through the middle of the aforementioned lots. The overall area generally conveys runoff via sheet flow and shallow concentrated flow into area and curb

inlets located within the project area or adjacent to the project area along Martway Street. The water is then routed through enclosed storm sewer to the box culvert, flowing south and ultimately discharging into Rock Creek. The southern edge of the proposed development is located within flood plain associated with Rock Creek, inside "Zone AE, Regulated Floodway". See FEMA Flood Map #20091C0024G for more details.

PROPOSED CONDITIONS:

The proposed development and associated site improvements will maintain the existing drainage patterns. Runoff will generally drain from north to south across the project area. The flow from the project area both north and south of Martway Street will be routed through new catch basins and private storm sewer system toward public storm sewer located along Martway Street and Dearborn Street. The proposed mixed-use development will decrease impervious area when compared to the existing condition, consequently decreasing the volume and intensity of flow of the runoff in the proposed condition. The runoff coefficient in the existing condition is **0.80**, likewise the runoff coefficient in the proposed condition is **0.80**. See **Exhibit 1** for the proposed drainage area map.

The design criteria set forth in APWA 5600 (concerning stormwater flow management) applies to all development which "alters the surface of the land to create additional impervious surfaces,". However, APWA Section 5601.3.A.2 notes that an exception is given provided that the "remodeling, repair, replacement, or other improvements to any existing structure or facility and appurtenances does not cause an increased area of impervious surface on the site". Since the proposed development matches the existing total impervious surface area within the project limits, no additional stormwater flow management facilities are required. **Exhibit 2** and **Exhibit 3** show the existing and proposed impervious areas for the project. The proposed area breakdowns for the overall existing and proposed site are also shown in **Table 1** below.

Table 1: Area Breakdowns for the Existing and Proposed Condition

	Exi	sting	Proposed			
Parameter	Area (SF)	Area (AC)	Area (SF)	Area (AC)		
Impervious Area	106,722	2.45	40,075	0.92		
Building	49,223	1.13	115,870	2.66		
Pervious Area	32,234	0.74	32,234	0.74		
Total	188,180	4.32	188,180	4.32		
Runoff Coefficient "C"	0	.80	0.80			

The existing dilapidated 5'x'5' box culvert that served the Mission Beverly project area and the adjacent developments will be removed within the limits of the project boundary. A proposed 48" and 60" storm line, to be located down the middle of Beverly Avenue, will

serve as it's replacement. The proposed storm line is designed to convey up to the 100-year return event's peak flow for the project area, as well as, the 100-year peak flows from the surrounding developments that previously discharged into the 5'x'5 box culvert. The new storm sewer will reconnect to the existing 5'x5' box culvert at the northern edge of the project area, within Beverly Avenue, and ultimately discharge into Rock Creek. **Exhibit 4** shows the upstream drainage area information for the existing box culvert and the proposed storm line. The calculations to ensure the proposed pipe has adequate capacity to convey the 100-year storm event are shown below in **Table 2**.

Table 2: Pipe Capacity Calculations

	Cumulative	Cumulative	Tc	•							Partial Flow
			-								
	Area	С	Cumulative	I -100	Q -100	Pipe Dia	Pipe	Grade	Capacity	Velocity	Velocity
	(acres)		(min)	(in/hr)	(cfs)	(inches)	n	%	(cfs)	(ft/sec)	(ft/sec)
AREA "A" (YELLOW)	2.76	0.90	5.0	10.32	32.1	36	0.013	0.50	47.3	6.7	10.5
AREA "B" (PURPLE)	2.49	0.90	5.0	10.32	28.9	30	0.013	0.50	29.1	5.9	8.6
AREA "A" + "B"	5.25	0.90	5.0	10.32	61.0	48	0.013	1.17	155.8	12.4	10.2
AREA "C" (GREEN)	7.74	0.90	5.0	10.32	89.9	60	0.013	1.17	282.5	14.4	10.6
AREA "A" + "B" + "C"	12.99	0.90	5.0	10.32	150.8	60	0.013	0.50	184.7	9.4	15.1
AREA "D" (BLUE)	2.55	0.90	5.0	10.32	29.6	30	0.013	0.50	29.1	5.9	8.4
AREA "E" (ORANGE)	1.15	0.90	5.0	10.32	13.4	24	0.013	0.50	16.0	5.1	8.2
AREA "A" + "B" + "C" + "E"	14.14	0.90	5.0	10.32	164.2	60	0.013	1.17	282.5	14.4	14.1
SUM OF "A" THROUGH "E"	16.69	0.90	5.0	10.32	193.8	60	0.013	1.17	282.5	14.4	14.8

FLOODPLAIN:

Per City of Mission floodplain administrator, proposed Building B's finished floor was placed a minimum of 2' above the base flood elevation (BFE). Kimley-Horn will complete a no-rise analysis for the proposed site development. The effective model for Rock Creek has been received from the City and will be updated for existing conditions based on survey of the parcel and current creek channel elevations. It is assumed that the creek flows will remain the same as the effective model and will not be updated as part of this no-rise analysis. A proposed conditions hydraulic model will then be created during final design based on the proposed site improvements. Kimley-Horn will design the site to meet a no-rise condition (0.00 feet) when compared to the effective model base flood elevations. It is assumed that the proposed improvements will stay outside of the FEMA designated floodway boundary and any fill placed within the general floodplain boundary will require 1:1 compensatory storage.

STORMWATER BMP'S:

To ensure proper water quality is maintained and even improved within the proposed development, the guidance set forth by the *MARC/APWA Manual of Best Management Practices (BMP) For Stormwater Quality* was used to evaluate the site. In the predevelopment condition, the project area consists of 3.58 acres of impervious area yielding a CN of 98 and 0.74 acres of open space in good condition yielding a CN of 74. This results in a cumulative pre-development CN of 94. In the post-development condition, the project area consists of 3.58 acres of impervious area yielding a CN of 98 and 0.74 acres of open space

in good condition yielding a CN of 74. This results in a cumulative post-development CN of 94.

Based on the existing and proposed surface conditions described above, the change in CN from the pre-development condition to the post-development condition is -1, which requires the site to achieve an overall Level of Service (LOS) rating of three (3). To achieve the required LOS, 3.05 acres of project area will be treated by two hydrodynamic separators with a Value Rating (VR) of 5. This results in a cumulative VR of 3.53 for the site, meeting and even exceeding the required Level of Service of three (3). See Exhibit 1 and Calculations 1 for the BMP treatment area and Level of Service Calculations.

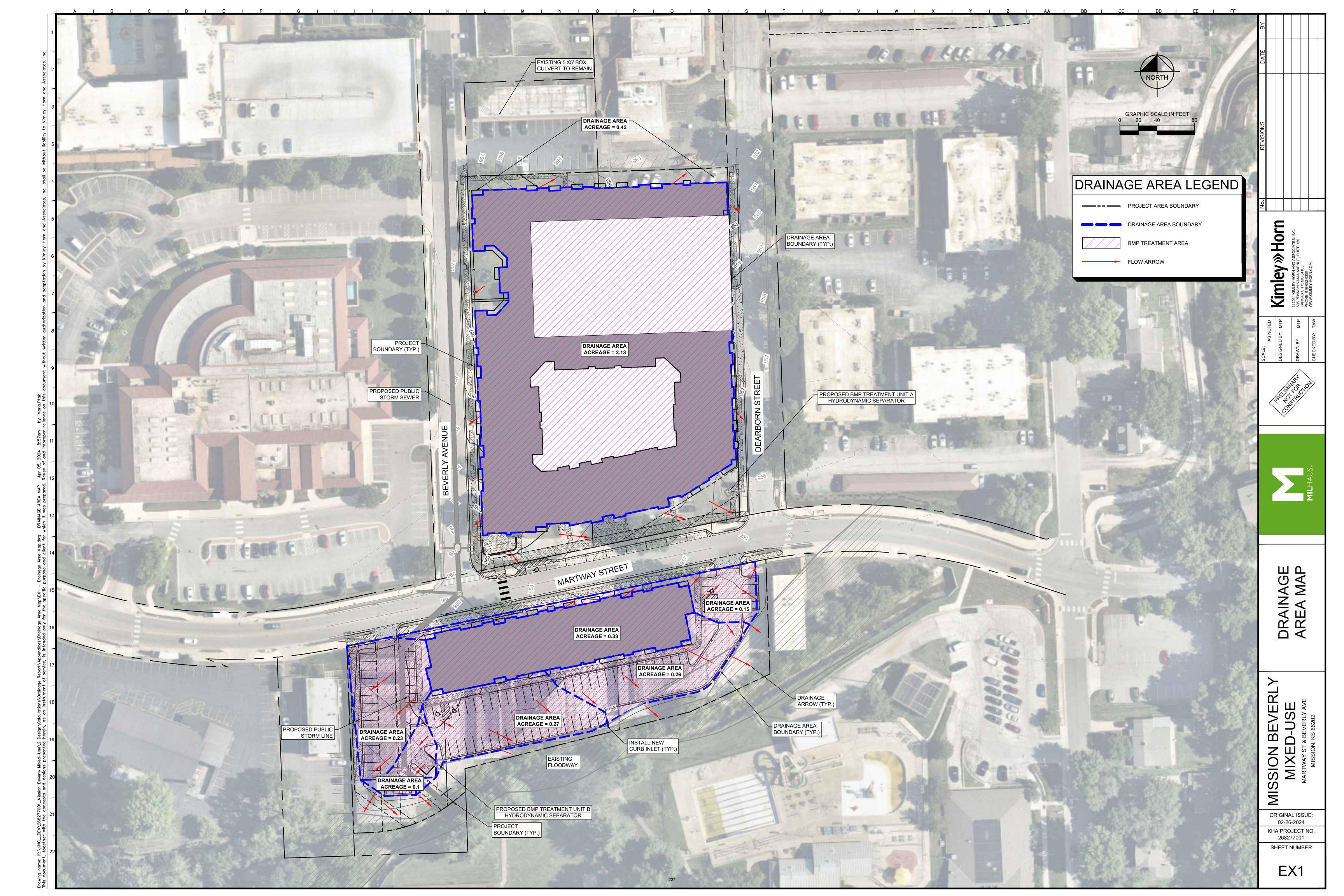
CLOSURE

As discussed above, the existing site drainage conditions due to the proposed project are maintained compared to the existing development. The amount of impervious surface area for the proposed development is lower than the existing development, resulting in a reduced stormwater peak flow rate and volume exiting the site; thus, no additional stormwater detention or quantity control is provided as part of the proposed design. The box culvert running through the middle of the project area was removed. The flow that was conveyed through the box culvert in the existing condition will be routed through a new storm line located within Beverly Avenue. The proposed storm line is sized to property convey the 100year storm event flows from the project area, as well as, any upstream areas that contributed flow to the aforementioned box culvert. A no-rise floodway analysis will be conducted during final design to ensure proposed Building "B" is 2' above the base flood elevation, and the proposed improvements will not cause detrimental effects to the 100-year floodplain. To ensure proper water quality is maintained and even improved within the proposed development, it was determined, per the MARC BMP Manual, that the site must meet a Level of Service of 3. The project achieves a Level of Service of 3 through the use of two hydrodynamic separators. Because existing impervious surface area is not increasing compared to proposed development, and drainage patterns as a whole remain unchanged, it is recommended that the property be developed as shown.

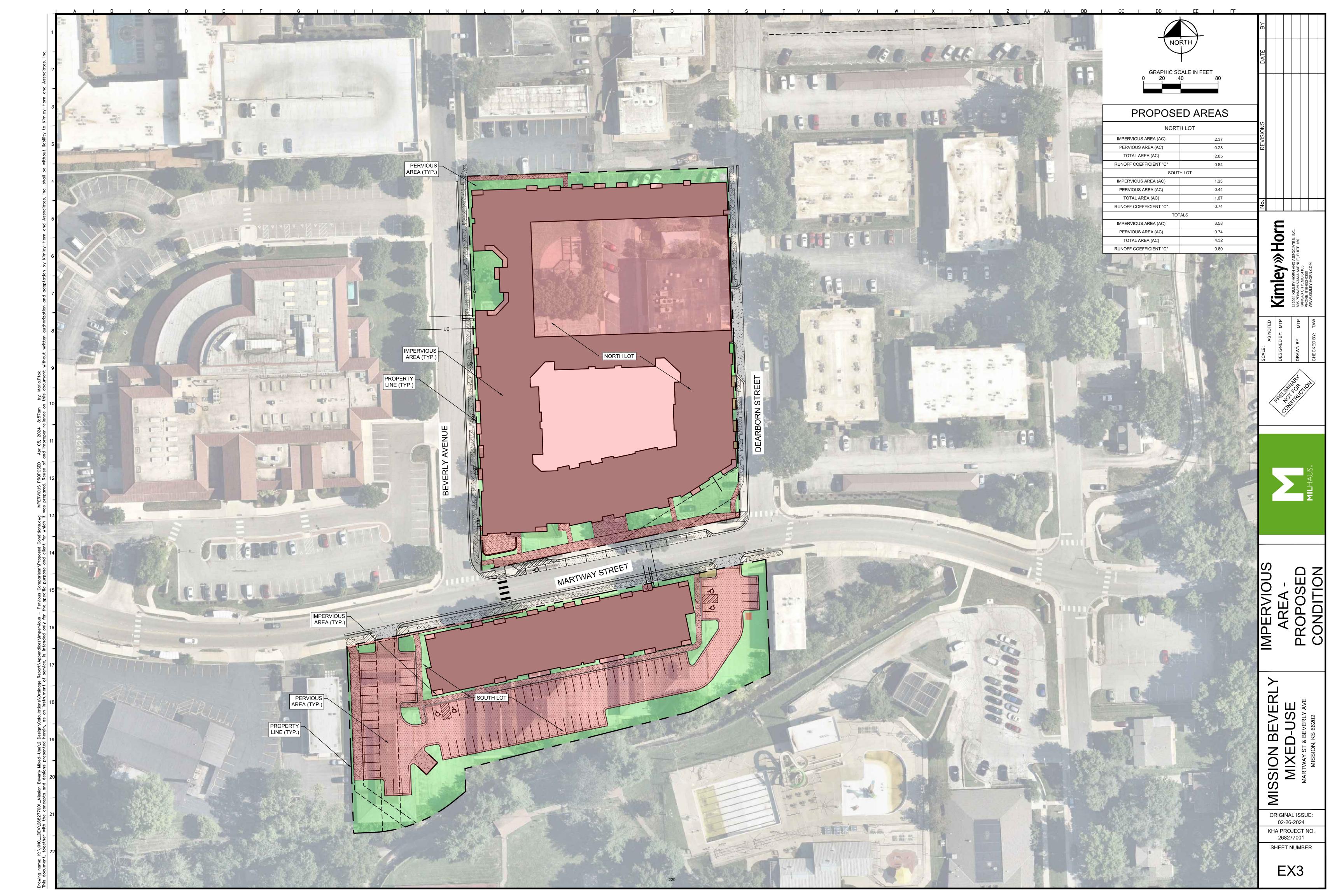
KIMLEY-HORN AND ASSOCIATES, INC.

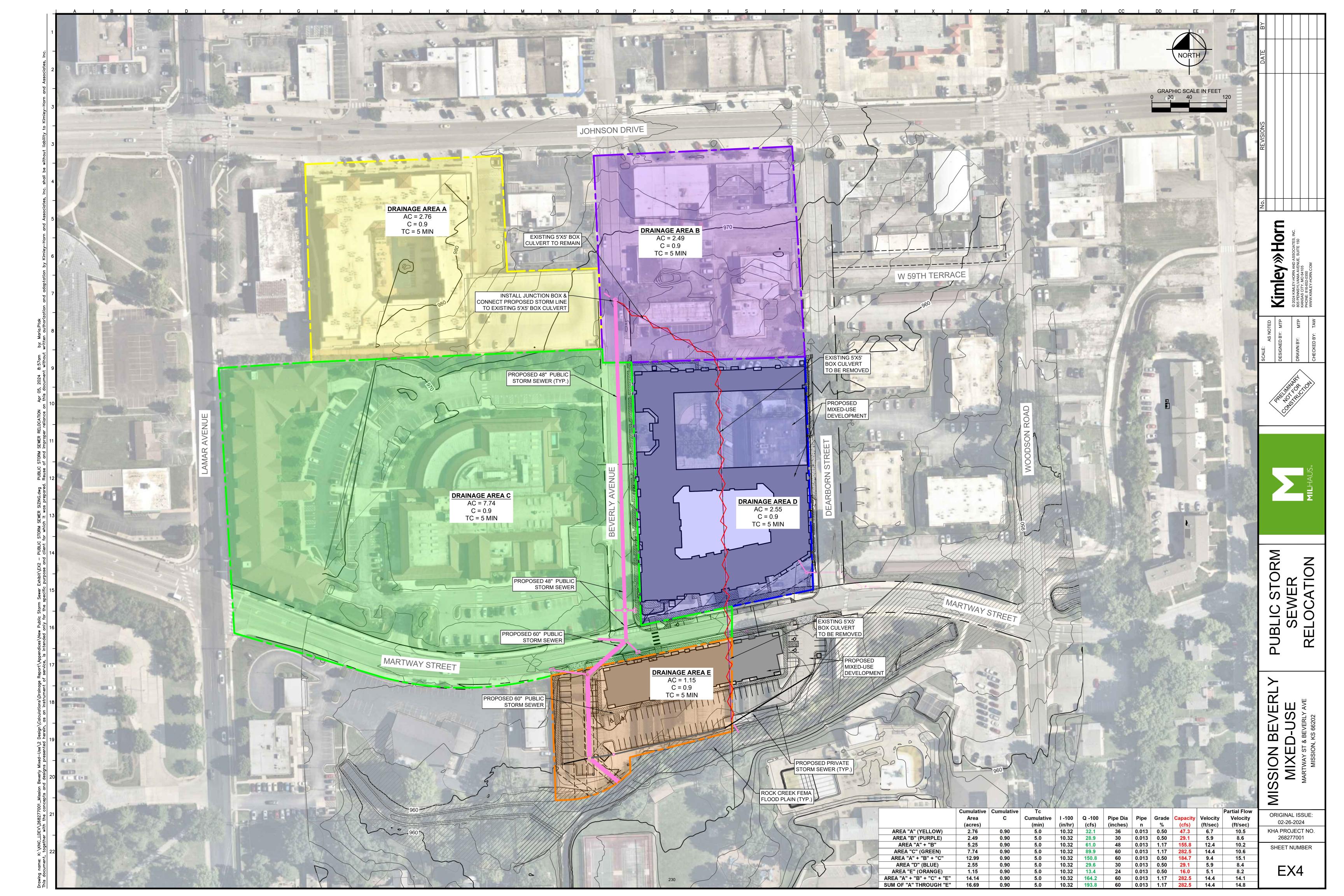
Tyler Wysong, P.E.

EXHIBITS









CALCULATIONS 1

WORKSHEET 1: REQUIRED LEVEL OF SERVICE - UNDEVELOPED SITE

By: Checked: TW 04/02/24 Date: Project: Mission Beverly Mixed-Use Location: Mission, KS

1. Runoff Curve Number

A. Pre-Development CN

		CN frm		Product of
Cover Description	Soil HSG	Table 1	Acres	CN x Area
Paved Parking Lots, Roofs, Drives, Etc.	С	98.00	3.580	350.840
Open Space, Good Condition	С	74.00	0.740	54.760
		Totals:	4.320	405.600

Predevelopment Weighted CN = Total product/total area =

94 (r	ound to integer)
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B. Post-Development CN

Cover Description	Soil HSG		Acres	
Paved Parking Lots, Roofs, Drives, Etc.	С	98.00	3.580	350.840
Open Space, Good Condition	С	74.00	0.740	54.760
		Totals:	4.320	405.600

	Post development Weighted CN = Total product/total area =		9	(round to integer)
C.	Level of Service (LOS) Calculation		Change in CN	LOS
	Predevelopment CN	94	17+	8
			7 to 16	7
	Postdevelopment CN	94	4 to 6	6
			1 to 3	5
	Difference	0	0	4
			>>> -7 to -1	3
	LOS Required (see scale at right)	3	-8 to -17	2
	, ,		-18 to -21	1
			-22	0

WORKSHEET 2: DEVELOP MITIGATION PACKAGES THAT MEET THE REQUIRED LS

Meets required LS (Yes/No)?

Project: Mission Beverly Mixed-Use TW Date: 04/02/24 By: Location: Mission, KS Checked: AB Sheet 1 of 1 Total Site = 4.32 AC 1. Required LS (New Dev., Wksht 1) or Total VR (Redev., Wksht 1A): 3.00 Note: Various BMPs may alter CN of proposed development, and LS; recalculate both if applicable. 2. Proposed BMP Option Package No. 1 VR from Treatment Table 4.4 Product of Cover / BMP Description or 4.6¹ Area VR x Area (A) HYDRODYNAMIC SEPARATOR 15.25 (B) UNTREATED OFFSITE 1.27 0.00 Total2: 4.32 Total: 15.25 *Weighted VR: = total product / total area 3.53 ¹ VR calculated for final BMP only in Treatment Train $^{\rm 2}$ Total treatment area cannot exceed 100 percent of the actual site area. * Blank in redevelopment

Yes

(If No, or if additional options are being tested,

proceed below.)





AT A GLANCE

Applicant:

Milhaus Development, LLC

Location:

Eight properties, generally at Martway Street and Beverly Avenue

Property ID:

KP20600000 0003, KP20600000 0002, KP20600000 0001, KF251208-4017, KF251208-4016, KF251208-4018, KF251208-4010, KF251208-4022

Current Zoning:

MS2

Proposed Zoning:

N/A

Current Land Use:

Office, Parking, Open Space

Proposed Land Use:

Mixed-Use

Public Hearing Required

Legal Notice:

April 9, 2024

Case Number: 24-08

Project Name:

Mission Beverly Preliminary Plat

Project Summary:

The project developer proposes a replat of eight properties generally located at Beverly and Martway; five properties are located on the north side of Martway between Beverly and Dearborn, and three properties are located directly to the south on the south side of Martway.

Staff Contact:

Karie Kneller, City Planner





PROPERTY BACKGROUND AND INFORMATION

The applicant, Milhaus Development, LLC has submitted an application for a preliminary plat for properties generally located at Beverly and Martway. The property is zoned MS-2 "Main Street District 2." Surrounding properties are zoned MS-2 on the west, north and east adjacent properties. Properties on the south are zoned "R-1" Single-family Residential. The subject properties north of Martway currently total 2.5 acres, consisting of five properties. Properties south of Martway are 1.7 acres consisting of three properties. All necessary utilities are available on-site, but certain stormwater and sanitary sewer utilities have to be relocated to accommodate the redevelopment project known as Mission Beverly.

PROJECT PROPOSAL

The applicant proposes a replat of the existing eight properties to consist of two lots identified as Lot 1 and Lot 2; Lot 1 is located on the north side of Martway and Lot 2 is located on the south side of Martway. Certain site improvements in the public right-of-way and additional dedication of right-of-way is included in the proposed replat. The additional dedication Improvements include a widened pedestrian path, a continuation on Martway's north side for the Rock Creek Trail, as well as a pedestrian plaza. Two curb cuts on the north side of Martway are eliminated and three curb cuts on the west side of Martway are closed. Two additional curb cuts on the east side of the property on Dearborn are also eliminated. On the south property, one curb cut is closed. All pedestrian improvements are in the public right-of-way. Parallel parking is incorporated into the right-of-way on the north side of Martway, south of the proposed 10' pedestrian path. A maintenance agreement for the on-street parking is forthcoming. A 10 foot easement on the west side of Lot 2 is provided to accomodate for a pedestrian path adjacent to parking stalls and will allow for future construction of a connecting path to Anderson Park across the Rock Creek Trail.

PLAN REVIEW AND ANALYSIS

Municipal Code

Section 440.220 of the Mission Municipal Code provides that preliminary plats shall be approved by the Planning Commission if it determines that:

1. The proposed preliminary plat conforms to the requirements of this Title, the applicable zoning district regulations, and any other applicable provisions of this Code, subject only to acceptable rule exceptions.

Analysis: The subject property is located in the MS-2 zoning district. MS-2 allows for on-street parking where adequate right-of-way is available. MS-2 area regulations are covered under the MS-1 zoning district at Section 410.180, as follows: front build-to line, side yard, and rear yard may be zero. The plat and build-to line conform with the regulations set forth.



2. The subdivision or plat represents an overall development pattern consistent with the Master Plan and the Official Street Map.

Analysis: The Mission Comprehensive Plan (i.e. Master Plan) is consistent with a mixed-use development of this nature that is residentially focused.

3. The plat contains a sound, well-conceived parcel and land subdivision layout consistent with good land planning and site engineering design principles.

Analysis: It is Staff's determination that the plat supports good land planning and allows for future redevelopment in compliance with adopted standards.

4. The spacing and design of proposed curb cuts and intersection locations is consistent with good traffic engineering design and public safety considerations.

It is Staff's determination that the plat is consistent with good traffic engineering and safety standards.

5. All submission requirements have been satisfied.

All the requirements of 440.220 - Submission of Preliminary Plats - have been satisfied.

RECOMMENDATION

Staff recommends that the Planning Commission approves Case #24-08, Mission Beverly Preliminary Plat with the condition that a Maintenance Agreement (MA) for the on-street parking and all property improvements shall be maintained by the property owner or owner's agent; the MA shall be noted on the final plat prior to recording with the County.

PLANNING COMMISION ACTION

The Planning Commission will hear Case #23-18, the Preliminary Plat for Popeye's at its August 28, 2023 public hearing.

CITY COUNCIL ACTION

No action; a final plat will require City Council approval of the right-of-way dedication.

MISSION BEVERLY PRELIMINARY PLAT LOT1, LOT 2 AND LOT 3 OF MARTWAY OFFICE BUILDINGS, A PLAT IN THE CITY OF MISSION, AND A PORTION OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 12 SOUTH, RANGE 25 EAST, IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS

KP58800000 0001

8-12S/25E FOUND 3" ALUMINUM DISK IN MON. BOX KR251208-40 JOHNSON DRIVE CITY APPROVALS: APPROVED BY THE PLANNING COMMISSION OF THE CITY OF MISSION, JOHNSON COUNTY, KANSAS, THIS _____ DAY OF _____, 2024. MIKE LEE, CHAIRPERSON APPROVED BY THE PLANNING COMMISSION SECRETARY Horn OF THE CITY OF MISSION, JOHNSON COUNTY, KANSAS,

278.88

% RARCEL\4\\

N88°06'04"E

PARCEL 3/

R = 150.00

L=97.19'

61ST STREET

S50°53'39"W 16.92

PROPOSED LOT 1

KIMBERLY STEFFENS

PLANNING COMMISSION SECRETARY

THIS ____, DAY OF ____, 2024.

EAST 1/4 COR. SEC.

AS AS

GRAPHIC SCALE

(IN FEET)

1 inch = 80 ft.

A PORTION OF THE SUBJECT PROPERTY LIES WITHIN ZONE AE, SPECIAL FLOOD HAZARD AREAS SUBJECT TO

FLOOD ELEVATIONS DETERMINED, A PORTION OF THE

ZONE AE. THE FLOODWAY IS THE CHANNEL OF A

(UNSHADED), DEFINED BY THE NATIONAL FLOOD

INSURANCE PROGRAM AS "AREAS DETERMINED TO BE

OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN", AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE

COMMUNITY OF THE CITY OF MISSION, KS, COMMUNITY

NUMBER 200170, MAP NUMBER 20091C0023G AND 20091C0024G, EFFECTIVE DATE AUGUST 3, 2009.

SUBJECT PROPERTY LIES WITHIN FLOODWAY AREAS IN

STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT

MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS. A PORTION OF THE SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X

INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, BASE

ORIGINAL ISSUE: 4-24-24 KHA PROJECT NO.

268277001 SHEET NUMBER

1 OF 2

SOUTH 1/4 COR. SEC. 8-12S/25E FOUND 2-1/2" BRASS DISK IN MON. BOX

DEVELOPER: 1656 WASHINGTON ST., SUITE 230

KANSAS CITY, MO 64108 913-915-2700

ENGINEER:

LENEXA, KS 66219

PARCEL 4:

CITY PARCEL:

OR HIGHWAYS.

TITLE COMMITMENT:

(PARCELS 2 & 4) AT 08:00AM

TITLE COMMITMENT NUMBER: NCS-1152684-INDY

KIMLEY HORN AND ASSOCIATES, INC. 805 PENNSYLVANIA AVENUE, SUITE 150

KANSAS CITY, MO 64105

SURVEYOR: <u>areas:</u> MINNEY SURVEYING LOT 1: 2.488 ACRES 15547 W 81ST STREET LOT 2: 1.659 ACRES

LOT 2, MARTWAY OFFICE BUILDINGS, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

LOT 3, MARTWAY OFFICE BUILDINGS, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

ALL THAT PART OF THE SOUTHEAST 1/4 OF SECTION 8, TOWNSHIP 12, RANGE 25 IN THE CITY OF MISSION,

BEGINNING AT THE POINT OF INTERSECTION OF THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE AND THE NORTHERLY RIGHT OF WAY LINE OF MARTWAY, SAID POINT BEING 776.33 FEET SOUTH AND 967.19 FEET

TOWNSHIP 12, RANGE 25, JOHNSON COUNTY, KANSAS; THENCE NORTH O DEGREES, 01 MINUTES, 04 SECONDS EAST, 62.84 FEET ALONG THE WEST RIGHT OF WAY LINE OF SAID DEARBORN AVENUE; THENCE NORTH 89 DEGREES, 52 MINUTES, 20 SECONDS WEST, 160 FEET; THENCE SOUTH 0 DEGREES, 01 MINUTES, 04 SECONDS WEST, 90 FEET TO A POINT ON THE NORTHERLY LINE OF SAID MARTWAY; THENCE NORTH 80 DEGREES, 24 MINUTES EAST, 162.25 FEET ALONG SAID NORTHERLY LINE TO THE POINT OF BEGINNING AND COMMENCING AT THE POINT OF INTERSECTION OF THE WEST RIGHT OF WAY LINE OF. DEARBORN AVENUE AND THE NORTHERLY RIGHT OF WAY OF MARTWAY; THENCE NORTH ALONG SAID WEST RIGHT OF WAY LINE 62.84 FEET TO THE TRUE POINT OF BEGINNING, SAID TRUE POINT OF BEGINNING BEING 967.19 FEET EAST AND 713.49 FEET SOUTH OF THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8,

TOWNSHIP 12, RANGE 24, JOHNSON COUNTY, KANSAS; THENCE NORTH O DEGREES, 01 MINUTES, 40 SECONDS

EAST ALONG THE WEST RIGHT OF WAY LINE OF DEARBORN AVENUE 30.0 FEET; THENCE NORTH 89 DEGREES, 58 MINUTES, 20 SECONDS WEST, 140 FEET; THENCE SOUTH 0 DEGREES, 01 MINUTES, 40 SECONDS WEST, 30 FEET; THENCE SOUTH 89 DEGREES, 58 MINUTES, 20 SECONDS EAST, 140 FEET TO THE TRUE POINT OF

ALL THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 12, RANGE 25, NOW IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS, MORE PARTICULARLY DESCRIBED AS

BEGINNING AT A POINT 635 FEET WEST OF THE EAST LINE, AND 400 FEET SOUTH OF THE NORTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8. SAID POINT ALSO BEING ON

THE EAST RIGHT-OF-WAY LINE OF BEVERLY AS NOW ESTABLISHED: THENCE SOUTH, ALONG A LINE 635 FEET WEST OF AND PARALLEL TO THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8, SAID LINE ALSO BEING THE EAST LINE OF SAID BEVERLY, A DISTANCE OF 132.38 FEET; THENCE EAST, ALONG A LINE PERPENDICULAR TO THE LAST DESCRIBED COURSE, A DISTANCE OF 140 FEET TO A POINT 495 FEET WEST OF THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8; THENCE NORTH, ALONG A LINE 495 FEET WEST OF AND PARALLEL TO THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8, A DISTANCE OF 132.14 FEET TO A POINT 400 FEET SOUTH OF THE NORTH LINE THEREOF; THENCE WEST, ALONG A LINE 400 FEET SOUTH OF AND PARALLEL TO THE NORTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 8, A DISTANCE OF 140 FEET TO THE POINT OF BEGINNING, EXCEPT ANY PART IN STREETS, ROADS

EAST OF THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 8,

JOHNSON COUNTY, KANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING. EXCEPT ANY PART USED ROADS OR PUBLIC RIGHTS OF WAY.

EFFECTIVE DATE: OCTOBER 26, 2022 (PARCELS 1 & 3) NOVEMBER 07, 2022

FIRST AMERICAN TITLE INSURANCE COMPANY, NATIONAL COMMERCIAL

. THE PROPOSED USE OF THE LAND IS MULTI-FAMILY AND RETAIL. 2. WASTE WATER TO BE HANDLED BY PUBLIC SANITARY SEWER SYSTEM.

TOTAL: 4.147 ACRES

