APPENDIX G/INITIAL STUDY FOR A MITIGATED NEGATIVE DECLARATION

Environmental Checklist Form for:
Development Permit Application No. P23-03993 & Planned Development Permit Application No. P23-03982

1.	**Project title:** Development Permit Application No. P23-03993 & Planned Development Permit Application No. P23-03982 (Bella Vita Multifamily Development)
2.	**Lead agency name and address:** City of Fresno Planning and Development Department 2600 Fresno Street Fresno, CA 93721
3.	**Contact person and phone number:** Rob Holt, Supervising Planner City of Fresno Planning and Development Department (559) 621-8056
4.	**Project location:** SE Corner of N Hayes Ave/W Herndon Ave NW Corner of N Hayes Ave/N Veterans Blvd (APN: 504-092-09, 504-092-10ST, 504-092-15, 504-092-16)
5.	**Project sponsor's name and address:** Armen Basmajian Marc O' Polo Enterprises, Inc. 6729 N. Willow Ave., Ste. 105 Fresno, CA 93710
6.	**General & Community plan land use designation:** Urban Neighborhood Residential Employment – Office
7.	**Zoning:** RM-2/UGM (*Multi-Family Residential, Urban Neighborhood/Urban Growth Management*) O/EA/UGM/cz (*Office/Expressway Area Overlay/Urban Growth Management/conditions of zoning*)

8.	**Description of project:** Development Permit Application No. P23-03993 was filed with the City of Fresno ("City") by Armen Basmajian on behalf of Marc O' Polo Enterprises, Inc. This application is to approve a site plan for the construction and operation of multifamily residential and commercial uses on vacant land in the northwestern portion of the City generally bounded by West Herndon Avenue to the north, North Hayes Avenue to the west and south, and the North Hayes Avenue alignment to the east ("project site"). The project site consists of four parcels which encompass approximately 18.56 acres of land. These parcels are associated with Assessor's Parcel Numbers (APNs): 504-092-09, 504-092-10ST (Flood Control Parcel), 504-092-15, and 504-092-16. The project's multifamily residential component would construct 396 units across two parcels totaling approximately 16.36 net acres for a density of 24.21 units per acre (du/ac) where the density requirement of the property's zone district (RM-2) requires a minimum of 16 and maximum of 30 du/ac. The multifamily residential component of the project would include a diverse unit mix of 120 one-bedroom units, 192 two-bedroom units, and 84 three-bedroom units all of which are three-story buildings. These are categorized 10 *Type 1* Buildings (one-bedroom units), 16 *Type 2* Buildings (two-bedroom units), and 7 *Type 3* Buildings (three-bedroom units) for a total of 33 residential buildings onsite, comprising approximately 187,116 square feet of residential building area. Residential amenities include a recreation building, swimming pool, basketball half-court, two pickle ball courts, tot lot, two barbeque areas, a dog park, and expansive landscaped open spaces. The residential parking plan includes approximately 70 enclosed garages, 326 covered carports, and 240 open parking spaces, totaling 636 spaces. Moreover, approximately 322,023 square feet, or approximately 45.5 percent of the multifamily residential component's lot area would be landscaped, and the balance of the lot would be hardscaped with pavement and structures. The project's commercial component would construct approximately 22,600 square feet of commercial space on approximately 2.2 net acres. The project does not propose to change these existing land use and zoning designations. For the commercial component, the development would feature two commercial pads (one with a drive-thru use) and a retail shell building generally concentrated in the northwestern portion of the project site fronting North Hayes Avenue near the intersection of West Herndon Avenue. The retail shell building would be approximately 12,750 square feet of building area and the commercial pads would be approximately 5,000 square feet (with drive-thru use) and 4,916 square feet, respectively, for a total of 22,666 square feet of commercial building area. This section of the project site would include 84 parking stalls, including 6 ADA accessible parking spaces. The commercial pads would be located in the northern and southern portions of the commercial component area of the project site, and the retail shell building would be located near the center of the commercial component area. The commercial pads are anticipated to provide

	restaurant uses, and the commercial pad in the northern area would include a drive-through. While tenants for the commercial uses are not known at this time, the anticipated operating hours would be from 8:00 am to 10:00 pm, seven days per week. Moreover, approximately 27,494 square feet, or approximately 25.3 percent, of the commercial component's lot area would be landscaped, and the balance of the lot would be hardscaped with pavement and structures. Vehicular access to the multifamily residential component would be provided via new driveways and security gates along North Hayes Avenue with emergency vehicle access also provided from West Herndon Avenue. Vehicular access to the commercial component would be provided from new driveways along North Hayes Avenue separate from the residential access points. Additionally, the project incorporates an existing overhead electric transmission line easement that generally bisects the northeastern portion of the site to avoid a conflict between the project's proposed development and the existing transmission lines. For the purposes of this environmental analysis, the project's construction is estimated to commence in May 2026 and consist of one phase with project completion estimated by May 2028 and project site occupancy by June 2028.
9.	**Surrounding land uses and setting:**

	Planned Land Use	Existing Zoning	Existing Land Use
North	Low Density Residential /Medium-Low Density Residential	RS-4/RS-5	Neighborhood Park/Medium-Low Density Residential
East	Low Density Residential	RM-2/RS-4	Vacant/Medium Density Residential
South	Low Density Residential/ Open Space	RS-5/RS-4/PI	Vacant/Ponding Basin/Medium Density Residential
West	Office/Elementary School	O/PI	Vacant/Elementary School

10.	**Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** • San Joaquin Valley Air Pollution Control District (SJVAPCD) • Central Valley Regional Water Quality Control Board

11.	**Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code (PRC) Section 21080.3.1? If so, has consultation begun?** The State requires lead agencies to consider the potential effects of proposed projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the California Environmental Quality Act (CEQA) Guidelines. Pursuant to PRC Section 21080.3.1, before public distribution of the document, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)). According to the most recent census data, California is home to 109 currently recognized Indian tribes. Tribes in California currently have nearly 100 separate reservations or Rancherias. Fresno County has a number of Rancherias such as Table Mountain Rancheria, Millerton Rancheria, Big Sandy Rancheria, Cold Springs Rancheria, and Squaw Valley Rancheria. These Rancherias are not located within the city limits. Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See PRC Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality. Currently, the Table Mountain Rancheria Tribe and the Dumna Wo Wah Tribe have requested to be notified pursuant to Assembly Bill 52 (AB 52). A certified letter was mailed to the above-mentioned tribes on July 31, 2024. The 30-day comment period ended on August 30, 2024. The Table Mountain Rancheria provided a comment letter on August 16, 2024, requesting consultation. City staff contacted Table Mountain Rancheria and provided them with a Cultural Study for review on August 26, 2024, with a follow-up email requesting a status on the consultation request on September 11, 2024. On January 21, 2025, City staff sent another follow-up request expressing the City's good faith efforts in requesting to meet for consultation, as requested by Table Mountain Rancheria, with a due date for the consultation meeting request by January 31, 2025, stating that a "No Response" would be considered as fulfilling the request for consultation and it is no longer needed. Table Mountain Rancheria did not respond.


Herndon Ave
Hayes Ave
Polk Ave
Riverside Dr
Palo Alto Ave
Veterans Blvd
Maxar, Microsoft
N
4CREEKS
Bella Vita Development
Vicinity Map
City of Fresno
Legend
Project Site
Miles
0
0.25
0.5

VICINITY MAP
NTS

SITE PLAN

SCALE: 1"=60'-0"

PROJECT DIRECTORY:

OWNER
MARC O' POLO ENTERPRISES, INC.
6124 N. WILLOW AVE., STE. 105
FRESNO, CALIFORNIA 93710
CONTACT: ARMEN BASMAJIAN
PH. (559) 905-5600
EMAIL: armen@marcopoloent.com

ARCHITECT
KENT P. RODRIGUES, ARCHITECT
2090 W. MAGILL AVE.
FRESNO, CA 93711
CONTACT: KENT RODRIGUES
PH. (559) 438-1790
EMAIL: kentparch@comcast.net

CIVIL ENGINEER
ALAN MOK ENGINEERING
3422 W. SHAW AVE., STE. 106
FRESNO, CA 93711
CONTACT: ALAN MOK
PH. (559) 432-6874
EMAIL: alan@alanmokengineering.com

SITE STATISTICS:

EXISTING ZONE DISTRICTS:
COMMERCIAL - CR/EA/EM/UGM
RESIDENTIAL - RM-2/UGM

EXISTING GP LAND USES:
COMMERCIAL - EMPLOYMENT-OFFICE
RESIDENTIAL - URBAN NEIGHBORHOOD

MULTIFAMILY RESIDENTIAL:
LAND / FLOOR AREA RATIO:
LAND AREA EQUALS 712,642 SQUARE FEET OF LAND OR 16.36 ACRES (NET)
WITH 396 UNITS - FAR = 396 UNITS / 16.36 ACRES = 24.21 UNITS PER ACRE

BUILDINGS:
PARCEL 1:
BUILDING TYPE 1: 3 STORY BUILDING WITH 12 ONE BEDROOM / ONE BATH UNITS (7 BUILDINGS)
BUILDING TYPE 2: 3 STORY BUILDING WITH 12 TWO BEDROOM / TWO BATH UNITS (10 BUILDINGS)
BUILDING TYPE 3: 3 STORY BUILDING WITH 12 THREE BEDROOM / TWO BATH UNITS (3 BUILDINGS)
RECREATION BUILDING: SINGLE STORY
PARCEL 2:
BUILDING TYPE 1: 3 STORY BUILDING WITH 12 ONE BEDROOM / ONE BATH UNITS (3 BUILDINGS)
BUILDING TYPE 2: 3 STORY BUILDING WITH 12 TWO BEDROOM / TWO BATH UNITS (6 BUILDINGS)
BUILDING TYPE 3: 3 STORY BUILDING WITH 12 THREE BEDROOM / TWO BATH UNITS (4 BUILDINGS)
TOTAL:
BUILDING TYPE 1: 3 STORY BUILDING WITH 12 ONE BEDROOM / ONE BATH UNITS (10 BUILDINGS)
BUILDING TYPE 2: 3 STORY BUILDING WITH 12 TWO BEDROOM / TWO BATH UNITS (16 BUILDINGS)
BUILDING TYPE 3: 3 STORY BUILDING WITH 12 THREE BEDROOM / TWO BATH UNITS (7 BUILDINGS)

UNITS:
PARCEL 1:
UNIT "A" - ONE BEDROOM / ONE BATH = 84 UNITS
UNIT "B" - TWO BEDROOM / TWO BATH = 120 UNITS
UNIT "C" - THREE BEDROOM / TWO BATH = 36 UNIT
TOTAL 240 UNITS
PARCEL 2:
UNIT "A" - ONE BEDROOM / ONE BATH = 36 UNITS
UNIT "B" - TWO BEDROOM / TWO BATH = 72 UNITS
UNIT "C" - THREE BEDROOM / TWO BATH = 48 UNITS
TOTAL 156 UNITS
TOTAL:
UNIT "A" - ONE BEDROOM / ONE BATH = 120 UNITS (30.3%)
UNIT "B" - TWO BEDROOM / TWO BATH = 192 UNITS (48.5%)
UNIT "C" - THREE BEDROOM / TWO BATH = 84 UNITS (21.2%)
TOTAL 396 UNITS

LOT COVERAGE:
BUILDING:
187,116 SQ. FT. / 712,642 SQ. FT. (BUILDING AREA / LOT AREA) = 26.3%
PAVED AREA:
203,503 SQ. FT. / 712,642 SQ. FT. (PAVED AREA / LOT AREA) = 28.2%
LANDSCAPED AREA:
322,023 SQ. FT. / 712,642 SQ. FT. (LANDSCAPED AREA / LOT AREA) = 45.5%

PARKING:
PARKING REQUIRED:
1 STALL PER ONE AND TWO BEDROOM UNITS x 312 UNITS = 312 STALLS
1.5 STALLS PER THREE BEDROOM UNITS x 84 UNITS = 126 STALLS
1 STALL FOR EVERY 2 UNITS GUEST PARKING = 198 STALLS
TOTAL PARKING STALLS REQUIRED 636 STALLS
PARKING PROVIDED:
ENCLOSED GARAGES = 70 STALLS
COVERED CARPORTS = 326 STALLS
TOTAL COVERED PARKING STALLS = 396 STALLS (ONE PER UNIT)
OPEN PARKING STALLS = 240 STALLS
TOTAL PARKING STALLS PROVIDED 636 STALLS

COMMERCIAL:
LAND AREA:
LAND AREA EQUALS 108,900 SQ. FT. OF LAND OR 2.2 ACRES (NET)

BUILDING AREA:
RETAIL SHELL BUILDING - 12,750 SQ. FT.
COMMERCIAL PAD 1 - 5,000 SQ. FT.
RETAIL PAD 2 - 4,850 SQ. FT.
TOTAL SQUARE FOOTAGE - 22,600 SQ. FT.

LOT COVERAGE:
BUILDING:
22,600 SQ. FT. / 108,900 SQ. FT. (BUILDING AREA / LOT AREA) = 20.1%
PAVED AREA:
58,806 SQ. FT. / 108,900 SQ. FT. (PAVED AREA / LOT AREA) = 54%
LANDSCAPED AREA:
27,494 SQ. FT. / 108,900 SQ. FT. (LANDSCAPED AREA / LOT AREA) = 25.3%

LOT COVERAGE:
BUILDING AREA / LOT AREA = 22,600 / 108,900 = .201

PARKING:
PARKING REQUIRED:
RETAIL BUILDINGS - ONE STALL PER 450 SQ. FT. = 40 STALLS
COMMERCIAL PAD - ONE STALL PER 150 SQ. FT. = 33 STALLS
TOTAL PARKING REQUIRED 74 STALLS
PARKING PROVIDED:
STANDARD PARKING STALLS 78
ACCESSIBLE PARKING STALLS 6
TOTAL SPACES PROVIDED 84

MULTIFAMILY SITE PLAN KEY NOTES:

1 EXISTING CONCRETE CURB, GUTTER AS REQUIRED TO CITY OF FRESNO PW STD. P-5
2 NEW CONC. APPROACH (WIDTH AS DIMENSIONED) CONSTRUCTED TO CITY OF FRESNO PW STDS. P-2, P-6 AND P-48
3 PROVIDE 6'-8" HIGH CONC. BLOCK WALL WITH 4" CAP AT PROJECT PERIMETER
4 CONSTRUCT CONC. BLOCK TRASH ENCLOSURE PER CITY OF FRESNO STDS. (TYP. OF 6)
5 PROVIDE ASPHALT PAVING AT PARKING LOT / TRAFFIC CIRCULATION AREAS PER PW STD. P-21 AT MIN.
6 PROVIDE ACCESSIBLE PARKING STALL AND RAMP WITH ALL REQUIRED SIGNAGE
7 MIN. 4'-0" WIDE CONC. WALKS WITH MAX 2% CROSS SLOPE
8 ENCLOSED GARAGES, MIN. 11' x 21' WITH 10' x 8' OVERHEAD GARAGE DOORS
9 5'-0" HIGH PATIO FENCES AT UNITS
10 FIRE DEPARTMENT ACCESS. CONTACT FRESNO FIRE DEPARTMENT FOR REQUIREMENTS. CONSTRUCT TO PW STD. P-67
11 DECORATIVE WROUGHT IRON FENCING AT PROJECT ENTRY
12 WROUGHT IRON SECURITY GATES AT ENTRY / ELECTRONICALLY OPERATED
13 PROPOSED CONTROLLED PEDESTRIAN ACCESS GATE
14 PROPOSED PEDESTRIAN ACCESS TO FUTURE DEVELOPMENT TO THE WEST
15 LINE OF OPEN CARPORTS SHOWN DASHED
16 PROPOSED BAR-B-QUE AREA
17 PROPOSED TOT LOT AREA / OWNER TO SELECT EQUIPMENT
18 PROPOSED SWIMMING POOL
19 PROPOSED MAIL DROP LOCATION
20 LANDSCAPED MEDIAN AT PROJECT ENTRY
21 PROPOSED MONUMENT SIGN AT PROJECT ENTRY
22 ENTRY KEYPAD MOUNTED IN COLUMN
23 PROPOSED GAZEBO
24 PROPOSED BAR-B-QUE / PATIO AREA
25 PICKLE BALL COURT
26 PLANTER ISLAND AT PARKING AREA
27 5'-0" HIGH WROUGHT IRON FENCE AT POOL
28 DOG PARK WITH 48" HIGH CHAIN LINK FENCE
29 FENCED SERVICE AREA
30 ROLLING AUTOMATIC SECURITY GATE AT SECOND EXIT
31 ACCESS. PATH OF TRAVEL FROM PUBLIC RIGHT OF WAY TO SITE ARRIVAL POINT
32 8'-0" HIGH CONC. BLOCK WALL AT EAST PROPERTY LINE
33 LINE OF OVERHEAD POWER LINE EASEMENT
34 ACCESSIBLE PATH OF TRAVEL THROUGH SITE
35 PROPOSED 6'-8" HIGH CMU WALL WITH 4" CAP AT SERVICE YARD
36 PROVIDE A MIN. 8'-0" HIGH CONC. BLOCK WALL AT HERNDON EXPRESSWAY STREET FRONTAGE
37 12'-0" WIDE x 6'-0" HIGH METAL GATES AT SERVICE YARD
38 INSTALL 30" STATE STANDARD STOP "STOP" SIGN(S) AT LOCATION(S) SHOWN. SIGN SHALL BE MOUNTED ON A 2" DIA. GALVANIZED POST WITH THE BOTTOM 7' ABOVE GROUND, LOCATED BEHIND CURB AND IMMEDIATELY BEHIND MAJOR STREET SIDEWALK. WHERE "RIGHT TURN ONLY" SIGN IS REQUIRED AT THE SAME LOCATION, INSTALL 30"x36" STATE STANDARD SIGN IMMEDIATELY BELOW THE STOP SIGN ON THE SAME POST.
39 PROVIDE "RIGHT TURN ONLY" SIGN AT PROJECT EXIT. SEE KEYNOTE NO. 38 FOR MOUNTING REQUIREMENTS
40 CONSTRUCT A 12'-0" WIDE BIKE AND PEDESTRIAN TRAIL PER THE CITY OF FRESNO GENERAL PLAN AND FRESNO PUBLIC WORKS STDS. P-58, P-60 AND P-61 AND CALTRANS HIGHWAY DESIGN MANUAL CHAPTER 1000 FOR CLASS I BIKEWAYS (BIKE PATHS)
50 OMITTED
51 PROVIDE 12'x12' VISIBILITY TRIANGLE AT ALL DRIVE APPROACHES (TYP.)
52 DEDICATE A 26' (MIN) EASEMENT FOR LANDSCAPE, BIKE AND PEDESTRIAN PURPOSES ONLY. ABOVE GROUND UTILITIES ARE NOT ALLOWED WITHIN THIS EASEMENT
53 CONSTRUCT NEW CONC. CURB AND GUTTER PER PW STP. P-5
54 CONSTRUCT NEW 6'-0" WIDE CONC. WALK PER PW STP. P-5
55 CONSTRUCT 4'-0" HIGH WROUGHT IRON FENCE
56 PRE-MANUF. METAL STORAGE BLDG AT SERVICE YARD (2,280 SQ. FT.)
57 40' WIDE SLIDING GATE AT STORAGE YARD
58 FIRE APPARATUS TURNING RADIUS / 44 FT. TO CENTERLINE
59 FIRE HYDRANT LOCATION. SEE FIRE DEPT. NOTE NO. 14 FOR REQUIREMENTS
60 FIRE DEPARTMENT CONNECTION LOCATION. TYPICAL AT ALL BUILDINGS

COMMERCIAL SITE PLAN KEY NOTES:

1 NEW CONCRETE APPROACH (WIDTH AS DIMENSIONED) CONSTRUCTED TO CITY OF FRESNO STANDARDS P-2, P-6 AND P-48
2 EXIST. CONCRETE CURB, GUTTER TO CITY OF FRESNO STANDARDS PER PW STD. P-5
3 NEW ASPHALT PAVING AT CIRCULATION AREAS PER CITY OF FRESNO STANDARDS P-21/P-22 AND P-23
4 LANDSCAPED AREAS AT PARKING AREA
5 LANDSCAPED STREET SETBACK
6 EXIST. SIDEWALK RAMP FOR ACCESSIBILITY
7 NEW 8'-0" WIDE VAN ACCESSIBLE LOADING AREA
8 NEW ACCESSIBLE PARKG. STALL AS SHOWN WITH ALL APPLICABLE STATE AND A.D.A. REQUIRED STALL AND SITE SIGNAGE
9 PROPOSED 6'-8" HIGH CMU WALL WITH 4" CAP AT PROPERTY LINE
10 PROPOSED CONC. PATIOS
11 PROPOSED 6" CONC. CURB AT PARKING AREAS
12 NEW TRASH ENCLOSURE TO CITY STDS. P-33 & P-34
13 NEW CONCRETE WALKWAY
14 NEW ACCESSIBLE PATH OF TRAVEL TO PUBLIC R.O.W.
15 PROPOSED STANDARD 9'-0" WIDE PARKING STALLS, STRIPING TO CITY OF FRESNO PARKING MANUAL STANDARDS
16 EXISTING STREET MEDIAN AT NORTH HAYES STREET
17 RED CURBS DENOTING FIRE LANES SHOWN HATCHED. PAINT CURBS RED WITH WHITE LETTERING STATING "FIRE LANE - NO PARKING"
18 PROPOSED TRAFFIC DIRECTION ARROWS (TYP. AS SHOWN)
19 INSTALL 30" STATE STANDARD STOP "STOP" SIGN(S) AT LOCATION(S) SHOWN. SIGN SHALL BE MOUNTED ON A 2" DIA. GALVANIZED POST WITH THE BOTTOM 7' ABOVE GROUND, LOCATED BEHIND CURB AND IMMEDIATELY BEHIND MAJOR STREET SIDEWALK. WHERE "RIGHT TURN ONLY" SIGN IS REQUIRED AT THE SAME LOCATION, INSTALL 30"x36" STATE STANDARD SIGN IMMEDIATELY BELOW THE STOP SIGN ON THE SAME POST.
20 PROVIDE 12'x12' VISABILITY TRIANGLE AT DRIVE APPROACH
21 LANDSCAPED PLAZA WITH STAMPED CONC. PAVING
22 ACCESSIBLE PATH OF TRAVLE THROUGH PROJECT SITE
23 "EV" DENOTES ELECTRICAL VEHICLE CHARGING PARKING STALLS
24 DRIVE THRU LANE, 330 LINEAL FEET LONG ALLOWS FOR 15 CAR STACKING BASED ON 20 L.F. PER CAR
25 PROVIDE "RIGHT TURN ONLY" SIGN AT PROJECT EXIT. SEE KEYNOTE 19 FOR MOUNTING REQUIREMENTS
26 PROVIDE 12' WIDE TRAIL PER PW STDS. P-58, P-60
27 PROVIDE 4'-0" HIGH WROUGHT IRON FENCE
28 FIRE HYDRANT LOCATION. SEE FIRE DEPT. NOTE NO. 19 FOR REQUIREMENTS

KENT P. RODRIGUES Architect
2090 W. MAGILL, FRESNO, CA 93711 (559) 438-1790
PLANNING * DESIGN * ARCHITECTURE

LICENSED ARCHITECT * KENT P. RODRIGUES C-15955 REN. * STATE OF CALIFORNIA

SHEET TITLE: SITE PLAN

PROJECT TITLE: BELLA VITA MULTIFAMILY DEVELOPEMNT COMMERCIAL DEVELOPMENT
SE CORNER / HERNDON AND HAYES
FRESNO, CALIFORNIA

REVISED 10/12/23
REVISED 12/29/23
REVISED 1/31/24
REVISED 9/30/24
REVISED 12/18/24
REVISED 12/31/24

JOB NO.: ARMEN/HAYES
DRAWN BY: RODRIGUES
SHEET NO.: A-1
OF 1 SHEETS
DATE: 9/21/21

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources
☐	Air Quality	☐	Biological Resources
☐	Cultural Resources	☐	Energy
☐	Geology/Soils	☐	Greenhouse Gas Emissions
☐	Hazards and Hazardous Materials	☐	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing
☐	Public Services	☐	Recreation
☐	Transportation	☐	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire
☐	Mandatory Findings of Significance		

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

___	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
_X_	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
___	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.
___	I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An EIR is required, but it must analyze only the effects that remain to be addressed.
___	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable

	standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Robert Holt

____04/04/2025_______________

Rob Holt, Supervising Planner   Date

1. For purposes of this Initial Study, the following answers have the corresponding meanings:

   a. "No Impact" means the specific impact category does not apply to the project, or that the record sufficiently demonstrates that project specific factors or general standards applicable to the project will result in no impact for the threshold under consideration.

   b. "Less Than Significant Impact" means there is an impact related to the threshold under consideration, but that impact is less than significant.

   c. "Less Than Significant with Mitigation Incorporation" means there is a potentially significant impact related to the threshold under consideration, however, with the mitigation incorporated into the project, the impact is less than significant.

   d. "Potentially Significant Impact" means there is substantial evidence that an effect may be significant related to the threshold under consideration.

2. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

3. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

4. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant

Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

5. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from, "Earlier Analyses," as described in (6) below, may be cross-referenced).

6. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

7. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

8. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

9. The explanation of each issue should identify:

   a. The significance criteria or threshold, if any, used to evaluate each question; and

   b. The mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in PRC Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock out-croppings, and historic buildings within a state scenic highway?				X
c) In non-urbanized areas, substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		X		

DISCUSSION

a) Have a substantial adverse effect on a scenic vista?

A scenic vista is a viewpoint that provides expansive views of a highly valued landscape for the public's benefit. The City's General Plan identifies six locations along the San Joaquin River bluffs as designated vista points from which views should be maintained. Scenic vistas within the Planning Area could provide distant views of features such as the San Joaquin River to the north and the foothills of the Sierra Nevada Mountains to the east.

The project site is located in an urbanized area and is currently disturbed grassland dominated by ruderal, nonnative grasses and forbs. The southeastern two-thirds of the project site is covered with vegetated spoil piles. Trash, debris, and homeless encampments are present throughout the project site. The project would include the development of three-story multifamily residential structures and one-story commercial uses. The project site is not located within any of the scenic vista points identified in the General Plan. Furthermore, the construction of the proposed project would not significantly affect or block a potentially scenic vista in the City. Therefore, the proposed project would have a less than significant impact on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

According to the Caltrans State Scenic Highway Mapping System, there are no eligible or officially-designated State Scenic Highways within the City.[1] However, Fresno County has three eligible State Scenic Highways; the nearest eligible highways include a portion of State Route 180, located approximately 7 miles east of the City, and a portion of State Route 168, located approximately 5 miles east of City. The nearest officially-designated State Scenic Highway is located more than 30 miles northeast of the City within Madera County. Since there are no eligible or officially-designated State Scenic Highways within or in close proximity to the project site, implementation of the proposed project would not damage scenic resources within a designated state scenic highway. Therefore, there would be no impact.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is currently disturbed grassland dominated by ruderal, nonnative grasses and forbs. The proposed project would include the development of three-story multifamily residential structures and one-story commercial uses. Although the proposed project would change the visual characteristics of the project site by redeveloping vacant land into a built environment, the design of the additions would be consistent and compatible with the visual character of the project vicinity. Although the characteristics of the project site would change, the project would not substantially degrade the visual character or quality of the site and its surroundings. Therefore, the proposed project would have a less than significant impact.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

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1 *California Department of Transportation. Scenic Highways. Available online at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways (accessed 4-24-24)*

The project site is located in an urbanized area subject to preexisting exterior lighting from surrounding developments and existing street lighting. The proposed project would introduce new sources of light and glare to the area in the form of exterior building lighting, parking lot lighting, street lighting, and interior lighting. However, new sources of light and glare associated with the project would not be substantial in the context of existing lighting sources in the project vicinity. In addition, daytime glare would not be substantial because no highly reflective glass elements or building materials are proposed as part of the project. Compliance with California Building Code (Title 24, California Code of Regulations) standards, and implementation of Mitigation Measures AES-1, AES-2, AES-3, AES-4 and AES-5 would address light and glare impacts to day- and night-time views resulting from construction of the proposed project. Therefore, potential light and glare from the proposed project would result in a less than significant impact.

Mitigation Measure AES-1

Lighting for Street and Parking Areas. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the project's lighting systems for the project's street and parking areas include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences.

Mitigation Measure AES-2

Lighting for Public Facilities. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the project's lighting systems for public facilities such as active play areas provide adequate illumination for the activity while also utilizing low intensity light fixtures and shields to minimize spillover light onto adjacent properties.

Mitigation Measure AES-3

Lighting for Non-Residential Uses. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the lighting systems for non-residential uses, not including public facilities, provides shields on the light fixtures and are oriented away from adjacent properties. Low intensity light fixtures may also be used if excessive spillover light onto adjacent properties would otherwise occur.

Mitigation Measure AES-4

Signage Lighting. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the lighting systems for freestanding signs do not exceed 100-foot Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and do not exceed 500 FT-L when adjacent to streets which have an average light intensity of 2.0 horizontal footcandles or greater.

Mitigation Measure AES-5

Use of Non-Reflective Materials. Prior to the issuance of the building permits, the project applicant shall demonstrate to the satisfaction of the City Plan Inspector that the materials used on building facades shall be non-reflective.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

DISCUSSION

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project site is located within an urbanized area of the City of Fresno. There are no agricultural uses located within or adjacent to the project site. Additionally, the site is classified as Farmland of Local Importance by the State Department of Conservation. However, the site is vacant and not currently used for agricultural uses. Therefore, development of the proposed project would not convert agricultural land to a non-agricultural use. The proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and the impact would be less than significant.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

The project site is designated Urban Neighborhood (UN) and Office (O) in the General Plan. The project site is located in Residential Multi-Family (RM-2) and Office (O) zoning districts. The Residential Multi-Family designation allows for various residential uses. The Office designation allows for administrative, financial, business, professional, medical, and public offices, as identified by the General Plan. Retail uses would be limited to business services and food service and convenience goods for those who work in the area. The project site is also not subject to a Williamson Act contract. Therefore, development of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and the proposed project would have a no impact.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

The project site is located within an existing urban area and is located within a Residential Multi-Family and Office zoning designations, and as such, would not conflict with the existing zoning for, or cause rezoning of, forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have no impact.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

Please refer to the discussion for c) above. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have no impact.

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Please refer to the discussion for a) and c) above. The project site is located within an existing urban environment and would not result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses either on- or off-site. Therefore, the proposed project would have no impact.

Mitigation Measures

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan (*e.g.*, by having potential emissions of regulated criterion pollutants which exceed the San Joaquin Valley Air Pollution Control Districts (SJVAPCD) adopted thresholds for these pollutants)?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

DISCUSSION

a) Conflict with or obstruct implementation of the applicable air quality plan?

CEQA requires that certain proposed projects be analyzed for consistency with the applicable air quality plan. An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of the air quality plan is to bring the area into compliance with the requirements of the federal and State air quality standards. To bring the San Joaquin Valley Air Basin (SJVAB) into attainment, the SJVAPCD adopted the 2016 Plan for the 2008 8-Hour Ozone Standard in June 2016 to satisfy Clean Air Act requirements and ensure attainment of the 75 parts per billion (ppb) 8-hour ozone standard.

To assure the SJVAB's continued attainment of the U.S. Environmental Protection Agency (USEPA) respirable particulate matter (PM_{10}) standard, the SJVAPCD adopted the 2007 PM_{10} Maintenance Plan in September 2007. SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions) is designed to reduce PM_{10} emissions generated by human activity. The SJVAPCD adopted the 2018 plan for the 1997, 2006, and 2012 fine particulate matter ($PM_{2.5}$) standard to address the USEPA federal annual $PM_{2.5}$ standard of 12 µg/m3, established in 2012.

The SJVAPCD has established project construction and operational emissions thresholds for criteria pollutants, as shown in Table 1 below[2]. For a project to be consistent with SJVAPCD attainment plans, the pollutants emitted from project operation should not exceed the SJVAPCD daily thresholds, cause a significant impact on air quality, or the project must already have been included in the attainment plans projection. As discussed below, emissions associated with the construction or operation of the proposed project result in the generation of criteria air pollutants that would exceed SJVAPCD thresholds of significance.

Table 1: SJVAPCD Project Construction and Operational Emission Thresholds

	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Annual Construction Emissions*	100.0	10.0	10.0	27.0	15.0	15.0
Annual Operational Emissions*	100.0	10.0	10.0	27.0	15.0	15.0

Source: SJVAPCD, 2015.
*Emission units = Tons per Year (tpy)
CO = carbon monoxide
NOX = nitrogen oxides
PM2.5 = particulate matter less than 2.5 microns in size
PM10 = particulate matter less than 10 microns in size
ROG = reactive organic gas
SJVAPCD = San Joaquin Valley Air Pollution Control District
SOX = sulfur oxides

Construction and operational emissions for the proposed project were analyzed using the California Emissions Estimator Model version 2022.1.1.22 (CalEEMod). Model results for construction and operational emissions are shown in Table 2 and Table 3 respectively. Model output results are available in Appendix A to this document.

2 *San Joaquin Valley Air Pollution Control District. 2015. Air Quality Thresholds of Significance – Criteria Pollutants. Available online at: http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf (accessed 4/24/24)*

Table 2: Project Construction Emissions (Tons Per Year)

Project Construction	**CO**	**NO_x**	**ROG**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Annual Construction Emissions*	3.18	1.60	0.75	0.005	0.59	0.27
SJVAPCD Thresholds	100.0	10.0	10.0	27.0	15.0	15.0
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1.1.22.
*Emission units = Tons per Year (tpy)
CO = carbon monoxide
NOX = nitrogen oxides
PM2.5 = particulate matter less than 2.5 microns in size
PM10 = particulate matter less than 10 microns in size
ROG = reactive organic gas
SJVAPCD = San Joaquin Valley Air Pollution Control District
SOX = sulfur oxides

Table 3: Project Operational Emissions (Tons per Year)

	ROG	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Area Source Emissions	1.42	0.21	5.83	0.01	0.54	0.52
Energy Source Emissions	0.03	0.50	0.23	0.004	0.04	0.04
Mobile Source Emissions	2.63	2.32	16.0	0.04	3.43	0.89
Total Project Operational Emissions*	4.08	3.03	22.0	0.06	4.01	1.45
SJVAPCD Significance Threshold	10.0	10.0	100.0	27.0	15.0	15.0
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1.1.22.
*Emission units = Tons per Year (tpy)
CO = carbon monoxide
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ROG = reactive organic gas
SJVAPCD = San Joaquin Valley Air Pollution Control District
SO_X = sulfur oxides

The results shown in Tables 2 and 3 indicate that the proposed project's construction and operational emissions would not exceed SJVAPCD criteria pollutant thresholds. Therefore, the proposed project would not conflict with or obstruct implementation of SJVAPCD air quality plans and the impact would be less than significant.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. Therefore, if annual emissions of construction- or operational-related criteria air pollutants exceed any applicable threshold established by the SJVAPCD, the proposed project would result in a cumulatively significant impact. As discussed above, the proposed project's construction and operational emissions of criteria pollutants would not exceed SJVAPCD established significance thresholds for CO, NOx, ROG, SOx, PM_{10}, or $PM_{2.5}$ emissions during project construction or operation. Therefore, the proposed project would not result in a cumulatively considerable contribution to a net increase of any criteria pollutant for which the project region is in non-attainment, and impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, project construction emissions would be below the SJVAPCD significance thresholds. Once constructed, the project’s operational emissions would fall below the SJVAPCD significance thresholds and would not be a significant source of long-term operational emissions. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as a result of the proposed project, and the impact would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered less than significant. In addition, the proposed uses that would be developed within the project site are not expected to produce any offensive odors that would result in frequent odor complaints because substantial odor-generating sources are not proposed, such as land uses including agricultural activities, feedlots, wastewater treatment facilities, landfills, or heavy manufacturing uses. The proposed project would not create objectionable odors affecting a substantial number of people during project construction or operation, and this impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		x		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?				x
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				x
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		x		

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				x
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				x

A Biological Resource Evaluation was prepared for this project by Colibri Ecological Consulting. This report is available in Appendix B to this document. The Biological Resource Evaluation initially assessed a disturbance area of approximately 23.42 acres based on an earlier version of the proposed project. However, the project has since been reduced to approximately 18.56 acres. Despite this reduction, the impact analysis remains adequate for the project's environmental assessment.

DISCUSSION

a) **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

The project site is located in an urbanized area and is currently disturbed grassland dominated by ruderal, nonnative grasses and forbs. The project could adversely affect, either directly or through habitat modifications, one special-status animal species (Swainson's hawks) that occurs or may occur on or near the project site. Common wildlife species that are adapted to urban environments are expected to continue to use the site and vicinity after redevelopment. Construction activities such as excavating, trenching, or using other heavy equipment that disturbs or harms a special-status species or substantially modifies its habitat could constitute a significant impact. Implementing of Mitigation Measure BIO-1 would reduce the potential impacts to the special-status Swainson's hawk to a less-than-significant level by avoiding commencement of construction activities during the hawk's nesting season or by pre-construction surveys and adherence to appropriate protocols in the event a Swainson's hawk is present on site. Therefore, impacts would be less than significant impact with mitigation incorporated.

b) **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?**

Future development that occurs in the vicinity of the San Joaquin River, its tributaries, any lakes or streams, and/or open grasslands with seasonal wetlands, may result in a significant impact to riparian habitat or a special-status natural community. No riparian habitat or other sensitive natural communities occur within the project site, or within the vicinity of the project site. The project site consists entirely of developed areas. As a result, the impact would no impact.

c) **Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?**

Future development that occurs in the vicinity of the San Joaquin River corridor may result in significant impacts to protected wetlands. No aquatic resources occur within the project site, or within the vicinity of the project site. The project site consists entirely of developed areas. As a result, the impact would be no impact.

d) **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

The project has the potential to impede the use of nursery sites for native birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC). Migratory birds are expected to nest on and near the project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird on the project site or immediately adjacent to the construction zone could constitute a significant effect. Implementing Mitigation Measure BIO-2 would reduce the potential effect to a less-than-significant level by avoiding the commencement of construction activities during the neating season of migratory nesting birds, or by pre-construction surveys for protected bird species and appropriate protocol if such species are found on site. Therefore, impacts would be less than significant impact with mitigation incorporated.

e) **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

The project would not conflict with any local policies or ordinances protecting biological resources. Though the proposed project is subject to provisions of the City's Municipal Code regarding trees on public property (Article 3 of Section 13 of the City of Fresno Municipal Code), the proposed project would not conflict with any of the existing ordinances. As a result, the impact would be no impact.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The PG&E San Joaquin Valley Operation and Maintenance (O&M) Habitat Conservation Plan (HCP)[3] was approved in 2007 and covers portions of nine counties, including Fresno County. This HCP covers PG&E activities which occur as a result of ongoing O&M that would have an adverse impact on any of the 65 covered species and provides incidental take coverage from the USFWS and CDFW. The project site is not located within the covered area of any HCP, Natural Community Conservation Plan (NCCP), or other adopted local, regional or state HCP. Mitigation Measures BIO-1 and BIO-2 are consistent with avoidance and minimization measures included in the PG&E HCP. Therefore, the project would not conflict with the provisions of the PG&E HCP and the proposed project and would have no impact.

Mitigation Measures

The proposed project shall implement and incorporate the following biological resource related mitigation measures.

Mitigation Measure BIO-1: Protect nesting Swainson's hawks.

1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August.
2. If it is not possible to schedule construction between September and February, a qualified biologist shall conduct surveys for *Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* These methods require six surveys, three in each of the two survey periods, prior to initiation of the project. Surveys shall be conducted within a minimum 0.5-mile radius around the project site.
3. If an active Swainson's hawk nest is found within 0.5 miles of the project site, and the qualified biologist determines that the project would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.

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3 *Pacific Gas and Electric (PG&E). 2007. PG&E San Joaquin Valley Operation & Maintenance Habitat Conservation Plan. Available online at: https://ecos.fws.gov/docs/plan_documents/thcp/thcp_838.pdf (accessed 4-24-24)*

Mitigation Measure BIO-2. Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests would be disturbed during the implementation of the project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			X	
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

A Phase I Cultural Resources Assessment was prepared for this project by Taylored Archaeology. The report is available in Appendix C to this document. The Phase I Cultural Resources Assessment initially assessed a disturbance area of approximately 23.42 acres based on an earlier version of the proposed project. However, the project has since been reduced to approximately 18.56 acres. Despite this reduction, the impact analysis remains adequate for the project's environmental assessment.

DISCUSSION

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

A historical resource defined by CEQA includes one or more of the following criteria: 1) the resource is listed, or found eligible for listing in, the California Register of Historical Resources (CRHR); 2) listed in a local register of historical resources as defined by Public Resources Code (PRC) Section 5020.1(k); 3) identified as significant in a historical resources survey meeting the requirements of PRC Section 5024.1(g); or 4) determined to be a historical resource by the project's lead agency (PRC Section 21084.1; CEQA Guidelines Section 15064.(a)). Under CEQA, historical resources include built-environment resources and archaeological sites.

As discussed in the Cultural Resources Report/Historic Resource Assessment, attached in Appendix C, no historical resources were identified within or adjacent to the project site. However, project development could result in potential impacts to unknown resources that are located below the ground surface. Adherence to Mitigation Measure CULTURAL-1 would reduce potential impacts to unknown historical resources to less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

According to the CEQA Guidelines, “When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource” (CEQA Guidelines Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as “unique archaeological resources” (California PRC Section 21083.2). No archaeological resources were identified in the project site. However, due to the nominal amount of prehistoric archaeological information within the majority of the City, including the project site, there is potential to impact prehistoric archaeological resources during grading and construction activities within previously undisturbed soils. Adherence to Mitigation Measure CULTURAL-2 would reduce potential impacts to unknown archeological resources to less than significant.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Disturbance of human remains interred outside of formal cemeteries would result in a significant impact. If human remains are identified during project construction, Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code shall apply, as appropriate. Although there is no record of isolated human remains or unknown cemeteries on the project site, there is always a possibility that ground-disturbing activities associated with future development may uncover previously unknown buried human remains. Adherence to Mitigation Measure CULTURAL-3 would reduce potential impacts to unknown human remains to less than significant.

Mitigation Measures

The proposed project shall implement and incorporate the cultural resource related mitigation measures as identified in the attached Mitigation Measure Monitoring Program.

Mitigation Measure CULTURAL-1

If previously unknown resources are encountered before or during grading activities for the project, construction shall stop in the immediate vicinity of the find and a qualified historical resources specialist shall be consulted to determine whether the resource requires further study. The qualified historical resources specialist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines and the City's Historic Preservation Ordinance.

If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds.

No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

Mitigation Measure CULTURAL-2

In the event that buried prehistoric archaeological resources are discovered during excavation and/or construction activities for the project, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and recommended to the City. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the City approves the measures to protect these resources. Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

Mitigation Measure CULTURAL-3

In the event that human remains are unearthed during excavation and grading activities for the project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a). If the remains are determined to be of Native

American descent, the coroner shall within 24 hours notify the Native American Heritage Commission (NAHC). The NAHC shall then contact the most likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

DISCUSSION

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The proposed project would be constructed using energy efficient modern building materials and construction practices, and the proposed project would also use new modern appliances and equipment, in accordance with the Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608). The expected energy consumption during construction and operation of the proposed project would be consistent with typical usage rates for multi-family residential and commercial uses; however, energy consumption is largely a function of personal choice and the physical structure and layout of buildings. It can be assumed that implementation of the proposed project would result in additional energy demand in the City; however, since the proposed project would be located in a developed urban area and would be required to comply with the City's energy efficiency policies, including General Plan Policies RC-8-a through RC-8-k, the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. Therefore, the project would have a less than significant impact.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The proposed project would be required to comply with the CALGreen Code (CCR Title 24, Part 11) and the California Energy Code (CCR Title 24, Part 6), which includes provisions related to insulation and design aimed at minimizing energy consumption.

The proposed project would be compliant with relevant energy-efficient policies and recommendations outlined in the General Plan. The recommendations and policies that would be implemented by the project are outlined below.

- **Policy UF-12-d Appropriate Mixed-Use.** Facilitate the development of vertical and horizontal mixed-uses to blend residential, commercial, and public land uses on one or adjacent sites. Ensure land use compatibility between mixed-use districts in Activity Centers and the surrounding residential neighborhoods.
- **Policy UF-14-a Design Guidelines for Walkability.** Develop and use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.
- **Policy UF-14-b Local Street Connectivity.** Design local roadways to connect throughout neighborhoods and large private developments with adjacent major roadways and pathways of existing adjacent development. Create access for pedestrians and bicycles where a local street must dead end or be designed as a cul-de-sac to adjoining uses that provide services, shopping, and connecting pathways for access to the greater community area.
- **Policy LU-2-a Infill Development and Redevelopment.** Promote development of vacant, underdeveloped, and re-developable land within the City Limits where urban services are available by considering the establishment and implementation of supportive regulations and programs.
- **Policy LU-5-f High Density Residential Uses.** Promote high-density residential uses to support Activity Centers and BRT corridors, and walkable access to transit stops.
- **Policy MT-5-a Sidewalk Development.** Pursue funding and implement standards for development of sidewalks on public streets, with priority given to meeting the needs of persons with physical and vision limitations; providing safe routes to school; completing pedestrian improvements in established neighborhoods with lower vehicle ownership rates; or providing pedestrian access to public transportation routes.
- **Policy RC-8-b Energy Reduction Targets.** Strive to reduce per capita residential electricity use to 1,800 kWh per year and nonresidential electricity use to 2,700 kWh per year per capita by developing and implementing incentives, design and operation standards, promoting alternative energy sources, and cost-effective savings.
- **Policy RC-8-c Energy Conservation in New Development.** Consider providing an incentive program for new buildings that exceed California Energy Code requirements by fifteen percent.
- **Policy RC-11-a Waste Reduction Strategies.** Maintain current targets for recycling and re- use of all types of waste material in the city and enhance waste and wastewater management practices to reduce natural resource

consumption.

Therefore, the proposed project would not conflict or obstruct state and local plans for energy efficiency and renewable energy, and the impact would be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or Indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

DISCUSSION

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Fault ruptures are generally expected to occur along active fault traces that have exhibited signs of recent geological movement (i.e., in the last 11,000 years). Alquist-Priolo Earthquake Fault Zones delineate areas around active faults with potential surface fault rupture hazards that would require specific geological investigations prior to approval of certain kinds of development within the delineated area. The project site is not located within an Alquist-Priolo Earthquake Fault Zone. In addition, no known active or potentially active faults or fault traces are located in the project vicinity. The nearest active faults are the Nunez Fault, located approximately 52 miles from the project site, and the San Andreas Fault, located approximately 65 miles from the project site. As a result, potential impacts related to fault ruptures would be less than significant.

ii. Strong seismic ground shaking?

The City of Fresno is located in an area with historically low to moderate level of seismicity. However, strong ground shaking could occur within the project site during seismic events and occurrences have the possibility to result in significant impacts. Major seismic activity along the nearby Great Valley Fault Zone or the Nunez Fault, or other associated faults, could affect the project site through strong seismic ground shaking. Strong seismic ground shaking could potentially cause structural damage to the proposed project. However, due to the distance to the known faults, hazards due to ground shaking would be minimal. In addition, compliance with the California Building Code (Title 24, California Code of Regulations) would ensure that the geotechnical design of the proposed project would reduce potential impacts related to seismic ground shaking to less than significant.

iii. Seismic-related ground failure, including liquefaction?

The predominant soils within the City of Fresno consist of varying combinations of loose/very soft to very dense/hard silts, clays, sands, and gravels. Groundwater has been encountered near the ground surface in close proximity to water-filled features such as canals, ditches, ponds, and lakes. Based on these characteristics, the potential for soil liquefaction within the City ranges from very low to moderate due to the variable density of the subsurface soils and the presence of shallow groundwater. In addition to liquefaction, the City could be susceptible to induced settlement of loose unconsolidated soils or lateral spread during seismic shaking events. Based on the nature of the subsurface materials and the relatively low to moderate seismicity of the region, seismic settlement and/or lateral spread are not anticipated to represent a substantial hazard within the City during seismic events.

Based on the nature of the subsurface materials and the relatively low to moderate seismicity of the region, potential for seismic related ground failure is low in Fresno.[4] Additionally, compliance with the Fresno Municipal Code and the California Building Code, as well as General Plan Policies NS-2-a through NS-2-d would ensure that potential impacts associated with seismic-related ground failure would be less than significant.

iv. Landslides?

A landslide generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. The City of Fresno is located within an area that consists of mostly flat topography within the Central Valley. Accordingly, there is no risk of large landslides in the majority of the City. However, there is the potential for landslides and slumping along the steep banks of rivers, creeks, or drainage basins such as the San Joaquin River bluff and the many unlined basins and canals that trend throughout the City. The project site is located in a relatively flat area, and it is not in the vicinity of the San Joaquin River bluff or any unlined basins or canals. Therefore, the potential for the proposed project to expose people or

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[4] *Tulare County Association of Governments. 1974. Five County Seismic Safety Element. Available online at: https://tularecounty.ca.gov/rma/planning-building/environmental-planning/environmental-planning-resources/five-county-seismic-safety-element-1974/five-county-seismic-safety-element-volume-i/ (accessed 8-28-24)*

structures to risk as a result of landslides would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil?

Grading and earthmoving during project construction has the potential to result in erosion and loss of topsoil. Exposed soils could be entrained in stormwater runoff and transported off the project site. However, this impact would be reduced to a less than significant level through compliance with water quality control measures, which include preparation of a Stormwater Pollution Prevention Plan (SWPPP) (refer to Section X, Hydrology and Water Quality). Although designed primarily to protect stormwater quality, the SWPPP would incorporate Best Management Practices (BMPs) to minimize erosion. Additional details regarding the SWPPP are provided in Section X, Hydrology and Water Quality of this Initial Study. This impact would be less than significant.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

As described in discussion a) in this section, soils on the project site would not be subject to liquefaction, lateral spreading, or landslides. Additionally, the proposed project would be required to conform with the California Building Code, which would reduce risks related to unstable soils. Therefore, the proposed project would have a less-than-significant impact related to unstable soils.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?

The surface and near-surface soils observed throughout the City consist of varying combinations of clays, silts, sands, gravels, and cobbles. Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. The clayey soils, which consist of very fine particles, are considered to be slightly to moderately expansive. The project site contains San Joaquin loam, shallow, 0 to 3 percent slopes, and Exeter Loam, all soils with relatively low clay content and low expansion potential. Furthermore, compliance with recommendations from the City of Fresno Municipal Code would reduce potential impacts related to expansive soils to less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The project site would be served by a wastewater conveyance system maintained by the Wastewater Management Division (WMD) of the City of Fresno. Wastewater from the City's collection system is treated at the Fresno/Clovis Regional Wastewater Reclamation Facility. Development of the proposed project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would have no impact related to the use of septic tanks or alternative wastewater disposal systems.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Development in the City of Fresno could potentially impact unknown paleontological resources or unique geological features. Implementation of Mitigation Measure GEO-1 would ensure that a field survey and record search are conducted prior to construction on a previously undisturbed site, and that paleontological/geological resources found during the field survey or during project construction would be handled and preserved by a qualified paleontologist. Adherence to Mitigation Measure GEO-1 would reduce potential impacts to paleontological and geological resources to less than significant.

Mitigation Measures:

Mitigation Measure GEO-1

During the project's excavation or construction activities within previously undisturbed soils, the following procedures shall be followed to address the inadvertent discovery of unique paleontological or geological resources:

- If unique paleontological/geological resources are discovered during excavation or construction, all work shall cease in the immediate vicinity of the find. A qualified paleontologist shall be consulted to evaluate the significance of the resource and recommend appropriate measures to protect it. Recommendations may include, but are not limited to, excavation, documentation, and preservation of the resource.
- The qualified paleontologist shall provide recommendations to the City on measures to protect the discovered resources, including potential excavation and evaluation of the find. If the resources are deemed significant, appropriate mitigation measures shall be developed and implemented, which may include avoidance, capping, incorporation of the site into green space, parks, or open space, or data recovery excavations.
- No further grading shall occur in the area of the discovery until the City has approved the measures to protect these resources. Any paleontological or geological resources recovered as a result of mitigation shall be curated at a City-approved institution or by a person capable of providing long-term preservation for future scientific study.
- If additional paleontological or geological resources are encountered during subsequent excavation or construction activities, the same protocol for inadvertent discoveries shall be followed, ensuring that any significant finds are appropriately managed and preserved.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

DISCUSSION

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The project's greenhouse gas (GHG) emissions were evaluated in accordance with the State CEQA Guidelines. State CEQA Guidelines Section 15064.4 states that, when making a determination with respect to the significance of a project's GHG emissions, a lead agency shall have discretion to determine whether to: (1) Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use; and/or (2) Rely on a qualitative analysis or performance-based standards. Section 15064.4 also states that a lead agency should consider the following factors when assessing the significance of the impact of GHG emissions on the environment: (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

GHG emissions were calculated using CalEEMod, which is the same model used to determine the proposed project's criteria air pollutant emissions. Consistent with SJVAPCD recommendations, construction emissions were amortized over a 30-year period and added to the annual operational emissions to determine the proposed project's annual GHG emissions. Moreover, consistent with State CEQA Guidelines Section 15064(h)(3), project significance was determined based on the proposed project's consistency with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the proposed project.

The California Air Resources Board's (CARB) 2022 Scoping Plan is applicable to the proposed project as neither the SJVAPCD nor the City of Fresno have established GHG emissions thresholds of significance. The 2022 Scoping Plan was adopted to reduce GHG statewide in conformance with Assembly Bill 1279, which sets a goal to reduce emissions 85 percent below 1990 levels by 2045. The Scoping Plan includes numerous strategies and measures to GHG reduction, including recommendations for local governments, such as transportation electrification, reduction in vehicle miles traveled, and building code revisions toward electrification over natural gas and other decarbonization building strategies. The project is assessed for its consistency with the Scoping Plan, which would achieve the legislative mandate for statewide GHG reduction.

Construction Emissions

GHGs would be generated during construction activities for the project, including site preparation, grading, building construction, application of architectural coatings, and paving. Based on the CalEEMod outputs, construction activities for the project are predicted to generate a maximum of approximately 716 metric tons (MT) of CO_2e emissions per year.

SJVAPCD does not recommend assessing emissions associated with construction because of its temporary nature, and as such, does not provide specific numeric thresholds for assessing construction-related GHG emissions. Therefore, emissions from the project were compared to thresholds established by the Sacramento Metropolitan Air Quality Management District (SMAQMD) as a point of reference with another air district in the region. SMAQMD uses a threshold of 1,100 $MTCO_2e$ per year for construction emissions amortized over a 30-year project life. Since the project's construction emissions of 716 $MTCO_2e$ would be below this threshold, the impacts related to GHG emissions during construction would be considered less than significant.

Operational Emissions

Operational GHG emissions for the project are derived from building energy use, water consumption, waste management, and vehicle trips. These emissions are estimated as follows

- CO_2: 4,694 metric tons per year
- CH_4: 4.34 metric tons per year
- N_2O: 0.22 metric tons per year
- Total CO_2e: 4,874 metric tons per year (inclusive of Global Warming Potential adjustments)

The calculated GHG emissions in CalEEMod incorporate GHG reducing measures that are required by the building code, such as bicycle parking, EV charging infrastructure, water-efficient fixtures, energy efficient appliances, etc. and considered the project site's urban location.

SJVAPCD does not currently have formal guidance for assessing operational GHG impacts. Therefore, alternative significance thresholds were utilized, including the bright-line numeric threshold and the efficiency-based threshold:

Bright-Line Numeric Threshold
The California Air Pollution Control Officers Association (CAPCOA) suggests a highly conservative 900 MT CO2e per year threshold as a screening tool. Projects below this threshold are considered to have a *de minimis* impact on GHG emissions. With operational emissions of 4,847 MT CO2e per year, the project would exceed the bright-line numeric threshold. However, exceeding the bright-line numeric threshold does not automatically indicate significant impacts, but instead triggers further evaluation using the efficiency-based threshold metric.

Efficiency-Based Threshold
The following efficiency-based threshold is derived from CARB's Scoping Plan for residential projects implemented after 2020 as a threshold for the project's operational impacts.

Using the City of Fresno's Housing Element for average household size of 3.07 persons, the Project's residential component would support an estimated population of:

$$396 \text{ units} \times 3.07 \text{ persons/unit} = 1{,}216 \text{ people}$$

The efficiency-based threshold was calculated to be 4.02 MTCO2e per year per capita based on 2030 GHG reduction goals, and as such:

$$1{,}216 \text{ people} \times 4.02 \text{ MT CO2e/yr/capita} = 4{,}888 \text{ MT CO2}$$

The Project's total operational GHG emissions are estimated at **4,874 MT CO2e per year,** which does not exceed the allowable emissions of **4,888 MT CO2e** per year under the efficiency metric.

The Bella Vita Mixed-Use Development's GHG emissions during operation do not exceed the efficiency-based threshold when applied to residential projects. There is a less than significant impact.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Table 4 below evaluates the proposed project's consistency with the applicable objectives and policies included in the General Plan that are related to the reduction of greenhouse gases.

Table 4: Consistency with the General Plan's Greenhouse Gas Reduction-Related Policies

General Plan Policy	Project Consistency
Policy UF-12-d Appropriate Mixed-Use. Facilitate the development of vertical and horizontal mixed-uses to blend residential, commercial, and public land uses on one or adjacent sites. Ensure land use compatibility between mixed-use districts in Activity Centers and the surrounding residential neighborhoods.	**Consistent.** This project would be consistent with the policy as it integrates horizontal mixed-use of residential and commercial land uses, ensuring compatibility with surrounding residential neighborhoods through thoughtful design and strategic community engagement.
Policy UF-14-a Design Guidelines for Walkability. Develop and use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.	**Consistent.** The project would create a walkable community, connecting the interior of the project and with the surrounding uses.
Policy UF-14-b Local Street Connectivity. Design local roadways to connect throughout neighborhoods and large private developments with adjacent major roadways and pathways of existing adjacent development. Create access for pedestrians and bicycles where a local street must dead end or be designed as a cul-de-sac to adjoining uses that provide services, shopping, and connecting pathways for access to the greater community area.	**Consistent.** The surrounding streets would not have dead ends and would connect with the surrounding uses.
Policy UF-14-c Block Length. Create development standards that provide desired and maximum block lengths in residential, retail, and mixed-use districts order to enhanced walkability.	**Consistent.** The project would fill one block with mixed uses, allowing for connectivity with the surrounding uses.
Policy LU-2-a Infill Development and Redevelopment. Promote development of vacant, underdeveloped, and redevelopable land within the City Limits where urban services are available by considering the establishment and implementation of supportive regulations and programs.	**Consistent.** The project would be an infill development of vacant, undeveloped land.
Policy LU-5-f High Density Residential Uses. Promote high-density residential uses to support Activity Centers and BRT corridors, and walkable access to transit stops.	**Consistent.** The project would be high density residential uses.
Policy MT-5-a Sidewalk Development. Pursue funding and implement standards for development of sidewalks on public streets, with priority given to meeting the needs of persons with physical and vision limitations; providing safe routes to school; completing pedestrian improvements in established neighborhoods with lower vehicle ownership rates; or providing pedestrian access to public transportation routes.	**Consistent.** The project would have sidewalks/pathways throughout and surrounding the development.

Source: City of Fresno General Plan.

As shown in Table 4 above, the proposed project would be consistent with the applicable GHG-reducing policies from the General Plan. Additionally, the Project will align with the following AB 32 Policies:

1. **Greenhouse Gas Emissions Reduction**
   Policy: AB 32 mandates the reduction of GHG emissions to 1990 levels by implementing sustainable development and reducing energy consumption.

   Project Alignment
   - The project will incorporate energy-efficient residential and commercial buildings designed to comply with Title 24 (California Building Energy Efficiency Standards) and CALGreen Code.
   - Implementation of LED lighting, Energy Star appliances, and high-efficiency HVAC systems.
   - Landscaping will include native, drought-tolerant plants to reduce water and energy consumption.

2. **Compliance with California Air Resources Board (CARB) Scoping Plan**
   Policy: The CARB Scoping Plan outlines strategies for reducing emissions across sectors, including land use and transportation.

   Project Alignment
   - The residential buildings will include EV charging stations and bicycle storage to promote sustainable transportation.
   - The project will participate in waste diversion programs, ensuring at least 65% of construction waste is recycled, per CALGreen guidelines.

3. **Sustainable Land Use and Transportation (SB 375 - Sustainable Communities Act)**
   Policy: SB 375 works alongside AB 32 to reduce vehicle miles traveled (VMT) by encouraging transit-oriented and walkable communities.

   Project Alignment
   - The project is located in an urbanized area with existing road infrastructure, reducing the need for sprawl.
   - The site design includes pedestrian-friendly pathways, bicycle lanes, and proximity to transit stops.
   - Mixed-use development (residential + commercial) allows residents to access retail and services without needing to drive, reducing overall emissions.

4. **Low Carbon Fuel Standard (LCFS) & Electric Vehicle (EV) Infrastructure**
   Policy: AB 32 promotes the adoption of zero-emission vehicles (ZEVs) and low-carbon fuels to reduce transportation-related emissions.

   Project Alignment
   - The project will install EV charging stations in both the residential and commercial parking areas.
   - Preferential parking will be provided for low-emission and carpool

vehicles.

5. **Energy Efficiency and Renewable Energy (Title 24 & CALGreen)**
   Policy: Title 24 and the California Green Building Standards Code (CALGreen) require new buildings to be energy- and water-efficient.

   Project Alignment
   - The residential buildings will be constructed with high-performance insulation, dual-pane windows, and cool roofing materials to minimize energy use.
   - Water conservation measures include low-flow fixtures, high-efficiency irrigation systems, and permeable paving.

6. **Stormwater Management and Water Conservation**
   Policy: AB 32 encourages sustainable water management to reduce emissions from water conveyance and treatment.

   Project Alignment
   - The project will integrate a stormwater management system with bioswales and retention basins to capture and treat runoff.
   - Landscaping will be designed in compliance with California's Model Water Efficient Landscape Ordinance (MWELO).
   - Water-efficient fixtures and graywater reuse opportunities will be explored.

7. **Waste Management & Recycling**
   Policy: To reduce landfill-related emissions, AB 32 promotes waste reduction, recycling, and composting.

   Project Alignment
   - A construction waste management plan will be implemented, ensuring at least 65% of waste is diverted from landfills.
   - Residential and commercial tenants will have access to separate waste, recycling, and organic waste bins to support the state's organic waste diversion goals (SB 1383).
   - Retail tenants will be encouraged to adopt green packaging and composting programs.

Therefore, the proposed project would not generate substantial greenhouse gas emissions, or conflict with plans, policies, or regulations adopted for the purpose of reducing greenhouse gas emissions. The impact would be less than significant.

<u>Mitigation Measures:</u>

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIAL – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

DISCUSSION

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction activities associated with the proposed project would involve the use of limited amounts of potentially hazardous materials, including but not limited to, solvents, paints, fuels, oils, and transmission fluids. However, all materials used during construction would be contained, stored, and handled in compliance with applicable standards and regulations established by the Department of Toxic Substances Control (DTSC), the United States Environmental Protection Agency (USEPA), and the Occupational Safety and Health Administration (OSHA). All storage, handling, and disposal of hazardous materials during project construction and operation would comply with applicable safety standards and regulations, including General Plan Policies NS-4-a, NS-4-e, and NS-4-f.[5] No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site. Therefore, the proposed project would have a less-than-significant impact associated with the routine transport, use, or disposal of hazardous materials, and no mitigation is required.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

See discussion a) above. The proposed project would not result in a significant hazard

5 *City of Fresno. 2014. Fresno General Plan-Noise and Safety Element, pgs. 9-33, 9-34. Available online at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/GP9NoiseandSafety.pdf (accessed 4-24-24).*

to the public or the environment through the transport of hazardous materials. Additionally, the General Plan includes Objective NS-4 and Policies NS-4-a, NS-4-c, NS-4-e, NS-4-f and NS-4-g, which require site and project-specific compliance with local, State and federal standards and procedures to avoid the release or upset of hazardous materials. Therefore, compliance with federal and state regulations and applicable General Plan policies would ensure that the project would not result in significant hazards to the public or environment through the release of hazardous materials. The impact would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The closest existing school is River Bluff Elementary School, located approximately 0.1 miles southwest from the project site. As previously stated, the proposed project would not result in the use or emission of substantial quantities of hazardous materials that would pose a human or environmental health risk. In addition, all materials would be handled, stored, and disposed of in accordance with applicable standards and regulations. Therefore, because the proposed project does not involve activities that would result in the emission of hazardous materials or acutely hazardous substances to an existing or proposed school. Therefore, implementation of the proposed project would result in a less-than-significant impact in the use or emission of hazardous materials that would adversely affect a school.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

According to the DTSC EnviroStor database,[6] the project site is not located on a federal superfund site, State response site, voluntary cleanup site, school cleanup site, evaluation site, school investigation site, military evaluation site, tiered permit site, or corrective action site. Additionally, the project site is not included on the list of hazardous waste sites compiled pursuant to Government Code Section 65962.5.[7] As a result, no hazards to the public or environment are anticipated, and there would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

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6 *California Department of Toxic Substances Control. 2007. EnviroStor. Available online at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=fresno (accessed 4-24-24)*

7 *California Environmental Protection Agency. 2018. Government Code Section 65962.5(a) Hazardous Waste and Substances Site List. Available online at: https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/ (accessed 4-24-24)*

The nearest airports include the Fresno Yosemite International Airport, located approximately 9.6 miles southeast of the project site, Fresno Chandler Executive Airport, located approximately 8 miles southeast of the project site, and the Sierra Sky Airport, located approximately 1.5 miles east of the project site. The nearest medical center helipads (HP) include Saint Agnes Medical Center HeliPlate[8], located approximately 7.4 miles east of the project site. Due to the distance between the project site and local airports and helipads, operations at these locations are not expected to pose a safety hazard for people in the project site. Therefore, the proposed project would not expose persons to airport-related hazards, and the potential impact would be less than significant.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The California Emergency Services Act requires cities to prepare and maintain an Emergency Plan for natural, manmade, or war-caused emergencies that result in conditions of disaster or in extreme peril to life. The City's full-time Emergency Preparedness Officer (EPO) is responsible for ensuring that Fresno's emergency response plans are up-to-date and implemented properly. The EPO also facilitates cooperation between City departments and other local, State and federal agencies that would be involved in emergency response operations. The City of Fresno Emergency Operations Center (EOC) serves as the coordination and communication between the City of Fresno and Fresno County Operational Area EOC. The proposed project would not result in any alterations of existing roadways that would block the circulation of emergency response services or introduce elements that would conflict with the operations of the EOC. Therefore, the proposed project would not interfere with emergency evacuation plans in the City, and this impact would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The project site is located in an area mapped as Local Responsibility Area (LRA) Unzoned, indicating that the area is urbanized and not susceptible to wildland conflagrations, and is not located within a very high fire hazard severity zone (VHFHSZ).[9] Therefore, the proposed project would not expose people or structures to a significant loss, injury or death involving wildland fires and the impact would be less than significant.

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8 *California Department of Transportation (Caltrans). 2019. Caltrans HeliPlates. Available online at: https://heliplates.dot.ca.gov/# (accessed 4-24-24)*

9 *California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fresno County Fire Hazard Severity Zones in LRA. Kune . Available online at: https://osfm.fire.ca.gov/media/6673/fhszl06_1_map10.pdf (accessed 4-24-24)*

Mitigation Measures:

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:				
i) Result in a substantial erosion or siltation on- or off-site;			x	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site:			x	
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or			x	
iv) impede or redirect flood flows?			x	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			x	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			x	

DISCUSSION

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The State Water Resources Control Board and nine Regional Water Quality Control Boards regulate the water quality of surface water and groundwater bodies throughout California. The proposed project is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB).

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During project construction, there would be an increased potential to expose soils to wind and water erosion, which could result in temporary minimal increases in sediment load in nearby water bodies, including the San Joaquin River located approximately 1-miles to the north of the project site.

In compliance with the General Plan, any development project disturbing one or more acres of soil must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ). Construction activities subject to the Construction General Permit includes clearing, grading, and other ground-disturbing activities such as stockpiling or excavation. The Construction General Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The project would disturb approximately 18.56 acres of soil.

A SWPPP includes features designed to eliminate contact of rainfall and stormwater runoff with sources of pollution that occur on construction sites, the main source being soil erosion resulting from unstabilized soils coming in contact with water and wind. These features are known as Best Management Practices (BMPs). Common BMPs to limit pollution in stormwater runoff from construction sites include maintaining or creating drainages to convey and direct surface runoff away from bare areas and installing physical barriers such as berms, silt fencing, waddles, straw bales, and gabions. Regulatory compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit will ensure the project's construction activities will not significantly impact water quality. This permit requires the project to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) and BMPs to effectively minimize potential water quality impacts.

Long-term operation impacts associated with the proposed project would be reduced to less than significant levels with the implementation of the City's Storm Drainage and Flood Control Master Plan (SDFCMP), which manages the City's stormwater drainage systems, and the City's participation in the Phase 1 NPDES Permit for Stormwater Discharges From Municipal Separate Storm Sewer Systems (Phase 1 MS4), which requires the City to implement water quality and watershed protection measures for all development projects.

Therefore, impacts associated with the proposed project would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The proposed project will receive water supply and wastewater services from the City of Fresno, managed through the Department of Public Utilities (DPU) Water and Wastewater Management Divisions. The project is located within the City's service area, ensuring water supply reliability through existing infrastructure and water management practices.

As discussed below in Section XIX, Utilities and Service Systems, the City receives all of its water supply from groundwater. To mitigate increased water demands, the City plans to incrementally expand groundwater wells, pump stations, recharge facilities, water treatment and distribution systems. A primary objective of Fresno's future water supply plan, as detailed in Fresno's current Urban Water Management Plan (UWMP)[10] is to balance groundwater operations through a host of strategies. These include increasing surface water supplies and surface water treatment facilities, intentional recharge, and conservation measures to reduce groundwater pumping. The City continually monitors impacts of land use changes and development project proposals on water supply facilities by assigning fixed demand allocations to each parcel by land use, whether currently zoned or proposed for rezoning.

10 *City of Fresno. 2021. 2020 Urban Water Management Plan - Final. Available online at: https://www.fresno.gov/publicutilities/wp-content/uploads/sites/16/2021/07/Fresno-2020-UWMP_Final_2021-07-21.pdf (accessed 4-24-24)*

Project Specific Water Use

The project involves the construction of 396 multi-family residential units and 22,666 square feet of commercial space across approximately 18.56 net acres. The development is divided into two main components: commercial parcels totaling 2.2 net acres and a residential parcel comprising 16.36 net acres.

Commercial Water Demand

According to the UWMP, in 2020 the commercial sector covered 4,563 acres with a water demand of 16,971 acre-feet (AF), averaging 3.719 AF per acre. This water demand includes indoor and outdoor water uses, including landscaping. By 2030, commercial acreage is expected to increase to 6,018 acres. Without conservation measures, water demand would proportionally rise to 22,383 AF, maintaining the same per-acre usage.

However, the UWMP anticipates a gradual reduction in water demand due to passive conservation efforts, such as upgrading to more efficient fixtures and appliances. Existing commercial development is projected to reduce demand by 0.05% annually, while future commercial buildings are expected to start at 5% more water-efficient than existing developments and further reduce demand by an additional 0.01% annually.

Incorporating this 5% reduction in demand into the project, the adjusted water demand for commercial portion in 2030 is 3.533 AF per acre. This demand decreases slightly to 3.530 AF per acre in 2040 and to 3.526 AF per acre in 2050. For the 2.2 net acres of commercial space in the project, the total water demand is expected to be:

- 2030: 2.2 acres × 3.533 AF/acre = 7.773 AFY
- 2040: 2.2 acres × 3.530 AF/acre = 7.766 AFY
- 2050: 2.2 acres × 3.526 AF/acre = 7.757 AFY

Residential Water Demand

Per the UWMP, in 2020 multi-family residential areas covered 3,666 acres with a water demand of 18,842 AF, averaging 5.140 AF per acre. This includes indoor and outdoor water uses, including landscaping. Demand factors are expected to decrease over time due to passive conservation. Existing residential development is projected to reduce demand by 0.2% annually, while future residential buildings are expected to begin at 10% more water-efficient than existing developments and further reduce demand by 0.04% annually.

Incorporating this 10% reduction, the adjusted demand for residential spaces in 2030 is 4.626 AF per acre. This demand decreases to 4.621 AF per acre in 2040 and to 4.616 AF per acre in 2050. For the 16.36 net acres of multi-family residential space in the project, the total water demand is expected to be:

- 2030: 16.36 acres × 4.626 AF/acre = 75.681 AFY
- 2040: 16.36 acres × 4.621 AF/acre = 75.600 AFY
- 2050: 16.36 acres × 4.616 AF/acre = 75.518 AFY

Total Water Demand

Based on water demand factors and projected conservation measures, the project is expected to have an annual water demand of approximately 83.454 AFY in 2030. This demand is anticipated to decrease slightly over time to 83.366 AFY in 2040 and to 83.275 AFY in 2050. This reflects a slight decrease over time due to gradual reductions in water use from increased efficiency in both the multi-family residential units and commercial spaces.

Impact on Fresno's Water Supply

Fresno's available water supply is projected to be:

- 2030: 341,140 AF
- 2040: 352,000 AF
- 2045: 357,330 AF

The total city-wide demand for potable and non-potable water is estimated at:

- 2030: 212,756 AF
- 2040: 231,876 AF
- 2045: 241,447 AF

Given these figures, Fresno will maintain a substantial surplus of water supply over demand in each year. The project's annual water demand represents a negligible portion of the City's total water resources. Therefore, due to the ample water supply available, the project will not significantly impact Fresno's water supply.

<u>Groundwater Supply and Recharge Impact</u>

Fresno's Groundwater Management

The proposed project will connect to the City of Fresno's water supply system, which includes extensive infrastructure such as over 202 active municipal groundwater wells and three surface water treatment facilities. This system ensures a reliable and well-regulated water supply, reducing dependency on groundwater and promoting sustainability through strategic planning and efficient management.

The City of Fresno operates under the Sustainable Groundwater Management Act (SGMA) framework, actively participating in the North Kings Groundwater Sustainability Agency. Groundwater use is carefully monitored, and strategies are in place to prevent overdraft and ensure long-term resource stability. Compliance with

SGMA regulations provides an additional layer of assurance that the City's groundwater use will remain sustainable.

The City’s ongoing groundwater recharge efforts further support sustainability. Through intentional recharge, the City diverts surface water from the Kings River and the Central Valley Project to recharge basins, contributing an average of 60,000 AFY. This volume is set to increase over time, helping to sustain groundwater levels and counterbalance any extractions.

In 2014, Fresno updated its Metropolitan Water Resources Management Plan (MWRMP) designed to ensure the Fresno metro area has a reliable water supply through 2025. The plan implements a conjunctive use program, combining groundwater, treated surface water, artificial recharge and an enhanced water conservation program. While groundwater will continue to be an important part of the City’s supply, it will not be relied upon as heavily as historically, with the City planning to expand delivery and treatment of surface water supplies and groundwater recharge activities.

Project Compliance with Water Management Plans

The proposed project would be consistent with water management strategies from both the UWMP and the MWRMP. Furthermore, the project applicant would be required to comply with water management requirements and recommendations of the City of Fresno Department of Public Utilities, which would reduce the project impacts to groundwater recharge to less than significant. These requirements can be found in the UWMP and MWRMP. Compliance with these plans ensures efficient water use, promotes water conservation, and prevents over-extraction from the groundwater supply. Additionally, these plans include strategies for groundwater recharge, such as capturing runoff and using recharge basins to ensure water infiltrates into the groundwater basin. By implementing these strategies, the project helps maintain a balance between water extraction and recharge, reducing pressure on groundwater resources and supporting a sustainable water supply.

The UWMP includes the following requirements the project will follow:

- Water Waste Prevention Ordinances: Compliance with ordinances prohibiting water waste, such as runoff from overwatering landscapes or using water to clean driveways and sidewalks.
- Metering Requirements: Each unit must be individually metered, or if not possible, the complex must have a master meter with sub-metering systems to ensure residents are billed based on actual water use, promoting conservation.
- Conservation Pricing: Implementation of tiered or conservation-based pricing structures for water use, with higher rates for higher usage levels to incentivize efficient water use.

- High-Efficiency Fixtures: Installation of high-efficiency plumbing fixtures, such as low-flow toilets, showerheads, and faucets, as required under the California Plumbing Code.
- Landscape Irrigation Restrictions: Adherence to water-efficient irrigation practices, like watering during early morning or late evening hours, using drought-tolerant plants, and avoiding excess irrigation.
- Leak Detection and Repairs: Establishment of routine checks for leaks in plumbing and irrigation systems and ensuring timely repairs to minimize water loss.

The MWRMP includes the following requirements the project would have to follow:

- Plumbing Fixtures: Installation of plumbing fixtures with water-saving devices, such as low-flow toilets, showerheads, and faucets, to meet updated efficiency standards.
- Metering and Billing: Implementation of metering systems to monitor water use.
- Water Audits and Leak Detection: Conducting regular water system audits to identify and fix leaks within the complex; implementing measures to ensure efficient water use and minimize water loss.
- Landscape Irrigation Conservation: Use of efficient irrigation practices, such as drip irrigation or smart irrigation systems that adjust water use based on weather conditions; prioritizing drought-tolerant plants in landscaping.
- Compliance with Water Waste Prohibitions: Enforcement of rules against water waste, such as preventing excessive runoff from irrigation, fixing broken sprinklers, and avoiding watering during peak heat times when water loss is higher due to evaporation.
- High-Efficiency Appliances: Installation of high-efficiency washing machines in laundry facilities, if applicable.

The project will also incorporate design features like permeable surfaces and efficient stormwater management systems to enhance local groundwater recharge, aligning with City requirements. Additionally, when development permits are issued, the project site will be required to pay drainage fees pursuant to the Drainage Fee Ordinance, contributing financially to regional water management and supporting the infrastructure necessary for ongoing groundwater recharge and conservation efforts.

With the implementation of the outlined measures and adherence to regional water management strategies, the proposed project's impact on groundwater supplies and recharge will be less than significant. The project's design, relatively minimal water demand, and compliance with conservation requirements ensure that its impact on groundwater resources will be negligible. Combined with the City of Fresno's proactive groundwater management and recharge strategies, the project will not impede sustainable groundwater management or substantially affect groundwater supplies.

Therefore, impacts associated with the proposed project would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site?

Construction of the proposed project would result in grading on the site that would expose native soils that could be subject to the effects associated with wind and water erosion unless adequate measures are taken to limit the transport of soils in surface water from the site to downstream locations.

Stormwater collection and disposal, and flood control for the City of Fresno, City of Clovis, and the unincorporated areas within the City of Fresno's sphere of influence are provided by the Fresno Metropolitan Flood Control District (FMFCD). The project would include curb and gutter requirements as required by Fresno.

As required by the General Plan, a SWPPP would be developed prior to any ground disturbance at the project site and would include BMPs to reduce erosion and surface water contamination during construction of the proposed project. Additionally, compliance with the City's grading plan check process, the Fresno Metropolitan Flood Control District (FMFCD) Storm Drainage and Flood Control Master Plan (SDFCMP), and stipulations of the NPDES Construction General Permit would ensure that potential impacts related to erosion and saltation on- and off-site would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?

The proposed project would result in the addition of impervious surfaces and alter existing drainage patterns on approximately 18.56 acres within the project site which would have the potential to result in erosion or siltation on- or off-site. Ground-disturbing activities related to project construction, such as grading, excavation, placing fill, and trenching, could change existing surface drainage patterns and increase the potential for flooding, particularly during storm events. Regulatory mechanisms in place that would reduce the effects of construction activities on drainage patterns that would result in flooding on or off the construction site include compliance with the City of Fresno grading plan check process, the SDFCMP, and the NPDES Construction General Permit. Compliance with these required regulations would reduce project construction impacts on grading patterns and flooding on and off of the construction site to less-than-significant levels.

iii. Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Please refer to discussions a) and c) i and ii in this section. The proposed project would increase impervious surfaces at the project site. However, with implementation of a SWPPP, which would require execution of BMPs for controlling pollution sources during project construction, compliance with the City's Storm Drainage and Flood Control Master Plan (SDFCMP), and implementation of the NPDES Permit, the proposed project would not exceed capacity of stormwater drainage systems or generate additional sources of polluted runoff. Additionally, the project applicant would pay the City a Drainage Fee to address impacts related to increased amount of surface runoff resulting from the proposed project. The impact would be less than significant.

iv. Impede or redirect flood flows?

Title 40 of the Code of Federal Regulations, Part 60 regulations (40CFR60), and the floodplain ordinance of the City of Fresno require that placement and flood provision structures within a floodplain not result in a cumulative change in the floodplain water surface that exceeds one foot. In addition, the regulations under 40CFR60 do not allow placement of structures within a regulatory floodway unless that placement would not result in any increase in the floodplain water surface elevation, meaning that there is no displacement or redirection of the floodway. The City's floodplain ordinance requires that a registered Civil Engineer in the State of California certify that no displacement of floodwater would result from the flood proofing of a structure within a floodplain or a regulatory floodway. The proposed project is not located within the 100-year flood hazard area as mapped by the Federal Emergency Management Agency (FEMA).[11] As a result, the impact would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project site is not located in flood hazard, tsunami, or seiche zones. Refer to discussion a) in Section IX, Hazards and Hazardous Materials regarding the use of hazardous materials within the project site. As a result, a less-than-significant impact would occur.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

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11 *Federal Emergency Management Agency. 2020. FEMA Flood Map Service Center: Search By Address. Available online at: https://msc.fema.gov/portal/search?AddressQuery#searchresultsanchor (accessed 4/30/2024)*

The City is located within the Kings Sub-basin, which is part of the larger San Joaquin Valley Groundwater Basin. The planning documents regarding water resources for the City include the North Kings Groundwater Sustainability Act (GSA) Groundwater Management Plan, the City of Fresno Urban Water Management Plan, and City of Fresno Metropolitan Water Resources Management Plan. The project would be required to adhere to NPDES drainage control requirements during construction and operation as well as to FMFCD drainage control requirements. As a result, the project would not conflict with any applicable water quality control plan or groundwater management plan, and the impact would be less than significant.

Mitigation Measures:

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?				X
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X

DISCUSSION

a) Physically divide an established community?

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The proposed project site is vacant, consisting of disturbed grassland dominated by ruderal, nonnative grasses and forbs. Single family residential homes exist to the north, south, and east. River Bluff Elementary school exists to the west. The proposed project would include 396 residential units and 22,666 square feet of commercial space. These improvements would not affect connectivity and would not divide an established community. Therefore, the proposed project would have no impact.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The project site is designated Urban Neighborhood (UN) and Office (O) in the General Plan. The UN land use designation is intended to provide for a compact community that includes community facilities and walkable access to parkland and commercial services; it also supports efficient, frequent transit service. The O land use is intended for administrative, financial, business, professional, medical, and public offices. This designation is mainly intended to apply to existing office uses on smaller lots, generally located on arterial roadways. This designation is also considered compatible with existing residential neighborhoods given the smaller level of noise and traffic generated compared to commercial uses. Retail uses would be limited to business services, food services, and convenience goods for those who work in the area. The project site is located in Residential Multi-Family (RM) and Employment (E) zoning districts. The RM district allows for various residential uses, including Multi-Unit Residential. The E District allows for administrative, financial, business, professional, medical, and public offices, as identified by the General Plan. Retail uses would be limited to business services and food service and convenience goods for those who work in the area.[12]

The project would not require a change the General Plan land use designation or the current zoning and would be consistent with the City's General Plan and Zoning Ordinance. Additionally, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, the impact would be no impact.

12 *City of Fresno. 2016. Fresno Municipal Code Chapter 15: Citywide Development Code. Available online at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/Complete_Code_March_2017.pdf (accessed 4-24-24)*

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

DISCUSSION

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The principal area for mineral resources in the City of Fresno is located along the San Joaquin River Corridor. The California Department of Mines and Geology classifies lands along the San Joaquin River Corridor as Mineral Resource Zone (MRZ) 1, MRZ-2, and MRZ-3. The project site is not located in the vicinity of the San Joaquin River, is not a MRZ, and it doesn't contain a MRZ. The City's General Plan includes Objective RC-10 and Policies RC-10-a through RC-10-f to conserve aggregate mineral resources, which would be applied by the proposed project, as applicable.[13] As a result, the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State. Therefore, the impact would be less than significant.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Please refer to the discussion for a). The proposed project would not result in the loss of availability of any known locally important mineral resource recovery sites. Therefore, the proposed project would have a less than significant impact.

13 *City of Fresno. 2016. General Plan. Resource Conservation and Resilience. Available online at: https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/GP7ResourceConservation.pdf (accessed 4-24-24)*

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		x		
b) Generation of excessive groundborne vibration or groundborne noise levels?			x	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			x	

An acoustical analysis was prepared by WJV Acoustics in October 2020 (Appendix D).

DISCUSSION

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?

Short-Term (Construction) Noise Impacts. Project construction would result in short-term noise impacts on nearby sensitive receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase (e.g., demolition, land clearing, grading, excavation, erection) of construction. Noise produced by construction equipment such as earthmovers, material handlers, and portable generators can reach high levels. Generally, the grading phase of construction involves the most equipment and generates the highest noise levels, although noise ranges are usually similar across all construction phases. Typical noise levels generated by individual pieces of construction equipment generally range from approximately 77 dBA to 90 dBA Lmax at 50 feet. Depending on the equipment required and duration of use, average-hourly noise levels associated with construction activity typically ranges from roughly 65 to 90 dBA Leq at 50 feet.

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest sensitive receptors to the proposed project include existing residences located directly adjacent to the project site across Veterans Blvd., as well as an elementary school, located approximately 500 feet to the west of the project site.

Chapter 10, Article 1 (Noise Regulations), of the Fresno Municipal Code establishes excessive noise guidelines and exemptions. Section 10-109 states that construction noise is exempted from City noise regulations provided such work takes place between the hours of 7:00 a.m. and 10:00 p.m. on any day except Sunday.

Thus, although development activities associated with the proposed project could potentially result in a temporary or periodic increase in ambient noise levels in the project vicinity, construction activity would be exempt from City of Fresno noise regulations, as long as such activity is conducted pursuant to an applicable construction permit and occurs between 7:00 a.m. and 10:00 p.m., excluding Sunday. Therefore, short-term construction impacts associated with the exposure of persons to or the generation of noise levels in excess of standards established in the General Plan or noise ordinance or applicable standards of other agencies would be less than significant.

Operational Noise Impacts. Motor vehicles with their distinctive noise characteristics are the dominant noise source in the project vicinity. The amount of noise varies according to many factors, such as volume of traffic, vehicle mix (percentage of cars and trucks), average traffic speed, and distance from the observer. Implementation of the proposed project would result in new daily trips on local roadways in the project site vicinity. A characteristic of sound is that a doubling of a noise source is required in order to result in a perceptible (3 dBA or greater) increase in the resulting noise level. As discussed below in Section XVII, Transportation, the proposed project would generate approximately 5,968 daily trips. The project daily trips would not result in a doubling of traffic volumes along any roadway segment in the project vicinity and, therefore, would not result in a perceptible increase in traffic noise levels at receptors in the project vicinity.

Additionally, development of the project site would increase activity at the site. The noise-generating activities and the resulting noise levels from operations at the Bella Vita Mixed-Use Development in Fresno include the following:

Commercial/Retail Noise Sources: The project would feature commercial spaces including a drive-through restaurant, a small restaurant, and a retail store. These facilities are expected to generate noise from:

- HVAC/Mechanical Equipment: Noise from roof-mounted HVAC units on commercial buildings is expected to range between approximately 39-44 dB at a distance of 100 feet.
- Truck Deliveries: Noise levels produced by slowly moving trucks are measured to be in the range of 65 to 71 dBA at a distance of 100 feet.
- Parking Lot Activities: Noise due to traffic in parking lots typically involves the sounds of car doors and trunks being closed, vehicle alarms, and car stereos. These activities are not usually considered significant noise sources due to their transient nature and the low speeds at which cars move in parking areas.
- Drive-Through Operations: The drive-through component, likely to include amplified speech for ordering, is anticipated to generate noise levels. However, the exact levels depend on the specific operations and layout but were modeled based on measurements from similar establishments.

Residential Noise Sources: The residential component is primarily expected to contribute to the noise environment through general living activities, but these are typically not significant compared to commercial noise sources.

Exposure to Sensitive Receptors: The City of Fresno establishes interior noise standards to ensure a comfortable and healthy living environment for its residents. According to these standards, interior noise levels in residential units should not exceed 45 dB Ldn to prevent disruptive noise from affecting the well-being of inhabitants. For the Bella Vita Mixed-Use Development, traffic noise from nearby major roads, particularly W. Herndon Avenue, is predicted to exceed this threshold due to the high volume of vehicle movements and the proximity of the residential units to these traffic corridors. Implementation of Mitigation Measure NOI-1 would ensure compliance with these noise standards for the proposed residences.

With implementation of General Plan policies, operation of the proposed project would not substantially increase noise levels over existing conditions, and the impact would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

No permanent noise sources would be located within the project site that would expose persons to excessive groundborne vibration or noise levels. Construction activities associated with the proposed project are not expected to result in excessive groundborne vibration or groundborne noise levels. Therefore, the proposed project would not permanently expose persons within or around the project site to excessive groundborne vibration or noise and the impact would be less than significant.

c) **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

The nearest medical center helipad (HP) to the project site is Saint Agnes Medical Center Helipad, located approximately 6.3 miles east of the project site. The nearest airports include the Fresno Yosemite International Airport, located approximately 9.6 miles southeast of the project site, Fresno Chandler Executive Airport, located approximately 8.2 miles southeast of the project site, and the Sierra Sky Airport, located approximately 1.3 miles east of the project site.

Each of these airports is considered under the Fresno County Airport Land Use Compatibility Plan (ALUCP).[14], which guides local jurisdictions in determining appropriate compatible land uses with detailed findings and policies. The City of Fresno General Plan, other City land use plans, and all City land use decisions must be compatible with the adopted ALUCP for Fresno County. The ALUCP includes CNEL noise contours based on projected airport and aircraft operations.

The project site is within 2 miles of the Sierra Sky Park Airport. However, the project is not located within a future noise contour as identified by the Sierra Sky Park Airport Land Use Compatibility Plan. As such, the proposed project would not result in the exposure of sensitive receptors to the excessive noise levels from aircraft noise sources. The impact would be less than significant.

Mitigation Measures

The proposed project shall implement and incorporate the noise related mitigation measures as identified in the attached Mitigation Measure Monitoring Program.

Mitigation Measures NOI-1: The project developer shall install mechanical ventilation and air conditioning systems in all apartment units within the project. These systems must be capable of maintaining comfortable indoor temperatures with all windows and doors closed.

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14 *Fresno Council of Governments. 2018. Fresno County Airport Land Use Compatibility Plan. Amended December 2021. Available online at: https://www.fresnocog.org/project/airport-land-use-commission-fresno-county/ (accessed 4/10/24)*

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			x	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				x

DISCUSSION

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would include the development of 396-unit multi-family development and 22,666 square feet of commercial space. The commercial portion of the proposed project is designated as Office by the City of Fresno General Plan and belongs to the Office zoning district. The residential portion of the proposed development is designated as Urban Neighborhood by the General Plan and is zoned RM-2 – Residential Multi-Family, Urban Neighborhood.

The proposed project would result in direct population growth as the use proposed is not residential and would contribute to permanent residency on site. However, the proposed residential uses are consistent with the current land use land zoning designations. Therefore, the proposed project would not directly or indirectly induce unplanned population growth and this impact would be less than significant.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project site is currently vacant and there are no residences located within the project area. The proposed project would not necessitate the displacement or removal of existing housing. Therefore, no impacts would occur.

Mitigation Measures

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?			x	
Police protection?			x	
Schools?			x	
Parks?			x	
Other public facilities?			x	

DISCUSSION

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire protection?

The City of Fresno Fire Department (FFD) would provide fire protection services to the proposed project. There are 20 FFD fire stations in Fresno, with the closest fire station, Fire Station 14, located approximately 0.66 miles from the project site. Planned growth under the General Plan would increase calls for fire protection service in the City. The proposed use of the project site is consistent with the site's General Plan designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designations. The project could result in an incremental increase in the demand for fire protection services because of additional to the project site. However, the proposed project would be required to pay a Fire Facilities Fee and a Development Impact Fee pursuant to Chapter 12, Article 4.9 of the City's Code of Ordinances to account for the potential impacts to fire services.

The FFD would continue providing services to the project site and would not require additional firefighters to serve the proposed project. The construction of a new or expanded fire station would not be required. The proposed project would not result in a significant impact on the physical environment due to the incremental increase in demand for fire protection and life safety services. The incremental increase in demand for services would not adversely affect existing responses times to the site or within the City. Therefore, construction and operation of the proposed project would have a less than significant impact.

ii. Police protection?

The City of Fresno Police Department (FPD) provides police protection to the project site. The Police Department Patrol Division is divided into five policing districts with the nearest being Fresno Police Department Northwest District, located approximately 3.2 miles from the project site. Planned growth under the General Plan would increase calls for police protection service in the City. The proposed use of the project site is consistent with the site's General Plan designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designation.

The project could result in an incremental increase in the demand for police protection services. However, the proposed project would be required to pay a Police Impact Fee and a Development Impact Fee pursuant to Chapter 12. Article 4.8 of the City's Code of Ordinances to account for the potential impacts to police protection services.

The FPD would continue providing services to the project site and would not require additional personnel to serve the proposed project. The construction of new or expanded police facilities would not be required. Therefore, the proposed project would not result in a substantial adverse impact associated with the provision of additional police facilities or services and impacts to police protection would represent a less than significant impact.

iii. Schools?

The proposed project is within the Central Unified School District. Since the proposed project includes the addition of 396 multi-family residential units, the number of students in the school district would increase. The proposed project site is located within the City limits and therefore, growth associated with the project has been planned and expected. According to the CUSD Facilities Master Plan (2016), 0.351 students are generated from each residential unit. The 396-unit project would add an estimated 139 students to the district. Based on student enrollment data, the CUSD is projecting a total enrollment of 16,239 students in the 2027/28 school year, with a capacity for 22,182 students.

The project would not necessitate a new school. However, the developer would be required to pay appropriate school fees pursuant to Chapter 12, Article 8 of the City's Code of Ordinances at time of building permits to address potential impacts. The impact is less than significant.

iv. Parks?

The addition of 396 new residential units would result in increased use of existing parks. Parks within the vicinity of the site that could potentially service the proposed development include a small neighborhood park located on the NE corner of Hayes Avenue and Herndon Avenue, Koligian Park (located approximately 0.7 miles from the project site, Stallion Park, located approximately 0.7 miles from the project site, and Riverside Golf course, located approximately 0.4 miles from the project site. The proposed multi-family development includes outdoor recreation facilities for residents, including recreational building, two barbeque areas, tot lot, swimming pool, basketball half-court, dog park, and other landscaped areas.

The developer would be required to pay applicable park facilities fees, pursuant to Chapter 12, Article 4.7 of the City's Code of Ordinances, to mitigate potential impacts of the proposed project on park facilities. Therefore, impacts to parks would be less than significant.

v. Other public facilities?

Development of the proposed project could also increase demand for other public services, including libraries, community centers, and public health care facilities. However, the proposed project would not result in significant population growth that would increase the demand for these facilities, such that new facilities would be needed to maintain service standards, as these facilities are not currently overused and have capacity to serve new demand. Therefore, impacts to other public facilities would be less than significant.

Mitigation Measures

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION - Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

DISCUSSION

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project would include 349,517 square feet of landscaped open space, including a recreational building, a tot lot, two barbeque areas, a dog park, a basketball half-court, and a community pool. Nearby parks include a neighborhood park and Koligian Park to the north, and stallion park to the south. The proposed project may increase the demand of recreational facilities in the vicinity of the project site. However, the proposed project would include the construction of several recreation features. The developer would be required to pay park impact fees pursuant to Chapter 12, Article 4.7 of the City's Code of Ordinances at the time building permits are obtained to account for potential impacts to recreational facilities. The impact fees would serve to offset project impact on existing recreational facilities. Therefore, the impact would be less than significant.

b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

The proposed project would consist of a multi-family apartment complex and a small amount of commercial uses. The development would include 349,517 square feet of landscaped open space, including a recreational building, a tot lot, two barbeque areas, a dog park, a basketball half-court, and a community pool. The proposed project would not include or require the construction or expansion of existing public recreational facilities. Therefore, the impact would be no impact.

Mitigation Measures

No mitigation measures are required.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

DISCUSSION

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The Traffic Impact Analysis (TIA) for the Bella Vista project, located at the southeast corner of Herndon Avenue and Hayes Avenue in Fresno, CA, was conducted by JLB Traffic Engineering, Inc. (available in Appendix I).[15] The proposed development includes 17,666 square feet of general retail, a 5,000-square-foot fast-food restaurant with a drive-through, and 396 multifamily residential units. The primary objective of the TIA was to evaluate potential on-site and off-site traffic impacts, identify short-term and long-term roadway needs, recommend potential roadway improvement measures, and pinpoint any critical traffic issues that should be addressed in the planning process. This comprehensive analysis considered various traffic scenarios,

15 *The TIA analyzed an earlier and larger version of the proposed project. The proposed project site and dwelling units have since been decreased from approximately 23.42 acres to 18.56 acres and from 516 dwelling units to 396 dwelling units. Despite this reduction, the TIA analysis remains adequate for the project's environmental assessment as the findings provide for a more conservative impact analysis. However, trip generation calculations in this IS/MND have been adjusted based on the current project programming.*

including existing conditions, existing plus project, near-term plus project, and cumulative year 2046 plus project conditions.

The findings of the TIA reveal that all study intersections currently operate at an acceptable Level of Service (LOS) and will continue to do so with the addition of the Bella Vista project and other near-term developments. The project is expected to generate approximately 5,968 daily trips, with 423 AM peak hour trips and 483 PM peak hour trips. The analysis included a detailed review of existing traffic conditions, and minor recommendations were made for two of the project driveways along Hayes Avenue. Notably, all study intersections are projected to maintain acceptable LOS during both peak periods under existing plus project conditions, and traffic signalization is not recommended for any unsignalized intersections based on the warrant analysis.

To support active transportation and enhance safety, the TIA recommends constructing Class I bikeways along Hayes Avenue and Veterans Boulevard and adding a high-visibility crosswalk across the north leg of the intersection at Hayes Avenue and Palo Alto Avenue. Additionally, a queuing analysis suggests the City consider appropriate left-turn and right-turn lane storage lengths. The analysis also factored in the cumulative impacts of other near-term projects, estimating an additional 100,395 daily trips, with 5,259 AM peak hour trips and 8,970 PM peak hour trips. Despite these increases, all study intersections are expected to maintain acceptable LOS through 2046, demonstrating that the project would not conflict with the Mobility and Transportation Element of the Fresno General Plan. The project's integration of recommended roadway improvements ensures continued efficient traffic flow and supports the city's long-term transportation planning goals.

The area is currently served by two Fresno Area Express (FAX) routes, Route 3 and Route 20, which provide connections to various commercial centers and institutions. Route 3 operates along Herndon Avenue with a nearby stop on Riverside Drive, and Route 20 operates along Riverside Drive, both offering 45-minute intervals on weekdays and weekends.

The Fresno Active Transportation Plan (ATP), adopted in December 2016, outlines a comprehensive network of bikeways to improve safety and accessibility for non-motorized transportation. In the vicinity of the project site, existing Class I (Bike Path) and Class II (Bike Lane) bikeways are present along portions of Veterans Boulevard, Riverside Drive, Spruce Avenue, Hayes Avenue, and Bullard Avenue. The ATP recommends the construction of additional Class I and Class II bikeways along Hayes Avenue and Veterans Boulevard adjacent to the project site. Additionally, the project proposes to construct Class I bikeways along these frontages, aligning with the ATP's recommendations and supporting the city's goals for an integrated active transportation network.

Pedestrian facilities near the project include existing sidewalks and crosswalks, with specific focus on safe routes to nearby schools such as River Bluff Elementary School and Rio Vista Middle School. To enhance pedestrian safety, the project proposes adding a high-visibility crosswalk across the north leg of the intersection at Hayes Avenue and Palo Alto Avenue, facilitating safer access for students walking or biking to school.

The proposed Bella Vista project is consistent with the implementation of applicable transit, bicycle, and pedestrian programs and plans. It does not conflict with the operation of existing facilities; instead, it supports and enhances the existing infrastructure by integrating recommended improvements from the Fresno ATP. The project's contributions to active transportation and transit accessibility ensure alignment with the city's long-term mobility and transportation goals, promoting a more connected and efficient network for all users.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Senate Bill (SB) 743 requires that relevant CEQA analysis of transportation impacts be conducted using a metric known as vehicle miles traveled (VMT) instead of Level of Service (LOS). VMT measures how much actual auto travel (additional miles driven) a proposed project would create on California roads. If the project adds excessive car travel onto our roads, the project may cause a significant transportation impact.

The State CEQA Guidelines were amended to implement SB 743, by adding Section 15064.3. Among its provisions, Section 15064.3 confirms that, except with respect to transportation projects, a project’s effect on automobile delay shall not constitute a significant environmental impact. Therefore, LOS measures of impacts on traffic facilities is no longer a relevant CEQA threshold for transportation impacts.

CEQA Guidelines Section 15064.3(b)(4) states that “[a] lead agency has discretion to evaluate a project’s vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project’s vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate used to estimate vehicle miles traveled and any revision to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.”

A VMT analysis for the project was prepared by JLB Traffic Engineering, Inc. (available in Appendix H).[16] The following analysis is based on the VMT analysis

[16] *The VMT analyzed an earlier and larger version of the proposed project. The proposed project site and dwelling units have since been decreased from approximately 23.42 acres to 18.56 acres and from 516 dwelling units to 396 dwelling units. Despite this reduction, the VMT analysis remains adequate for the project’s environmental assessment as the findings provide for a more conservative impact analysis.*

report.

On June 25, 2020, the City of Fresno adopted CEQA Guidelines for Vehicle Miles Traveled Thresholds, pursuant to Senate Bill 743 to be effective of July 1, 2020. The thresholds described therein are referred to herein as the City of Fresno VMT Thresholds. The City of Fresno VMT Thresholds document was prepared and adopted consistent with the requirements of CEQA Guidelines Sections 15064.3 and 15064.7. The December 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) published by the Governor's Office of Planning and Research (OPR), was utilized as a reference and guidance document in the preparation of the Fresno VMT Thresholds.

The proposed development includes 17,666 square feet of general retail, a 5,000-square-foot fast-food restaurant with a drive-through, and 396 multifamily residential units. The City of Fresno VMT Thresholds Section 3.0 regarding Project Screening discusses a variety of projects that may be screened out of a VMT analysis including specific development and transportation projects. For development projects, conditions may exist that would presume that a development project has a less than significant impact. These may be size, location, proximity to transit, or trip-making potential. For transportation projects, the primary attribute to consider with transportation projects is the potential to increase vehicle travel, sometimes referred to as "induced travel."

The proposed retail portion of the project is eligible to screen out because it is a local serving retail project less than 50,000 square feet.

The residential portion of the project does not screen out from the need for a quantitative VMT analysis because it does not meet any of the established screening criteria specified in the City of Fresno's CEQA Guidelines for VMT thresholds. These criteria include being located in a Transit Priority Area or High-Quality Transit Corridor, being a local-serving retail project of less than 50,000 square feet, generating fewer than 500 average daily trips, containing a high level of affordable housing units, being an institutional/government or public service use, or being located in a low VMT zone. Since the residential component of the project does not satisfy any of these criteria, it cannot be screened out. For projects that are not screened out, a quantitative analysis of VMT impacts must be prepared and compared against the adopted VMT thresholds of significance. The Fresno VMT Thresholds document includes thresholds of significance for development projects, transportation projects, and land use plans. These thresholds of significance were developed using the County of Fresno as the applicable region, and the required reduction of VMT (as adopted in the Fresno VMT Thresholds) corresponds to Fresno County's contribution to the statewide GHG emission reduction target. In order to reach the statewide GHG reduction target of 15%, Fresno County must reduce its GHG emissions by 13%. The method of reducing GHG by 13% is to reduce VMT by 13% as well.

The City’s adopted thresholds for development projects correspond to the regional thresholds set by the Fresno Council of Governments (COG). For residential and non-residential (except retail) development projects, the adopted threshold of significance is a 13% reduction, which means that projects that generate VMT in excess of a 13% reduction from the existing regional VMT per capita or per employee would have a significant environmental impact. Projects that reduce VMT by more than 13% are less than significant. For retail projects, the adopted threshold is any net increase in VMT per employee compared to existing VMT per employee.

Quantitative assessments of the VMT generated by a development project are determined using the COG Activity Based Model (ABM), which is a tour-based model.

For mixed use projects, the City of Fresno VMT Thresholds state that the VMT can be estimated based on each component of the project, independently, after taking credit for internal trip capture. It also confirms that mixed use projects must use the Fresno COG’s Activity Based Model. The VMT per capita (for the residential component) and the total VMT (for the retail component) is then compared against the relevant threshold.

The Traffic Consultant requested Fresno COG to run its Activity-Based Model (ABM) to determine the project's VMT for the proposed land uses. Based on the Fresno COG VMT output, the residential component was calculated to yield 19.36 VMT per capita, which exceeds the City of Fresno's threshold of 14.01 VMT per capita, indicating a potentially significant impact without mitigation. However, after applying feasible mitigation measures, the residential VMT was reduced to 11.94 VMT per capita, making the impact less than significant. The retail component of the project, considered local-serving retail less than 50,000 square feet, screened out from a quantitative VMT analysis due to its expected draw from the surrounding area and existing traffic, resulting in no net increase in regional VMT. Consequently, the residential component, after mitigation, and the retail component, based on its screening status, would not have a significant impact on VMT.

In conclusion, the proposed project would result in a less than significant impact concerning consistency with CEQA Guidelines Section 15064.3(b).

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project would include 17,666 square feet of general retail, a 5,000-square-foot fast-food restaurant with a drive-through, and 396 multifamily residential units. The project would not alter pedestrian or vehicle access to the project site, or introduce incompatible design features or equipment that would substantially increase the risk of hazards. Therefore, the project would not substantially increase hazards due to a design feature, and the impact would be less than significant.

d) Result in inadequate emergency access?

The proposed project would include 17,666 square feet of general retail, a 5,000-square-foot fast-food restaurant with a drive-through, and 396 multifamily residential units. Emergency vehicles would have access to the project site via an emergency vehicle access onto Herndon Avenue, and emergency access would be modified as a result of the proposed project. Furthermore, roads adjacent to the project site would not require closure during project construction. Therefore, the impact would be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC section 5020.1(k), or,			X	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC section 5024.1. In applying the criteria set forth in subdivision (c) of PRC section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

DISCUSSION

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

As previously discussed in Section V, Cultural Resources, the project site does not contain historical resources listed or eligible for listing in the California Register of Historical Resources, or in any local listing for Fresno County or the City of Fresno. Furthermore, the area surrounding the project site does not contain any listed historical resources. As a result, a less-than-significant impact would occur.

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The State requires lead agencies to consider the potential effects of proposed projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the CEQA Guidelines. Pursuant to PRC Section 21080.3.1, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)).

Additional information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.

Assembly Bill (AB) 52, which became law January 1, 2015, requires that, as part of the CEQA review process, public agencies provide early notice of a project to California Native American Tribes to allow for consultation between the tribe and the public agency. The purpose of AB 52 is to provide the opportunity for public agencies and tribes to consult and consider potential impacts to Tribal Cultural Resources (TCR's), as defined by the Public Resources Code (PRC) Section 2107(a). Under AB 52, public agencies shall reach out to California Native American Tribes who have requested to be notified of projects in areas within or which may have been affiliated with their tribal geographic range. Pursuant to

Assembly Bill 52 (AB 52), the Table Mountain Rancheria Tribe and the Dumna Wo Wah Tribe were invited to consult. A certified letter was mailed to the mentioned tribes on July 31, 2024. The 30-day comment period ended on August 30, 2024. The Table Mountain Rancheria provided a comment letter on August 16, 2024, requesting consultation. City staff contacted Table Mountain Rancheria and provided them with a Cultural Study for review on August 26, 2024, with a follow-up email requesting a status on the consultation request on September 11, 2024. On January 21, 2025, City staff sent another follow-up request expressing the City's good faith efforts in requesting to meet for consultation, as requested by Table Mountain Rancheria, with a due date for the consultation meeting request by January 31, 2025, stating that a "No Response" would be considered as fulfilling the request for consultation and it is no longer needed. Table Mountain Rancheria did not respond.

If any artifacts are inadvertently discovered during ground-disturbing activities, existing federal, State, and local laws and regulations would require construction activities to cease until such artifacts are properly examined and determined not to be of significance by a qualified cultural resource professional. In addition, Mitigation Measures CULTURAL-1, CULTURAL-2 and CULTURAL-3 included above in Section V, Cultural Resources, would apply to the project and would reduce potential impacts to unknown archaeological historical resources to less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effect?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

DISCUSSION

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The Department of Public Utilities has determined that adequate sanitary sewer and water services would be available to serve the proposed project subject to the payment of any applicable connection charges and/or fees and extension of services in a manner which is compliant with the Department of Public Utilities standards, specifications, and policies.

Impacts to storm drainage facilities have been previously discussed in Section X, Hydrology and Water Quality. While the proposed project would result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of such facilities would be required to comply with the City's grading plan check process, the Fresno Metropolitan Flood Control District (FMFCD) Storm Drainage and Flood Control Master Plan (SDFCMP), and requirements of the NPDES General Construction Permit. As such, construction of storm drainage facilities for the proposed project would be consistent with construction and design standards for the City, and the impact would be less than significant.

Electric power, natural gas, and telecommunication facilities would require connections to the project site. However, because the project site is located within an urbanized area with existing facilities in close proximity, connection to these facilities would not cause significant environmental effects. As a result, the project would not result the relocation or construction or new or expanded utilities, which could cause significant environmental effects, and the impact would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

As discussed above, the Department of Public Utilities would supply water to the project site. Based on the 2015 Urban Water Management Plan, the water supplies for the City (363,540 Acre Feet (AF)/year) are adequate to accommodate the demand in the City by 2040 (i.e., 228,091 AF/year), and at buildout of the approved General Plan in 2056 (i.e., 254,834 AF/year). The proposed project would be consistent with the General and would therefore be covered by the City's water supply projections. Plan. As a result, there would be sufficient water supply for the project, and the impact would be less than significant.

c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The proposed project is not expected to exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. The City of Fresno owns and operates two wastewater treatment facilities. They are the Fresno/Clovis Regional Wastewater Reclamation Facility and the North Fresno Wastewater Reclamation Facility. The RWRF currently has a capacity of 91.5 million gallons per day (mgd). The North Facility has a capacity of 0.71 mgd. The proposed project is not expected to exceed the capacity of existing wastewater-related services and facilities. Therefore, the impact would be less than significant.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Garbage disposed in the City of Fresno is taken to the Cedar Avenue Recycling and Transfer Station. Once trash has been off-loaded at the transfer station, it is sorted, and non-recyclable solid waste is loaded onto large trucks and taken to the American Avenue Landfill located approximately 6 miles southwest of Kerman.

The American Avenue Landfill (i.e., American Avenue Disposal Site 10-AA-0009) has a maximum permitted capacity of 32,700,000 cubic yards and a remaining capacity of 29,358,535 cubic yards, with an estimated closure date of August 31, 2031. The maximum permitted throughput is 2,200 tons per day.[17]

Other landfills within the County of Fresno include the Clovis Landfill (City of Clovis Landfill 10-AA-0004) with a maximum remaining permitted capacity of 7,740,000 cubic yards, a maximum permitted throughput of 2,000 tons per day, and an estimated closure date of 2047.[18]

Operation of the proposed project would generate approximately 2,022 pounds of solid waste per day or about 369.1 tons of solid waste per year. Given the available capacity at the landfills, the additional solid waste generated by the proposed project is not anticipated to cause the facility to exceed its daily permitted capacity. As such, the project would be served by a landfill with sufficient capacity to accommodate the project's waste disposal needs, and impacts associated with the disposition of solid waste would be less than significant.

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[17] *CalRecycle. Available online at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/352 (accessed 4-24-24)*

[18] *CalRecycle. Available online at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/347 (accessed 4-24-24)*

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The proposed project would comply with Cal Green, the City's Construction and Demolition (C&D) Waste Management Guide, and with waste management policies and recommendations from the General Plan. The proposed project would dispose of waste in accordance with applicable federal, state, and local recycling, reduction, and waste requirements and policies. Therefore, the proposed project would not conflict with federal, state, and local management and reduction statutes and regulations related to solid waste, and the impact would be less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

DISCUSSION

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

The proposed project would not interfere with any emergency evacuation routes within the City of Fresno or an adopted emergency response plan. The project site would not require the alteration of any existing roadways. Therefore, the impact would be less than significant.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project site is in an urban area and is not located within a Very High Fire Hazard Severity Zone (VHFHSZ).[19] The project site does not possess physical characteristics that would exacerbate wildfire risks. Therefore, the proposed project would not exacerbate wildfire risks and potentially expose project occupants to pollutants from a wildfire. The impact would be less than significant.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project site is located in a developed area of the City of Fresno, and it would not require the installation or maintenance of infrastructure that would increase the risk of fire or result in temporary or ongoing environmental impacts, outside of what is already implemented according to City plans. As a result, a less-than-significant impact would occur.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is located on a relatively flat area and is not located adjacent to any hills. In general, the potential for land sliding or slope failure in Fresno is very low and the project site would not be susceptible to landslides. The project site is also not located on a flood hazard zone and would not be susceptible to flooding because of post-fire drainage changes. As discussed above, the project is not located within a VHFHSZ. Therefore, the proposed project would not expose people or structures to significant risks, and a less-than-significant impact would occur.

19 California Department of Forestry and Fire Protection (CAL FIRE). 2008. Fresno County Very High Fire Hazard Severity Zones in LRA. Available online at: https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/ (accessed 4-24-24)

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

DISCUSSION

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or

restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?

As discussed in Section 4, Biological Resources, the project could potentially impact sensitive and special-status species within the project area. However, mitigation measures BIO-1 and BIO-2 reduce the potential to substantially reduce habitats, special species populations, and the range of rare or endangered plant species. With these mitigation measures in place, the project would not substantially degrade the environment or wildlife within the project area.

Based on the findings discussed in Section 5, Cultural Resources, the project site is not known to be archaeologically sensitive. However, this may change due to the possibility of the unanticipated discovery of archaeological resources during ground disturbing activities. Therefore, project construction activities could potentially impact major periods of California history or prehistory. However, implementation of Mitigation Measures CULTURAL-1 through CULTURAL-3 would reduce these potential impacts to a less than significant level.

Therefore, with the incorporation of mitigation measures, development of the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce the habitat of a fish or wildlife species; 3) cause a fish or wildlife species population to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history. Therefore, this impact would be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The proposed project’s impacts would be individually limited and not cumulatively considerable due to the site-specific nature of the potential impacts. The potentially significant impacts that can be reduced to less-than-significant levels with implementation of recommended mitigation measures include the topics of aesthetic resources, biological resources, cultural resources, geology and soils, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics.

Cumulative Aesthetic Impacts

The Bella Vita project would contribute to regional aesthetic changes, which are inherently subjective and localized. Although cumulative visual impacts from other developments may alter the environment, these changes are not considered significant, and the Bella Vita project's contribution remains less than significant. The project adheres to regulations for scenic quality, incorporating measures such as shielded lighting and non-reflective materials to minimize light and glare, ensuring nighttime views are not adversely affected.

The project's viewshed includes West Herndon Avenue, North Hayes Avenue, nearby vacant/open spaces, and single-family homes. Northwestern Fresno's landscape features a mix of urban developments and undeveloped parcels, with anticipated shifts as development continues in accordance with the City's General Plan and zoning ordinances. While the area's visual character is evolving, the project's incremental effect aligns with planned land use changes and does not create significant cumulative aesthetic impacts, as it complies with measures designed to maintain visual harmony and minimize light pollution.

Cumulative Agriculture and Forestry Resources Impacts

The Bella Vita project contributes to Fresno's ongoing urbanization, a process that has historically converted agricultural land to urban uses. However, the City's General Plan has already anticipated and incorporated this agricultural loss, so while the project adds to the cumulative condition, it does not constitute a significant contribution.

The cumulative impact analysis covers Fresno and surrounding areas, where the General Plan MEIR acknowledges the significant impact of converting up to 15,903 acres of Important Farmland. The Bella Vita project site is not zoned for agriculture, does not have a Williamson Act contract, and is classified as Farmland of Local Importance; therefore, not meeting CEQA's Important Farmland criteria. Surrounded by urban development, its use for urban purposes aligns with the City's established land use plans. Therefore, cumulative impacts on agriculture and forestry resources are less than significant.

Cumulative Air Quality Impacts

There is an existing cumulative impact related to air quality in the SJVAB, which is currently designated as a nonattainment area for pollutants such as ozone precursors (reactive organic gases [ROG] and oxides of nitrogen [NOX]), respirable particulate matter (PM10), and fine particulate matter (PM2.5). While the project would contribute to regional air pollutant emissions from construction and operational activities, these emissions would not be cumulatively considerable.

Air quality impacts are evaluated at the air basin level. As discussed in the Air Quality Section of this Initial Study, emissions from the project have been assessed using established thresholds developed by the SJVAPCD, which are designed to take into account cumulative conditions across the region. The project's construction and operational emissions of criteria pollutants, including ROG, NOX, PM10, and PM2.5, would remain below these significance thresholds, indicating that the project would not have a substantial impact on air quality when considered in conjunction with other regional developments.

Furthermore, the Bella Vita project complies with SJVAPCD regulations and control measures, which are part of the broader strategy to achieve air quality improvements and meet state and federal standards. These regulations include requirements for dust control, the use of cleaner construction equipment, and adherence to air quality plans.

Although the San Joaquin Valley continues to face air quality challenges, and the cumulative condition remains significant, the project's contribution would not worsen these conditions in a meaningful way. Additionally, the project would not interfere with the implementation of air quality management plans or conflict with the attainment goals established for the region. As a result, cumulative air quality impacts would be less than significant.

Cumulative Biological Resources Impacts

The Bella Vita project, in combination with other existing and planned developments in the area, could contribute to cumulative impacts on biological resources, including habitat loss and effects on special-status species. However, these impacts are anticipated to be less than significant with the implementation of mitigation measures. The analysis for biological impacts encompasses the project site and surrounding areas where similar habitats and special-status species may occur. As discussed in Section IV, "Biological Resources," the project site is currently characterized as disturbed habitat with limited ecological value. Nevertheless, the project could impact special-status species, such as Swainson's hawk or other nesting birds if these species are present during construction. Additionally, vegetation removal could result in habitat loss.

Future development in the region will continue to reduce available habitat for these species, contributing to a significant cumulative impact on biological resources. However, the Bella Vita project incorporates specific mitigation measures to minimize its impact. These measures include pre-construction surveys for special-status species, avoiding active nesting sites, and habitat compensation where necessary. By implementing these measures, the project would minimize its effects and ensure that its incremental impact on biological resources is not cumulatively considerable.

The project would not impact sensitive habitats, such as wetlands or wildlife corridors, and development would comply with local, state, and federal regulations protecting biological resources. Thus, while the regional loss of habitat remains a significant concern, the project's contribution is adequately mitigated and does not worsen the existing cumulative condition. Therefore, the project's contribution to cumulative biological resources impacts would not be cumulatively considerable.

Cumulative Archaeological, Historical, and Tribal Cultural Resources Impacts

The Bella Vita project, in combination with other planned and ongoing developments in the region, could contribute to cumulative impacts on archaeological, historical, and tribal cultural resources. However, these impacts are generally localized and site-specific. As a result, the project's contribution to any cumulative impact would not be cumulatively considerable.

The geographic scope for this cumulative impact analysis includes the broader region, where cultural and tribal resources may have historical significance. Development in Fresno and surrounding areas has the potential to disturb or damage undiscovered cultural resources. However, as described in Section V, "Cultural Resources," of this Initial Study, there are no known significant archaeological, historical, or tribal cultural resources within the project site.

Potential impacts to unknown resources during construction, such as buried archaeological artifacts or human remains, would be mitigated through the implementation of mitigation measures. These measures include halting construction if resources are discovered, consulting with qualified cultural resource specialists, and, if applicable, coordinating with local Native American tribes. These protocols ensure that any potential impacts to cultural resources are addressed and minimized.

Because impacts to cultural resources at individual sites are typically independent and do not combine to create a greater regional effect, the project would not contribute to a significant cumulative impact. Moreover, regulatory requirements and mitigation measures ensure that any impacts are reduced to a less than significant level. Therefore, cumulative impacts would be less than significant.

Cumulative Energy Impacts

Cumulative development in the region would result in increased energy demand from construction activities, vehicle trips, and the use of electricity and natural gas. However, the project's contribution to this cumulative energy demand would not be cumulatively considerable. Cumulative impacts would be less than significant.

The geographic scope for analyzing cumulative energy impacts is regional, encompassing the broader management and supply of energy resources. Construction of the project would temporarily increase energy use, primarily through fuel consumption. However, construction practices are designed to optimize efficiency and minimize costs, preventing wasteful energy use. During operation, the project's energy consumption would comply with the California Energy Code, which enhances energy efficiency and supports California's transition toward zero-net energy development.
The project incorporates energy-efficient measures, including advanced insulation, high-efficiency appliances, and smart building designs. Over time, as energy providers increase the share of renewable sources in their supply, the project's impact will decrease further. Additionally, state initiatives, such as the Advanced Clean Cars and Clean Trucks programs, will progressively reduce vehicle emissions and fuel use. As a result, the project would not lead to inefficient or wasteful energy consumption and

would remain consistent with regional energy plans and policies. Cumulative energy impacts would be less than significant.

Cumulative Geology and Soils Impacts

Due to their site-specific nature, impacts related to geology and soils are typically assessed on a project-by-project basis for a particular localized area. Similar to the Bella Vita project, related projects in the region would address site-specific geologic hazards through implementation of project-specific geotechnical recommendations and compliance with local, state, and federal regulations and standards for seismic safety, including the California Building Code. These measures ensure that potential risks from seismic activity, liquefaction, expansive soils, or erosion are mitigated to less than significant levels.

The Bella Vita project would implement site-specific geotechnical recommendations and adhere to applicable regulations, ensuring impacts to geology and soils would be less than significant. Therefore, the project would not make a cumulatively considerable contribution to any potential cumulative impacts. Cumulative impacts to geology and soils would be less than significant.

With regard to paleontological resources, the project would comply with existing regulatory requirements, including mitigation measures requiring work to stop if resources are discovered and evaluation by a qualified paleontologist. Related projects would similarly be required to adhere to existing regulations. Consequently, the Bella Vita Project would not make a cumulatively considerable contribution to potential cumulative impacts on paleontological resources, and cumulative impacts would be less than significant.

Cumulative Greenhouse Gas Emissions and Climate Change Impacts

There is a potentially significant cumulative impact related to GHG emissions and global climate change. However, the project's contribution to this cumulative impact would not be cumulatively considerable.

The geographic scope for cumulative GHG emissions and climate change impacts is global, as climate change is a widespread issue influenced by the accumulation of GHGs from past, present, and future projects worldwide. GHGs such as carbon dioxide and methane have long atmospheric lifetimes, contributing to global warming and climate disruptions. The cumulative effect of climate change arises from the aggregate of emissions across sectors and regions.

The project would generate GHG emissions from construction, energy use, and vehicular traffic. However, the project incorporates numerous reduction measures, such as energy-efficient building materials, compliance with California's stringent building energy efficiency standards (CALGreen), and design features that promote non-vehicular transportation. Additionally, the project will remain under the SMAQMD and Efficiency-Based thresholds. The project's incremental contribution to climate change would not be cumulatively significant. Therefore, cumulative GHG impacts would be less than significant.

Cumulative Hazards and Hazardous Materials Impacts

Cumulative development within the City of Fresno would involve the use, storage, and transport of hazardous materials. However, the project's contribution to these hazards would not be cumulatively considerable. Cumulative impacts would be less than significant.

The geographic scope of the cumulative impact analysis for hazards and hazardous materials includes the City of Fresno and surrounding areas, as the potential for hazardous material incidents is generally site-specific. Construction and operational activities would involve the routine use of small quantities of hazardous materials, such as fuels, lubricants, and cleaning agents. These materials would be managed and disposed of following all local, state, and federal regulations, including those enforced by agencies like the DTSC, the EPA, and the OSHA. Compliance with these standards, along with City of Fresno General Plan Policies NS-4-a, NS-4-e, and NS-4-f, would ensure the proper handling of hazardous materials.

The project site is not listed on hazardous materials databases compiled under Government Code Section 65962.5, and there are no significant contamination issues identified. Additionally, the project is not within a very high fire hazard severity zone and would not interfere with emergency response plans. Although River Bluff Elementary School is located within 0.1 miles of the project site, the use of hazardous materials would be limited and managed to prevent any risk to the school or surrounding area. As such, the project would not result in a considerable contribution to cumulative hazards or hazardous material impacts. Cumulative impacts would be less than significant.

Cumulative Hydrology and Water Quality Impacts

There is a significant cumulative impact related to hydrology and water quality within the City of Fresno and the surrounding areas. However, the project's contribution to this impact would not be cumulatively considerable.

The geographic scope of the cumulative impact analysis for hydrology and water quality encompasses the watershed areas affected by urban development, including impacts on surface and groundwater quality, groundwater recharge, and flood management. Construction activities associated with the project would involve soil disturbance, potentially leading to sediment runoff and water quality impacts. However, the project would implement a SWPPP with BMPs, as required by the NPDES permit. These measures would effectively control erosion, manage sediment transport, and prevent pollutants from entering waterways.

During operation, the project would add impervious surfaces, potentially altering local drainage patterns and increasing surface runoff. However, the project design incorporates features to manage stormwater in accordance with the FMFCD Storm

Drainage and Flood Control Master Plan. Additionally, the project would comply with local and regional water quality control measures and sustainable groundwater management plans, including the North Kings Groundwater Sustainability Plan. These measures ensure that stormwater is properly treated and that the project does not substantially impact groundwater recharge or violate water quality standards. As a result, the project's impact on cumulative hydrology and water quality would be less than significant.

Cumulative Land Use and Planning Impacts

The project would not result in a considerable contribution to significant cumulative land use and planning impacts.

The geographic scope of the cumulative impact analysis for land use and planning includes the City of Fresno and adjacent areas affected by similar growth and development trends. The project is consistent with the City's General Plan, which anticipates urban development in the area. The General Plan designates the site for Urban Neighborhood and Office uses, and the project's residential and commercial components align with these designations without necessitating changes in land use or zoning.

The project does not physically divide an established community. The development of multifamily residential and commercial uses on currently vacant land complements the surrounding urban fabric, which includes residential neighborhoods and community facilities. By incorporating access and connectivity measures, the project enhances the local circulation network and promotes integration with the existing urban environment. Furthermore, the project adheres to relevant policies and regulations intended to avoid or mitigate environmental effects, ensuring compatibility with regional land use plans. Therefore, cumulative impacts related to land use and planning are considered less than significant.

Cumulative Mineral Resources Impacts

Development of the project in combination with related projects would not result in the loss of availability of mineral resources. The project and the surrounding area are highly urbanized area. The project would not involve mineral extraction activities, nor are any such activities presently occurring on the project site. As such, project impacts would not occur to mineral resources. Therefore, the Project would not make a cumulatively considerable contribution to any potential cumulative impacts, and no cumulative impacts to mineral resources would occur.

Cumulative Noise and Vibration Impacts

The project would contribute to cumulative noise and vibration impacts through construction activities and increased traffic from operational uses. However, these contributions would not be cumulatively considerable.

The geographic scope for analyzing cumulative noise impacts is the surrounding area where the project and other developments could influence ambient noise levels. Construction activities would produce temporary noise from equipment like excavators and trucks, with noise levels reaching up to 90 dBA at 50 feet. This could temporarily affect nearby sensitive receptors, such as residences and River Bluff Elementary School. However, construction noise would occur during permissible hours as outlined in the Fresno Municipal Code (7:00 a.m. to 10:00 p.m. on all days except Sundays), and the project would implement measures like sound barriers to minimize impacts. Therefore, cumulative construction noise would not be considerable.

Operationally, the project's main noise sources would include increased traffic, HVAC units, and commercial activities. Traffic noise from new vehicle trips would not cause a doubling of existing traffic volumes and thus would not result in a perceptible increase in ambient noise levels. Commercial noise, including from drive-through facilities and parking lot activities, would be managed through compliance with City noise standards and design features. Vibration from construction activities would be limited and would not exceed thresholds known to cause structural damage. Therefore, with adherence to regulations and mitigation measures, the project would not have a significant cumulative impact on noise or vibration. Cumulative impacts would be less than significant.

Cumulative Population and Housing Impacts

The Bella Vita project proposes the development of a mixed-use community consisting of 396 multi-family residential units and 22,666 square feet of commercial space. This development aligns with the City of Fresno’s General Plan designations for Urban Neighborhood and Office zoning districts. The project would result in direct population growth as new residential units are introduced, but this growth has been planned for under the City’s General Plan and is consistent with existing zoning. Therefore, the project would not induce unplanned population growth and would not generate impacts beyond what has been anticipated in regional and local planning efforts. As a result, cumulative impacts on population growth are considered less than significant.

The site is currently vacant and does not contain any existing residences. The project would not result in the displacement of existing housing or residents, nor would it necessitate the construction of replacement housing elsewhere. Furthermore, as the project does not contribute to unplanned population increases or housing displacement, its cumulative impact on population and housing is considered less than significant.

Cumulative Public Services and Recreation Impacts

The project would increase demand for public services, including fire protection, police services, schools, parks, and other public facilities. However, the project’s contribution to cumulative demand would not be cumulatively considerable. Cumulative impacts would be less than significant.

The project site is within the service areas of the FFD and FPD. The closest fire station, Fire Station 14, is approximately 0.66 miles away, ensuring adequate emergency response. The project would be required to pay Fire Facilities Fees and Development Impact Fees to support fire service infrastructure, preventing the need for new or expanded fire facilities. The FPD would also provide adequate coverage without needing additional facilities, and the project would contribute Police Impact Fees to mitigate any incremental impact.

The project is within the Central Unified School District, and based on student generation rates, it is expected to add around 139 students. The district has adequate capacity to accommodate this increase, and school fees paid by the developer will mitigate any impact. Additionally, nearby parks, such as Collegian Park and Riverside Golf Course, will support recreational needs. The project includes on-site recreational amenities like a pool, playground, and sports courts, and park facilities fees will further address off-site recreational demands. Therefore, the project's incremental effect on public services and recreational facilities would be less than significant.

Cumulative Transportation and Circulation Impacts

The Bella Vita project, consisting of 396 residential units and 22,666 square feet of commercial space, would contribute to cumulative transportation impacts. The TIA for this project evaluated potential effects on local roadways and intersections under multiple scenarios, including existing, near-term, and long-term cumulative conditions through 2046. The project is expected to generate 6,777 daily trips, with 423 trips during the AM peak hour and 483 during the PM peak hour. All studied intersections would continue to operate at an acceptable LOS, even under cumulative conditions, and no intersections require traffic signalization based on the warrant analysis.

The project incorporates several design measures to support active transportation and improve safety, such as constructing Class I bikeways along Hayes Avenue and Veterans Boulevard and adding a high-visibility crosswalk at Hayes Avenue and Palo Alto Avenue. The Fresno Area Express (FAX) transit routes 3 and 20, operating near the project site, provide connections to commercial and institutional centers, supporting the project's integration with public transit. Additionally, the project aligns with the Fresno Active Transportation Plan by enhancing pedestrian and bicycle infrastructure, thereby promoting a more connected and efficient transportation network. Overall, the project's contributions, combined with recommended improvements, ensure no significant cumulative impact on transportation and circulation.

Cumulative Utilities Impacts

The project, along with other development in the City of Fresno, would increase demand for utilities, including water, wastewater, electricity, natural gas, and solid waste services. However, the project's contribution to this cumulative demand would not be cumulatively considerable.

The geographic scope for cumulative utilities impacts covers the service areas of the utilities serving the project site. The City of Fresno Department of Public Utilities would provide water and wastewater services, while PG&E would supply electricity and natural gas. Solid waste collection and disposal would be managed by the City's Solid Waste Division. The project site is located within a developed urban area with established infrastructure, and utility providers have indicated adequate capacity to accommodate the project.

The project would incorporate water conservation measures consistent with the City's Urban Water Management Plan, ensuring efficient water use. Wastewater generated would be treated at the Fresno/Clovis Regional Wastewater Reclamation Facility, which has capacity for the additional flows. Additionally, the project would comply with California Title 24 energy efficiency standards and implement solid waste reduction and recycling measures. As a result, the project's incremental increase in utility demand would not necessitate the construction of new or expanded facilities that could result in significant environmental effects. Therefore, cumulative utilities impacts would be less than significant.

Cumulative Wildfire Impacts

The Bella Vita project site and related projects are located in urbanized areas within the City of Fresno, away from designated Very High Fire Hazard Severity Zones or wildlands. As such, the project site does not include fire-prone terrain, vegetation, or other conditions that would exacerbate wildfire risks. Consequently, there is no potential for the project or related projects to expose occupants to pollutant concentrations from a wildfire or substantially increase wildfire hazards.

During construction, standard construction management practices, including maintaining access routes for emergency vehicles, would ensure adequate emergency access and circulation in the vicinity of the project site. Operations of the project would comply with local emergency access requirements, including adherence to the Fresno Fire Department's guidelines, ensuring the project would not impede emergency response plans in the event of a wildfire.

Given these factors, the project would not make a cumulatively considerable contribution to any potential wildfire impacts. Therefore, cumulative wildfire impacts associated with the project would be less than significant.

Therefore, the Project would not make a cumulatively considerable contribution to any potential cumulative impacts, and impacts would be less than significant.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project's potential to result in environmental effects that could directly or indirectly impacts human beings have been evaluated in this Initial Study. With implementation of the recommended mitigation measures, all environmental effects that could adversely affect human beings would be less than significant.

Development Permit Application No. P23-03993 & Planned Development Permit Application No. P23-03982 (Bella Vita Multifamily Development) MITIGATION MONITORING AND REPORTING PROGRAM

As required by Public Resources Code Section 21081.6, subd. (a)(1), a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Bella Vita Multifamily Development Project to monitor the implementation of the mitigation measures that have been adopted for the Project. This MMRP has been created based upon the findings of the Initial Study/Mitigated Negative Declaration.

The first column of the table identifies the mitigation measure. The second column names the party responsible for carrying out the required action. The third column identifies the timing of initiating the mitigation measure. The fourth column names the party ensuring that the mitigation measure is implemented. The last column will be used by the City of Fresno to ensure that the individual mitigation measures have been monitored.

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
Mitigation Measure AES-1: Lighting for Street and Parking Areas. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the project's lighting systems for the project's street and parking areas include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure AES-2: Lighting for Public Facilities. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the project's lighting systems for public facilities such as active play areas provide adequate illumination for the activity while also utilizing low intensity light fixtures and shields to minimize spillover light onto adjacent properties.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure AES-3: Lighting for Non-Residential Uses. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the lighting systems for non-residential uses, not including public facilities, provides shields on the light fixtures and are oriented away from adjacent properties. Low intensity light fixtures may also be used if excessive spillover light onto adjacent properties would otherwise occur.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure AES-4: Signage Lighting. Prior to the issuance of the certificate of occupancy, the project applicant shall demonstrate to the satisfaction of the City Inspector that the lighting systems for freestanding signs do not exceed 100-foot Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and do not exceed 500 FT-L when adjacent to streets which have an average light intensity of 2.0 horizontal footcandles or greater.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure AES-5: Use of Non-Reflective Materials. Prior to the issuance of the building permits, the project applicant shall demonstrate to the satisfaction of the City Plan Inspector that the materials used on building facades shall be non-reflective.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure BIO-1: Protect nesting Swainson's hawks. 1. To the extent practicable, construction shall be scheduled to avoid the Swainson's hawk nesting season, which extends from March through August. 2. If it is not possible to schedule construction between September and February, a qualified biologist shall conduct surveys for *Swainson's hawk in accordance with the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting*	Project Applicant	Pre-Construction	City of Fresno	

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
Surveys in California's Central Valley. These methods require six surveys, three in each of the two survey periods, prior to initiation of the project. Surveys shall be conducted within a minimum 0.5-mile radius around the project site. 3. If an active Swainson's hawk nest is found within 0.5 miles of the project site, and the qualified biologist determines that the project would disrupt the nesting birds, a construction-free buffer or limited operating period shall be implemented in consultation with the CDFW.				
Mitigation Measure BIO-2. Protect nesting birds. 1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August. 2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests would be disturbed during the implementation of the project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.	Project Applicant	Pre-Construction	City of Fresno	
Mitigation Measure CULTURAL-1: If previously unknown resources are encountered before or during grading activities for the project, construction shall stop in the immediate vicinity of the find and a qualified historical resources specialist shall be consulted to determine whether the resource requires further study. The qualified historical resources specialist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines and the City's Historic Preservation Ordinance. If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.	Project Applicant	Ongoing During Construction	City of Fresno	
Mitigation Measure CULTURAL-2: In the event that buried prehistoric archaeological resources are discovered during excavation and/or construction activities for the project, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and recommended to the City. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the City approves the measures to protect these resources. Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided to a City-approved	Project Applicant	Ongoing During Construction	City of Fresno	

Mitigation Measure	Responsible Party for Implementation	Implementation Timing	Responsible Party for Monitoring	Verification
institution or person who is capable of providing long-term preservation to allow future scientific study.				
Mitigation Measure CULTURAL-3: In the event that human remains are unearthed during excavation and grading activities for the project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a). If the remains are determined to be of Native American descent, the coroner shall within 24 hours notify the Native American Heritage Commission (NAHC). The NAHC shall then contact the most likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment.	Project Applicant	Ongoing During Construction	City of Fresno	
Mitigation Measure GEO-1: During the project's excavation or construction activities within previously undisturbed soils, the following procedures shall be followed to address the inadvertent discovery of unique paleontological or geological resources: • If unique paleontological/geological resources are discovered during excavation or construction, all work shall cease in the immediate vicinity of the find. A qualified paleontologist shall be consulted to evaluate the significance of the resource and recommend appropriate measures to protect it. Recommendations may include, but are not limited to, excavation, documentation, and preservation of the resource. • The qualified paleontologist shall provide recommendations to the City on measures to protect the discovered resources, including potential excavation and evaluation of the find. If the resources are deemed significant, appropriate mitigation measures shall be developed and implemented, which may include avoidance, capping, incorporation of the site into green space, parks, or open space, or data recovery excavations. • No further grading shall occur in the area of the discovery until the City has approved the measures to protect these resources. Any paleontological or geological resources recovered as a result of mitigation shall be curated at a City-approved institution or by a person capable of providing long-term preservation for future scientific study. • If additional paleontological or geological resources are encountered during subsequent excavation or construction activities, the same protocol for inadvertent discoveries shall be followed, ensuring that any significant finds are appropriately managed and preserved.	Project Applicant	Ongoing During Construction	City of Fresno	
Mitigation Measures NOI-1: The project developer shall install mechanical ventilation and air conditioning systems in all apartment units within the project. These systems must be capable of maintaining comfortable indoor temperatures with all windows and doors closed.	Project Applicant	Pre-Construction	City of Fresno	

<u>Plan Amendment-Rezone Application No. P20-00213, Development Permit Application No. P22-03749, and Planned Development Permit Application No. P23-03173</u>

Appendix A

CalEEMod Output Sheets

North Fresno Residential Project - Proposed Project Custom Report

Table of Contents

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	North Fresno Residential Project - Proposed Project
Construction Start Date	1/1/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	21.2
Location	36.882635276107706, -119.73917921972142
County	Fresno
City	Fresno
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2434
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments Low Rise	48.0	Dwelling Unit	3.00	50,880	16,806	—	154	—
Parking Lot	81.0	Space	0.60	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.78	19.1	15.8	0.02	0.69	0.21	0.89	0.64	0.05	0.69	—	2,680	2,680	0.11	0.04	1.03	2,696
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	18.2	39.9	28.9	0.05	1.12	7.76	8.88	1.02	3.96	4.98	—	5,392	5,392	0.22	0.05	0.03	5,412
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.82	13.6	11.0	0.02	0.49	0.30	0.79	0.46	0.12	0.57	—	1,891	1,891	0.08	0.03	0.30	1,901
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	2.49	2.01	< 0.005	0.09	0.06	0.14	0.08	0.02	0.10	—	313	313	0.01	< 0.005	0.05	315

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.78	19.1	15.8	0.02	0.69	0.21	0.89	0.64	0.05	0.69	—	2,680	2,680	0.11	0.04	1.03	2,696
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	18.2	39.9	28.9	0.05	1.12	7.76	8.88	1.02	3.96	4.98	—	5,392	5,392	0.22	0.05	0.03	5,412
2025	18.2	1.11	1.17	< 0.005	0.07	0.04	0.10	0.06	0.01	0.07	—	171	171	0.01	< 0.005	< 0.005	172
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.58	13.6	11.0	0.02	0.49	0.30	0.79	0.46	0.12	0.57	—	1,891	1,891	0.08	0.03	0.30	1,901
2025	0.82	0.05	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.74	7.74	< 0.005	< 0.005	< 0.005	7.79
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.11	2.49	2.01	< 0.005	0.09	0.06	0.14	0.08	0.02	0.10	—	313	313	0.01	< 0.005	0.05	315
2025	0.15	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.28	1.28	< 0.005	< 0.005	< 0.005	1.29

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.90	1.83	21.2	0.06	1.62	1.22	2.84	1.56	0.31	1.87	284	2,668	2,952	3.67	0.10	6.13	3,079
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.50	1.93	17.9	0.05	1.62	1.22	2.84	1.56	0.31	1.87	284	2,531	2,815	3.68	0.10	0.51	2,939

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.70	1.44	10.5	0.03	0.39	1.22	1.62	0.38	0.31	0.69	81.5	2,180	2,261	2.72	0.10	2.86	2,362
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.49	0.26	1.92	< 0.005	0.07	0.22	0.29	0.07	0.06	0.13	13.5	361	374	0.45	0.02	0.47	391

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.24	0.89	7.37	0.02	0.01	1.22	1.23	0.01	0.31	0.32	—	1,581	1,581	0.08	0.08	5.77	1,614
Area	2.64	0.60	13.7	0.04	1.58	—	1.58	1.52	—	1.52	261	513	773	1.23	< 0.005	—	805
Energy	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	570	570	0.06	< 0.005	—	573
Water	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Waste	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Total	3.90	1.83	21.2	0.06	1.62	1.22	2.84	1.56	0.31	1.87	284	2,668	2,952	3.67	0.10	6.13	3,079
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.09	1.02	6.72	0.01	0.01	1.22	1.23	0.01	0.31	0.32	—	1,451	1,451	0.09	0.09	0.15	1,481
Area	2.40	0.57	11.0	0.04	1.58	—	1.58	1.52	—	1.52	261	505	766	1.23	< 0.005	—	797
Energy	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	570	570	0.06	< 0.005	—	573
Water	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Waste	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36

Total	3.50	1.93	17.9	0.05	1.62	1.22	2.84	1.56	0.31	1.87	284	2,531	2,815	3.68	0.10	0.51	2,939
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.11	0.96	6.56	0.01	0.01	1.22	1.23	0.01	0.31	0.32	—	1,488	1,488	0.09	0.09	2.49	1,518
Area	1.57	0.14	3.81	0.01	0.36	—	0.36	0.34	—	0.34	58.6	117	176	0.28	< 0.005	—	183
Energy	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	570	570	0.06	< 0.005	—	573
Water	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Waste	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Total	2.70	1.44	10.5	0.03	0.39	1.22	1.62	0.38	0.31	0.69	81.5	2,180	2,261	2.72	0.10	2.86	2,362
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.20	0.18	1.20	< 0.005	< 0.005	0.22	0.23	< 0.005	0.06	0.06	—	246	246	0.01	0.01	0.41	251
Area	0.29	0.03	0.70	< 0.005	0.06	—	0.06	0.06	—	0.06	9.70	19.4	29.1	0.05	< 0.005	—	30.2
Energy	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	94.4	94.4	0.01	< 0.005	—	94.8
Water	—	—	—	—	—	—	—	—	—	—	0.61	0.77	1.38	0.06	< 0.005	—	3.41
Waste	—	—	—	—	—	—	—	—	—	—	3.18	0.00	3.18	0.32	0.00	—	11.1
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06
Total	0.49	0.26	1.92	< 0.005	0.07	0.22	0.29	0.07	0.06	0.13	13.5	361	374	0.45	0.02	0.47	391

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	39.9	28.3	0.05	1.12	—	1.12	1.02	—	1.02	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.55	0.39	< 0.005	0.02	—	0.02	0.01	—	0.01	—	72.5	72.5	< 0.005	< 0.005	—	72.8
Dust From Material Movement	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.10	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.1
Dust From Material Movement	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.57	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.2	96.2	< 0.005	< 0.005	0.01	97.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.36	1.36	< 0.005	< 0.005	< 0.005	1.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.23	0.23	< 0.005	< 0.005	< 0.005	0.23
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	23.2	17.8	0.03	0.75	—	0.75	0.69	—	0.69	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.51	0.39	< 0.005	0.02	—	0.02	0.02	—	0.02	—	64.8	64.8	< 0.005	< 0.005	—	65.1
Dust From Material Movement	—	—	—	—	—	0.06	0.06	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.09	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.7	10.7	< 0.005	< 0.005	—	10.8
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.49	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.4	82.4	< 0.005	< 0.005	0.01	83.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.39	11.9	9.01	0.01	0.43	—	0.43	0.40	—	0.40	—	1,511	1,511	0.06	0.01	—	1,516
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	2.17	1.64	< 0.005	0.08	—	0.08	0.07	—	0.07	—	250	250	0.01	< 0.005	—	251
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.09	1.40	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	214	214	0.01	0.01	0.86	218
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.7	68.7	< 0.005	0.01	0.18	71.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.11	1.14	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	190	190	0.01	0.01	0.02	193
Vendor	< 0.005	0.12	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	68.9	68.9	< 0.005	0.01	< 0.005	71.9
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.06	0.73	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	124	124	0.01	0.01	0.23	126
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.3	43.3	< 0.005	0.01	0.05	45.3
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.13	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	20.5	20.5	< 0.005	< 0.005	0.04	20.9
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.18	7.18	< 0.005	< 0.005	0.01	7.50
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42	11.2	8.87	0.01	0.48	—	0.48	0.45	—	0.45	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.55	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	66.6	66.6	< 0.005	< 0.005	—	66.8
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.10	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.0	11.0	< 0.005	< 0.005	—	11.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.06	0.66	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	110	110	0.01	0.01	0.01	112
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.61	5.61	< 0.005	< 0.005	0.01	5.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.93	0.93	< 0.005	< 0.005	< 0.005	0.95
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	18.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.26	0.26	< 0.005	< 0.005	—	0.26
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.04	0.04	< 0.005	< 0.005	—	0.04
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	38.0	38.0	< 0.005	< 0.005	< 0.005	38.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.08	0.08	< 0.005	< 0.005	< 0.005	0.08
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	18.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.01	6.01	< 0.005	< 0.005	—	6.03
Architectural Coatings	0.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.99	0.99	< 0.005	< 0.005	—	1.00
Architectural Coatings	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.21	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.2	37.2	< 0.005	< 0.005	< 0.005	37.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.73	1.73	< 0.005	< 0.005	< 0.005	1.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.29	0.29	< 0.005	< 0.005	< 0.005	0.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.24	0.89	7.37	0.02	0.01	1.22	1.23	0.01	0.31	0.32	—	1,581	1,581	0.08	0.08	5.77	1,614
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.24	0.89	7.37	0.02	0.01	1.22	1.23	0.01	0.31	0.32	—	1,581	1,581	0.08	0.08	5.77	1,614
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	1.09	1.02	6.72	0.01	0.01	1.22	1.23	0.01	0.31	0.32	—	1,451	1,451	0.09	0.09	0.15	1,481
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.09	1.02	6.72	0.01	0.01	1.22	1.23	0.01	0.31	0.32	—	1,451	1,451	0.09	0.09	0.15	1,481
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.20	0.18	1.20	< 0.005	< 0.005	0.22	0.23	< 0.005	0.06	0.06	—	246	246	0.01	0.01	0.41	251
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.20	0.18	1.20	< 0.005	< 0.005	0.22	0.23	< 0.005	0.06	0.06	—	246	246	0.01	0.01	0.41	251

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	133
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	145	145	0.02	< 0.005	—	146
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	132	132	0.02	< 0.005	—	133
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	12.8	12.8	< 0.005	< 0.005	—	12.9
Total	—	—	—	—	—	—	—	—	—	—	—	145	145	0.02	< 0.005	—	146
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	21.8	21.8	< 0.005	< 0.005	—	22.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	2.12	2.12	< 0.005	< 0.005	—	2.14
Total	—	—	—	—	—	—	—	—	—	—	—	23.9	23.9	< 0.005	< 0.005	—	24.2

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	425	425	0.04	< 0.005	—	427
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	425	425	0.04	< 0.005	—	427
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	425	425	0.04	< 0.005	—	427
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.02	0.34	0.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	425	425	0.04	< 0.005	—	427
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.4	70.4	0.01	< 0.005	—	70.6
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.06	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.4	70.4	0.01	< 0.005	—	70.6

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	1.22	0.57	11.0	0.04	1.58	—	1.58	1.52	—	1.52	261	505	766	1.23	< 0.005	—	797
Consumer Products	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.24	0.03	2.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.28	7.28	< 0.005	< 0.005	—	7.31
Total	2.64	0.60	13.7	0.04	1.58	—	1.58	1.52	—	1.52	261	513	773	1.23	< 0.005	—	805
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	1.22	0.57	11.0	0.04	1.58	—	1.58	1.52	—	1.52	261	505	766	1.23	< 0.005	—	797
Consumer Products	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.40	0.57	11.0	0.04	1.58	—	1.58	1.52	—	1.52	261	505	766	1.23	< 0.005	—	797
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.05	0.02	0.45	< 0.005	0.06	—	0.06	0.06	—	0.06	9.70	18.8	28.5	0.05	< 0.005	—	29.7
Consumer Products	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.02	< 0.005	0.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.59	0.59	< 0.005	< 0.005	—	0.60
Total	0.29	0.03	0.70	< 0.005	0.06	—	0.06	0.06	—	0.06	9.70	19.4	29.1	0.05	< 0.005	—	30.2

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.71	4.64	8.35	0.38	0.01	—	20.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	0.61	0.77	1.38	0.06	< 0.005	—	3.41
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	0.61	0.77	1.38	0.06	< 0.005	—	3.41

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	19.2	0.00	19.2	1.92	0.00	—	67.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	3.18	0.00	3.18	0.32	0.00	—	11.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.18	0.00	3.18	0.32	0.00	—	11.1

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.36	0.36
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Low Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06	0.06

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	1/1/2024	1/5/2024	5.00	5.00	—
Grading	Grading	1/8/2024	1/17/2024	5.00	8.00	—
Building Construction	Building Construction	1/18/2024	12/4/2024	5.00	230	—

Paving	Paving	12/5/2024	12/30/2024	5.00	18.0	—
Architectural Coating	Architectural Coating	12/31/2024	1/23/2025	5.00	18.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Tier 2	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 2	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 2	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 2	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 2	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Tier 2	2.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Tier 2	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 2	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	7.70	LDA,LDT1,LDT2
Site Preparation	Vendor	—	4.00	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	7.70	LDA,LDT1,LDT2
Grading	Vendor	—	4.00	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	34.6	7.70	LDA,LDT1,LDT2
Building Construction	Vendor	5.13	4.00	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	7.70	LDA,LDT1,LDT2
Paving	Vendor	—	4.00	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	6.91	7.70	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	4.00	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%
Sweep paved roads once per month	9%	9%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	103,032	34,344	0.00	0.00	1,568

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	7.50	0.00	—
Grading	—	—	8.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.60

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Low Rise	—	0%
Parking Lot	0.60	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005
2025	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Low Rise	324	324	324	118,260	1,727	1,727	1,727	630,479
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Low Rise	—
Wood Fireplaces	0

Gas Fireplaces	24
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	24
Conventional Wood Stoves	0
Catalytic Wood Stoves	2
Non-Catalytic Wood Stoves	2
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
103032	34,344	0.00	0.00	1,568

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Low Rise	235,915	204	0.0330	0.0040	1,327,175
Parking Lot	22,895	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Low Rise	1,934,208	281,966
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Low Rise	35.6	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Low Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Low Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	The proposed project would develop 48 multi-family residences and would provide 81 parking spaces.
Construction: Construction Phases	Default construction schedule, except removal of the demolition phase as the project site is currently vacant and undeveloped.
Construction: Off-Road Equipment	Assuming the use of Tier 2 construction equipment.
Operations: Vehicle Data	The proposed project is expected to generate approximately 324 average daily vehicle trips.

Plan Amendment-Rezone Application No. P20-00213, Development Permit Application No. P22-03749, and Planned Development Permit Application No. P23-03173

Appendix B

Biological Resources Assessment

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: September 2, 2020

TO: Bahadar Johal, Property Owner and Project Applicant

FROM: Amy Fischer, Principal
Kelly McDonald, Assistant Biologist

SUBJECT: Biological Resources Assessment for the proposed North Fresno Residential Project

The purpose of this Biological Resources Technical Memorandum is to describe and document potential impacts to biological resources—including special-status species—associated with a proposed multi-family residential development project (project) on vacant land (Assessor's Identification Number 578-020-13, 570-020-16, and 587-020-17) in Fresno, Fresno County, California. This technical information is provided for project review under the City of Fresno's environmental review for rezoning, the California Environmental Policy Act (CEQA), and other pertinent environmental regulations. This document provides a biological resources impact analysis that reflects the current environmental setting, project design, and regulatory context.

PROJECT DESCRIPTION

The proposed project would develop 56 multi-family residences, including 16 one bedroom/one bathroom units, 27 two bedroom/two bathroom units, and 12 3 bedroom/3 bathroom units. The proposed project would also include a clubhouse, pool, play lot, and dog park. The proposed project would be designed with pathways and drought tolerant landscaping throughout the site. The proposed project would provide 56 carport parking stalls and 30 open parking stalls, for a total of 86 parking spaces. The project would require a rezone from Office (O) to Residential Multi-Family, Medium High Density (RM-1).

The project site is 3.58 acres; however, for the purposes of this assessment, the study area was 5.51-acres to account for potential indirect impacts that would be disturbed/developed during proposed grading and construction activities.

PROJECT SETTING

The approximately 5.51-acre project site is located northwest of the intersection between North Chestnut Avenue and East Behymer Avenue in Fresno, California (Figure 1; all figures are provided in Attachment A). The site is located in Section 13 of Township 12 South and Range 20 East on the 7.5-minute series United States Geological Survey (USGS) *Friant, California* quadrangle map. Elevations on the project site range from approximately 381 to 387 feet above mean sea level. Primary land uses in the project vicinity include residential developments and schools, along with commercial uses and agriculture. The City of Fresno Surface Water Treatment Plant is located across North Chestnut Avenue, east of the project site. The project site is strictly upland in nature; no natural drainage features or wetlands are located within the project site or in the immediate vicinity.

METHODS

Literature Review and Records Search

LSA Biologist Kelly McDonald conducted a literature review and records search on July 31, 2020, to identify the existence and potential for occurrence of sensitive or special-status plant and animal species[1] in the project vicinity. Federal and State lists of sensitive species were also examined. Current electronic database records reviewed included the following:

- **California Natural Diversity Data Base information (CNDDB – RareFind 5)**, which is administered by the California Department of Fish and Wildlife (CDFW), formerly known as the California Department of Fish and Game. This database covers sensitive plant and animal species, as well as sensitive natural communities that occur in California. Records from nine USGS quadrangles surrounding the project site (*Friant, Millerton Lake East, Millerton Lake West, Lane's Bridge, Academy, Clovis, Little Table Mtn., Round Mountain, and Fresno North*), along with a query of records within a 5-mile radius of the project site, were obtained from this database to inform the field survey.

- **California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants**, which utilizes four specific categories or "lists" of sensitive plant species to assist with the conservation of rare or endangered botanical resources. All of the plants constituting California Rare Plant Ranks (CRPR) 1A, 1B, 2A, and 2B are intended to meet the status definitions of "threatened" or "endangered" in the California Endangered Species Act (CESA) and the California Department of Fish and Game Code, and are considered by CNPS to be eligible for State listing. At the discretion of the CEQA Lead Agency, impacts to these species may be analyzed as such, pursuant to the CEQA Guidelines Sections 15125(c) and 15380. Plants in Rank 3 (limited information; review list), Rank 4 (limited distribution; watch list), or that are considered Locally Unusual and Significant may be analyzed under CEQA if there is sufficient information to assess potential significant impacts. Records from the nine USGS quadrangles surrounding the project site were obtained from this database to inform the field survey.

- **United States Fish and Wildlife Service's (USFWS) Information for Planning and Conservation (IPaC) Online System**, which lists all proposed, candidate, threatened, and endangered species managed by the Endangered Species Program of the USFWS that have the potential to occur on

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[1] For the purposed of this report, the term "special-status species" refers to those species that are listed or proposed for listing under the CESA and/or Federal Endangered Species Act (FESA), California Fully Protected Species, plants with a CRPR of 1, 2, or 3, and California Species of Special Concern. It should be noted that "Species of Special Concern" is an administrative designation made by the CDFW and carries no formal legal protection status. However, Section 15380 of the CEQA Guidelines indicates that these species should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

or near a particular site. This database also lists all designated critical habitats, national wildlife refuges, and migratory birds that could potentially be impacted by activities from a proposed project. An IPaC Trust Resource Report was generated for the project site.

- **eBird:** eBird is a real-time, online checklist program launched in 2002 by the Cornell Lab of Ornithology and National Audubon Society. It provides rich data sources for basic information on bird abundance and distribution at a variety of spatial and temporal scales. eBird occurrence records for burrowing owl (*Athene cunicularia*) from a 5 mile radius around the project site were reviewed in July 2020.

In addition to the databases listed above, historic and current aerial imagery along with previously prepared environmental reports and land use policies related to biological resources were reviewed.

Field Survey

LSA Biologist Kelly McDonald conducted a general biological survey of the project site on August 4, 2020. The entirety of the project site was surveyed on foot, and all biological resources observed were noted. Suitable habitat for any species of interest or concern was duly noted, and general site conditions were photographed (see Attachment B).

RESULTS

Vegetation

The project site mainly consists of ruderal (e.g., disturbed, weedy) annual grassland vegetation and bare ground. Ongoing soil disturbance (e.g., vegetation control, foot traffic, and off-road vehicles) and the resulting competitive exclusion by invasive nonnative plants limit the potential for native flora to occur within most of the project site. Figure 2 in Attachment A shows a map of vegetation and land cover types existing on the project site at the time of the August 2020 site survey. The acreages of each vegetation community and land cover type occurring on the project site are shown in Table A, below.

Table A: Vegetation and Land Cover Types within the Project Site

Vegetation/Land Cover Type	Acreage[1]
Developed (F.I.D. riser)	0.0005
Ruderal	4.03
Disturbed/Bare Ground	1.08
Total Project Site	**5.51**

[1] All presented acreages are approximate and based on geographic information system measurements.

A total of 28 vascular plant species were identified within the project site during the August 2020 field survey. A total of 20 (approximately 70 percent) of these plant species represent nonnative taxa, reflecting a high level of disturbance within the project site. Multiple ornamental tree species border the western perimeter of the project site along the fenced residential properties. A majority of the trees are nonnative such Chinese Tallow (*Triadica sebifera*) and Tasmania blue gum (*Eucalyptus globulus*). One native valley oak (*Quercus lobata*) sapling native was also observed. See

Attachment D for a complete list of plant species identified on the project site. The following describes the vegetation and land cover types occurring within the project site:

- **Ruderal:** Areas classified as ruderal consist of early successional grassland dominated by pioneering herbaceous plants that readily colonize disturbed ground. Ruderal grassland is dominated by many grassland species, including[2] slender wild oat (*Avena barbata*)*, sterile brome (*Bromus sterilis*)*, ripgut grass (*Bromus diandrus*)*, and wild oat (*Avena fatua*)*. Other weedy or pioneering species include: common horseweed (*Erigeron canadensis*), shortpod mustard (*Hirschfeldia incana*)*, telegraph weed (*Heterotheca grandiflora*), and longbeak stork's bill (*Erodium botrys*)*. Annual vegetation growing within the site appears to be regularly maintained.

- **Developed:** Developed sites consist of paved areas, buildings, and other areas that are cleared or graded for anthropogenic purposes. A small portion (approximately 21 square feet) of the project site contains an existing riser pipe, which is mapped as developed.

- **Disturbed/Bare Ground:** The eastern perimeter of the project site and the southern portion of the project site appeared to be disturbed by off-road vehicles (as evinced by tire tracks, ruts, etc.). These disturbed areas lacked vegetation or supported a sparse cover of ruderal vegetation, with annual nonnative grasses being the most frequently encountered plant species.

Wildlife

The ruderal vegetation occurring on the project site is considered low quality habitat for most native wildlife species. A total of five wildlife species were observed on or near the project site during the August 2020 field survey: house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), northern mocking bird (*Mimus polyglottos*), rock pigeon (*Columba livia*),* and California ground squirrel (*Otospermophilus beecheyi*). Each of these species commonly occur in and around developed areas throughout California.

Based on field observations and the location of the project site, which is surrounded by residential uses and roads, there are no indications that the site functions as a wildlife movement corridor or an important stopover point for migratory species.

Special-Status Species

Attachment D contains tables that identify special-status species known to occur or that potentially occur in the vicinity of the project site and includes detailed information about each species' habitat and distribution, activity period, listing/status designations, and probability of occurrence within the project site boundaries. These species were compiled from the CNPS, CNDDB, and IPaC records search from a 5-mile radius around the project site and from LSA's extensive knowledge and experience in the region.

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2 An asterisk denotes nonnative species.

Historic anthropogenic disturbances have greatly altered the natural hydrologic regimes and have either eliminated or greatly impacted the pre-settlement habitats needed to support the special-status plant species identified in the CNDDB and CNPS queries. As such, the specific habitats, soil substrates or "micro-climates" necessary for special-status plant species to occur are absent within the boundaries of the project site. Based on site observations coupled with the habitat suitability analysis, no special-status plant species are expected to occur within the project site.

There are no known occurrences of any special-status animal species in the project site, and none were observed during the August 2020 field survey. Nonetheless, marginally suitable habitat for one regionally occurring special-status species, burrowing owl, is present in the project site. Several small mammal burrows, including active California ground squirrel burrows and others (likely those of California vole [*Microtus californicus*], and/or Botta's pocket gopher [*Thomomys bottae*]), were observed within the project site. None of the mammal burrows observed in the project site exhibited features typical of occupied burrowing owl burrows, although there is some potential for use by this species in the future.

The project site contains suitable foraging habitat for common and special-status birds and raptors; however, due to the lack of perennial shrubs and mature trees in the project site, potential raptor nesting habitat is absent in the project site. Suitable avian nesting habitat in the project site is limited to that which supports ground-nesting species such as horned lark (*Eremophila alpestris*) and other birds that may nest in the annual herbaceous cover. Suitable nesting habitat for a variety of bird species occurs adjacent to the site within the ornamental trees on nearby residential properties. Birds and raptors are protected while nesting under the California Fish and Game Code and the federal Migratory Bird Treaty Act.

The evaluation of special-status species occurrence within the project site was based on a habitat suitability analysis. It did not include exhaustive surveys to determine their presence or absence, but did include direct observation of on-site and off-site conditions and a review of the available recorded occurrence data from the area to conclude whether or not a particular species could be expected to occur. Based on this analysis, it is unlikely that the remaining special-status wildlife species listed in Attachment D occur within the project site. Significant adverse impacts to special-status wildlife species are not anticipated with the implementation of the recommended impact avoidance measures described in further detail below.

Wetlands and Potential Jurisdictional Drainages

There are no records of wetlands or natural drainage features within the project site. However, as shown on historical topographic maps (see Figure 1) and aerial imagery, an open segment of Enterprise Canal No. 109 (controlled by Fresno Irrigation District) historically ran through the western portion of the project site. The open canal was restructured into a pipeline running underneath the length of the project site and surrounding areas prior to June 2009. Since the undergrounding, there are no longer potential jurisdictional drainage features or open channels existing within the project site. No potentially jurisdictional drainage features, wetlands, or riparian areas were observed on the project site.

Regional Habitat Conservation Plans and Local Policies

The project is not located within a regional Natural Community Conservation Plan or Habitat Conservation Plan area. The project would not conflict with any relevant local policies related to biological resources.

IMPACT FINDINGS

Sensitive Vegetation Communities and Critical Habitat

There is no designated or proposed critical habitat for any federally-listed species within the project site. The project would not result in any adverse impacts to critical habitats or sensitive natural communities. No mitigation is required.

Wetlands and Jurisdictional Aquatic Resources

The project would not impact any jurisdictional wetlands, riparian areas, or drainage features. No mitigation is required.

Special-Status Species

No special-status plant species are expected to occur within the project site or to be adversely affected by the proposed project.

While no special-status animal species (or signs of such species) were observed on site during the August 2020 survey, several small mammal burrows were observed within the project site that are considered suitable habitat for burrowing owl, a California Species of Special Concern. None of the small mammal burrows observed in the project site exhibited features typical of burrowing owl burrows at the time of the survey, although there is some potential for use by this species in the future. Potentially significant direct and indirect impacts, including mortality, harassment, or other forms of incidental take, could occur if construction-related ground disturbance occurs in or around an occupied burrow. Implementation of Measure BIO-2 (see below) is recommended to address potential impacts on burrowing owl.

No other special-status species were determined to have a moderate or high probability of occurrence on the project site (refer to Attachment D). The removal of the ruderal habitat documented on the project site is not anticipated to substantially impact the population sizes of any special-status animal species given the context and setting of the project site and additional habitats for such species in the project vicinity.

Nesting Birds

The project site and immediate vicinity contain vegetation that provides suitable nesting habitat for a variety of native and migratory bird species, which are protected while nesting. To ensure compliance with the Federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3500–3516, pre-construction nesting bird surveys are recommended to occur prior to any vegetation clearing or construction activities planned to occur during the nesting bird season

(January 1 through September 30). With successful implementation of the recommended impact avoidance measures (see below), impacts to nesting birds would be avoided.

If unmitigated or not avoided, these potential direct and indirect impacts on special-status wildlife species (burrowing owl) and/or nesting birds could be considered potentially significant. However, implementation of Measures BIO-1 and BIO-2, as summarized below, would effectively avoid, minimize, or mitigate any impacts on special-status species to less-than-significant levels.

Wildlife Movement

The project is surrounded by existing residential developments, roads, and other anthropogenic land uses. The wildlife species that occur in the project vicinity are adapted to the urban-wildland interface. The noise, vibration, light, dust, or human disturbance within construction areas would only temporarily deter wildlife from using areas in the immediate vicinity of construction activities. These indirect effects could temporarily alter migration behaviors, territories, or foraging habitats in select areas. However, because these are temporary effects, it is likely that wildlife already living and moving in close proximity to urban development would alter their normal functions for the duration of the project construction and then re-establish these functions once all temporary construction effects have been removed. The proposed project would not place any permanent barriers within any known wildlife movement corridors or interfere with habitat connectivity. No adverse effects on wildlife movement are anticipated, and no mitigation is required.

RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

The following measures are recommended to be implemented to avoid or minimize impacts on burrowing owl and nesting birds.

BIO-1 **Nesting Bird Surveys and Active Nest Avoidance.** Any vegetation removal should take place outside of the active nesting bird season (i.e., January 1–September 30), when feasible, to avoid impacts to nesting birds protected under the California Fish and Game Code and Migratory Bird Treaty Act. Should vegetation removal take place during this period, a qualified biologist shall conduct a nesting bird survey no more than 5 days prior to clearing activities. If nesting birds are discovered during preconstruction surveys, the biologist shall identify an appropriate buffer where no clearing, grading, or construction activities with potential to have direct or indirect impacts on the nesting bird(s) are allowed to take place until after the nest is no longer active (e.g., the young birds have fledged), or as otherwise determined by the qualified biologist.

BIO-2 **Conduct Preconstruction Surveys for Burrowing Owl.** A preconstruction survey for burrowing owl is required to take place no more than 30 calendar days prior to initiation of any vegetation or ground-disturbing project activities. A qualified biologist will provide the results of the survey to the City of Fresno. If an active burrow of the species is detected on the project site, the applicant must coordinate with CDFW prior to any project activities and specific avoidance, passive relocation, and compensatory mitigation activities shall be performed as required by CDFW.

CONCLUSION

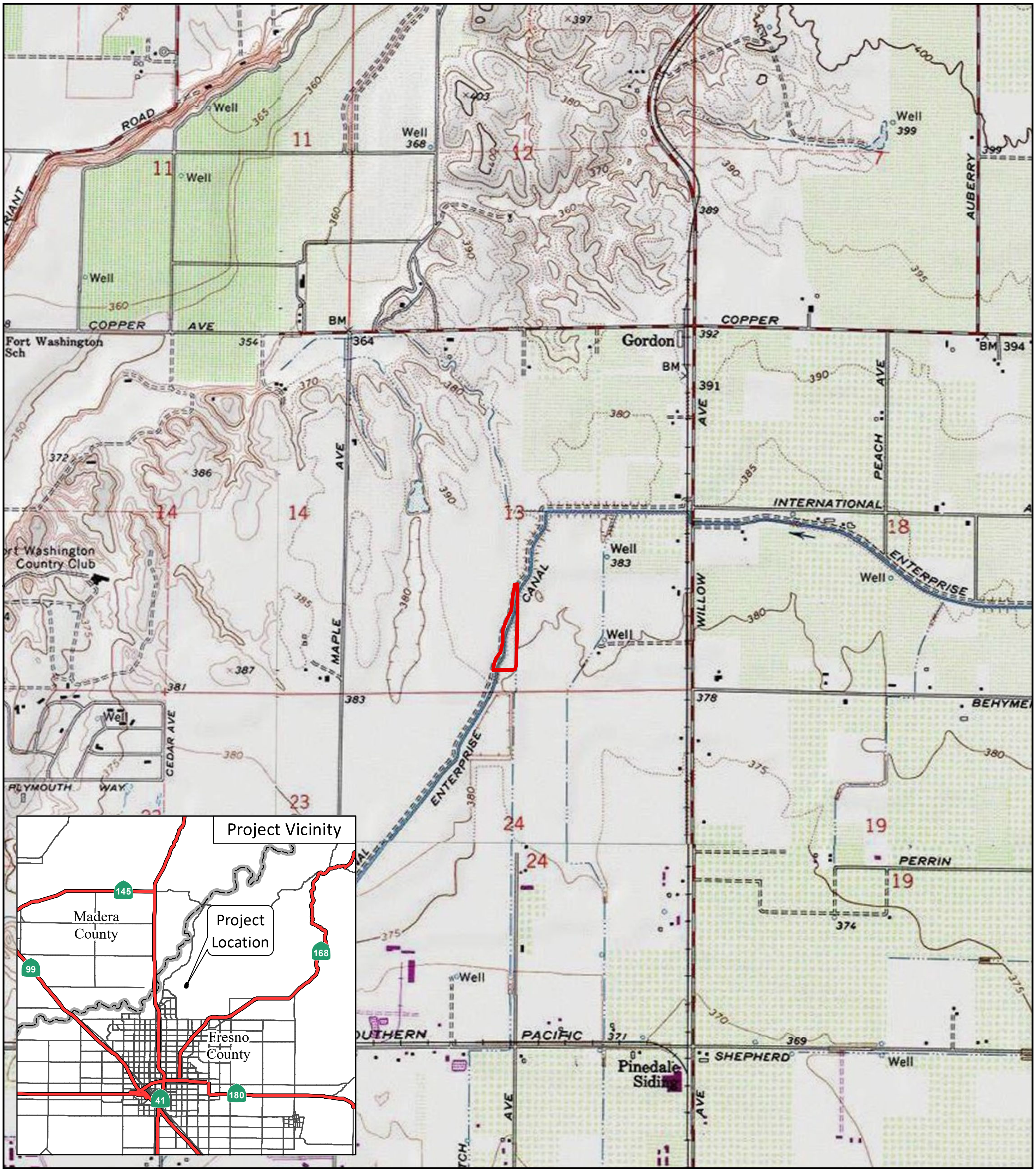
The project site is strictly upland in nature with dominant vegetation consisting of disturbed, ruderal grassland with patches of mixed herbaceous invasive species and bare ground. Based on field observations coupled with the habitat suitability analysis conducted for this assessment, the proposed project has low-to-moderate potential to impact one regionally-occurring special-status wildlife species, but is not anticipated to impact any special-status plant species, natural communities, or other habitats of concern. With implementation of the recommended avoidance, and minimization measures, no significant impacts on biological resources are anticipated.

Attachments: A: Figures
B: Representative Site Photographs
C: Vascular Plant Species Observed
D: Summary of Special-Status Species

LSA

ATTACHMENT A

FIGURES



LSA

LEGEND

Project Location

FIGURE 1

0 1000 2000
FEET

North Fresno Residential Project

Project Location and Vicinity

SOURCE: USGS 7.5' Quad - *Friant, CA (1964)*

I:\BDJ2001\GIS\MXD\ProjectLocation.mxd (8/7/2020)

LSA

LEGEND

Project Location

Vegetation Type

Bare Ground

Developed

Ruderal

0 125 250

FEET

FIGURE 2

North Fresno Residential Project

Vegetation and Land Cover Type

SOURCE: Bing Maps, 2020

I:\BDJ2001\GIS\MXD\VegetationMap.mxd (8/7/2020)

ATTACHMENT B

REPRESENTATIVE SITE PHOTOGRAPHS

View of the property facing north, showing ruderal habitat. August 4, 2020.

View of the property facing south, showing ruderal habitat and tire tracks. August 4, 2020.

Overview of the property facing south, showing bare ground and ruderal habitat. August 4, 2020

Overview of the property facing north showing bare ground and ruderal habitat. August 4, 2020

LSA

ATTACHMENT B

Biological Resources Assessment for North Chestnut Avenue Residential Project

Representative Site Photographs

View of ruderal vegetation and bare ground at the eastern portion of the property, facing east. August 4, 2020.

View of the southern portion of the property, facing southwest. August 4, 2020.

View of California ground squirrel burrows, facing west. August 4, 2020.

ATTACHMENT C

VASCULAR PLANT SPECIES OBSERVED

VASCULAR PLANT SPECIES OBSERVED - 2020

The following vascular plant species were observed in the specified study area by LSA biologist Kelly McDonald on August 4, 2020.

*	introduced species not native to California

GYMNOSPERMS

Fagaceae	**Beech Family**
Quercus lobata	valley oak

EUDICOTS

Amaranthaceae	**Amaranth Family**
** Amaranthus albus*	tumbleweed
Amaranthus blitoides	procumbent pigweed
Asteraceae	**Sunflower Family**
Ambrosia acanthicarpa	annual bursage
Centromadia pungens	common spikeweed
** Lactuca serriola*	prickly lettuce
** Silybum marianum*	milk thistle
Boraginaceae	**Borage Family**
Amsinckia mensiesii	common fiddleneck
Brassicaceae	**Mustard Family**
** Brassica nigra*	Black mustard
** Hirschfeldia incana*	shortpod mustard
** Sisymbrium irio*	London-rocket
Caryophyllaceae	**Pink Family**
* Spergularia sp.	sand spurry
Chenopodiaceae	**Goosefoot Family**
* Salsola tragus	Russian thistle
Euphorbiaceae	**Spurge Family**
Croton setiger	turkey-mullein
** Triadica sebifera*	Chinese tallow

Fabaceae	**Legume Family**
Acmispon americanus var. americanus	American bird's foot trefoil
** Robinia pseudoacacia*	Black locust
Geraniaceae	**Geranium Family**
** Erodium cicutarium*	Redstem stork's bill
Lamiacea	**Mint Family**
Trichostema lanceolatum	Vinegarweed
Myrtaceae	**Myrtle Family**
** Eucalyptus globulus*	Tasmanian bluegum
Polygonaceae	**Buckwheat Family**
** Rumex crispus*	curly dock
Solanacea	**Nightshade Family**
** Datura wrightii*	Jimsonweed
Verbenaceae	**Verbena Family**
** Lantana montevidensis*	trailing lantana
MONOCOTS	
Arecaceae	**Palm tree Family**
** Trachycarpus fortunei*	Chinese windmill palm
Poaceae	**Grass Family**
** Avena barbata*	slender wild oat
** Cynodon dactylon*	Bermuda grass
** Bromus diandrus*	ripgut grass
** Bromus hordeaceus*	soft chess

ATTACHMENT D

SUMMARY OF SPECIAL-STATUS SPECIES

Table D-1: Special-Status Plant Species Potentially Occurring in the Project Vicinity

Common Name	Scientific Name	Status	General Habitat Description	Flowering Period	Likelihood of Occurrence and Rationale
succulent owl's clover	*Castilleja campestris var. succulenta*	US: FT CA: CE CNPS: 1B.2	Annual herb occurring in vernal pools, often acidic between 50 and 750 m in elevation. Fresno, Madera, Merced, Mariposa, San Joaquin, and Stanislaus counties.	April- May	**Not Expected.** There are four known historical records of occurrence in the project vicinity [1] (1981, 2009, 2017), however suitable habitat is absent from the project site.
dwarf downingia	*Downingia pusilla*	US: – CA: – CNPS: 2B.2	Annual herb occurring in valley/foothill grasslands and vernal pools between 1 and 445 m elevation. Found in Central Valley counties.	March-May	**Low probability of occurrence.** There is one known record of occurrence (1979) in the project vicinity and suitable habitat is limited in the project site; the maintained nature of the project site reduces the likelihood of occurrence.
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	US: – CA: – CNPS: 1B.1	Annual herb occurring in vernal pools between 10 and 755 m in elevation. Found in Central Valley counties.	April-September	**Not Expected.** There are three known records of occurrence (1987, 1992, 2017) in the project vicinity and suitable habitat is absent from project site.
hairy Orcutt grass	*Orcuttia pilosa*	US: FE CA: CE CNPS: 1B.1	Annual herb occurring in vernal pools between 46 and 200 m in elevation. Found in Central Valley counties.	May-September	**Not Expected.** There is one known record of occurrence (2010) in the project vicinity and suitable habitat is absent from the project site.
Sanford's arrowhead	*Sagittaria sanfordii*	US: – CA: – CNPS: 1B.2	Perennial rhizomatous herb associated with marshes and swamps between 0 and 650 m in elevation. Found in Central Valley counties.	May-October	**Not Expected.** There are two known records of occurrence (1980, 1986) in the project vicinity and suitable habitat is absent from the project site.

[1] Project vicinity = Project site plus a 5 mile buffer

Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Plant (CSP), California Special Animal (CSA)

California Native Plant Society Designations:
1B = Rare, threatened, or endangered in California and elsewhere
2B = Rare, threatened, or endangered in California, but not elsewhere
0.1 = seriously endangered
0.2 = fairly endangered

CA = California
CNPS = California Native Plant Society
ft = foot/feet
m = meter/meters
mi = mile/miles
US = United States

Table D-2: Special-Status Animal Species Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence and Rationale
			INVERTEBRATES	
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	US: FT CA: –	Requires elderberry trees, usually in riparian ecosystems, as host sources for breeding and forage.	**Not Expected.** There is one known record of occurrence (2006) in the project vicinity, but suitable habitat is absent in the project site.
vernal pool fairy shrimp	*Branchinecta lynchi*	US: FT CA: –	Occurs only in vernal pools or vernal pool-like habitats and does not occur in riverine, marine, or other permanent bodies of water.	**Not expected.** Suitable aquatic habitat is absent from the project site.
Midvalley fairy shrimp	*Branchinecta mesovallensis*	US: – CA: –	Vernal pools in the Central Valley.	**Not Expected.** Suitable aquatic habitat is absent from the project site.
hardhead	*Mylopharodon conocephalus*	US: FE CA: SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	**Not Expected.** Suitable aquatic habitat is absent from the project site.
California linderiella	*Linderiella occidentalis*	US: – CA: –	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.	**Not Expected.** Suitable aquatic habitat is absent from the project site.
			AMPHIBIANS	
California tiger salamander	*Ambystoma californiense*	US: FT CA: CT	Located in riparian woodlands and valley/foothills grasslands. Requires underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**Not expected.** There are 12 known records of occurrence in the project vicinity but suitable habitat is absent in the project site.
Western spadefoot	*Spea hammondii*	US: – CA: SSC	Occurs primarily in grassland and other relatively open habitats. Found in elevations ranging from sea level to 4,500 ft. Requires temporary pools for breeding.	**Not expected.** No suitable pool habitat is present in the project site.
			REPTILES	
Western pond turtle	*Emys marmorata*	US: – CA: SSC	Occurs in ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Upland habitat is needed for basking and breeding.	**Not expected.** There are two known records of occurrence (2004,2016) in the project vicinity. Suitable habitat is absent in the project site
			BIRDS	

Table D-2: Special-Status Animal Species Potentially Occurring or Known to Occur in the Project Vicinity

Common Name	Scientific Name	Status Listing	Habitat and Comments	Likelihood of Occurrence and Rationale
Tricolored blackbird	*Agelalus tricolor*	US: – CA:CT	Occurs in open country or marshes in large colonies mainly in CA Central Valley. Breeds in freshwater marshes with tall emergent vegetation, feeds on insects.	**Not expected.** There are three known records (1974, 1975) of occurrence in the project vicinity. Suitable habitat is absent in the project site.
Burrowing owl	*Athene cunicularia*	US: – CA: SSC	Burrows in open, dry, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**Moderate probability of occurrence.** There is one known record (2000) of occurrence in the project vicinity and marginally suitable habitat is present in the project site. Several California ground squirrel burrows were observed and occupied during the August 2020 survey. No owl sign was observed.
Least bell's vireo	*Vireo bellii pusillus*	US: FE CA: CE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft.	**Not expected.** There is one known records of occurrence (1906) in the project vicinity. Suitable habitat is absent in the project site.

[1]Project vicinity = Project site plus a 5 mile buffer
Status: Federal Endangered (FE), Federal Threatened (FT), Federal Candidate (FC), Federal Proposed (FP, FPE, FPT), Federal Delisted (FD), California Endangered (CE), California Threatened (CT), California Species of Special Concern (SSC), California Fully Protected Species (CFP), California Special Animal (CSA)

CA = California
ft = foot/feet
m = meter/meters
mi = mile/miles
US = United States

<u>Plan Amendment-Rezone Application No. P20-00213, Development Permit Application No. P22-03749, and Planned Development Permit Application No. P23-03173</u>

Appendix C

Cultural Resources Study

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: August 19, 2020

TO: Johal Bahadar, Property Owner and Project Applicant

FROM: Katie Vallaire, RPA 32791044, Senior Cultural Resource Manager, LSA; and Isaac Younglund, Archaeologist, LSA

SUBJECT: North Fresno Residential Project in Fresno County, California; Cultural Resources Review (LSA Project No. BJD2001)

This memorandum documents a cultural resources study completed for the North Fresno Residential Project (Project) located on 5.51 acres comprised of Fresno County Assessor Parcel Numbers 578-020-13, 578-020-16, and 578-020-17, herein referred to as the Project Site (see Attachment A for Project Site maps). The County of Fresno is requiring this study in order for the project to comply with their local regulations and environmental review pursuant to the California Environmental Quality Act (CEQA). This study of the Project Site included (1) a records search at the Southern San Joaquin Valley Information Center (SSJVIC); (2) a Sacred Lands File records search at the Native American Heritage Commission (NAHC); (3) a review of historic-period maps and aerial images; and (4) a pedestrian field survey Project Site. The SSJVIC is the official State repository of cultural resources records and studies in Fresno County, and the NAHC is the official State repository of Native American sacred site location records. In addition, relevant environmental and archaeological literature was reviewed for background information and to assess the potential for subsurface archaeological deposits in the vicinity of the Project Site. The results of these tasks are summarized below.

ENVIRONMENT

Based on historic vegetation data collected by A.W. Kuchler of the Conservation Biology Institute in 1964 (and revised by the Bureau of Land Management in 1979), the native vegetation type in this region was California steppe, a dry, grassy plain environment characterized by various bunch grasses (Data Basin 2019). Native Californians would have used the area for hunting large and small game, and for collecting seeds. Potentially, the Valley Yokuts who lived in this area may have managed the grassland by burning and dispersing seeds in order to maintain and increase crops (Natural Resources Conservation Service [NRCS] 2012). Historic settlement, agricultural activities, and modern development have significantly altered this native environment and have reduced the habitat of natural resources once present.

The Project Site is vacant land that was previously used for agriculture situated within an area containing residential and commercial development that occurred in the 1990s and early 2000s. The Enterprise Canal, constructed originally as an open earthen canal between 1870 and 1880 and used to deliver water from the Kings River to non-irrigated land in northern Fresno, is buried underneath the Project Site along its western edge. This likely occurred around the same time that the Fresno irrigation District dredged, reconstructed portions, and increased the capacity of the canal between 2003 and 2004 (Bureau of Reclamation 2009).

BACKGROUND RESEARCH

Southern San Joaquin Valley Information Center Records Search

On August 3, 2020, LSA requested a records search of the Project Site from the SSJVIC and received results on August 17, 2020. The records search consisted of a review of cultural resource records and studies within the Project Site and a 0.25-mile radius.

The SSJVIC records search resulted in the identification of one previously recorded cultural resource within the Project Site (the Enterprise Canal; P-10-005934) and no cultural resources within 0.25 miles of the Project Site. No reports or previously conducted studies were identified within the Project Site. The Enterprise Canal was previously evaluated as eligible under Criterion A of the National Register of Historic Places by a consensus through the Section 106 process. It is, therefore, considered a historical resource under CEQA.

Native American Heritage Commission Sacred Lands File

On July 30, 2020, LSA submitted a request to the NAHC to review its Sacred Lands File for the proposed project. On August 5, 2020, the NAHC responded with negative results for sacred tribal resources within the Project Site.

Historic Aerial Image Review

LSA reviewed historic-period aerial imagery to determine the previous land use and potential for associated cultural resources on the Project Site, as well as determine when the Enterprise Canal – a cultural resource identified in the Project Site – was buried. Topographic maps depict the Enterprise Canal in its current alignment since at least 1922. Aerial images depict the Project Site as vacant from 1962 to 1972. Between 1972 and 1998, the southern and northern portions of the Project Site were used for agriculture, while the middle portion appears to have a small building and landscaped trees by 1998. By 2002, however, the building is no longer present; and by 2009, the trees are no longer present. Between 2005 and 2009, the Enterprise Canal was buried in the Project Site (National Environmental Title Research 2020).

FIELD SURVEY

On August 7, 2020, LSA Archaeologist Isaac Younglund conducted a pedestrian survey of the Project Site in 5-foot (1.5-meter) interval transects.

The roughly triangular Project Site is bordered on one side by Chestnut Avenue and on the other by raised earthworks covering a canal tunnel. Mr. Younglund identified evidence of considerable earthmoving not only in the covering of the canal, but also throughout the rest of the Project Site. In addition, Mr. Younglund also observed evidence of regular disturbance of the surface due to the use of an unofficial road, 10- and 12-wheeler semi-truck and trailer staging, and fire-prevention soil discing.

The Project Site has been the recipient of illegal dumping for at least the last 15 years (based on Mr. Younglund's observations as a local resident), and this is reflected in the level of surface disturbance. Residential debris consisted of broken roof tiles, concrete fragments, bathroom/kitchen tiles, drywall sections, fence planks, piping, and plaster fragments are scattered across the majority of the Project Site, with a higher concentration along the raised canal way. Vegetation is mostly dead grasses and weeds, which inhibited visibility to about 65 percent. Several instances of half-buried or partially buried concrete slabs and chunks were observed scattered across the Project Site but appear to have been dumped at this location. Ground squirrel burrows dot the Project Site in high concentrations, especially along the slope of the canal way. All were inspected for any sub-surface soil changes that would indicate a potential subsurface archaeological deposit.

The field survey did not identify any cultural resources in the Project Site.

BURIED ARCHAEOLOGICAL SITE POTENTIAL

Assessing the potential for buried archaeological site deposits in the vicinity of the proposed project requires an understanding of landform age and overlying soils. Fundamentally, there is an inverse relationship between landform age and the potential for buried archaeological deposits. Some landforms predate human occupation of the region (e.g., Pleistocene alluvial fan deposits) and, as such, archaeological deposits on these landforms, if present, would be located at or near the surface. In contrast, those landforms that were formed during the Holocene (circa 11,700 years ago to the present) have a potential for containing buried surfaces (paleosols) that would have been available for human habitation during prehistory.

The Project Site is within the Great Valley Geomorphic Province, which encompasses a large alluvial plain in the central part of the state. This 50-mile-wide by 400- mile-long trough is divided into two valleys, each named for the respective rivers that drain them: the Sacramento Valley to the north and the San Joaquin Valley to the south. Sediments eroding from the Coast Ranges to the west and the Sierra Nevada to the east have accumulated in the Great Valley almost continuously since the Jurassic Period (201–145 million years ago). Geologic maps of the area were refined to determine the geological context of the sediments on the Project Site. Because the Project is within the San Joaquin Valley, it has experienced heavy accumulation of redeposited sediments from the weathering of surrounding mountain ranges. The Project Site is at an elevation of approximately 380 feet above mean sea level. Older Quaternary alluvial fan deposits were observed within the Project Site and are composed of San Joaquin sandy loam, hard substratum (NRCS 2020). This soil type is associated with the older Pleistocene Non-marine landform depicted at this location that predates human occupation. Therefore, the Project Site's potential to contain buried archaeological deposits is low and any archaeological artifacts or features would be identified on or near the ground surface (Meyer et al. 2010; Matthews and Burnett 1965).

The Project Site has a low potential for encountering subsurface historic-period archaeological deposits because there is no evidence of former homesteads or buildings at this location and it was used for agricultural purposes throughout the historic period. The Enterprise Canal, a primary feature of the Fresno Irrigation District constructed between 1870 and 1890, is aligned in its historic location along the western edge of the Project Site but has been buried since its period of significance. Further, no changes or alterations to the canal are proposed as part of the Project.

SUMMARY

One cultural resource – the Enterprise Canal – was identified in the Project Site. Because the project does not propose alteration of this resource, and no excavation will be conducted at the location of this resource, no significant impacts are expected to occur. Although the landform age and soil types present on the Project Site suggest low sensitivity for buried precontact-period archaeological resources, the possibility of encountering subsurface features or human remains cannot be discounted. See recommendations, below, to avoid impacts that may occur from inadvertent disturbances to unknown buried archaeological resources and/or human remains. Should the project plans change to include excavation or alterations within the canal alignment, additional mitigation measures would be necessary.

RECOMMENDATIONS

The potential for encountering previously unidentified buried archaeological cultural resources in the Project Site is low based on the geological landforms and soils present on site; however, if deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 50 feet of the discovery should be redirected and a qualified archaeologist should be contacted to assess the situation and make recommendations regarding the treatment of the discovery. Project personnel should not collect or move any archaeological materials or human remains and associated materials.

Archaeological cultural resources should be avoided by project activities. If such resources cannot be avoided, they should be evaluated for their California Register of Historical Resources eligibility, under the direction of a qualified professional archaeologist, to determine if they qualify as a historical resource under CEQA. If the deposit is not eligible, a determination should then be made as to whether it qualifies as a unique archaeological resource under CEQA. If the deposit is not a historical, unique archaeological or tribal cultural resource, avoidance is not necessary. If the deposit is eligible for the California Register of Historical Resources or is a unique archaeological resource and cannot be avoided by project actions that may result in impacts, such impacts must be mitigated. Mitigation may consist of, but is not limited to, recording the resource; recovery and analysis of archaeological deposits; preparation of a report of findings; and accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach may also be appropriate. Upon completion of the study, the archaeologist should prepare a report documenting the methods and results of the investigation, and provide recommendations for the treatment of the archaeological materials discovered. The report should be submitted to the County of Fresno and to the SSJVIC.

HUMAN REMAINS

Although field survey did not indicate presence of cultural resources or human remains, Native American skeletal remains could potentially be identified in the Project Site during construction. In the event of accidental discovery of human remains, the specific protocol outlined by Section 7050.5 of the Health and Safety Code should be followed. If the Coroner determines the remains are not subject to his or her authority, and if the Coroner recognizes the remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she will contact the NAHC by telephone within 24 hours.

The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American. The most likely descendent may make recommendations to the County or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in Public Resources Code §5097.98.

REFERENCES

Bureau of Reclamation

2009 Draft Environmental Assessment: Enterprise Canal at Big Dry Creek Improvement Project Fresno Irrigation District, Fresno County, California. U.S. Department of the Interior Bureau of Reclamation Mid Pacific Region, South Central California Area Office, Fresno, California.

Data Basin

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1965 *Geologic Map of California: Fresno*. Scale: 1:250,000. California Division of Mines and Geology, Sacramento, California.

Meyer, Jack, D. Craig Young, and Jeffrey Rosenthal

2010 *A Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9*. Far Western Anthropological Research Group, Inc., Davis, California.

National Environmental Title Research

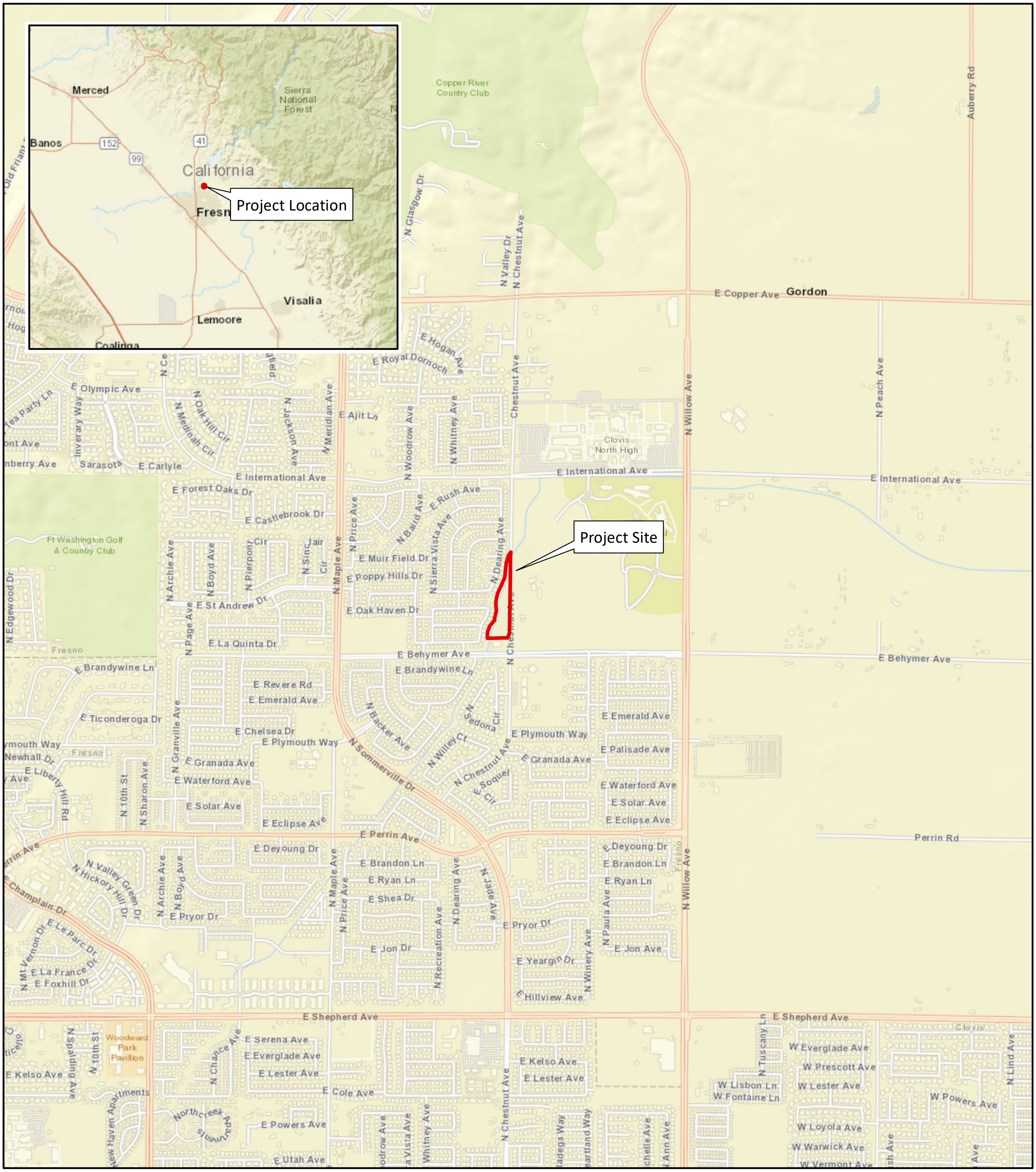
2020 "Historic Aerials." Available at National Environmental Title Research Web Site, http://www.historicaerials.com/ (accessed August 5, 2020).

Natural Resources Conservation Service (NRCS)

2012 *Edible Seeds and Grains of California Tribes and the Klamath Tribe of Oregon in the Phoebe Apperson Hearst Museum of Anthropology Collections, University of California, Berkeley*. Authored by M. Kat Anderson, Jim Effenberger, Don Joley, and Deborah J. Lionakis Meyer. National Plant Data Team, United States Department of Agriculture, Washington, D.C.

2020 Web Soil Survey. United States Department of Agriculture. Electronic dataset, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed July 30, 2020).

ATTACHMENT A



LSA

FIGURE 1

N

0 1000 2000
FEET

SOURCE: ESRI World Street Maps (02/2020).

North Fresno Residential Project
Fresno, Fresno County, California

Regional Location

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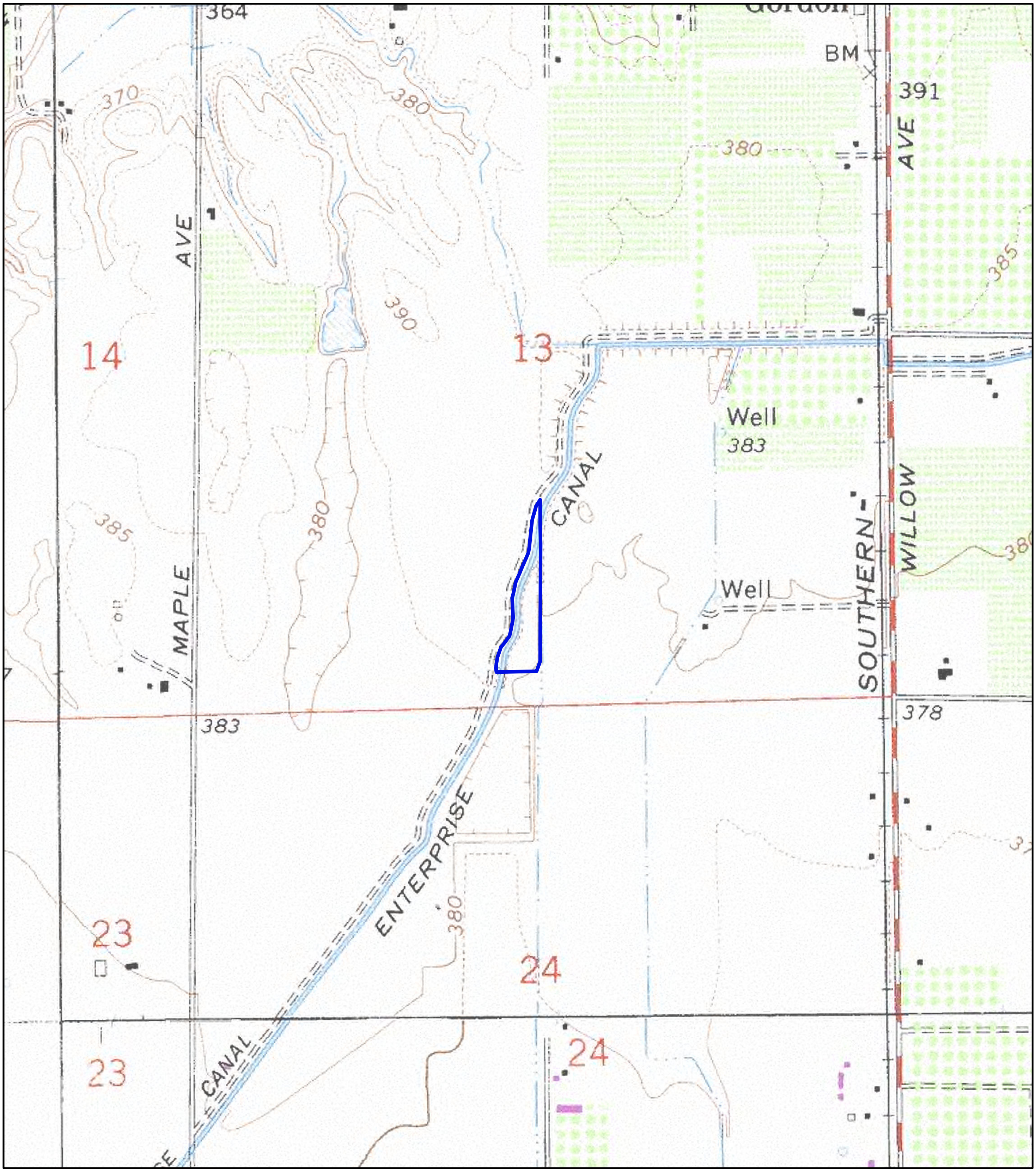

LSA

LEGEND

Project Site

FIGURE 2

0 500 1000
FEET

SOURCE: USGS 7.5-minute Topo Quad -*Lanes Bridge, Calif.* (1973); *Friant, Calif.* (1964); *Fresno North, Calif.* (1981); *Clovis, Calif.* (1981).

North Fresno Residential Project
Fresno, Fresno County, California

Project Site Map

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Plan Amendment-Rezone Application No. P20-00213, Development Permit Application No. P22-03749, and Planned Development Permit Application No. P23-03173

Appendix E

Trip Generation and Vehicle Miles Traveled Analysis Memorandum

CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: May 25, 2023

TO: Harmanjit Dhaliwal, City of Fresno

FROM: Ambarish Mukherjee, P.E., AICP

SUBJECT: North Fresno Residential Project Trip Generation and Vehicle Miles Traveled (VMT) Analysis Memorandum (LSA Project # BDJ2002)

LSA has prepared this Trip Generation and Vehicle Miles Traveled (VMT) Analysis Memorandum (Memo) for the proposed North Fresno Residential Project (project) in the City of Fresno (City). The project includes development of 48 multifamily dwelling units and will be located at the northwest corner of East Behymer Avenue and North Chestnut Avenue within the City.

The objectives of this Memo are as follows:

- To estimate the trip generation for the proposed project and determine whether a Levels of Service based Traffic Impact Study (TIS) will be required for the project; and
- To determine whether the project will have any VMT impact.

TRIP GENERATION ANALYSIS

Trip generation for the project was developed using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition) for Land Use 220 – "Multifamily Housing (Low Rise) Not Close to Rail Transit", Setting/Location - "General Urban/Suburban." Table A summarizes the project trip generation and shows that the proposed project is anticipated to generate 19 trips in the a.m. peak hour, 24 trips in the p.m. peak hour, and 324 gross daily trips.

As recommended in the City of Fresno *Traffic Impact Study Report Guidelines*, dated February 2009, a detailed LOS based Traffic Impact Study (TIS) shall not be required for a project if it generates less than 100 peak hour trips. Since the anticipated number of peak hour trips generated by the proposed project is lower than the 100-trip threshold established by the City's Guidelines, a TIS may not be required for this project.

VEHICLE MILES TRAVELED ANALYSIS

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled (VMT).

As mentioned above, the project is located within the jurisdiction of City of Fresno. Therefore, The project VMT evaluation was conducted according to the *City of Fresno CEQA Guidelines for Vehicle Miles Traveled Thresholds* (VMT Guidelines) dated June 25, 2020, which includes the screening criteria, VMT analysis methodology, VMT impact thresholds, and VMT mitigation measures. One of the screening criteria recommended in the City's guidelines include screening based on project's daily trip generation. As such, projects generating less than 500 daily trips could be screened out from a detailed VMT analysis. As shown in Table A, the project is anticipated to generate 324 daily trips. Since the anticipated number of daily trips generated by the proposed project is lower than the 500 daily-trip threshold established by the City's VMT Guidelines, the project could be screened out and a detailed VMT analysis may not be required for the project.

Attachment:

Table A: Project Trip Generation

LSA

Table A - Project Trip Generation

Land Use	Units		A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
Multifamily Housing (Low Rise)	48	DU							
Trips/Unit[1]			0.10	0.30	0.40	0.32	0.19	0.51	6.74
Trip Generation			5	14	19	15	9	24	324

Notes:

DU = Dwelling Units

[1] Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition), Land Use 220 - "Multifamily Housing (Low Rise) Not Close to Rail Transit", Setting/Location - "General Urban/Suburban."

CITY OF FRESNO
PUBLIC WORKS DEPARTMENT
TRAFFIC STUDY CHECKLIST

APPLICANT: Armen Basmajian

ASSIGNED PLANNER: Rob Holt

ACCELA/FAASTER REFERENCE NUMBER: P23-03993, P23-03990, P23-03982

Traffic Study Submittal:

- [x] Was prepared based on a scope of work approved by the City Traffic Engineer
- [x] Used the most recent version of Synchro for intersection analysis
- [x] Used the most recent version of the ITE Trip Generation
- [x] Was prepared and reviewed under the supervision and direction of a qualified engineer or authorized owner/principal of firm
- [x] Was prepared using count data collected within one year of the submittal date
- [x] Includes an electronic copy, assembled as a complete document
- [ ] Includes One (1) hard copy
  * Will be delivered to City of Fresno Planner
- [x] Conforms to the most recent version of the City's Traffic Study Guidelines
- [x] Includes operational analysis files (Synchro)

Traffic Study includes:

- [x] Entitlement/Accela (FAASTER) No./ Tract or Parcel Map No.
- [x] Assigned Planner's name
- [x] Stamp and/or signature of qualified engineer or authorized owner/principal of firm stating the study was prepared and reviewed under their supervision and direction
- [x] Project description
- [x] Methodology description
- [x] Project Trip Generation
- [ ] Trip Generation Comparison (if a General Plan Amendment)
  N/A
- [x] Delay analysis
- [x] Queuing analysis for all movements at all study intersections
- [x] Discussion of existing and planned bicycle, pedestrian and transit facilities
- [x] Collision analysis
- [x] On-site circulation analysis
- [x] Mitigations and Recommendations

CITY OF FRESNO
PUBLIC WORKS DEPARTMENT
TRAFFIC STUDY CHECKLIST

APPLICANT: Armen Basmajian

ASSIGNED PLANNER: Rob Holt

ACCELA/FAASTER REFERENCE NUMBER: P23-03993, P23-03990, P23-03982

Included Figures:

- [x] Vicinity Map
- [x] Site Plan
- [x] Trip distribution at intersections/along roadways
- [x] Trip distribution at proposed access points
- [x] Volumes for all scenarios analyzed
- [x] Lane configurations for all scenarios analyzed
- [x] Locations of approved projects

Included Appendices:

- [x] Approved Scope of Work
- [x] Model request
- [x] Model data
- [x] Count data
- [x] Level of Service analysis worksheets
- [x] Collision data
- [x] Warrants

CERTIFICATION OF APPLICANT: Read each of the statements below. After you have read the statements and understand them, please sign and date in the space provided at the end of this section:

1) I certify that I have read the Traffic Study Checklist thoroughly, followed any and all instruction, and have supplied the necessary information to allow staff to review my study or application and that the supplied information is true and correct information herein to the best of my knowledge and belief.

2) I understand that falsification or misrepresentation on my part of any of the information that I have supplied above constitutes sufficient grounds for return of my submittal, or should any of my responses be determined false, misleading and/or incomplete will subject my application/plans to review delays and may result in the requirement for the applicant to pay additional review fees.

Applicant's signature: [signature] Date: 3.4.25

Revised Traffic Impact Analysis Report

Bella Vita

Located on the Southeast Corner of Herndon Avenue and Hayes Avenue

In the City of Fresno, California

Prepared for:

Marc O' Polo Enterprises
6729 North Willow Avenue, Suite 105
Fresno, CA 93710

March 4, 2025

Project No. 004-221

JLB TRAFFIC ENGINEERING, INC.

Traffic Engineering, Transportation Planning, & Parking Solutions

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Fresno, CA 93704
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Revised Traffic Impact Analysis Report

For Bella Vita located on the Southeast Corner of Herndon Avenue and Hayes Avenue

In the City of Fresno, CA

March 4, 2025

This Revised Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

Jose Luis Benavides, PE, TE

President

REGISTERED PROFESSIONAL ENGINEER
JOSE LUIS BENAVIDES
No.T 2328
Exp:06/30/25
TRAFFIC
STATE OF CALIFORNIA

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Table of Contents

List of Figures

List of Tables

List of Appendices

Introduction and Summary

Introduction

This Report describes a Revised Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for Bella Vista (Project) located on the southeast corner of Herndon Avenue at Hayes Avenue in the City of Fresno. The Project proposes to develop up to 17,666 square feet of general retail, 5,000 square feet of fast-food restaurant with drive-through window and 396 multifamily residential units. Based on information provided to JLB, the proposed Project's land uses are consistent with the *Fresno General Plan*. This TIA has been revised in order to address preliminary comments received from the City of Fresno on August 22, 2024. Based on subsequent discussions with City of Fresno staff, this analysis does not include the residential driveway located on the east side of Hayes Avenue approximately 225 feet northwest of Veterans Boulevard. This analysis also includes the intersection of Hayes Avenue at Western Driveway in order to determine if the proposed location of the back-to-back left-turn pockets along Hayes Avenue are feasible. This intersection is a three-quarter access point for the future development on the southwest corner of Herndon Avenue and Hayes Avenue that is projected to be constructed by the Near Term plus Project scenario. Furthermore, the residential component of the Project has been reduced in size as the Project was not able to acquire the eastern portion of the site. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of the TIA is to evaluate the potential on-site and off-site traffic impacts, identify short-term and long-term roadway needs, determine potential roadway improvement measures and identify any critical traffic issues that should be addressed in the ongoing planning process. The TIA primarily focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. The Scope of Work was prepared via consultation with City of Fresno, Fresno County and Caltrans staff.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Fresno, Fresno County and Caltrans.

Existing Traffic Conditions

- JLB conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to obtain collision reports for the most recent five-year period. Based on a review of the collision reports, a total of six (6) collisions were reported within the influence zone of the study intersections in the most recent five-year period. Based on the number of correctable collisions, JLB does not recommend changes to the existing traffic controls or intersection geometrics at any of these intersections.
- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- JLB analyzed the location of the existing and proposed roadways and access points relative to those in the vicinity of the Project site. Minor recommendations for the two commercial driveways along the east of Hayes Avenue are provided in the body of this Report. These recommendations have been addressed in the latest Project site plan.
- At buildout, the Project is estimated to generate approximately 5,968 daily trips, 423 AM peak hour trips and 483 PM peak hour trips.
- It is recommended that the Project construct Class I bikeways along its frontages to Hayes Avenue and Veterans Boulevard.
- It is recommended that the Project add a high visibility crosswalk across the north leg of the intersection of Hayes Avenue at Palo Alto Avenue.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 100,395 weekday daily trips, 5,259 weekday AM peak hour trips and 8,970 weekday PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Scope of Work

The TIA focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On March 7, 2024, a Draft Scope of Work for the preparation of a Traffic Impact Analysis for this Project was provided to the City of Fresno, County of Fresno and Caltrans for their review and comment.

On March 19, 2024, Caltrans stated that they had no concerns with the Draft Scope of Work. On March 28, 2024, the City of Fresno states that the second residential driveway near the intersection of Hayes Avenue at Veterans Boulevard will likely not be allowed. Subsequently, the Project proponent met with the City of Fresno to discuss the second residential driveway and the City agreed that the driveway could remain as long as its access was limited to right-in and-right out. As a result, the Project will limit access to the second driveway to right-in right-out access by implementing a “pork chop” raised median as part of the driveway design. On March 29, 2024, the County of Fresno determined that the Project is not expected to significantly impact neighboring County of Fresno facilities.

The Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The existing intersection peak hour turning movement and segment volume counts were conducted at the study intersections and segments in March and April 2024 while schools the vicinity of the Project site were in session. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study intersections and segments are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

1. Hayes Avenue / Herndon Avenue
2. Hayes Avenue / Western Driveway (Future Not a Part of the Project)
3. Hayes Avenue / Southern Commercial Driveway (Future)
4. Hayes Avenue / Northern Residential Exit Only Driveway (Future)
5. Hayes Avenue / Palo Alto Avenue / Main Residential Driveway
6. Hayes Avenue / Veterans Boulevard

Project Only Trip Assignment to State Facilities

1. State Route 99 / Herndon Avenue

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in March and April 2024.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the Project Only Trips to the Existing Traffic Conditions scenario. The Project Only Trips to the study facilities were developed based on existing travel patterns, the Fresno COG ABM Project Select Zone, the surrounding roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, existing K-12 schools, and the *Fresno General Plan* Circulation Element in the vicinity of the Project site. The Fresno COG Project Select Zone prepared by Fresno COG are contained in Appendix C.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario.

Cumulative Year 2046 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadways conditions based on the Cumulative Year 2046 plus Project Traffic Conditions. The Cumulative Year 2046 plus Project traffic volumes were obtained by using the Fresno COG activity-based model (ABM) (Base Year 2019 and Cumulative Year 2046) and existing traffic counts. Under this scenario, the increment method, as recommended by the Model Steering Committee was utilized to determine the Cumulative Year 2046 traffic volumes. The Fresno COG ABM results provided by Fresno COG are contained in Appendix C.

LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 7th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix D.

While LOS is no longer the criteria of significance for traffic impacts in the state of California, the City of Fresno continues to apply congestion-related conditions or requirements for land development projects through planning approval processes outside of CEQA Guidelines in order to continue the implementation of *Fresno General Plan* policies.

LOS Thresholds

The *Fresno General Plan* has established various degrees of acceptable LOS on its major streets, which are dependent on four (4) Traffic Impact Zones (TIZ) within the City (City of Fresno, 2014). The standard LOS threshold for TIZ I is LOS F, that for TIZ II is LOS E, that for TIZ III is LOS D, and that for TIZ IV is LOS E. Additionally, the 2035 MEIR made findings of overriding consideration to allow a lower LOS threshold than that established by the underlying TIZ's. For those cases in which a LOS criterion for a roadway segment differs from that of the underlying TIZ, such criteria are identified in the roadway description. As all the study facilities fall within TIZ III, LOS D is used to evaluate the potential LOS impacts for the study intersections within the City of Fresno pursuant to the *Fresno General Plan*.

The *Fresno County General Plan* has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City (Fresno County, 2000). For those areas that fall within the SOI of a City, the LOS threshold of the City is used in this report. In this case, all study facilities fall within the City of Fresno SOI, therefore, the City of Fresno LOS thresholds are utilized.

Caltrans no longer considers delay as a significant impact to the environment, for land use projects and plans. According to the Caltrans document VMT Focused Transportation Impact Study Guidelines dated May 2020, Caltrans review of land use projects and plans is focused on a VMT metric consistent with CEQA. In this TIA, however, all study intersections fall within the City of Fresno SOI. Therefore, the City of Fresno LOS thresholds are utilized.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- Yellow time consistent with the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) based on approach speeds (Caltrans, 2024).
- Yellow time of 3.2 seconds for left-turn phases.
- All-red clearance intervals of 1.0 second for all phases
- Walk intervals of 7.0 seconds.
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added.
- At all study intersections, the heavy vehicle factor observed for each intersection, or a minimum of 3 percent, were utilized under all scenarios.
- The number of observed pedestrians at existing intersections was utilized under all study scenarios.
- An average of 10 pedestrian calls per hour at signalized intersections.
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios.
- At new intersections, a PHF of 0.88 is utilized in the Existing, Existing plus Project and Near Term plus Project scenarios.
- For the Cumulative Year 2046 plus Project scenario, the following PHF was utilized to reflect traffic operations and an increase in future traffic volumes. As roadways start to reach their saturated flow rates, PHF's tend to increase to 0.90 or higher in urban settings. A PHF of 0.92, or the existing PHF if higher, is utilized for all remaining study intersections.
  - For the intersections of Hayes Avenue at Southern Commercial Driveway, Hayes Avenue at Western Driveway, Hayes Avenue at Northern Residential Driveway and Hayes Avenue at Palo Alto Avenue, the following PHF's were utilized due to their proximity to the elementary school and middle school that are located on the northwest quadrant of Palo Alto Avenue at Hayes Avenue:
    - A PHF of 0.86, or the existing if higher, is utilized during the AM peak.
    - A PHF of 0.90, or the existing if higher, is utilized during the PM peak.
  - A PHF of 0.92, or the existing if higher, is utilized for all remaining study intersections.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

Herndon Avenue is an existing predominantly four-lane divided expressway adjacent to the Project site. In this area, Herndon Avenue extends through the City of Fresno easterly beyond the City of Clovis and westerly to its intersection with SR 99. The *Fresno General Plan* designates Herndon Avenue as a six-lane divided Expressway between Golden State Boulevard and Willow Avenues.

Veterans Boulevard is an existing six-lane northeast-southwest divided super arterial adjacent to the Project site. In this area, Veterans Boulevard extends between Shaw Avenue and Herndon Avenue. The *Fresno General Plan* designates Veterans Boulevard as a super arterial between Grantland Avenue and Herndon Avenue.

Hayes Avenue is an existing two-lane north-south divided collector adjacent to the Project site. In this area, Hayes Avenue extends between Source Avenue and Veterans Boulevard. South of SR 99, Hayes Avenue exists between Shaw Avenue and Belmont Avenue. The *Fresno General Plan* designates Hayes Avenue as a two- to four-lane collector.

Palo Alto Avenue is an existing local roadway designed as a collector in the vicinity to the Project site. In this area, Palo Alto extends between Riverside Drive and Hayes Avenue and serves as the principal access to River Vista Middle School, River Bluff Elementary School and residential properties to the south of Palo Alto Avenue.

State Route (SR) 99 is an existing four-to-six-lane freeway near the vicinity of the proposed Project site. SR 99 traverses the City of Fresno in a northwest-southeast direction and serves as the principal connection to various metropolitan areas within the Central San Joaquin Valley.

Collision Analysis

JLB conducted a search of SWITRS to obtain collision reports for the most recent five-year period (January 1st, 2018 to December 31st, 2022). The SWITRS "is a database that serves as a means to collect and process data gathered from a collision scene. The internet SWITRS application is a tool by which the California Highway Patrol (CHP) staff and members of its Allied Agencies throughout California can request various types of statistical reports in an electronic format." All collision summary reports between January 1st, 2018 and December 31st, 2022 were included in the collision analysis. In the five-year period, a total of six (6) collisions were reported within the influence zone (assumed to be within 250 feet) of the study intersections. The SWITRS collision data are found in Appendix E.

Table I summarizes the type of collision, severity, violation, and identifies involvement with another vehicle, a pedestrian/bicyclist or a fixed object. After a thorough review of the data contained within the collision for the five-year analysis period, no changes are recommended to the study intersections.

Table I: Five-Year (2018-2022) Intersection Collision Analysis

ID	Intersection	Number of Collisions	Type of Collision						Severity					Type of Violation						Motor Vehicle Involved with...			
			Broadside	Rear End	Head-On	Hit Object	Sideswipe	Other	Fatal	Severe Injury	Other Visible Injury	Complaint of Pain/Injury	Property Damage Only	Traffic Signals & Signs	Right of Way	Unsafe Speed	Improper Turning	Driving Under Influence	Other	Pedestrian/Bicyclist	Other Motor Vehicle	Fixed Object	Fixed Object
1	Hayes Avenue / Herndon Avenue	**4**	1	1	-	2	-	-	-	-	1	1	2	1	-	2	-	1	-	1	1	2	-
5	Hayes Avenue / El Paso Avenue	**1**	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-
6	Hayes Avenue / Veterans Boulevard	**1**	-	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1	-
Totals		**6**	**2**	**1**	**-**	**3**	**-**	**-**	**-**	**-**	**1**	**2**	**3**	**1**	**-**	**3**	**-**	**1**	**1**	**1**	**2**	**3**	**-**

Traffic Signal Warrants

The CA MUTCD indicates that an engineering study of traffic conditions, pedestrian characteristics and physical features of an intersection shall be conducted to determine whether the installation of traffic signal controls are justified. The CA MUTCD provides a total of nine (9) warrants to evaluate the need for traffic signal controls. These warrants include 1) Eight-Hour Vehicular Volume, 2) Four-Hour Vehicular Volume, 3) Peak Hour, 4) Pedestrian Volume, 5) School Crossing, 6) Coordinated Signal System, 7) Crash Experience, 8) Roadway Network and 9) Intersection Near a Grade Crossing. Signalization of an intersection may be appropriate if one or more of the signal warrants is satisfied. However, the CA MUTCD also states that "[t]he satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic control signal" (Caltrans, 2024).

If traffic signal warrants are satisfied when a LOS threshold impact is identified at an unsignalized intersection, then installation of a traffic signal control may serve as an improvement measure. For instances where traffic signal warrants are satisfied, a traffic signal control is not considered to be the default improvement measure. Since the installation of a traffic signal control typically results in increased average delay and requires the construction of additional lanes, an attempt is made to improve the intersection approach lane geometrics in order to improve its LOS while maintaining the existing intersection controls. If the additional lanes did not result in acceptable LOS at the intersection, then in those cases implementation of a traffic signal control would be considered.

Warrants 1, 2 and 3 were prepared for the unsignalized intersections under the Existing Traffic Conditions scenario. These warrants are contained in Appendix J. At present, Warrant 1 is not met for any unsignalized study intersection. Warrant 2 is not met for any unsignalized study intersection. Warrant 3 is not met for any unsignalized study intersection during either peak period. Based on the traffic signal warrants, operational analysis and engineering judgment, the signalization is not recommended for any of the unsignalized intersections.

Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing Traffic Conditions turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix F. Table II presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

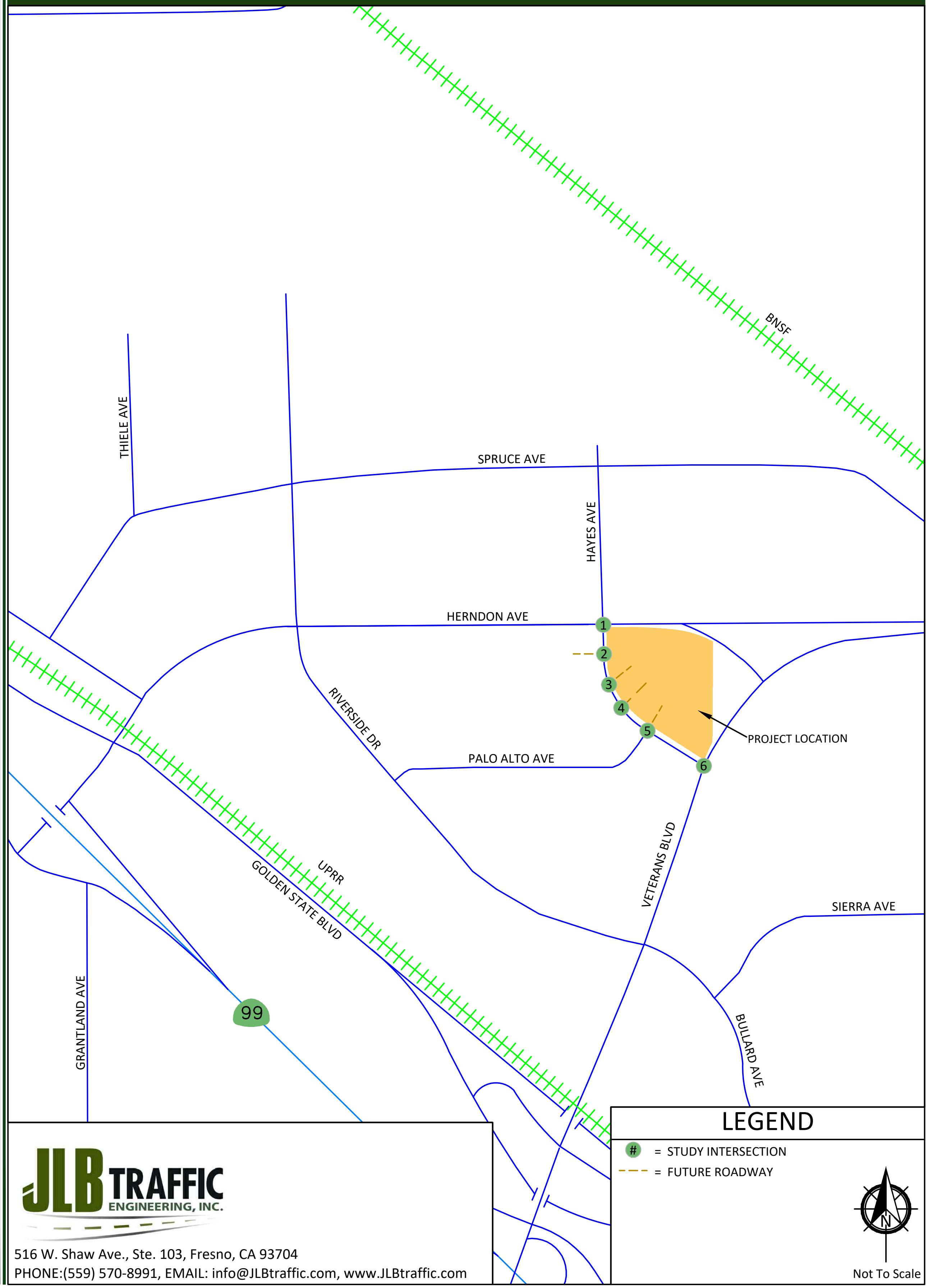
Table II: Existing Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Hayes Avenue / Herndon Avenue	Traffic Signal	14.8	B	13.6	B
2	Hayes Avenue / W. Driveway	Does Not Exist	-	-	-	-
3	Hayes Avenue / S. Commercial Driveway	Does Not Exist	-	-	-	-
4	Hayes Avenue / N. Residential Driveway	Does Not Exist	-	-	-	-
5	Palo Alto Avenue / Hayes Avenue	All-Way Stop	16.3	C	8.2	A
6	Veterans Boulevard / Hayes Avenue	Traffic Signal	10.4	B	8.6	A

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Bella Vita - City of Fresno
Vicinity Map

Figure 1



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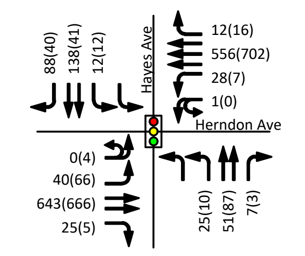
004-221 - 02/27/25 - AD

Bella Vita - City of Fresno
Existing - Traffic Volumes, Geometrics and Controls

Figure 2

1. Hayes Ave & Herndon Ave



2. Hayes Ave & Western Drwy

DOES NOT EXIST

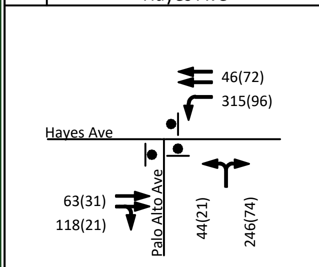
3. Hayes Ave & S. Commercial Drwy

DOES NOT EXIST

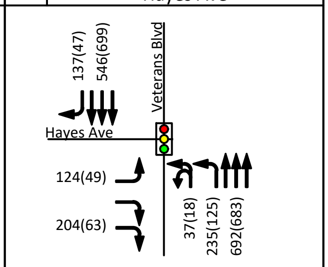
4. Hayes & N. Residential Drwy

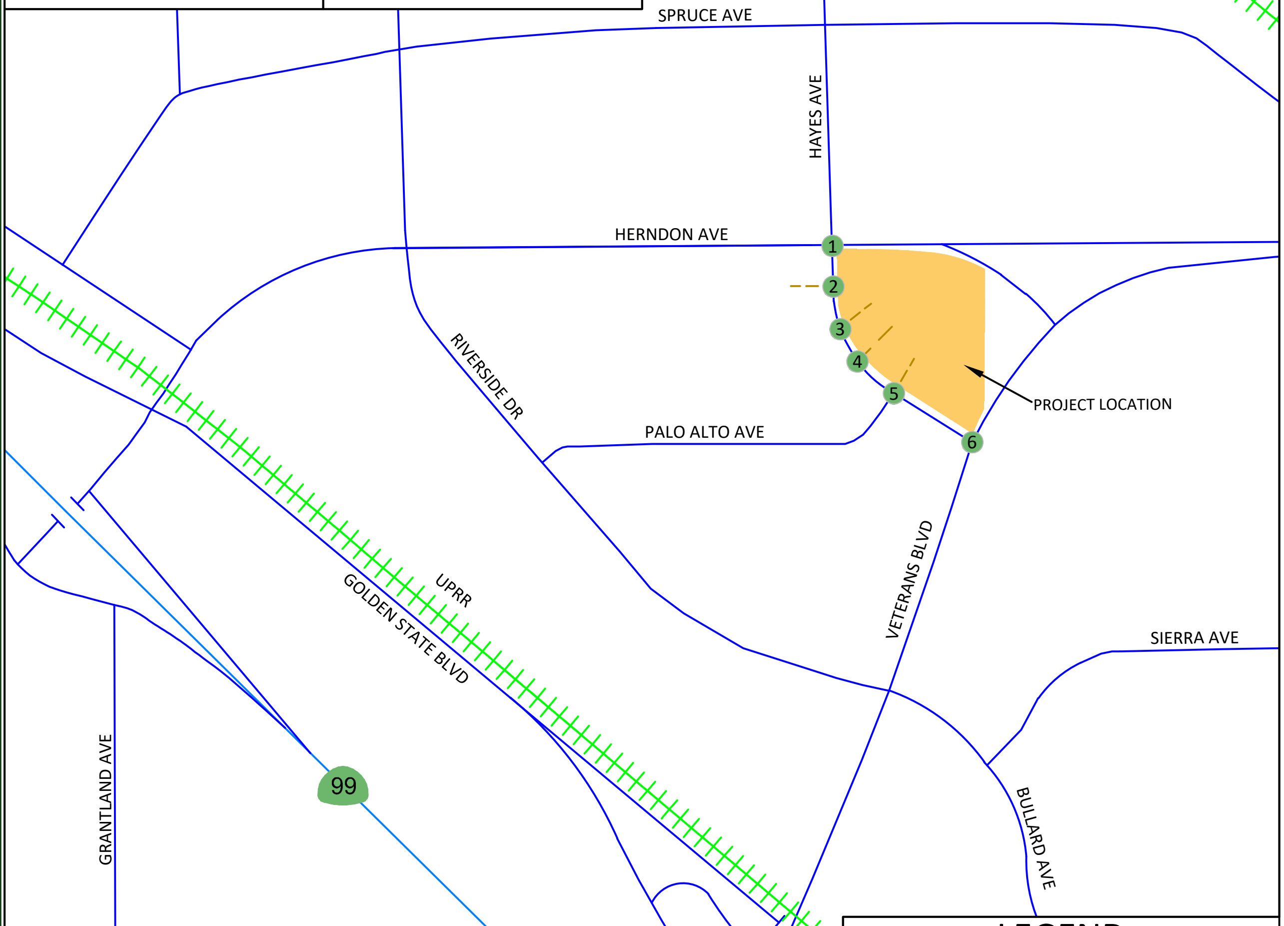
DOES NOT EXIST

5. Palo Alto Ave & Hayes Ave



6. Veterans Blvd & Hayes Ave





LEGEND

- # = STUDY INTERSECTION
- = FUTURE ROADWAY
- = STOP SIGN
- = TRAFFIC SIGNAL
- XX = AM PEAK HOUR TRIPS
- (XX) = PM PEAK HOUR TRIPS

N

Not To Scale

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Existing plus Project Traffic Conditions

Project Description

The Project proposes to develop up to 17,666 square feet of general commercial, 5,000 square feet of fast-food restaurant with drive-through windows and 516 multifamily residential units. Based on information provided to JLB, the Project is consistent with the *Fresno General Plan*. Figure 3 illustrates the latest Project Site Plan.

Project Trip Generation

The trip generation rates for the proposed Project were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table III presents the trip generation rates for the proposed Project with trip generations for Multifamily Housing (220), Strip Retail Plaza (822) and Fast-Food Restaurant with Drive-Through Window (934). At buildout, the Project is estimated to generate approximately 5,968 daily trips, 423 AM peak hour trips and 483 PM peak hour trips.

Table III: Project Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Multifamily Housing Low-Rise Not Close to Transit (220)	396	DU	6.74	2,669	0.40	24	76	38	120	158	0.51	63	37	127	75	202
Strip Retail Plaza < 40 KSF (822)	17.666	KSF	54.45	962	2.36	60	40	25	17	42	6.59	50	50	58	58	116
Fast-Food Restaurant with Drive-Through Window (934)	5.000	KSF	467.48	2,337	44.61	51	49	114	109	223	33.03	52	48	86	79	165
Total Driveway Trips				**5,968**				**177**	**246**	**423**				**271**	**212**	**483**

Note: KSF = Thousand Square Feet
DU = Dwelling Units

Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, the Fresno COG ABM Project Select Zone, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities, existing k-12 schools that will serve the Project, and the *Fresno General Plan* Circulation Element in the vicinity of the Project site. The Project's trip generation data was provided to Fresno COG to conduct a Project-specific Traffic Analysis Zone (TAZ) analysis using the Fresno COG ABM (Cumulative Year 2046). The Fresno COG Project Select Zone results are contained in Appendix C. A Project Site Plan which includes the Project driveway trips can be found in Figure 3. Figure 4 illustrates the Project Only Trips at the study intersections.

Project Access

Based on the Project Site Plan, access to and from the Project site will be from four (4) proposed access points. The first access point is located along the east side of Hayes Avenue approximately 200 feet south of Herndon Avenue. This access point is proposed to be limited to right-in right-out access. The second access point is located along the east side of Hayes Avenue approximately 500 feet south of Herndon Avenue. This access point is proposed to have full access. The first and second access points are designated for the commercial portion. The third access point is located on the east side of Hayes Avenue approximately 240 feet north of Palo Alto and is proposed to be an exit only access point. The fourth access point is located at the intersection of Hayes Avenue at Palo Alto Avenue. This access point is proposed to have full access. The third and fourth access points are designated for the multifamily residential.

JLB analyzed the location of the existing and proposed roadways and access points relative to those in the vicinity of the Project site. After a review of the original site plan, it was recommended that the second commercial access driveway be shifted south approximately ten (10) feet so that it better aligns with the internal driveway aisle to the east and the commercial driveway widths be increased to 35 feet. These recommendations have been addressed in the most recent site plan.

Active Transportation Plan

The *Fresno Active Transportation Plan* (ATP) is an extensive guide detailing the conception for active transportation in the City of Fresno that was adopted in December 2016. This ATP aims to improve safety, increase non-motorized trips, improve access and fill in gaps in networks for Fresno's pedestrians and bicyclists. In order to achieve these goals for active transportation, this ATP proposes a comprehensive network of citywide bikeways, trails and sidewalks. The recommended network would add 166 miles of Class I Bike Paths, 691 miles of Class II Bike Lanes, 69 miles of Class III Bike Routes, 21 miles of Class IV Separated Bikeways and 661 miles of sidewalks. This ATP also recommends bicycle detection at traffic signals, destination signage, bicycle parking, showers and changing facilities and bikeway maintenance. This network will be constructed in conjunction with adjacent land developments, roadway maintenance and active transportation infrastructure projects using funds from different local, state and federal sources.

Bikeways

The *Fresno ATP* classifies bicycle facilities into the following types:

- Class I Bikeway (Bike Path) – Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized.
- Class II Bikeway (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway.
- Class III Bikeway (Bike Route) – Provides a shared use with pedestrians or motor vehicle traffic, typically on lower volume roadways.
- Class IV Bikeways (Separated Bikeways) – Provides a protected lane for one-way bike travel (one-way cycle track) and protected lanes for two-way bike travel (two-way cycle track) on a street or highway.

Class I (Bike Path) Bikeways exist in the vicinity of the Project site along portions of Veterans Boulevard. Class II (Bike Lane) Bikeways exist in the vicinity of the Project site along portions of Riverside Drive, Spruce Avenue, Hayes Avenue, Veterans Boulevard, Bullard Avenue and Polk Avenue. The *Fresno ATP* recommends that Class I and Class II Bikeways be implemented adjacent to and in the vicinity of the Project site (City of Fresno, 2016). Class I Bikeways are planned adject to the Project site along the east side of Hayes Avenue and along the north side of Veterans Boulevard. Class II Bikeways are planned adjacent to the Project site along Hayes Avenue and Veterans Boulevard. Class I Bikeways are planned in the vicinity of the Project site along portions of Riverside Drive, Herndon Avenue, and Veterans Boulevard. Class II Bikeways are planned in the vicinity of the Project site along portions of Spruce Avenue, Riverside Drive, Hayes Avenue, Veterans Boulevard, Palo Alto Avenue and Bullard Avenue. Therefore, it is recommended that the Project construct Class I bikeways along its frontages to Hayes Avenue and Veterans Boulevard.

Transit

Fresno Area Express (FAX), is the transit operator in the City of Fresno. At present, there are two (2) FAX Routes that operate in the vicinity of the proposed Project site. These routes that operate in the vicinity of the Project site are FAX Routes 3 and 20. FAX Route 3 runs on Herndon Avenue with the nearest stop to the Project is located on Riverside Drive approximately 1,000 feet south of Herndon Avenue. Route 3 operates at 45-minute intervals on weekdays and weekends. This route provides direct connections to Marketplace at El Paseo, the Crossing at Herndon Avenue and Millburn Avenue, shopping center at Herndon Avenue and Marks Avenue, Palm Bluffs at Herndon Avenue and Palm Avenue, shopping center at Herndon Avenue and Blackstone Avenue, shopping center at Herndon Avenue and Cedar Avenue, shopping center at Willow Avenue at Alluvial Avenue and Clovis Community College. FAX Route 20 runs on Riverside Drive with the nearest stop to the Project is located on Riverside Drive approximately 1,000 feet south of Herndon Avenue. Route 20 operates at 45-minute intervals on weekdays and weekends. This route provides direct connection to Marketplace at El Paseo, shopping center at Bullard Avenue and Figarden Drive, Walmart Supercenter at Brawley Avenue and San Jose, shopping center at Shaw Avenue at Marks Avenue, the intersection of Hughes Avenue and Shields Avenue, Fresno High School and Veterans Affairs Medical Circle. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Safe Routes to School

Kindergarten through 12th grade students from the Project will be served by the Central Unified School District (CUSD). CUSD provides transportation for students who live in excess of an established radius zone. The zone is a radius of 1 mile for grades Kindergarten through 6th and 2 miles for grades 7th through 12th.

Based on attendance area boundaries at the time of the preparation of this TIA, elementary school students would attend River Bluff Elementary School located at the northeast quadrant of Riverside Drive and Palo Alto Avenue. River Bluff Elementary School is located 0.15 and 0.35 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that elementary school students will need to walk, bike or be driven to school.

The most direct path from the Project to River Bluff Elementary School can begin from the Project access at the intersection of Hayes Avenue at Palo Alto Avenue. Currently, the intersection of Hayes Avenue at Palo Alto Avenue is controlled by an all-way stop with a crosswalk across the west leg (across Palo Alto Avenue). Students would cross the north leg (Hayes Avenue) to reach the northwest corner of the intersection of Hayes Avenue at Palo Alto Avenue. Students would proceed west along the north side of Palo Alto Avenue until reaching the nearest campus entrance.

Based on attendance area boundaries at the time of the preparation of this TIA, middle school students would attend Rio Vista Middle School located at the northeast quadrant of Riverside Drive and Palo Alto Avenue. Rio Vista Middle School is located 0.25 and 0.45 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that middle school students will need to walk, bike or be driven to school.

The most direct path from the Project to Rio Vista Middle School can begin from the Project access at the intersection of Hayes Avenue at Palo Alto Avenue. Currently, the intersection of Hayes Avenue at Palo Alto Avenue is controlled by an all-way stop with a crosswalk across the west leg (across Palo Alto Avenue). Students would cross the north leg (Hayes Avenue) to reach the northwest corner of the intersection of Hayes Avenue at Palo Alto Avenue. Students would proceed west along the north side of Palo Alto Avenue until reaching the nearest campus entrance.

To serve elementary and middle school students, it is recommended that the Project add a high visibility crosswalk across the north leg of Hayes Avenue.

Based on the attendance area boundaries at the time of the preparation of this TIA, high school students would attend Justin Garza High School located on the northeast corner of Grantland Avenue and Ashlan Avenue. Justin Garza High School is located 2.8 and 2.9 miles from the nearest and farthest future home on the Project. Therefore, it is anticipated that high school students will be bused from the Project to school.

Roadway Network

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with the exception of the Project with its access points. Figure 5 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Existing plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, there are no study intersections that are projected to satisfy the peak hour signal warrant during either peak period. Based on the traffic signal warrants, operational analysis and engineering judgment, signalization is not recommended for any of the unsignalized intersections.

Results of Existing plus Project Level of Service Analysis

Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix G. Table IV presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Table IV: Existing plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Hayes Avenue / Herndon Avenue	Traffic Signal	15.8	B	15.0	B
2	Hayes Avenue / W. Driveway	Does Not Exist	-	-	-	-
3	Hayes Avenue / S. Commercial Driveway	One-Way Stop	12.2	B	11.6	B
4	Hayes Avenue / N. Residential Driveway	One Way Stop	10.3	B	10.0	B
5	Palo Alto Avenue / Hayes Avenue	All-Way Stop	20.6	C	9.4	A
6	Veterans Boulevard / Hayes Avenue	Traffic Signal	11.7	B	10.2	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

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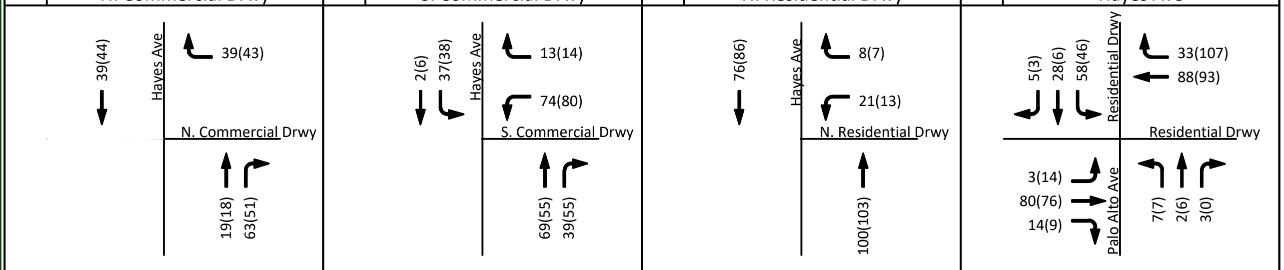
Project Site Plan

Figure 3

A	Hayes Ave & N. Commercial Drwy	B	Hayes Ave & S. Commercial Drwy	C	Hayes Ave & N. Residential Drwy	D	Palo Alto Ave Hayes Ave



LEGEND

\# = STUDY INTERSECTION
XX = AM PROJECT ONLY TRIPS
(XX) = PM PROJECT ONLY TRIPS

Not To Scale

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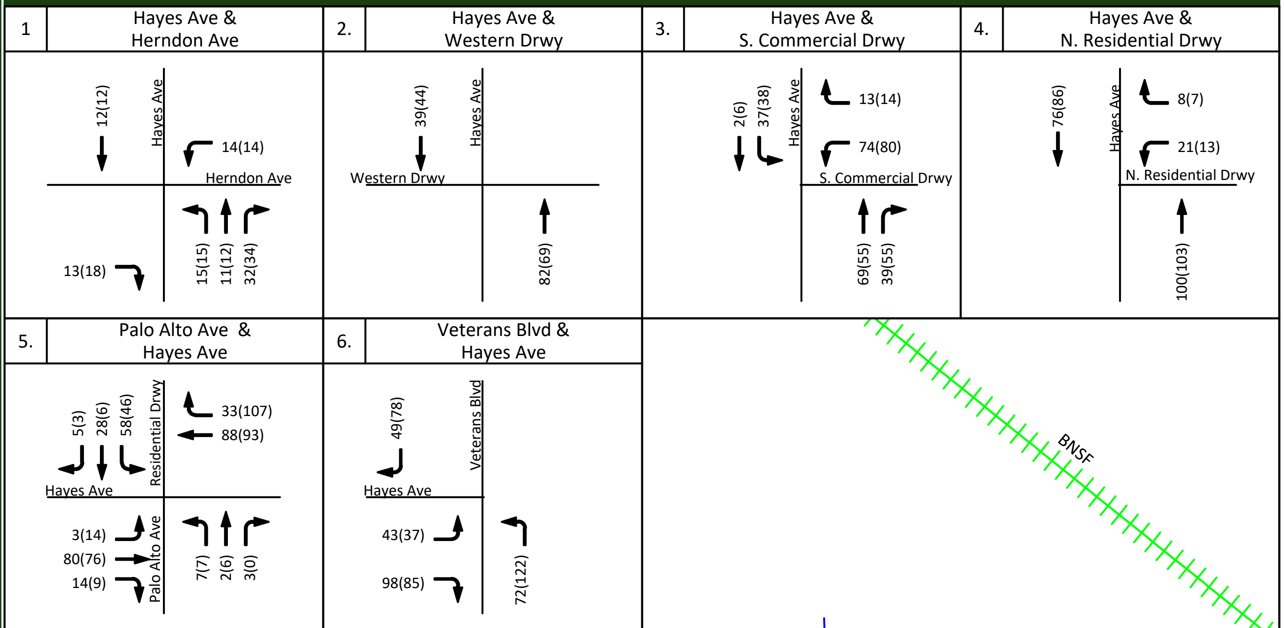
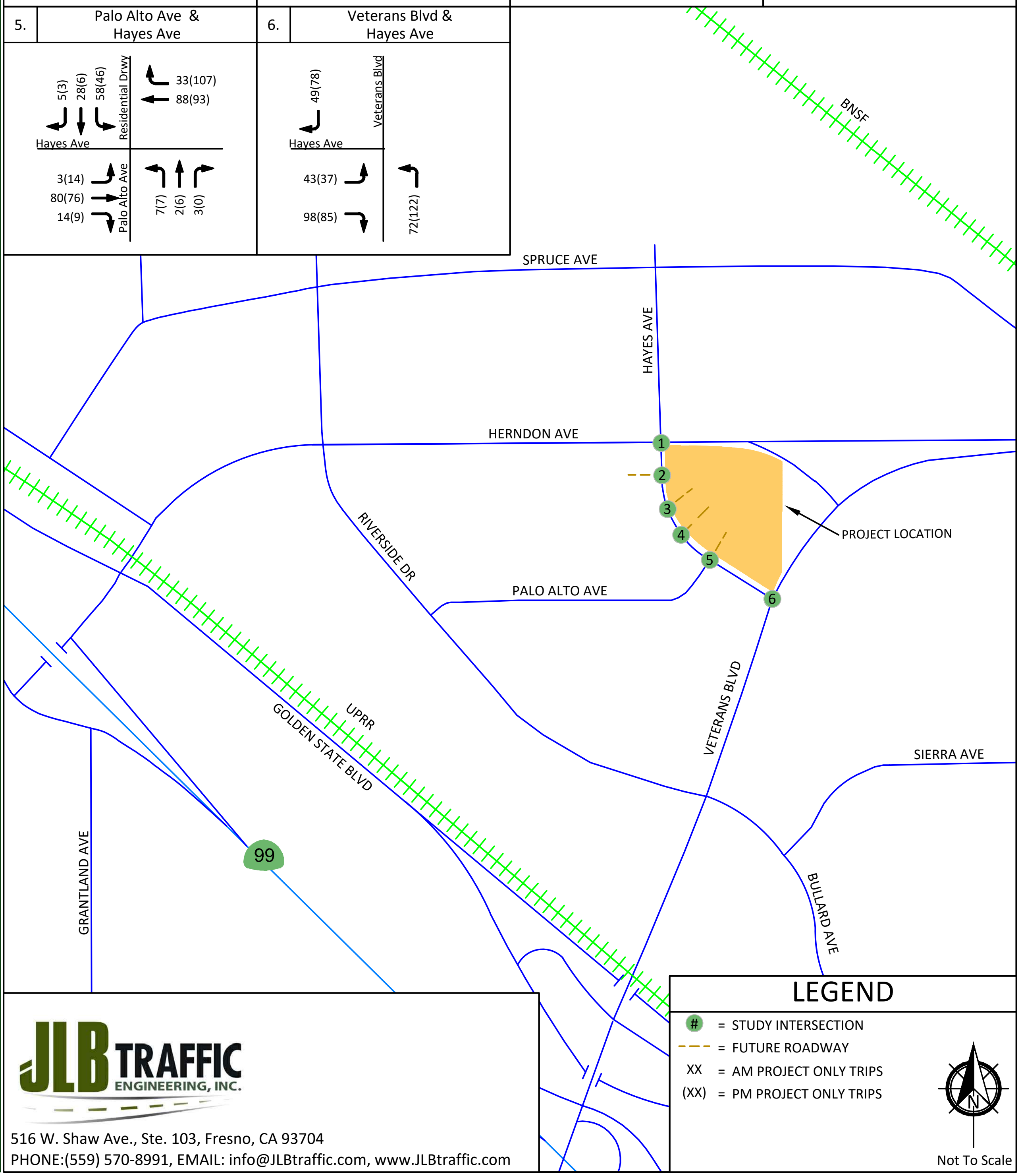
Project Only Trips

Figure 4





LEGEND

- # = STUDY INTERSECTION
- — — = FUTURE ROADWAY
- XX = AM PROJECT ONLY TRIPS
- (XX) = PM PROJECT ONLY TRIPS

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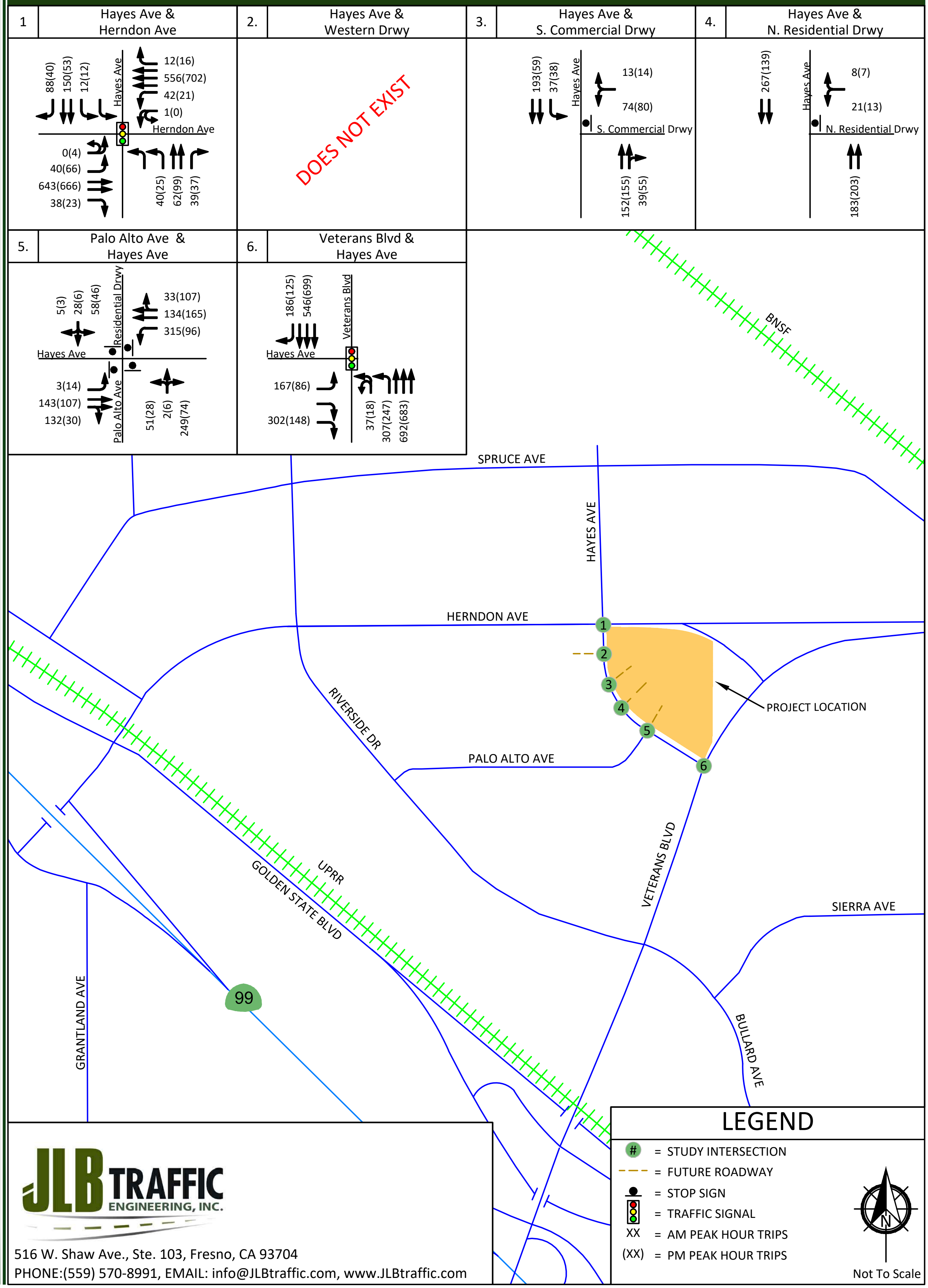
Figure 5

Existing plus Project - Traffic Volumes, Geometrics and Controls



Near Term plus Project Traffic Conditions

Description of Near Term Projects

Near Term Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Fresno, County of Fresno and Caltrans staff were consulted throughout the preparation of this TIA regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table V were within the proximity of the Project site.

Table V: Near Term Gross Projects' Trip Generation

Near Term Project ID	*Near Term Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	TT 5756[1]	962	71	96
B	TT 6162[1]	179	13	18
C	TT 6195[2]	839	62	84
D	TT 6199[2]	1,103	82	110
E	TT 6234[2]	4,574	340	456
F	TT 6308[2]	1,273	95	127
G	El Paseo Commercial Development (portion of)[3]	57,708	2,257	4,987
H	Fresno Costco[3]	10,616	284	934
I	Jack in the Box[3]	1,210	115	85
J	Justin Garza Highschool (portion of)[1]	795	204	62
K	Mixed Use Development at Herndon and Hayes[2]	5,036	454	397
L	Parc West[2]	6,608	518	693
M	Professional Offices at Herndon and Blythe (portion of)[2]	1,178	79	117
N	Residential Development at Dakota and Grantland[2]	1,699	133	178
O	Riverside Apartments[2]	2,101	161	196
P	Shaw and 99 Mixed-Use Development (portion of)[2]	3,331	301	321
Q	Westbridge Apartments[2]	1,183	90	109
Total Near Term Gross Project Trips		**100,395**	**5,259**	**8,970**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report
3 = Trip Generation based on a Traffic Impact Analysis Report by another Traffic Engineering Firm

The trip generation listed in Table V is that which is anticipated to be added to the streets and highways by Near Term Projects between the time of the preparation of this Report and five (5) years after buildout of the proposed Project. As shown in Table V, the total trip generation for the Near Term Projects is 100,395 weekday daily trips, 5,259 weekday AM peak hour trips and 8,970 weekday PM peak hour trips. It should be noted that a large percentage of the non-residential trips are often pass-by or diverted trips and thus the net new trips from the near term projects would likely be substantially lower. Nevertheless, this TIA provides a conservative analysis of the traffic impacts by utilizing the total Near Term Gross Project trips. Figure 6 illustrates the location of the Near Term Projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

Roadway Network

The Near Term plus Project Traffic Conditions scenario assumes that the Existing plus Project Traffic Conditions roadway geometrics and traffic controls will remain in place with one exception. It is anticipated the intersection of Hayes Avenue at Western Driveway (which is not part of the Project) is constructed by this scenario. This intersection is a three-quarter access point for the future development on the southwest corner of Herndon Avenue and Hayes Avenue that is projected to be constructed by the Near Term plus Project scenario. Figure 7 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, the study intersection Palo Alto Avenue at Hayes Avenue is projected to satisfy the peak hour signal warrant during the AM peak period. Based on the operational analysis and engineering judgment, signalization is not recommended for the intersection of Palo Alto Avenue at Hayes Avenue is not recommended.

Results of Near Term plus Project Level of Service Analysis

Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project Traffic Conditions scenario are provided in Appendix H. Table VI presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Table VI: Near Term plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Hayes Avenue / Herndon Avenue	Traffic Signal	17.6	B	17.4	B
2	Hayes Avenue / W. Driveway	One-Way Stop	10.5	B	9.8	A
3	Hayes Avenue / S. Commercial Driveway	One-Way Stop	15.9	C	15.4	C
4	Hayes Avenue / N. Residential Driveway	One Way Stop	11.6	B	11.2	B
5	Palo Alto Avenue / Hayes Avenue	All-Way Stop	26.1	D	11.3	B
6	Veterans Boulevard / Hayes Avenue	Traffic Signal	15.2	B	12.3	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

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Near Term Project Trip Assignment

Figure 6

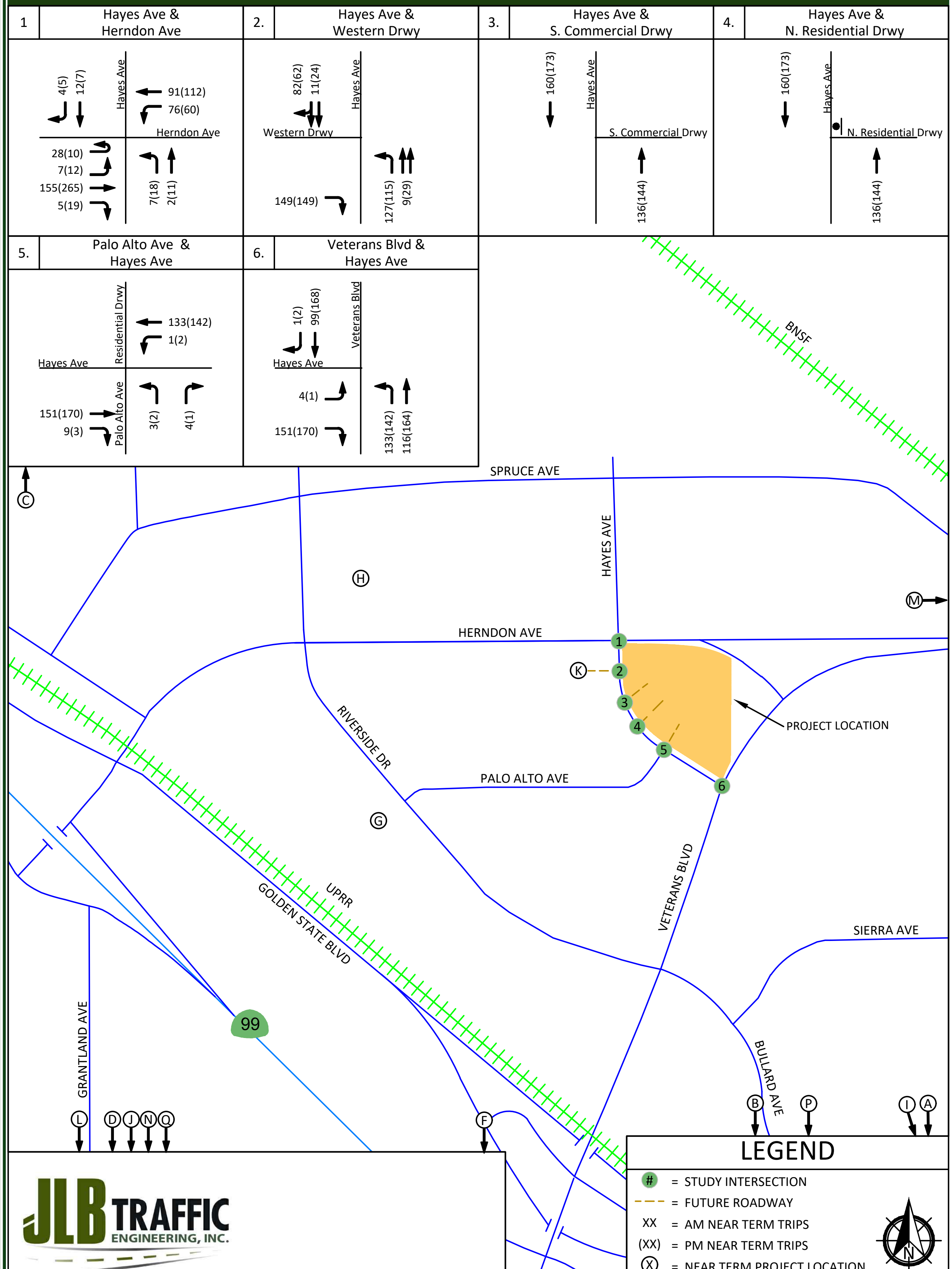

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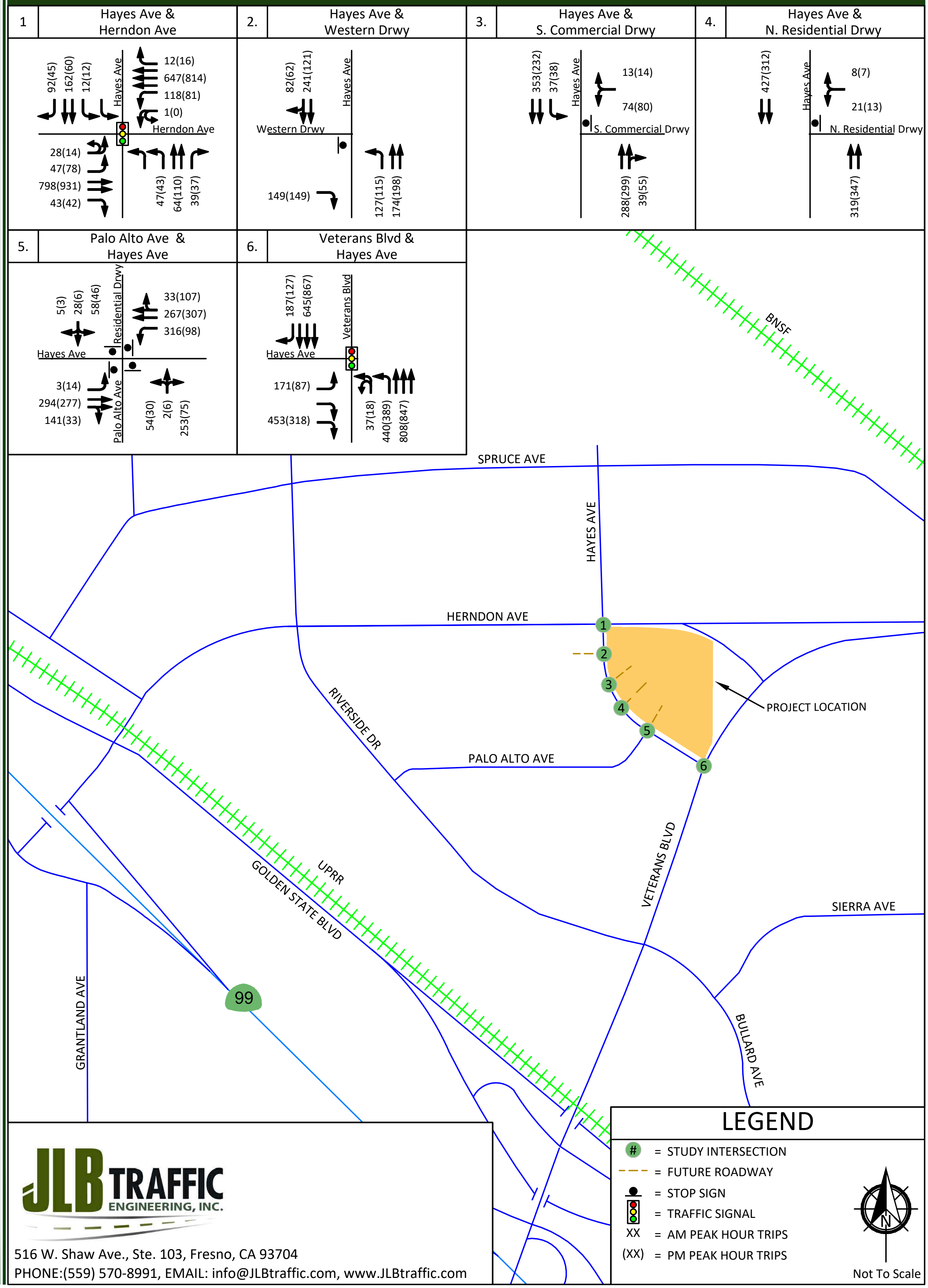
Figure 7

Near Term plus Project - Traffic Volumes, Geometrics and Controls



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Cumulative Year 2046 plus Project Traffic Conditions

Roadway Network

The Cumulative Year 2046 plus Project Traffic Conditions scenario assumes that the Near Term plus Project roadway geometrics and traffic controls will remain in place. Figure 8 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Cumulative Year 2046 plus Project Traffic Conditions scenario. These warrants are contained in Appendix J. Under this scenario, the study intersection Palo Alto Avenue at Hayes Avenue is projected to satisfy the peak hour signal warrant during the AM peak period. Based on the operational analysis and engineering judgment, signalization is not recommended for the intersection of Palo Alto Avenue at Hayes Avenue is not recommended.

Results of Cumulative Year 2046 plus Project Level of Service Analysis

Figure 8 illustrates the Cumulative Year 2046 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2046 plus Project Traffic Conditions scenario are provided in Appendix I. Table VII presents a summary of the Cumulative Year 2046 plus Project peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Table VII: Cumulative Year 2046 plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Hayes Avenue / Herndon Avenue	Traffic Signal	18.2	B	17.7	B
2	Hayes Avenue / W. Driveway	One-Way Stop	10.5	B	9.7	A
3	Hayes Avenue / S. Commercial Driveway	One-Way Stop	15.9	C	15.1	C
4	Hayes Avenue / N. Residential Driveway	One Way Stop	11.6	B	11.2	B
5	Palo Alto Avenue / Hayes Avenue	All-Way Stop	29.9	D	11.4	B
6	Veterans Boulevard / Hayes Avenue	Traffic Signal	13.2	B	13.8	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls.
LOS for two-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Project Only Trips Assignment to State Facilities

Figure 9 illustrates the Project Only Trips to the State Route 99 at Herndon Avenue interchange.

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Figure 8

Cumulative Year 2046 plus Project - Traffic Volumes, Geometrics and Controls

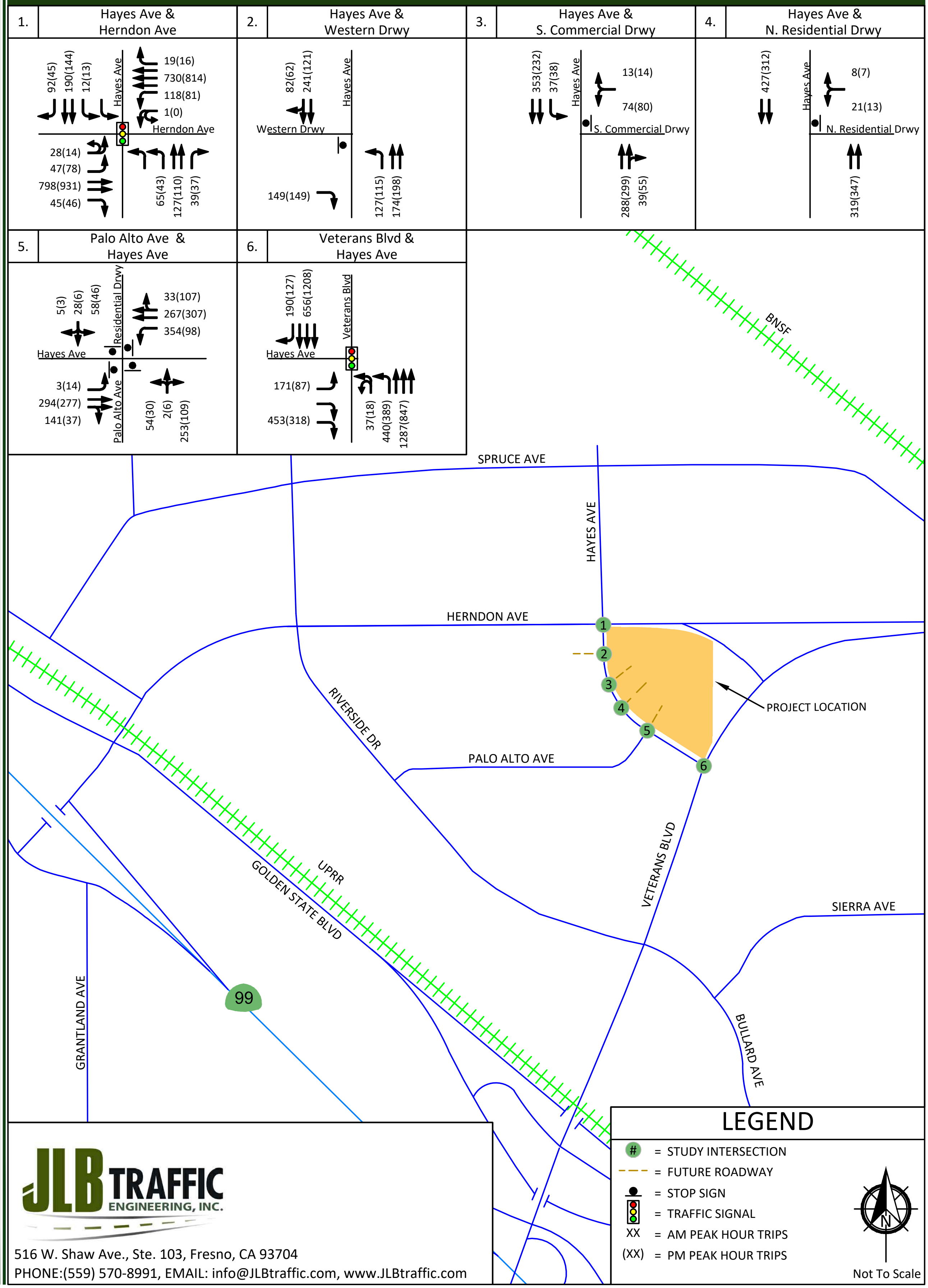

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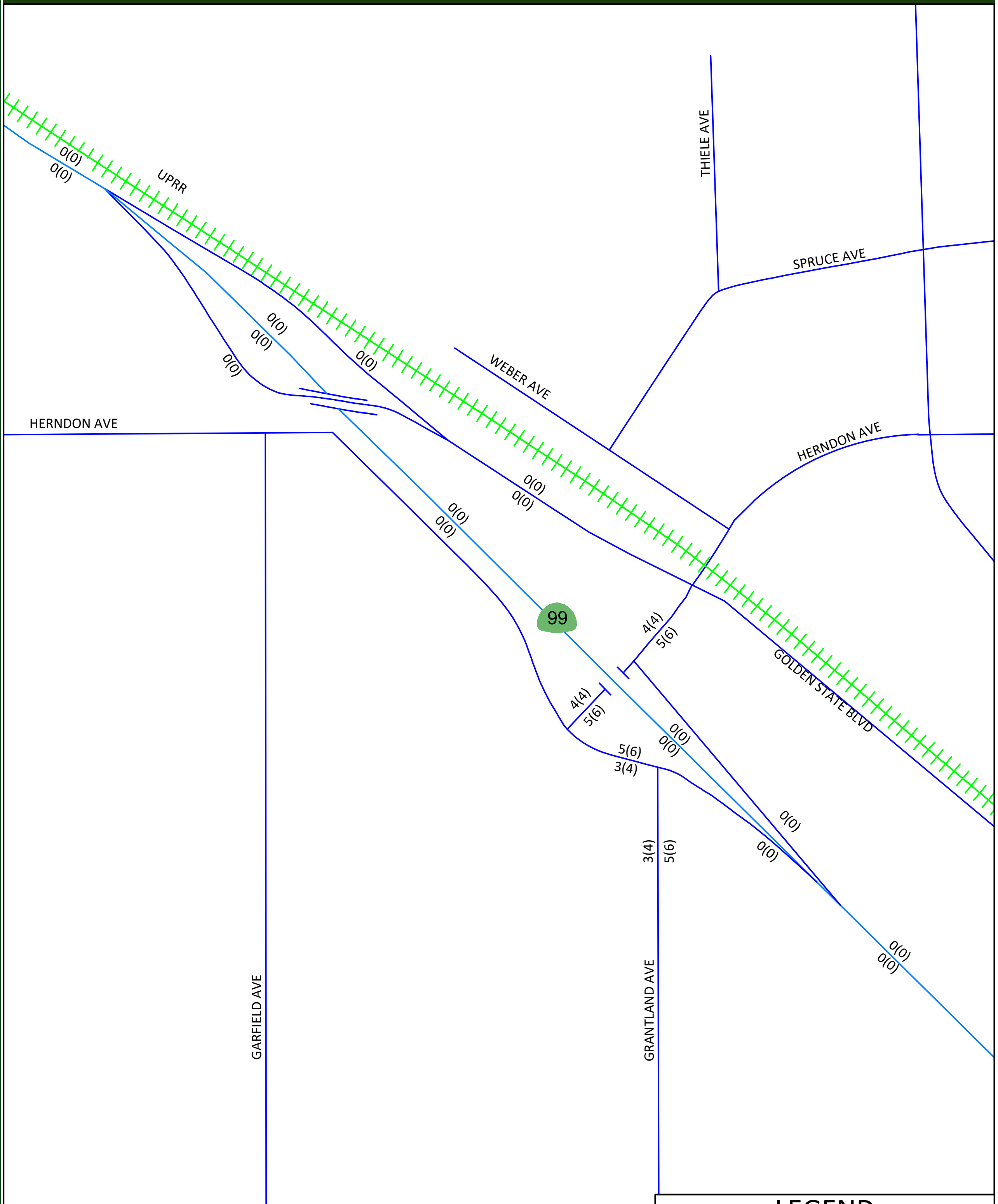
Figure 9

State Route 99 at Herndon Avenue- Project Only Trips



LEGEND

XX = AM PEAK HOUR TRIPS

(XX) = PM PEAK HOUR TRIPS

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Queuing Analysis

Table VIII provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix D contains the methodologies used to evaluate these intersections. Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the *Synchro Studio 11 User Guide*, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes" (Cubic ITS, Inc., 2019). The queues shown in Table VIII are the 95th percentile queue lengths for the respective lane movements.

The *California Highway Design Manual* (CA HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are "usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane" (Caltrans, 2019). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table VIII.

The storage capacity for the Cumulative Year 2046 plus Project Traffic Conditions shall be based on the SimTraffic output files and engineering judgment. The values in bold presented in Table VIII are the projected queue lengths that will likely need to be accommodated by the Cumulative Year 2046 plus Project Traffic Conditions scenario. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

After a review of the SimTraffic simulation, it is anticipated that the northbound left-turn pocket at the intersection of Hayes Avenue at Western Driveway will receive a maximum of four cars. The southbound left-turn pocket at the intersection of Hayes Avenue at Southern Commercial Driveway will receive a maximum of three cars. Both of the storage pockets and tapers have enough space to fit approximately three cars. Based on this analysis, it was determined that the inbound left-turn storage for these driveways may exceed their available space on some occasions. Given the relatively low volumes of northbound/southbound traffic along Hayes Avenue, which has four lanes, these queues are anticipated to clear quickly. Therefore, it is recommended that the development of the southwest corner of Herndon Avenue and Hayes Avenue modify the concrete median to create the access to accommodate the northbound left-turn entrance.

Table VIII: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM
1	Hayes Avenue / Herndon Avenue	Eastbound Dual Lefts	250	37	44	32	62	67	138	64	87
		Eastbound Through	>500	152	142	159	153	206	256	213	204
		Eastbound Through	>500	144	127	147	148	219	283	245	214
		Eastbound Right	>300	15	6	17	22	16	24	23	20
		Westbound Dual Lefts	250	29	10	34	29	86	60	74	57
		Westbound Through	>500	108	124	101	127	121	132	130	120
		Westbound Through	>500	110	120	112	125	110	139	132	133
		Westbound Through	>500	83	79	62	95	106	146	122	142
		Westbound Right	150	6	12	8	10	12	14	21	15
		Northbound Dual Lefts	140	23	34	44	48	33	39	54	40
		Northbound Through	>500	57	102	74	86	71	95	125	104
		Northbound Through	>500	17	25	16	16	15	16	28	17
		Northbound Right	>180	22	12	32	54	38	40	47	39
		Southbound Dual Lefts	100	30	35	26	17	15	29	34	22
		Southbound Through	>500	53	22	56	39	78	23	71	67
		Southbound Through	>500	78	40	77	30	96	58	100	90
		Southbound Right	80	54	31	58	29	47	40	41	35
2	Hayes Avenue / Western Driveway	Eastbound Right	*	*	*	*	*	65	50	65	57
		Northbound Left	*	*	*	*	*	55	37	**64**	38
		Northbound Through	*	*	*	*	*	0	0	0	0
		Northbound Through	*	*	*	*	*	0	0	0	0
		Southbound Through	*	*	*	*	*	0	0	0	0
		Southbound Through-Right	*	*	*	*	*	7	0	7	15
3	Hayes Avenue / Southern Commercial Driveway	Westbound Left-Right	*	*	*	68	66	53	68	85	84
		Northbound Through	*	*	*	0	0	0	0	0	0
		Northbound Through-Right	*	*	*	0	0	0	0	0	0
		Southbound Left	*	*	*	17	29	32	27	30	**34**
		Southbound Through	*	*	*	0	0	0	0	0	0
		Southbound Through	*	*	*	0	0	0	0	0	0
4	Hayes Avenue / Northern Residential Driveway	Westbound Left-Right	*	*	*	42	39	43	41	45	38
		Northbound Through	*	*	*	0	0	0	0	0	0
		Northbound Through	*	*	*	0	0	0	0	0	0
		Southbound Through	*	*	*	0	0	0	0	0	0
		Southbound Through	*	*	*	0	0	0	0	0	0

Note: * = Does not exist or is not projected to exist

Table VIII: Queuing Analysis (Continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative Year 2046 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM
5	Palo Alto Avenue / Hayes Avenue	Eastbound Left	*	*	*	17	31	9	33	**23**	23
		Eastbound Through	>500	45	32	49	44	81	39	96	44
		Eastbound Through-Right	>500	89	48	90	62	149	68	181	67
		Westbound Left	150	92	65	119	64	130	61	**176**	70
		Westbound Through	>500	50	49	59	61	88	94	121	88
		Westbound Through	>500	31	41	*	*	*	*	*	*
		Westbound Through-Right	*	*	*	68	70	65	77	90	83
		Northbound Left-Right	>300	103	56	*	*	*	*	*	*
		Northbound Left-Through-Right	*	*	*	113	56	129	72	159	94
		Southbound Left-Through-Right	*	*	*	60	46	69	47	76	46
6	Veterans Boulevard / Hayes Avenue	Eastbound Left	>300	77	49	136	68	140	69	135	68
		Eastbound Right	>300	55	33	55	61	90	56	67	64
		Eastbound Right	170	51	27	67	40	97	62	78	79
		Northbound Dual Left	260	196	81	179	118	434	460	**360**	245
		Northbound Through	>500	168	125	148	127	1930	430	293	140
		Northbound Through	>500	157	98	116	115	1884	208	218	112
		Northbound Through	>500	82	38	84	61	1527	116	186	115
		Southbound Through	>500	137	155	156	177	152	149	143	206
		Southbound Through	>500	122	136	145	163	138	156	143	222
		Southbound Through	>500	48	99	100	118	141	157	131	215
		Southbound Right	100	61	46	71	78	100	58	87	**115**

Note: * = Does not exist or is not projected to exist

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing Traffic Conditions

- JLB conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to obtain collision reports for the most recent five-year period. Based on a review of the collision reports, a total of six (6) collisions were reported within the influence zone of the study intersections in the most recent five-year period. Based on the number of correctable collisions, JLB does not recommend changes to the existing traffic controls or intersection geometrics at any of these intersections.
- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project Traffic Conditions

- JLB analyzed the location of the existing and proposed roadways and access points relative to those in the vicinity of the Project site. After a review of the original site plan, it was recommended that the second commercial access driveway be shifted south approximately ten (10) feet so that it better aligns with the internal driveway aisle to the east and the commercial driveway widths be increased to 35 feet. These recommendations have been addressed in the most recent site plan.
- At buildout, the proposed Project is estimated to generate approximately 5,968 daily trips, 423 AM peak hour trips and 483 PM peak hour trips.
- It is recommended that the Project construct Class I bikeways along its frontages to Hayes Avenue and Veterans Boulevard.
- It is recommended that the Project add a high visibility crosswalk across the north leg of the intersection of Hayes Avenue at Palo Alto Avenue.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 100,395 weekday daily trips, 5,259 weekday AM peak hour trips and 8,970 weekday PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Cumulative Year 2046 plus Project Traffic Conditions

- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peaks.

Queuing Analysis

- It is recommended that the City consider left-turn and right-turn lane storage lengths as indicated in the Queuing Analysis.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Project Engineer – Traffic Operations
Christian Sanchez, EIT	Project Engineer – Engineering Design
Adrian Benavides	Engineer II
Arjun Dillon	Engineering Aide
Diana Cortes	Engineering Aide

Persons Consulted:

Armen Basmajian	Marc O' Polo Enterprises
Harmanjit Dhaliwal, PE	City of Fresno
Sophia Pagoulatos	City of Fresno
Jill Gormley, PE	City of Fresno
Agela Reis	City of Fresno
Hector Luna	County of Fresno
David Padilla	Caltrans, D6
Keyomi Jones	Caltrans, D6
Mike Aronson, PE	Kittelson and Associates, Inc.

References

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National Academies of Sciences, Engineering, and Medicine. 2022. "Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis" Washington: The National Academies Press.

Transportation Research Board. 2016. "Highway Capacity Manual". Washington: The National Academy of Sciences.

Appendix A: Scope of Work

March 7, 2024

Mr. Harmanjit Dhaliwal, P.E.
City of Fresno
2600 Fresno Street
Fresno, CA 93721-3616

Via Email Only: Harmanjit.Dhaliwal@fresno.gov

Subject: Proposed Scope of Work for the Preparation of a Traffic Impact Analysis and Vehicle Miles Traveled Analysis for the Mixed-Use Development on the Southeast Corner of Herndon Avenue and Hayes Avenue in the City of Fresno (JLB Project 004-221)

Dear Mr. Dhaliwal,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a **Traffic Impact Analysis (TIA) and Vehicle Miles Traveled (VMT) Analysis** for the **Mixed Use Development (Project)** located on the southeast corner of Herndon Avenue and Hayes Avenue in the City of Fresno. The Project proposes to develop 2.2 net acres with up to 22,666 square feet of commercial and 21.22 net acres with up to 516 multi-family residential units. Based on information provided to JLB, the Project is consistent with the City of Fresno General Plan. An aerial of the Project vicinity and Project Site Plan are shown in Exhibits A and B, respectively.

The purpose of the TIA and VMT analysis are to evaluate the potential on-site and off-site traffic impacts, identify roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process. JLB proposes the following Scope of Work to evaluate the on-site and off-site traffic impacts of the proposed Project.

Scope of Work

- JLB will obtain recent or schedule and conduct new traffic counts at the study facility(ies) as necessary. These counts will include pedestrians and vehicles.
- JLB will request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis) which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year 2019 and Cumulative Year 2046 scenarios.
- JLB will perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including intersection geometrics and traffic controls will be verified.
- JLB will evaluate on-site circulation and provide recommendations as necessary to improve circulation to and within the Project site. Particular attention will be paid to conflicting traffic movements, location of local roadways to major streets, and onsite vehicular ingress and egress routes.

- JLB will prepare California Manual on Uniform Traffic Control Devices (CA MUTCD) Warrant 1 "8-hour" and Warrant 2 "4-hour" for the existing unsignalized study intersections under the Existing Traffic Conditions scenario.
- JLB will conduct a qualitative safe route to school evaluation from the Project site to the K-12 school(s) which would most likely serve the Project on opening day.
- JLB will prepare CA MUTCD Warrant 3 "Peak Hour" for unsignalized study intersections under all study scenarios.
- JLB will qualitatively analyze existing and planned transit routes in the vicinity of the Project.
- JLB will qualitatively analyze existing and planned bikeways in the vicinity of the Project.
- JLB will forecast trip distribution based on turn count information, knowledge of the existing and planned circulation network in the vicinity of the Project, and the Fresno COG Activity Based Model (ABM).
- JLB will evaluate existing and forecasted levels of service (LOS) at the study intersection(s). JLB will use HCM 6th or HCM 2000 methodologies (as appropriate) within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.
- JLB will prepare a five-year collision analysis based on the Statewide Integrated Traffic Reporting System (SWITRS) database for all existing study facilities.
- JLB will prepare Project's VMT based on output from the Fresno COG ABM and the City's VMT guidelines.

Study Scenarios

1. Existing Traffic Conditions with needed improvements (if any);
2. Existing plus Project Traffic Conditions with proposed mitigation measures (if any);
3. Near Term plus Project, plus Approved and Pending Developments Traffic Conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2046 plus Project Traffic Conditions with proposed mitigation measures (if any).

Weekday peak hours to be analyzed (Tuesday, Wednesday, or Thursday only)

1. 7 - 9 AM Peak Hour
2. 4 - 6 PM Peak Hour

Study Intersections

1. Herndon Avenue / Hayes Avenue
2. Southern Project Commercial Driveway / Hayes Avenue (future intersection)
3. Palo Alto Avenue / Hayes Avenue
4. Veterans Boulevard / Hayes Avenue
5. Veterans Boulevard / Project Residential Driveway (future intersection)

Queuing analysis is included in the proposed Scope of Work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left-turn and right-turn lanes at all study intersections.

Study Segments

1. None

Project Only Trip Assignment to the following State facilities

1. SR 99 at Herndon Avenue

Trip Generation

The trip generation rates for the proposed Project were obtained from the 11th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). Table I presents the trip generation rates for the proposed Project with trip generations for Multifamily Housing (Low Rise) (220), Fast-Food Restaurant with Drive-Through Window (934) and Strip Retail Plaza (<40k) (822). At buildout, the Project is estimated to generate approximately 6,777 daily trips, 471 AM peak hour trips and 544 PM peak hour trips.

Table I: Project Trip Generation

Land Use (ITE Code)	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Multifamily Housing (Low Rise) (220)	516	d.u.	6.74	3,478	0.40	24	76	49	157	206	0.51	63	37	166	97	263
Strip Retail Plaza (<40k) (822)	17.666	k.s.f.	54.45	962	2.36	60	40	25	17	42	6.59	50	50	58	58	116
Fast-Food Restaurant with Drive-Through Window (934)	5.000	k.s.f.	467.48	2,337	44.61	51	49	114	109	223	33.03	52	48	86	79	165
Total Driveway Trips				**6,777**				**188**	**283**	**471**				**310**	**234**	**544**

Note: d.u. = Dwelling Units
k.s.f. = Thousand Square Feet

Near Term Projects to be Included

Based on our local knowledge of the study area and consultation with City of Fresno Planning & Development staff, JLB proposes to include near term projects in the vicinity of the proposed Project under the Near Term plus Project scenario. The near term projects proposed to be included in the Near Term scenario are:

Project Name	General Location
1. TT 5756	SEQ Polk Ave and Ashlan Ave
2. TT 6162	NEC Hayes Ave and Ashlan Ave
3. TT 6195	NWQ Riverside Dr and Herndon Ave
4. TT 6198	NWC Grantland Ave and Shaw Ave
5. TT 6199	SEQ Grantland Ave and Ashlan Ave
6. TT 6195	NWQ Riverside Dr and Herndon Ave
7. TT 6234	West of Hayes Ave and Dakota Ave
8. TT 6258	West of Hayes Ave and Holland Ave
9. TT 6308	NEC Bryan Ave and Ashlan Ave
10. Bella Vista Professional Offices	NWC Herndon Ave and Spruce Ave
11. Dakota and Grantland Subdivision	SEC Grantland Ave and Dakota Ave
12. El Paseo Commercial Development (portion of)	NWC Herndon Ave and Riverside Dr
13. Fresno Costco	NEQ Herndon Ave and Riverside Ave
14. Herndon-Hayes	SWC Herndon Ave and Hayes Ave

15. Jack in the Box	SEC Barcus Ave and Shaw Ave
16. Justin Garza Highschool	NEC Grantland Ave and Ashlan Ave
17. Parc West	NWC Grantland Ave and Ashlan Ave
18. Riverside Apartments	SEQ Riverside Dr and Herndon Ave
19. Shaw and 99 Mixed-Use Development	NWQ Island Waterpark Dr and Shaw Ave
20. Westbridge Apartments	SEQ Grantland Ave and Barstow Ave

The Scope of Work is based on our understanding of this Project and our experience with similar TIAs. JLB hereby requests written comments (letter or email) on the above scope of work preferably by March 29, 2024. In the absence of comments by March 29, 2024, it will be assumed that the Scope of Work is acceptable to the agency(ies) that have not submitted any comments. If you have any questions, require additional information, or need additional time to review the above Draft Scope of Work please contact me by phone at (559) 317-6243, or via email at marndt@JLBtraffic.com.

Sincerely,

Matt Arndt

Matthew Arndt
Engineer I/II

c: Jill Gormley, T.E., City of Fresno
Sophia Pagoulatos, City of Fresno
Hector Luna, County of Fresno
David Padilla, Caltrans
Jose Luis Benavides, P.E., T.E., JLB Traffic Engineering, Inc.

Exhibit A – Aerial

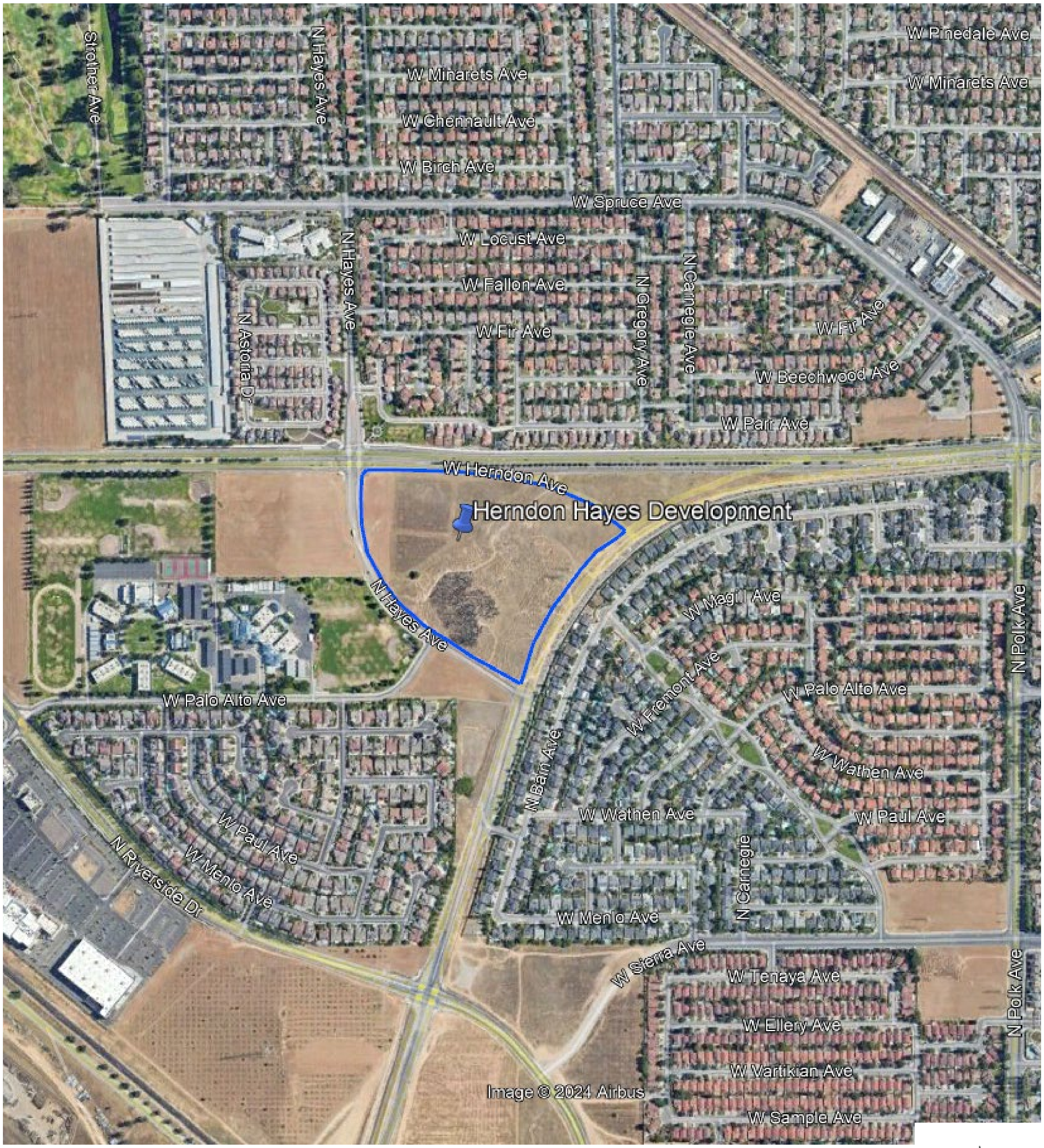
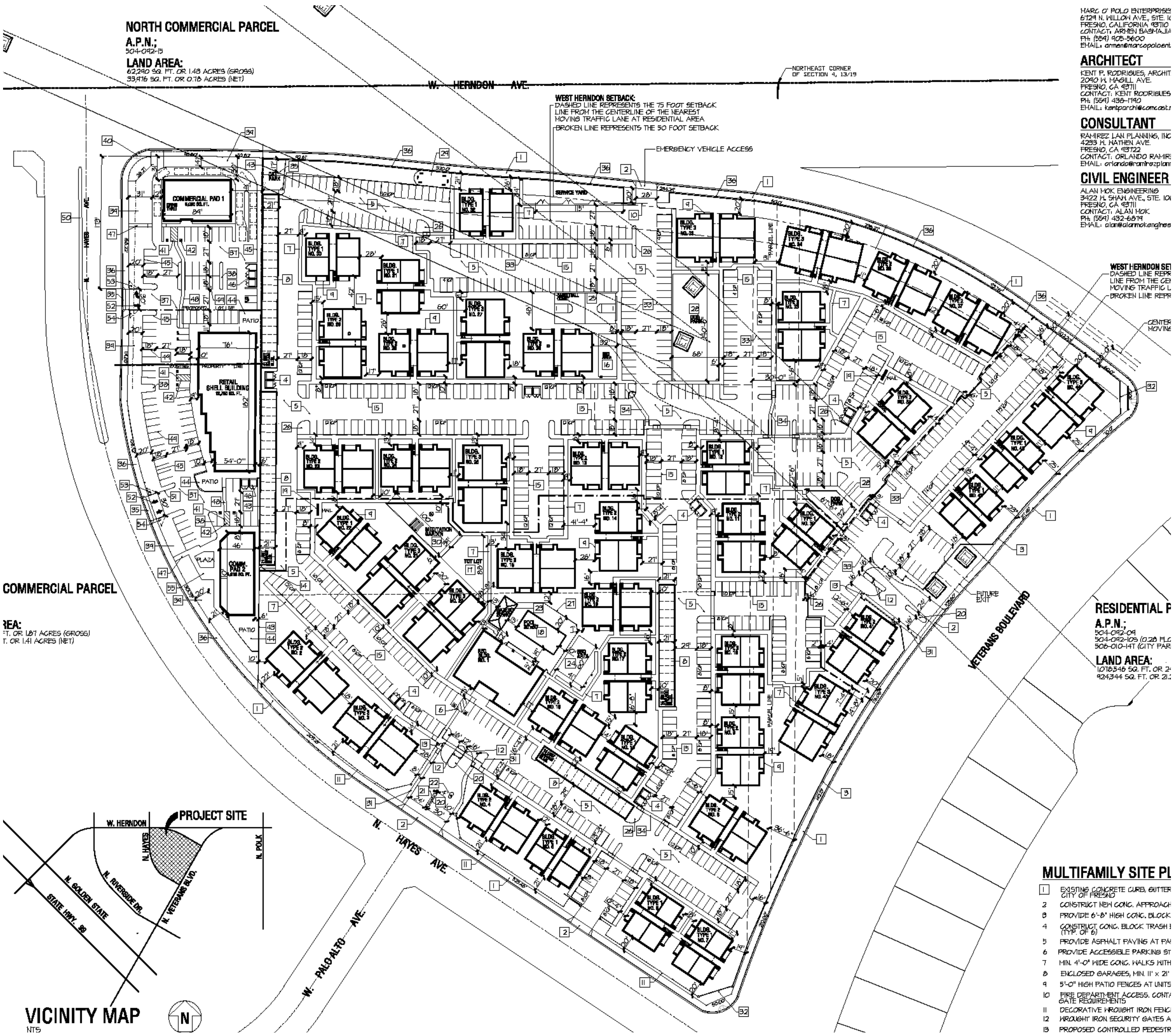


Exhibit B – Project Site Plan



Matt Arndt

From: Jones, Keyomi L@DOT <Keyomi.Jones@dot.ca.gov>
Sent: Tuesday, March 19, 2024 2:12 PM
To: Matt Arndt
Cc: Padilla, Dave@DOT
Subject: SEC Herndon and Hayes TIA and VMT Analysis

Good afternoon Matt,

Regarding the submitted scope of work for TIA and VMT Analysis, based on our preliminary review Caltrans doesn't have any concerns with the SOW. Once completed, please provide us with a copy of the TIA. My apologies for the delay.

Thank you,

Keyomi Jones, Tranportation Planner
Caltrans District 6|Transportation Planning
Local Development Review and Regional Planning

Mobile 559-981-7284
Web www.dot.ca.gov | **Email** keyomi.jones@dot.ca.gov
1352 W. Olive Avenue|Fresno, CA 93728

Matt Arndt

From: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Sent: Thursday, March 28, 2024 11:07 AM
To: Matt Arndt
Cc: Jill Gormley; Sophia Pagoulatos; Luna, Hector; Padilla, Dave@DOT; Jose Benavides
Subject: RE: SEC Herndon and Hayes TIA and VMT Analysis

Matt,

With the trip distribution provided, the City is agreeable to the scope with the following comments:

- Residential Driveway 2 may not be allowed due to the proximity to the intersection of Hayes and Veterans. Please show analysis in each scenario (Existing Plus Project, Near Term, and Cumulative) that does not show this as an access point.

Thanks,

Harmanjit Dhaliwal, PE
Licensed Engineer Manager
Land Planning & Subdivision Inspection Section, Public Works Department
2600 Fresno Street, Room 4016
Fresno, CA 93721-3623
Direct: (559) 621-8694
Main: (559) 621-8800
www.fresno.gov
Building a Better Fresno
ONEFRESNO
Let's Build Together!

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, March 22, 2024 4:58 PM
To: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Cc: Jill Gormley <Jill.Gormley@fresno.gov>; Sophia Pagoulatos <Sophia.Pagoulatos@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: RE: SEC Herndon and Hayes TIA and VMT Analysis

External Email: Use caution with links and attachments

Hello,

Attached to this email is the trip distribution for the SEC of Herndon and Hayes Development. Please review and let me know if you have any questions or requests for the Draft Scope of Work on this project.

Sincerely,

Matthew Arndt

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
Office: (559) 570-8991
Direct: (559) 317-6243
Cell: (559) 360-1886
www.JLBtraffic.com

From: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Sent: Wednesday, March 13, 2024 10:18 AM
To: Matt Arndt <marndt@jlbtraffic.com>
Cc: Jill Gormley <Jill.Gormley@fresno.gov>; Sophia Pagoulatos <Sophia.Pagoulatos@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: RE: SEC Herndon and Hayes TIA and VMT Analysis

Good Morning Matt,

To complete the City's review of the Scope we will need the COG Model.

Thanks,

Harmanjit Dhaliwal, PE
Licensed Engineer Manager
Land Planning & Subdivision Inspection Section, Public Works Department
2600 Fresno Street, Room 4016
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Direct: (559) 621-8694
Main: (559) 621-8800
www.fresno.gov
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ONEFRESNO
Let's Build Together!

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Thursday, March 07, 2024 3:57 PM
To: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Cc: Jill Gormley <Jill.Gormley@fresno.gov>; Sophia Pagoulatos <Sophia.Pagoulatos@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
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Hello,

Attached to this email is the Draft Scope of Work for the preparation of a Traffic Impact Analysis and Vehicle Miles Traveled Analysis for a Mixed-Use Development located on the southeast corner of Herndon Avenue and Hayes Avenue in the City of Fresno. We kindly ask that you take a moment to review and comment on the proposed Draft Scope of Work. If you have any questions or require additional information, please contact me by phone at (559)317-6243 or by responding to this email. We appreciate your time and attention to this matter and look forward to hearing from you soon.

Sincerely,

Matthew Arndt

JLB TRAFFIC ENGINEERING

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Cell: (559) 360-1886
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Matt Arndt

From: Luna, Hector <HLuna@fresnocountyca.gov>
Sent: Friday, March 29, 2024 11:44 AM
To: Matt Arndt; Harmanjit Dhaliwal
Cc: Jill Gormley; Sophia Pagoulatos; Padilla, Dave@DOT; Jose Benavides
Subject: RE: SEC Herndon and Hayes TIA and VMT Analysis

The planned development is not expected to significantly impact neighboring county facilities.

Regards,

Hector E. Luna | **Senior Planner**
Department of Public Works and Planning |
Water and Natural Resources Division
2220 Tulare St. 6th Floor Fresno, CA 93721
Main Office: (559) 600-4497 | Direct: (559) 600-4216
Email: hluna@FresnoCountyCa.gov
Your input matters! Customer Service Survey

From: Matt Arndt <marndt@jlbtraffic.com>
Sent: Friday, March 22, 2024 4:58 PM
To: Harmanjit Dhaliwal <Harmanjit.Dhaliwal@fresno.gov>
Cc: Jill Gormley <Jill.Gormley@fresno.gov>; Sophia Pagoulatos <Sophia.Pagoulatos@fresno.gov>; Luna, Hector <HLuna@fresnocountyca.gov>; Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Jose Benavides <jbenavides@jlbtraffic.com>
Subject: RE: SEC Herndon and Hayes TIA and VMT Analysis

CAUTION!!! - EXTERNAL EMAIL - THINK BEFORE YOU CLICK

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Sincerely,

Matthew Arndt

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Office: (559) 570-8991
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Cell: (559) 360-1886
www.JLBtraffic.com

Appendix B: Traffic Counts

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

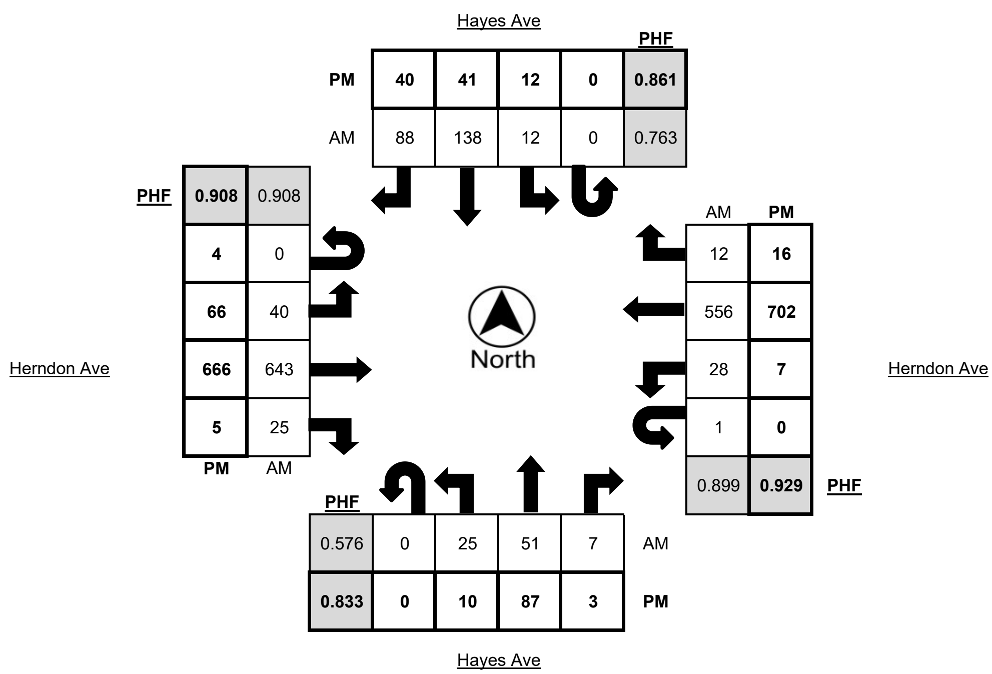
LOCATION W Herndon Avenue / N Hayes Avenue
LATITUDE 36.8369
COUNTY Fresno
LONGITUDE -119.9016
COLLECTION DATE Tuesday, April 9, 2024
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	2	8	1	2	0	2	16	25	0	1	7	99	1	7	0	2	136	0	2
7:15 AM - 7:30 AM	0	2	14	0	4	0	5	27	26	2	0	4	136	7	4	0	5	159	2	3
7:30 AM - 7:45 AM	0	3	7	2	0	0	3	53	22	2	0	8	162	7	1	0	5	156	3	4
7:45 AM - 8:00 AM	0	8	10	1	2	0	0	32	20	3	0	12	176	7	5	1	10	118	4	6
8:00 AM - 8:15 AM	0	12	20	4	1	0	4	26	20	1	0	16	169	4	5	0	8	123	3	1
8:15 AM - 8:30 AM	0	2	16	2	0	0	1	13	12	0	0	15	172	2	4	0	2	99	2	2
8:30 AM - 8:45 AM	0	1	12	0	1	0	2	9	11	0	1	11	151	0	1	0	2	135	4	4
8:45 AM - 9:00 AM	0	2	11	1	1	0	4	8	15	0	0	9	138	0	5	0	0	102	4	4
TOTAL	**0**	**32**	**98**	**11**	**11**	**0**	**21**	**184**	**151**	**8**	**2**	**82**	**1203**	**28**	**32**	**1**	**34**	**1028**	**22**	**26**

	Northbound					Southbound					Eastbound					Westbound				
Time	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	3	22	3	2	0	3	15	8	1	1	23	165	2	3	0	2	156	7	2
4:15 PM - 4:30 PM	0	1	19	1	2	0	2	9	11	2	1	22	177	4	2	0	0	192	3	3
4:30 PM - 4:45 PM	0	3	21	1	2	0	5	13	9	1	0	10	165	0	0	0	5	179	5	3
4:45 PM - 5:00 PM	0	3	20	1	0	0	3	8	10	1	3	17	153	0	3	0	0	163	4	1
5:00 PM - 5:15 PM	0	3	27	0	1	0	2	11	10	1	0	17	171	1	0	0	2	168	4	1
5:15 PM - 5:30 PM	0	0	19	2	0	0	1	8	16	0	2	12	182	0	2	0	1	180	8	1
5:30 PM - 5:45 PM	0	3	10	0	0	0	2	8	8	0	1	15	157	1	1	0	3	176	5	3
5:45 PM - 6:00 PM	0	5	11	1	2	0	8	11	18	0	0	12	126	0	0	0	3	160	8	1
TOTAL	**0**	**21**	**149**	**9**	**9**	**0**	**26**	**83**	**90**	**6**	**8**	**128**	**1296**	**8**	**11**	**0**	**16**	**1374**	**44**	**15**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks	U-Turn	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	0	25	51	7	7	0	12	138	88	8	0	40	643	25	15	1	28	556	12	14
4:15 PM - 5:15 PM	0	10	87	3	5	0	12	41	40	5	4	66	666	5	5	0	7	702	16	8

	PHF	Trucks
AM	0.943	2.7%
PM	0.938	1.4%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

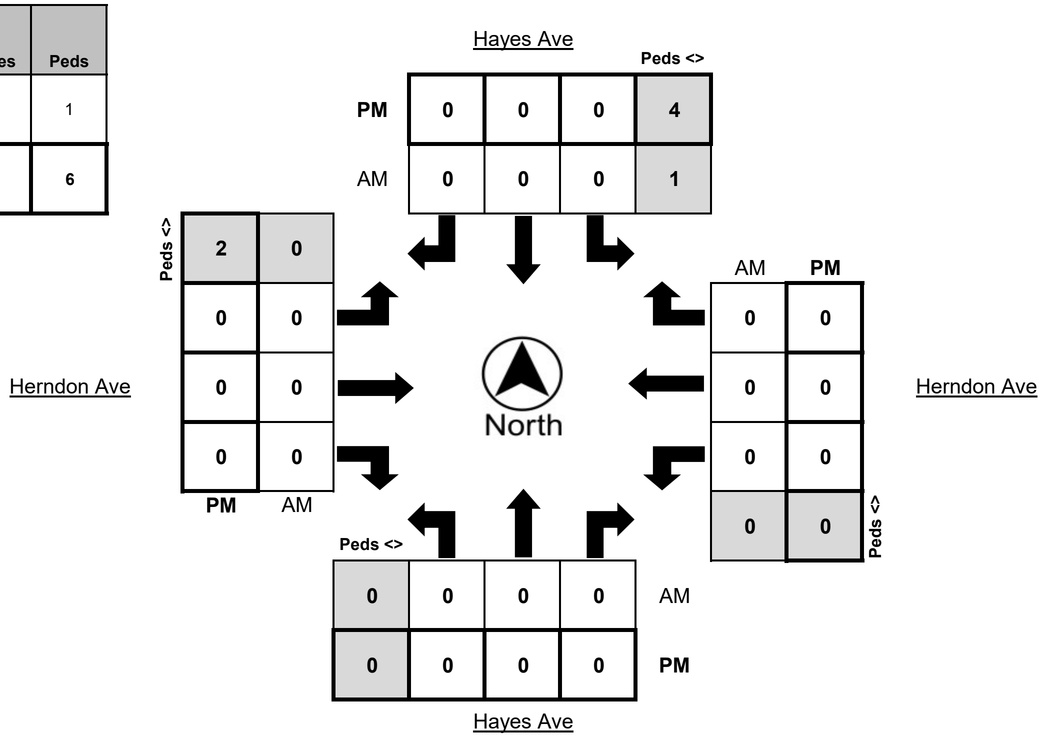
LOCATION	W Herndon Avenue / N Hayes Avenue	**LATITUDE**	36.8369
COUNTY	Fresno	**LONGITUDE**	-119.9016
COLLECTION DATE	Tuesday, April 9, 2024	**WEATHER**	Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:00 AM - 7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**1**	**4**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**	**Left**	**Thru**	**Right**	**Peds**
7:15 AM - 8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2

	Bikes	Peds
AM Peak Total	0	1
PM Peak Total	**0**	**6**



JLB Traffic Engineering, Inc.

516 West Shaw Avenue, Suite 103
Fresno, CA, 93704
Traffic Engineering, Transportation, & Parking Solutions
www.JLBtraffic.com

File Name : 03 Hayes Avenue at Palo Alto Avenue
Site Code : 00000000
Start Date : 3/13/2024
Page No : 1

Groups Printed- Unshifted

	HAYES From North					PALO ALTO From East					HAYES From South					PALO ALTO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	5	10	0	0	15	0	0	0	0	0	0	6	20	0	26	15	0	1	0	16	57
07:15 AM	13	15	0	0	28	0	0	0	0	0	0	4	62	0	66	32	0	5	0	37	131
07:30 AM	35	23	0	0	58	0	0	0	0	0	0	13	109	0	122	58	0	3	0	61	241
07:45 AM	46	11	0	0	57	0	0	0	0	0	0	11	96	0	107	67	0	14	0	81	245
Total	99	59	0	0	158	0	0	0	0	0	0	34	287	0	321	172	0	23	0	195	674
08:00 AM	24	14	0	0	38	0	0	0	0	0	0	18	48	0	66	89	0	22	0	111	215
08:15 AM	7	17	0	0	24	0	0	0	0	0	0	10	25	0	35	28	0	5	0	33	92
08:30 AM	3	9	0	3	15	0	0	0	0	0	0	7	9	0	16	10	0	3	0	13	44
08:45 AM	5	15	0	0	20	0	0	0	0	0	0	8	9	0	17	13	0	1	0	14	51
Total	39	55	0	3	97	0	0	0	0	0	0	43	91	0	134	140	0	31	0	171	402
*** BREAK ***																					
04:00 PM	6	11	0	0	17	0	0	0	0	0	0	16	32	1	49	21	0	5	0	26	92
04:15 PM	2	11	0	0	13	0	0	0	0	0	0	11	23	0	34	22	0	6	0	28	75
04:30 PM	1	8	0	0	9	0	0	0	0	0	0	11	19	0	30	17	0	1	0	18	57
04:45 PM	7	9	0	0	16	0	0	0	0	0	0	17	20	0	37	11	0	4	1	16	69
Total	16	39	0	0	55	0	0	0	0	0	0	55	94	1	150	71	0	16	1	88	293
05:00 PM	6	9	0	1	16	0	0	0	0	0	0	16	20	0	36	17	0	4	0	21	73
05:15 PM	5	5	0	0	10	0	0	0	0	0	0	24	26	0	50	26	0	6	0	32	92
05:30 PM	6	9	0	0	15	0	0	0	0	0	0	19	28	0	47	17	0	4	0	21	83
05:45 PM	4	8	0	0	12	0	0	0	0	0	0	13	22	0	35	14	0	7	0	21	68
Total	21	31	0	1	53	0	0	0	0	0	0	72	96	0	168	74	0	21	0	95	316
Grand Total	175	184	0	4	363	0	0	0	0	0	0	204	568	1	773	457	0	91	1	549	1685
Apprch %	48.2	50.7	0	1.1		0	0	0	0		0	26.4	73.5	0.1		83.2	0	16.6	0.2		
Total %	10.4	10.9	0	0.2	21.5	0	0	0	0	0	0	12.1	33.7	0.1	45.9	27.1	0	5.4	0.1	32.6	

JLB Traffic Engineering, Inc.

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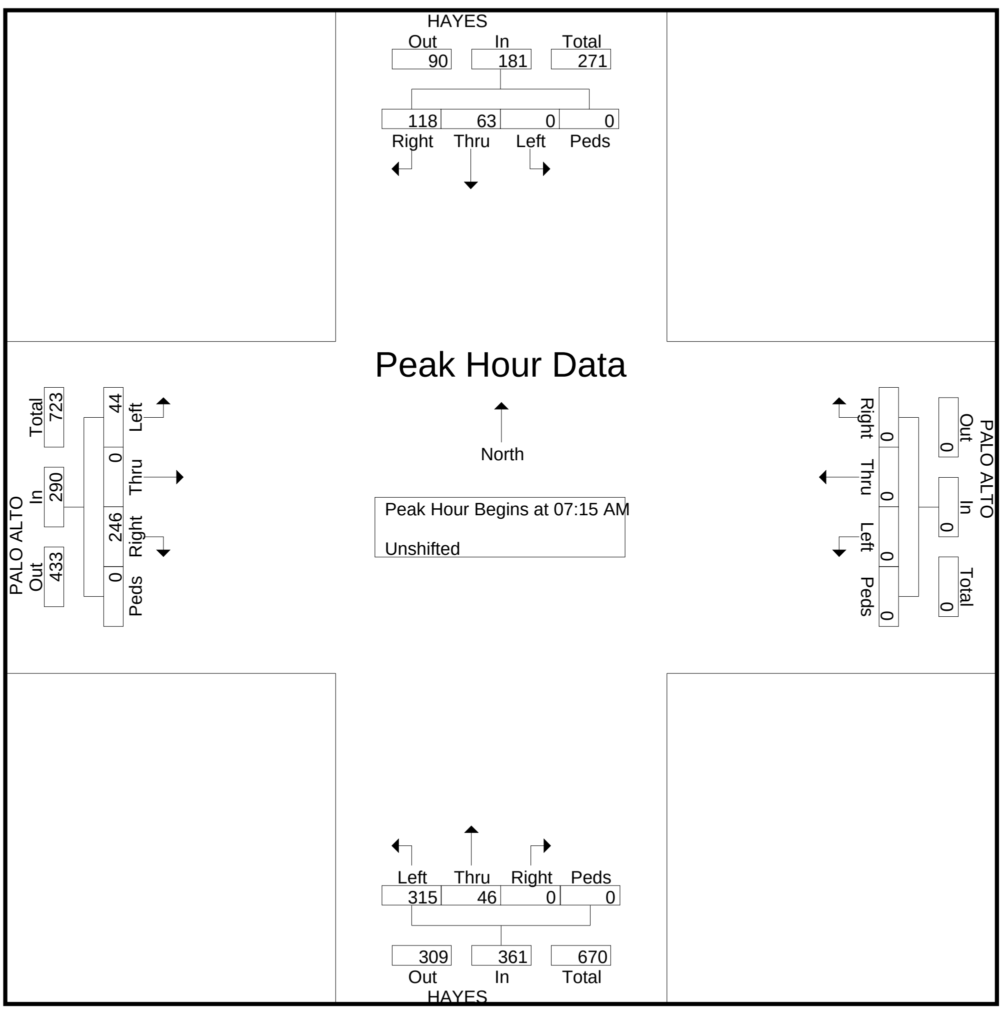
File Name : 03 Hayes Avenue at Palo Alto Avenue
Site Code : 00000000
Start Date : 3/13/2024
Page No : 2

	HAYES From North					PALO ALTO From East					HAYES From South					PALO ALTO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	13	15	0	0	28	0	0	0	0	0	0	4	62	0	66	32	0	5	0	37	131
07:30 AM	35	**23**	0	0	**58**	0	0	0	0	0	0	13	**109**	0	**122**	58	0	3	0	61	241
07:45 AM	**46**	11	0	0	57	0	0	0	0	0	0	11	96	0	107	67	0	14	0	81	**245**
08:00 AM	24	14	0	0	38	0	0	0	0	0	0	**18**	48	0	66	**89**	0	**22**	0	**111**	215
Total Volume	118	63	0	0	181	0	0	0	0	0	0	46	315	0	361	246	0	44	0	290	832
% App. Total	65.2	34.8	0	0		0	0	0	0		0	12.7	87.3	0		84.8	0	15.2	0		
PHF	.641	.685	.000	.000	.780	.000	.000	.000	.000	.000	.000	.639	.722	.000	.740	.691	.000	.500	.000	.653	.849



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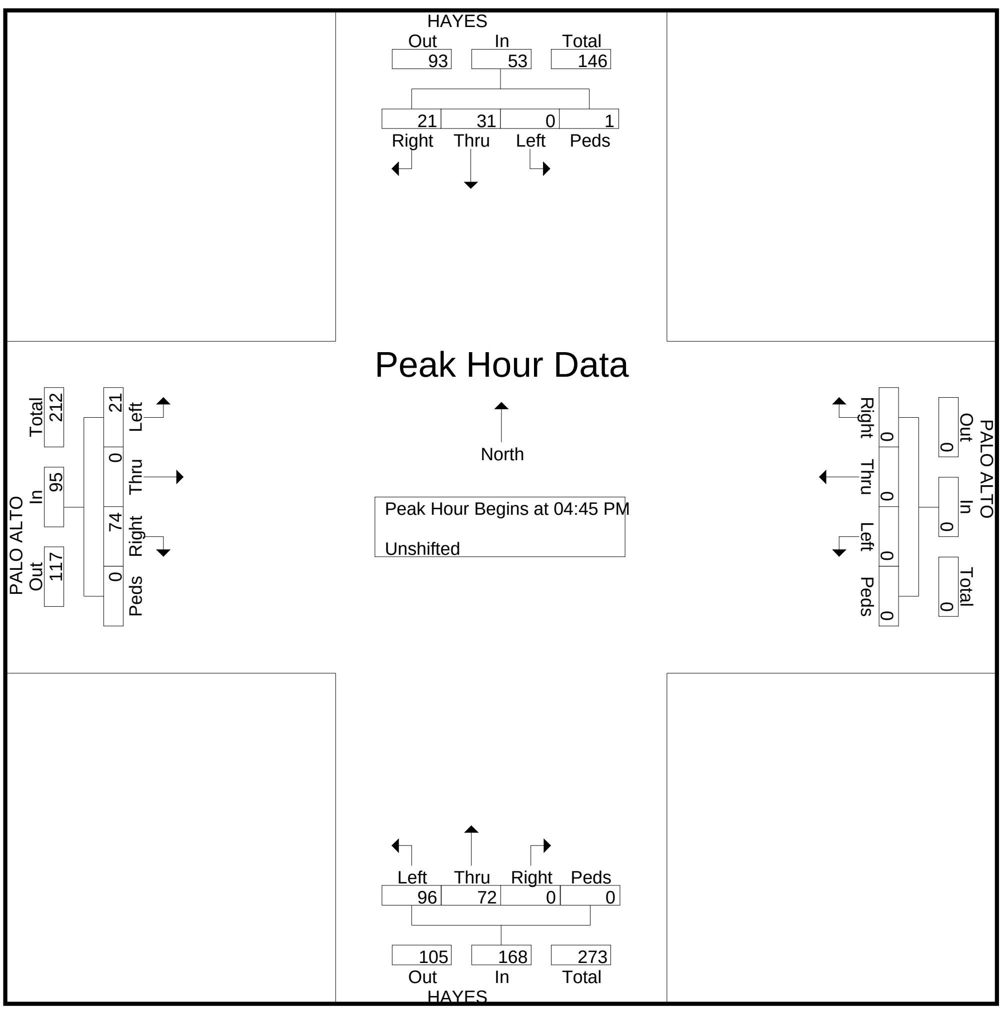
Fresno, CA, 93704

Traffic Engineering, Transportation, & Parking Solutions

www.JLBtraffic.com

File Name : 03 Hayes Avenue at Palo Alto Avenue
Site Code : 00000000
Start Date : 3/13/2024

	HAYES From North					PALO ALTO From East					HAYES From South					PALO ALTO From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**7**	**9**	0	0	**16**	0	0	0	0	0	0	17	20	0	37	11	0	4	**1**	16	69
05:00 PM	6	9	0	**1**	16	0	0	0	0	0	0	16	20	0	36	17	0	4	0	21	73
05:15 PM	5	5	0	0	10	0	0	0	0	0	0	**24**	26	0	**50**	**26**	0	**6**	0	**32**	**92**
05:30 PM	6	9	0	0	15	0	0	0	0	0	0	19	**28**	0	47	17	0	4	0	21	83
Total Volume	24	32	0	1	57	0	0	0	0	0	0	76	94	0	170	71	0	18	1	90	317
% App. Total	42.1	56.1	0	1.8		0	0	0	0		0	44.7	55.3	0		78.9	0	20	1.1		
PHF	.857	.889	.000	.250	.891	.000	.000	.000	.000	.000	.000	.792	.839	.000	.850	.683	.000	.750	.250	.703	.861



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:

JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

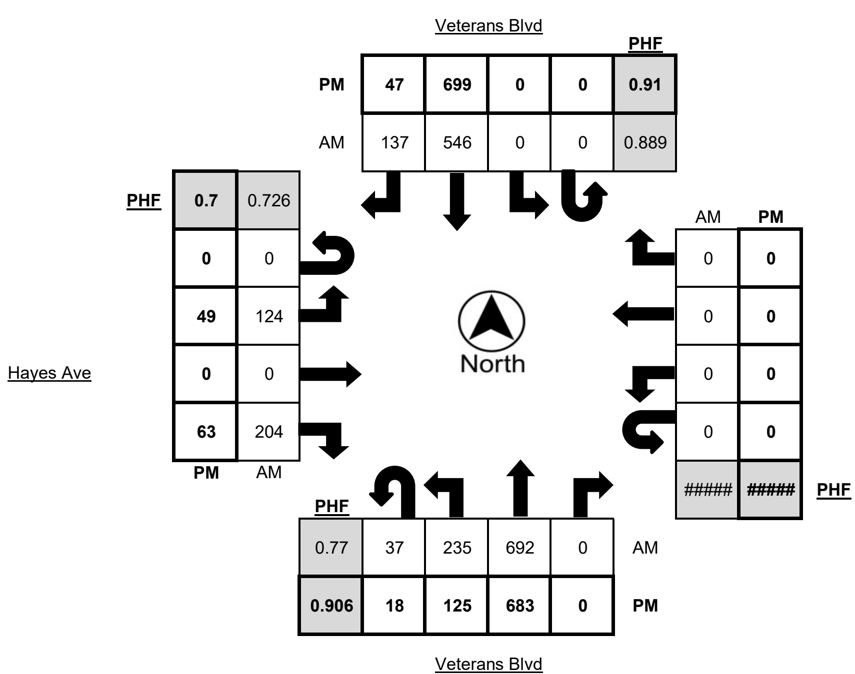
LOCATION N Veterans Boulevard / N Hayes Avenue
LATITUDE 36.8334
COUNTY Fresno
LONGITUDE -119.8985
COLLECTION DATE Tuesday, April 9, 2024
WEATHER Clear

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	13	31	112	0	2	0	0	106	9	5	0	10	0	19	0	0	0	0	0	0
7:15 AM - 7:30 AM	10	47	145	0	8	0	0	128	28	1	0	24	0	24	1	0	0	0	0	0
7:30 AM - 7:45 AM	12	89	212	0	4	0	0	137	52	0	0	27	0	49	0	0	0	0	0	0
7:45 AM - 8:00 AM	5	64	174	0	8	0	0	114	32	2	0	26	0	65	0	0	0	0	0	0
8:00 AM - 8:15 AM	10	35	161	0	1	0	0	167	25	4	0	47	0	66	2	0	0	0	0	0
8:15 AM - 8:30 AM	7	23	190	0	6	0	0	91	6	0	0	20	0	24	0	0	0	0	0	0
8:30 AM - 8:45 AM	6	17	170	0	4	0	0	74	4	1	0	4	0	10	0	0	0	0	0	0
8:45 AM - 9:00 AM	4	12	139	0	6	0	0	66	5	1	0	9	0	6	0	0	0	0	0	0
TOTAL	**67**	**318**	**1303**	**0**	**39**	**0**	**0**	**883**	**161**	**14**	**0**	**167**	**0**	**263**	**3**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
Time	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	2	33	180	0	6	0	0	128	7	3	0	20	0	27	1	0	0	0	0	0
4:15 PM - 4:30 PM	4	24	181	0	4	0	0	113	10	5	0	12	0	18	0	0	0	0	0	0
4:30 PM - 4:45 PM	4	29	165	0	4	0	0	152	11	3	0	13	0	16	1	0	0	0	0	0
4:45 PM - 5:00 PM	6	41	181	0	3	0	0	149	15	3	0	10	0	11	1	0	0	0	0	0
5:00 PM - 5:15 PM	6	35	174	0	3	0	0	196	9	4	0	20	0	20	1	0	0	0	0	0
5:15 PM - 5:30 PM	3	26	170	0	1	0	0	183	11	2	0	8	0	17	1	0	0	0	0	0
5:30 PM - 5:45 PM	3	23	158	0	1	0	0	171	12	0	0	11	0	15	1	0	0	0	0	0
5:45 PM - 6:00 PM	6	18	144	0	3	0	0	186	10	1	0	2	0	16	0	0	0	0	0	0
TOTAL	**34**	**229**	**1353**	**0**	**25**	**0**	**0**	**1278**	**85**	**21**	**0**	**96**	**0**	**140**	**6**	**0**	**0**	**0**	**0**	**0**

	Northbound					Southbound					Eastbound					Westbound				
PEAK HOUR	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**	**U-Turn**	**Left**	**Thru**	**Right**	**Trucks**
7:15 AM - 8:15 AM	37	235	692	0	21	0	0	546	137	7	0	124	0	204	3	0	0	0	0	0
4:45 PM - 5:45 PM	18	125	683	0	8	0	0	699	47	9	0	49	0	63	4	0	0	0	0	0

	PHF	**Trucks**
AM	0.854	1.6%
PM	0.915	1.2%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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Turning Movement Report

Prepared For:
JLB Traffic Engineering, Inc.
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

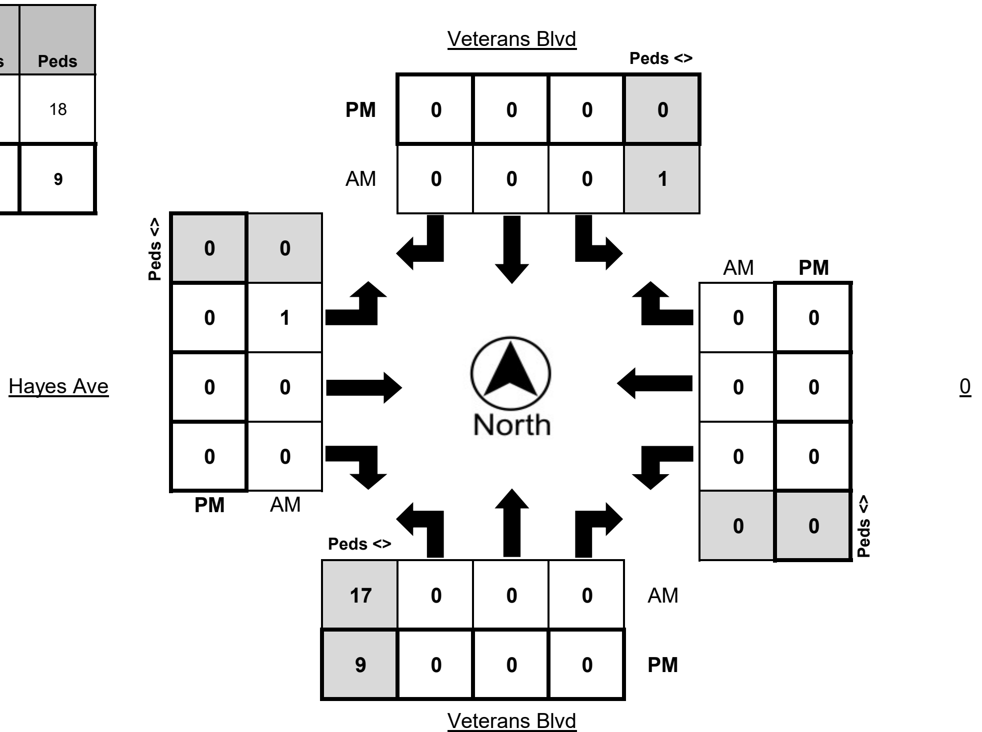
LOCATION N Veterans Boulevard / N Hayes Avenue
LATITUDE 36.8334
COUNTY Fresno
LONGITUDE -119.8985
COLLECTION DATE Tuesday, April 9, 2024
WEATHER Clear

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
7:45 AM - 8:00 AM	0	0	0	1	0	0	0	8	0	0	0	0	0	0	0	0
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM - 9:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**19**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM - 4:45 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM - 6:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

	Northbound Bikes			N.Leg	Southbound Bikes			S.Leg	Eastbound Bikes			E.Leg	Westbound Bikes			W.Leg
PEAK HOUR	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
7:15 AM - 8:15 AM	0	0	0	1	0	0	0	17	1	0	0	0	0	0	0	0
4:45 PM - 5:45 PM	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0

	Bikes	Peds
AM Peak Total	1	18
PM Peak Total	0	9



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Hayes Ave

SEGMENT North of Palo Alto Ave

COLLECTION DATE Tuesday, April 9, 2024

NUMBER OF LANES 4

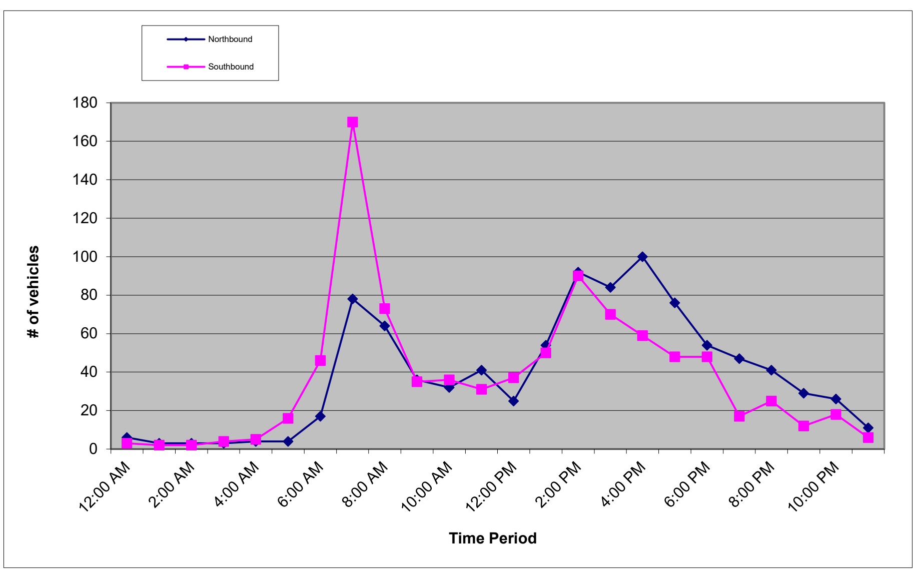
LATITUDE 36.8342354

LONGITUDE -119.9001796

WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	3	2	0	1	**6**	1	0	1	1	**3**	**9**
1:00 AM	0	1	1	1	**3**	0	1	0	1	**2**	**5**
2:00 AM	1	1	0	1	**3**	1	1	0	0	**2**	**5**
3:00 AM	0	0	2	1	**3**	1	1	1	1	**4**	**7**
4:00 AM	0	1	2	1	**4**	0	1	1	3	**5**	**9**
5:00 AM	1	1	0	2	**4**	1	2	6	7	**16**	**20**
6:00 AM	4	3	3	7	**17**	7	8	18	13	**46**	**63**
7:00 AM	17	17	19	25	**78**	19	37	57	57	**170**	**248**
8:00 AM	22	14	16	12	**64**	38	17	10	8	**73**	**137**
9:00 AM	7	6	13	10	**36**	11	8	6	10	**35**	**71**
10:00 AM	4	3	11	14	**32**	8	10	4	14	**36**	**68**
11:00 AM	10	16	9	6	**41**	8	11	6	6	**31**	**72**
12:00 PM	12	3	6	4	**25**	10	10	11	6	**37**	**62**
1:00 PM	17	11	10	16	**54**	10	9	14	17	**50**	**104**
2:00 PM	18	30	30	14	**92**	20	18	31	21	**90**	**182**
3:00 PM	17	16	22	29	**84**	17	17	20	16	**70**	**154**
4:00 PM	29	23	24	24	**100**	21	12	18	8	**59**	**159**
5:00 PM	31	16	16	13	**76**	13	9	12	14	**48**	**124**
6:00 PM	16	11	15	12	**54**	13	15	12	8	**48**	**102**
7:00 PM	10	11	10	16	**47**	6	6	1	4	**17**	**64**
8:00 PM	8	11	11	11	**41**	9	4	5	7	**25**	**66**
9:00 PM	6	13	6	4	**29**	4	3	4	1	**12**	**41**
10:00 PM	6	5	5	10	**26**	4	7	3	4	**18**	**44**
11:00 PM	5	2	4	0	**11**	3	2	1	0	**6**	**17**
Total	**50.7%**				**930**	**49.3%**				**903**	
	1833										

AM%	**39.0%**	**AM Peak 272**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.83**
PM%	**61.0%**	**PM Peak 182**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.75**



24 Hour Count Report

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Hayes Ave

SEGMENT South of Palo Alto Ave

COLLECTION DATE Tuesday, April 9, 2024

NUMBER OF LANES 4

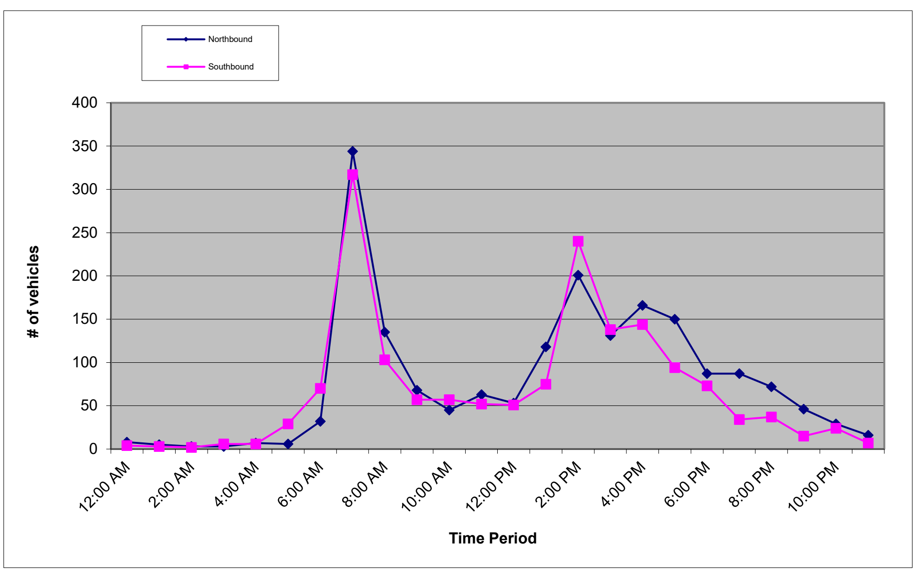
LATITUDE 36.8342354

LONGITUDE -119.9001796

WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	4	3	0	1	**8**	1	0	2	1	**4**	**12**
1:00 AM	0	2	1	2	**5**	0	1	2	0	**3**	**8**
2:00 AM	1	1	0	1	**3**	1	1	0	0	**2**	**5**
3:00 AM	0	0	2	1	**3**	1	1	3	1	**6**	**9**
4:00 AM	0	1	4	2	**7**	0	1	2	3	**6**	**13**
5:00 AM	2	2	0	2	**6**	4	7	8	10	**29**	**35**
6:00 AM	4	8	4	16	**32**	7	14	21	28	**70**	**102**
7:00 AM	39	74	137	94	**344**	48	73	84	112	**317**	**661**
8:00 AM	68	29	21	17	**135**	50	18	18	17	**103**	**238**
9:00 AM	17	9	24	18	**68**	14	12	14	17	**57**	**125**
10:00 AM	6	7	17	15	**45**	11	19	7	20	**57**	**102**
11:00 AM	19	16	18	10	**63**	10	18	11	13	**52**	**115**
12:00 PM	17	10	14	12	**53**	12	17	14	8	**51**	**104**
1:00 PM	22	20	28	48	**118**	17	13	17	28	**75**	**193**
2:00 PM	38	56	64	43	**201**	32	69	84	55	**240**	**441**
3:00 PM	40	23	34	34	**131**	31	24	39	44	**138**	**269**
4:00 PM	41	35	40	50	**166**	44	30	30	40	**144**	**310**
5:00 PM	50	37	35	28	**150**	23	25	16	30	**94**	**244**
6:00 PM	19	19	28	21	**87**	19	19	22	13	**73**	**160**
7:00 PM	28	17	16	26	**87**	14	8	6	6	**34**	**121**
8:00 PM	19	23	13	17	**72**	9	7	10	11	**37**	**109**
9:00 PM	16	16	9	5	**46**	4	6	4	1	**15**	**61**
10:00 PM	7	6	5	11	**29**	6	7	3	8	**24**	**53**
11:00 PM	5	4	5	2	**16**	4	2	1	0	**7**	**23**
Total	**53.4%**				**1875**	**46.6%**				**1638**	
	3513										

AM%	**40.6%**	**AM Peak 692**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.78**
PM%	**59.4%**	**PM Peak 442**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.75**



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24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Palo Alto Ave

SEGMENT West of Hayes Ave

COLLECTION DATE Tuesday, April 9, 2024

NUMBER OF LANES 2

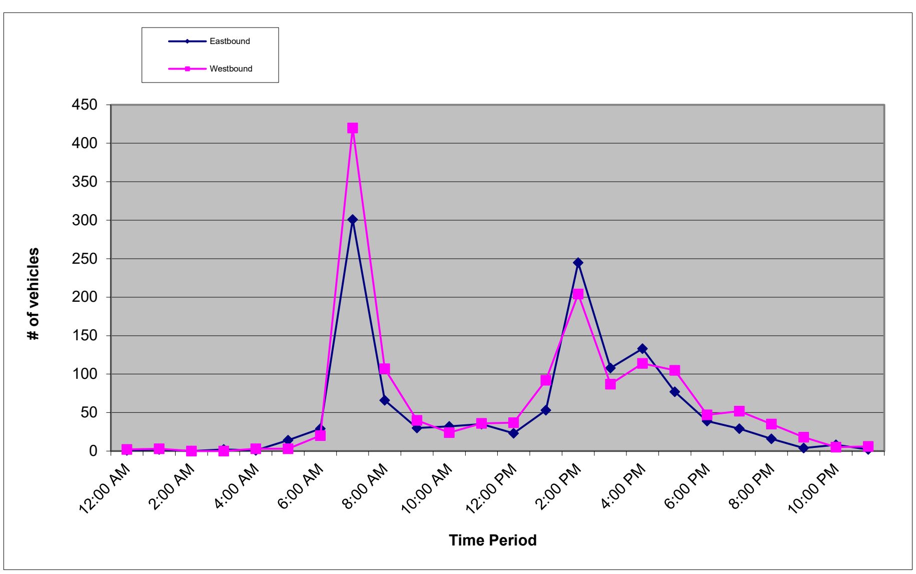
LATITUDE 36.8342354

LONGITUDE -119.9001796

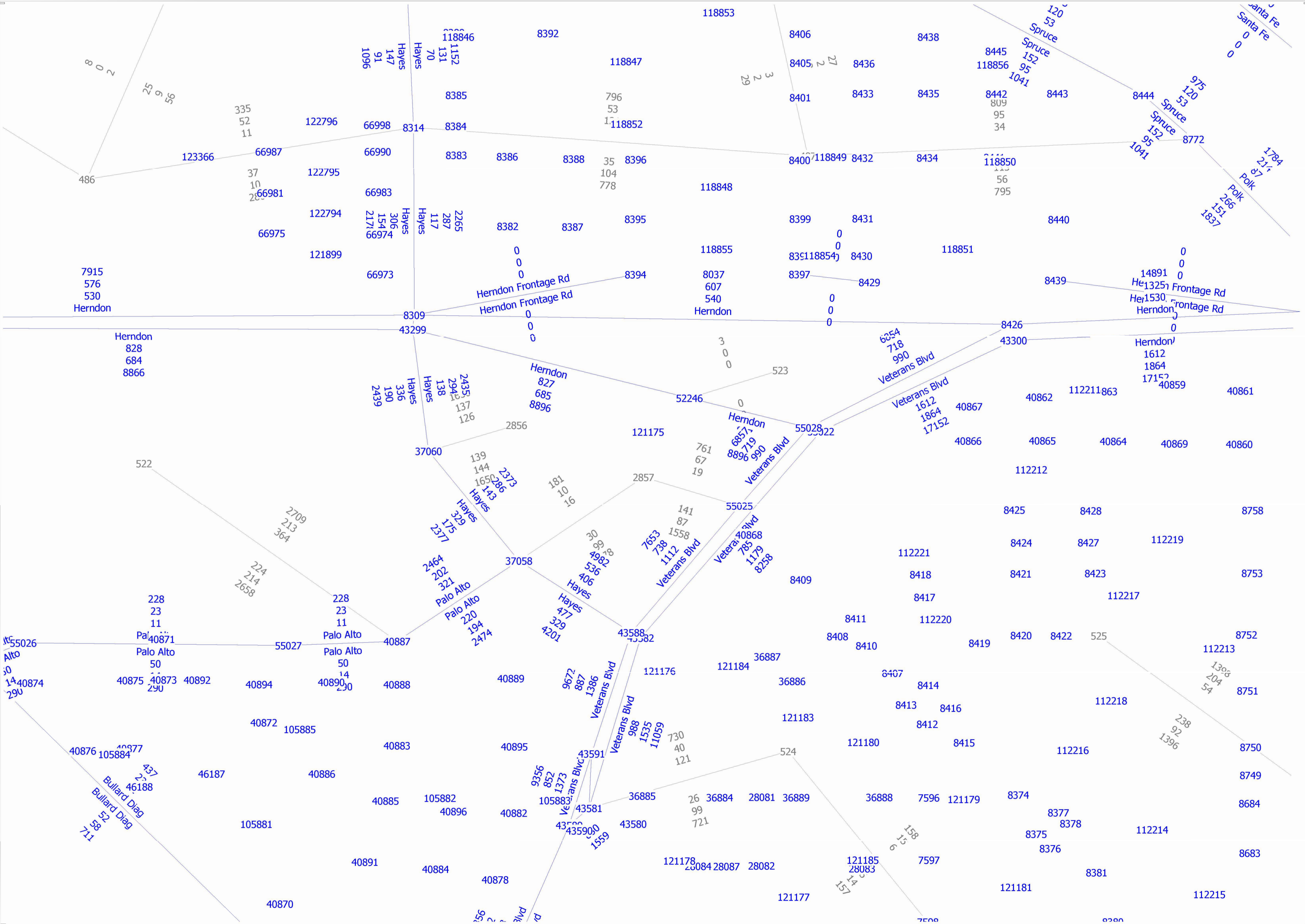
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Totals
12:00 AM	0	0	1	0	**1**	1	1	0	0	**2**	3
1:00 AM	0	0	2	0	**2**	0	1	0	2	**3**	5
2:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	0
3:00 AM	0	0	2	0	**2**	0	0	0	0	**0**	2
4:00 AM	0	0	1	0	**1**	0	0	2	1	**3**	4
5:00 AM	3	5	2	4	**14**	1	1	0	1	**3**	17
6:00 AM	2	6	4	17	**29**	2	5	2	11	**20**	49
7:00 AM	40	66	85	110	**301**	33	87	176	124	**420**	721
8:00 AM	35	7	12	12	**66**	69	21	9	8	**107**	173
9:00 AM	6	6	10	8	**30**	13	5	13	9	**40**	70
10:00 AM	5	11	4	12	**32**	4	6	7	7	**24**	56
11:00 AM	4	15	8	8	**35**	11	8	12	5	**36**	71
12:00 PM	6	8	6	3	**23**	9	8	11	9	**37**	60
1:00 PM	13	7	11	22	**53**	11	12	26	43	**92**	145
2:00 PM	29	77	90	49	**245**	37	52	71	44	**204**	449
3:00 PM	18	18	21	51	**108**	27	18	14	28	**87**	195
4:00 PM	46	26	20	41	**133**	35	20	24	35	**114**	247
5:00 PM	21	21	13	22	**77**	30	26	28	21	**105**	182
6:00 PM	13	6	15	5	**39**	10	10	18	9	**47**	86
7:00 PM	10	6	7	6	**29**	20	10	8	14	**52**	81
8:00 PM	3	3	6	4	**16**	14	12	3	6	**35**	51
9:00 PM	0	3	1	0	**4**	10	3	4	1	**18**	22
10:00 PM	2	0	0	6	**8**	1	1	0	3	**5**	13
11:00 PM	2	0	0	0	**2**	1	2	1	2	**6**	8
Total	**46.1%**				**1250**	**53.9%**				**1460**	
	2710										

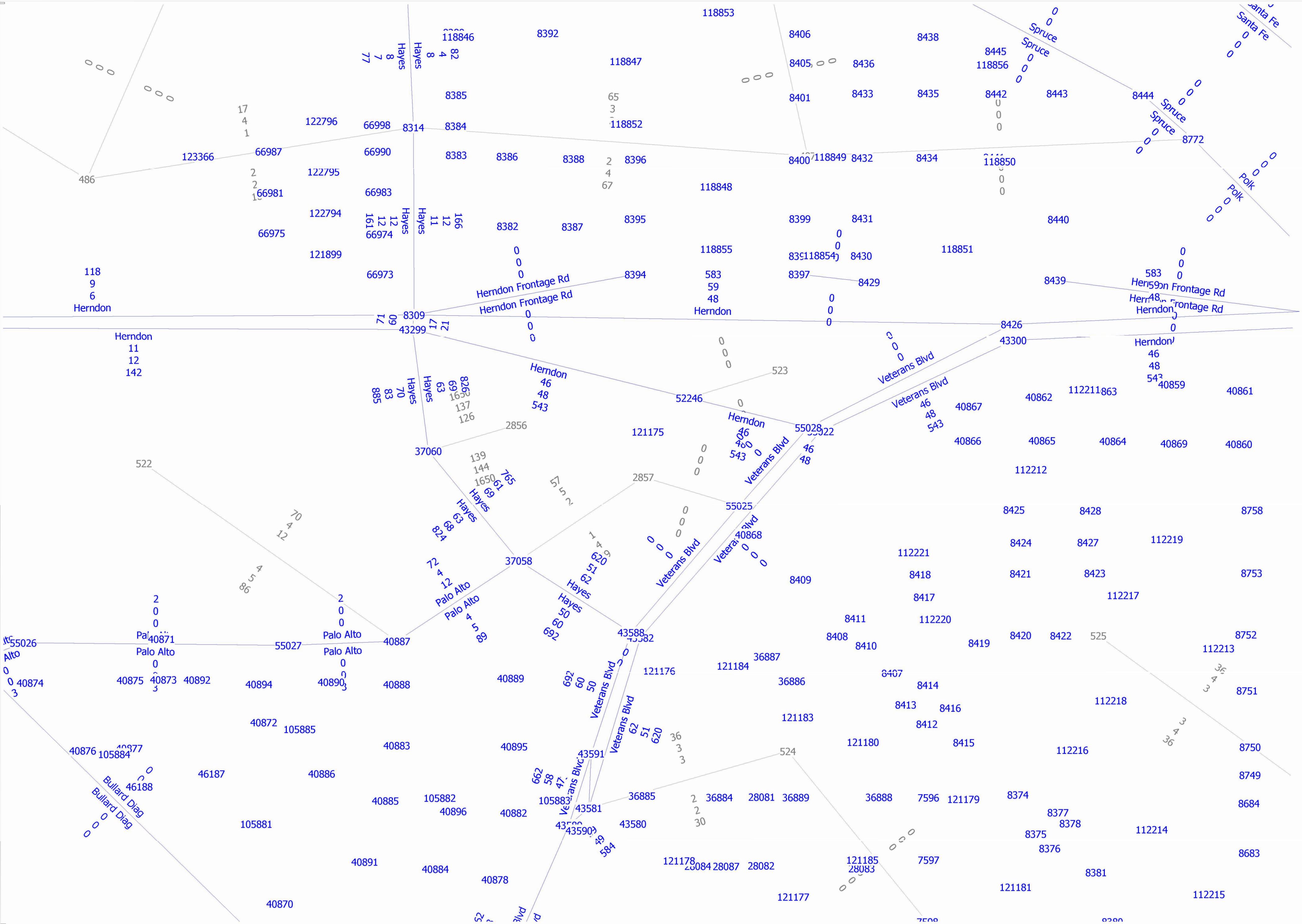
AM%	**43.2%**	**AM Peak 752**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.72**
PM%	**56.8%**	**PM Peak 449**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.70**



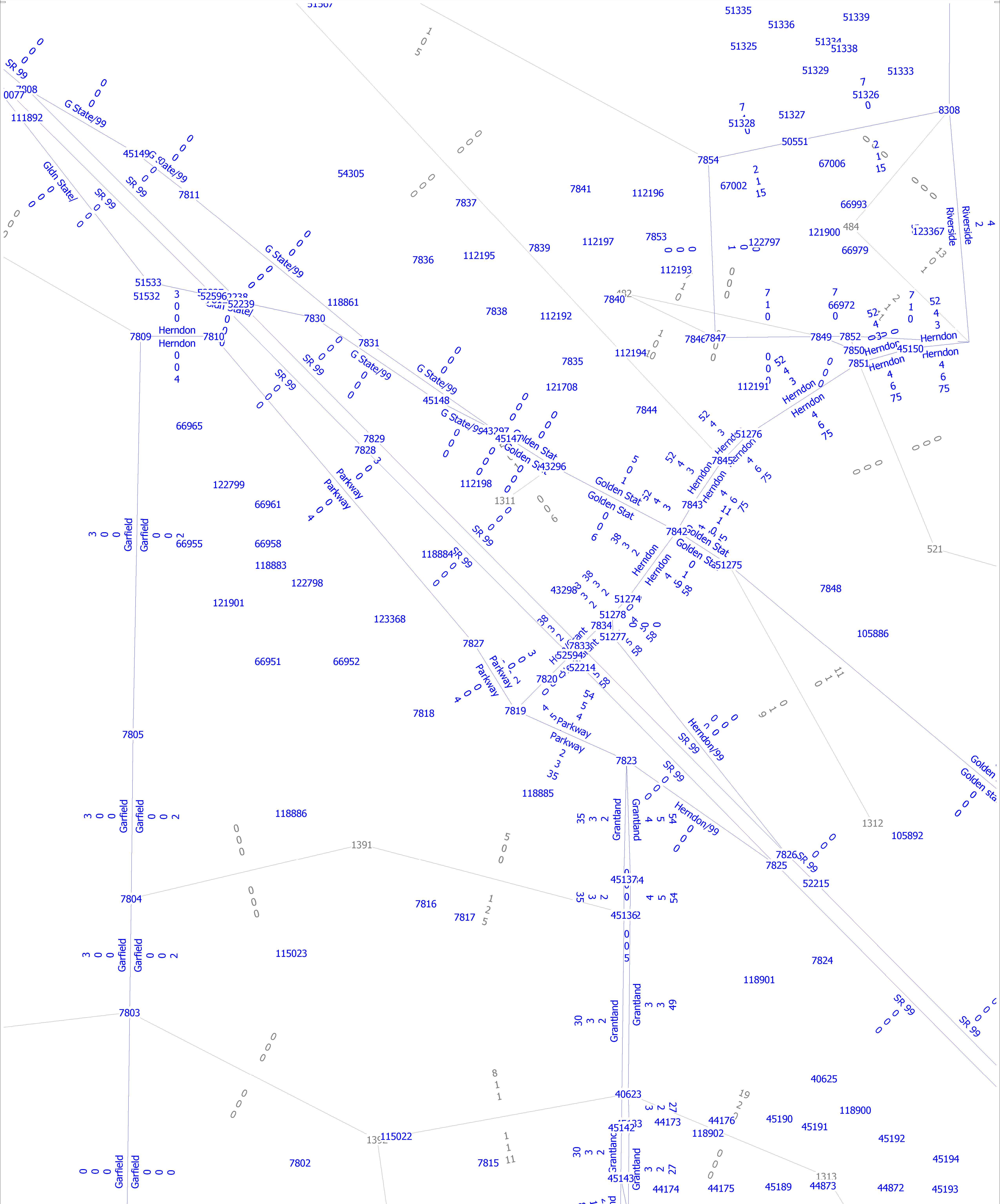
Appendix C: Traffic Modeling



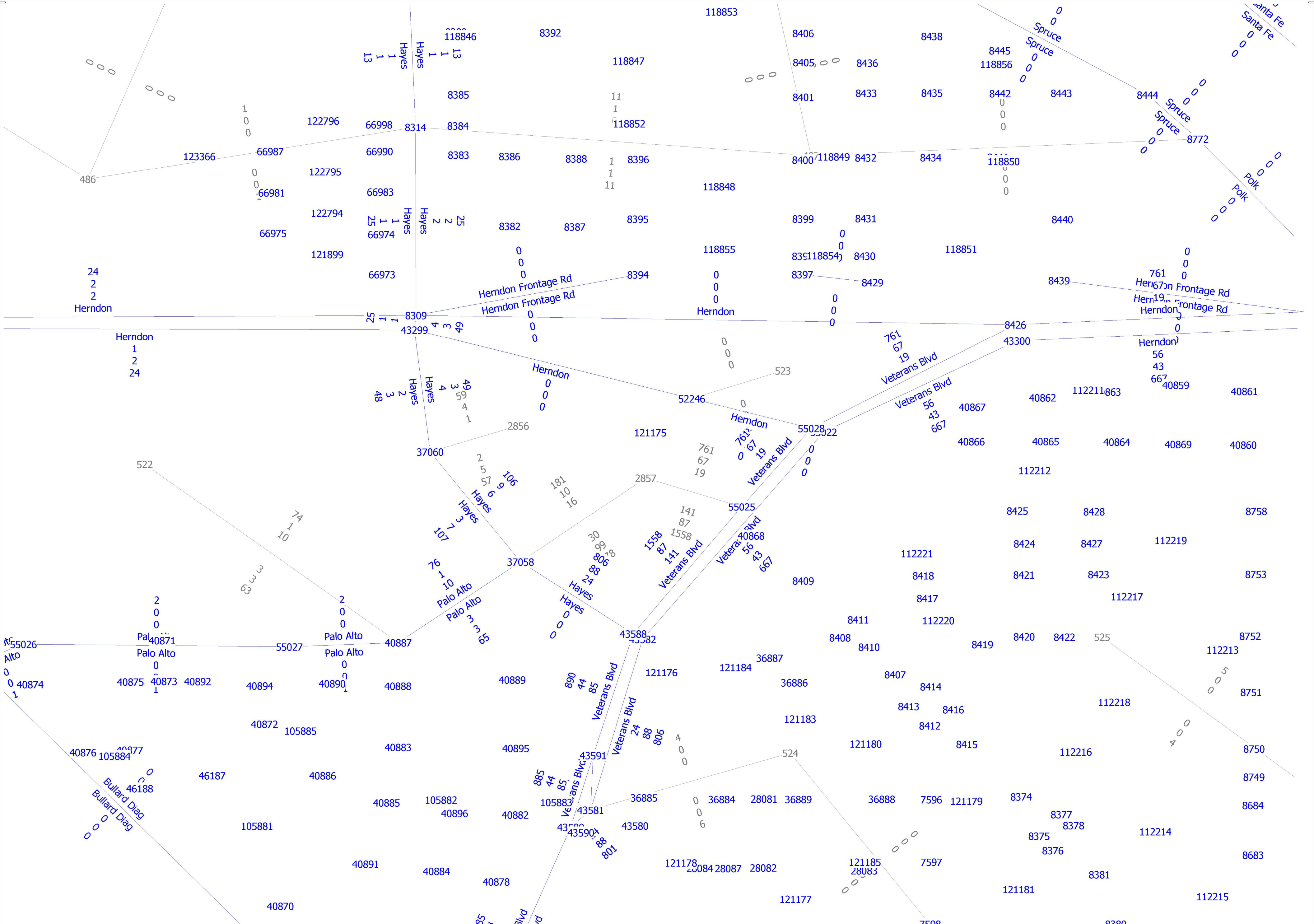
SEC Herndon and Hayes TIA and VMT
Base Year 2019
AM, PM and Daily Volumes



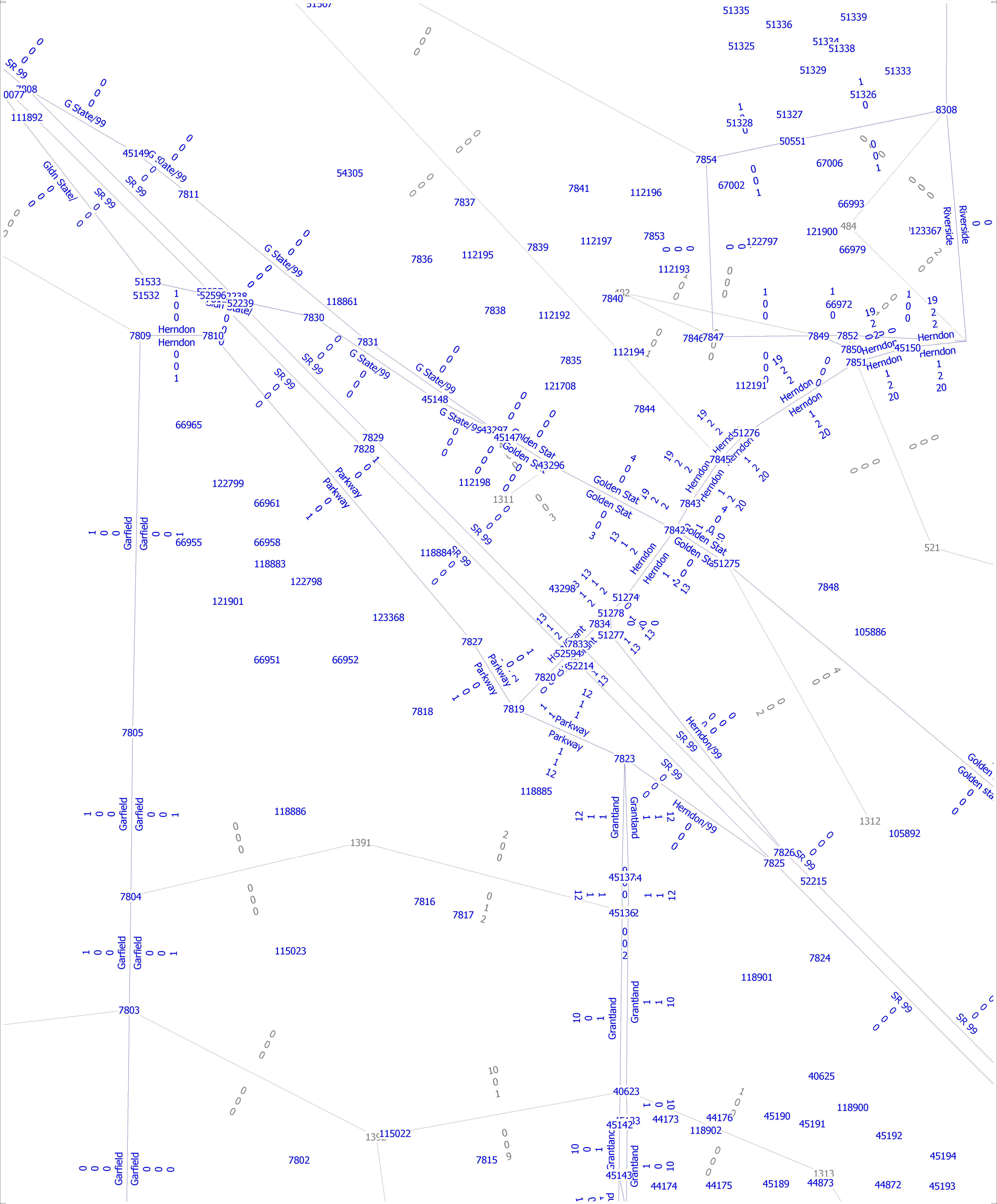
SEC Herndon and Hayes TIA and VMT
Base Year 2019 - Commercial Select Zone
AM, PM and Daily Volumes



SEC Herndon and Hayes TIA and VMT
Base Year 2019 - Commercial Select Zone
AM, PM and Daily Volumes



SEC Herndon and Hayes TIA and VMT
Base Year 2019 - Residential Select Zone
AM, PM and Daily Volumes

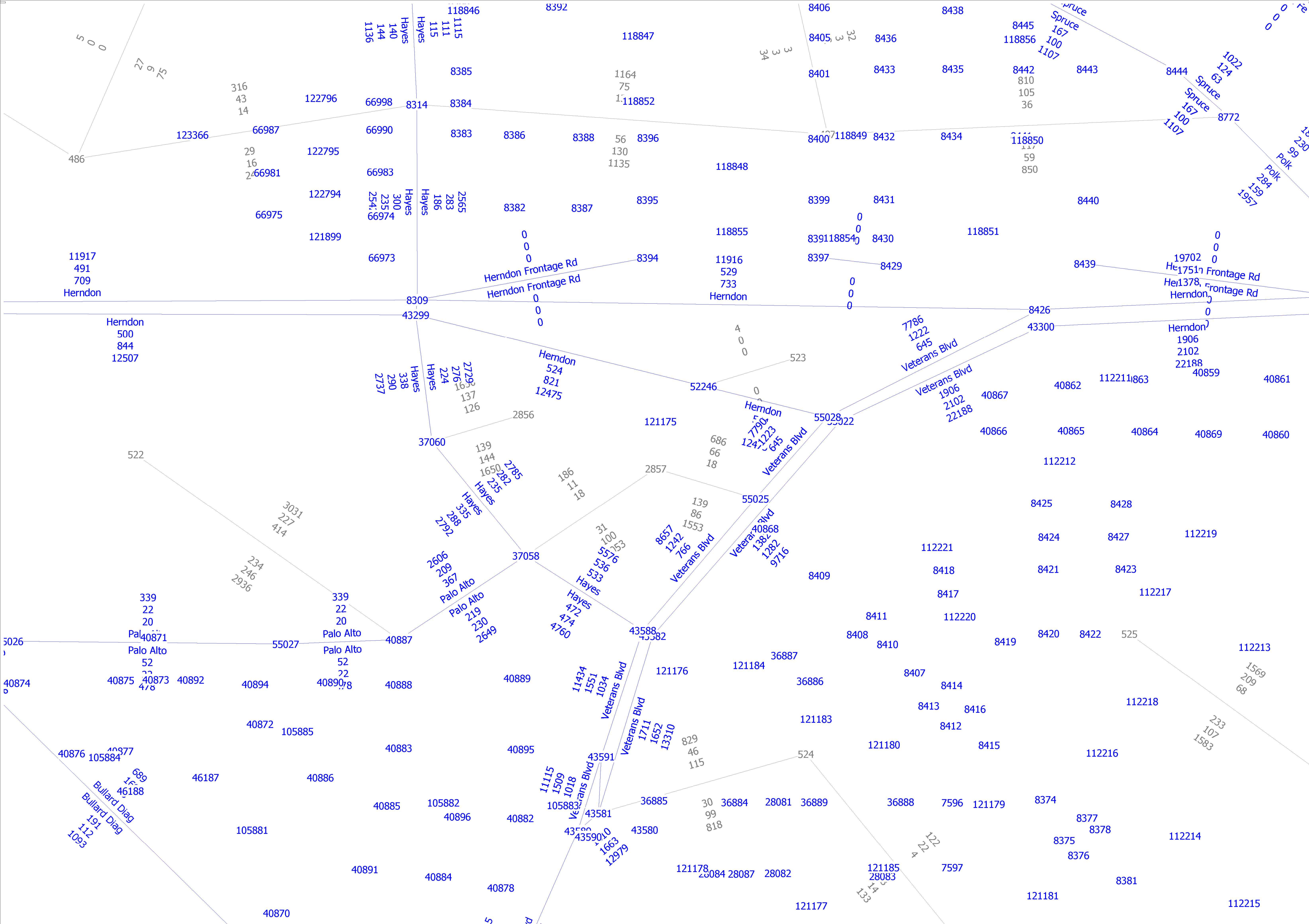


SEC Herndon and Hayes TIA and VMT

Base Year 2019 - Residential Select Zone

AM, PM and Daily Volumes

cube



SEC Herndon and Hayes TIA and VMT
Cumulative Year 2046
AM, PM and Daily Volumes

cube

Appendix D: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 7th Edition represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish an LOS.

Intersection Levels of Service

One of the more important elements limiting and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop signs and yield signs.

Signalized Intersections

LOS can be characterized for the entire intersection, each intersection approach and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. A description of LOS for signalized intersections is found in Table A-1.

Table A-1: Signalized Intersection LOS Description (Motorized Vehicle Mode)

Level of Service	***Description***	***Average Control Delay (Seconds per Vehicle)***
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is really low and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0, the progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80

Note: Source: Highway Capacity Manual 7th Edition

All-Way Stop Controlled Intersections

All-way stop controlled intersections are common in the United States. They are characterized by having all approaches controlled by stop sign without any street having priority. Streets intersecting at all-way stop controlled intersections can be public or private. The intersection analysis boundaries for an all-way stop controlled intersection are assumed to be those of an isolated intersection, no upstream or downstream effects are accounted for in analysis.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections are also common in the United States. A typical configuration is a four-leg intersection in which one street, the major street, is uncontrolled and the other street, the minor street, is controlled by stop signs. The other typical intersection is a three-leg intersection in which a single minor street approach is controlled by a stop sign.

For the analysis of the motorized vehicle mode, the methodology addresses special circumstances that may exist at two-way stop controlled intersections including two-stage gap acceptance, approaches with shared lanes, the presence of upstream traffic signals and flared approaches for minor-street right-turning vehicles. Table A-2 provides a description of LOS at unsignalized intersections.

Table A-2: Unsignalized Intersection LOS Description (Motorized Vehicle Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 7th Edition, Exhibit 21-8.

Roundabout Controlled Intersections

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island. Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990. Intersection analysis models generally fall into two categories: regression models and analytical models. Regression models use field data to develop statistically derived relationships between geometric features and performance measures such as capacity and delay. Analytical models are based on traffic flow theory combined with field measures of driver behavior, resulting in an analytical formulation of the relationship of driver behavior, resulting in an analytical formulation of the relationship between those field measures and performance measures such as capacity and delay. Table A-3 provides a description of LOS at roundabout intersections.

Table A-3: Roundabout Intersection Level of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 7th Edition, Exhibit 22-8.

Segment Levels of Service

Segments are portions of roads without any interruption of flow. These typically include basic freeway segments, multilane highway segments, freeway weaving segments, freeway merge and diverge segments, two-lane highway segments and urban street segments.

Urban Street Segments (Motorized Vehicle Mode)

The term “urban street segments” refers to two elements that are found: points and segments. A point is the boundary between links and is represented by an intersection or ramp terminal. A link is a length of roadway between two points. A link and its boundary are referred to as a segment. A signalized intersection is always used to define a boundary. Only intersections, or ramp terminals, in which the segment through volumes is uncontrolled can exist along the segment. A midsegment traffic control signal provided for the exclusive use of pedestrians should not be used to define a segment boundary. Chapter 18 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 80 percent of the base free flow speed (FFS) and the volume-to-capacity ratio is no greater than 1.0.

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 80 percent of the base FFS and the volume-to-capacity ratio is no greater than 1.0.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS and the volume-to-capacity ratio is no greater than 1.0.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes or inappropriate signal timing at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS and the volume-to-capacity ratio is no greater than 1.0.

LOS E is characterized as an unstable operation and has significant delay. Such operations may be due to some combination of adverse progression, high volume and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS and the volume-to-capacity ratio is no greater than 1.0.

LOS F is characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS or the volume-to-capacity ratio is greater than 1.0.

Urban Street Segments LOS

Two performance measures are used to characterize vehicular LOS for a given direction of travel along an urban street segment. One measure is travel speed for through vehicles. This speed reflects the factors that influence running time along the link and the delay uncured by through vehicles at the boundary intersections. The second measures Is the volume-to-capacity ratio for the through movements at the downstream boundary intersection. These performance measures indicate the degree of mobility provided by the segment. Table A-4 provides a description of LOS for Urban Street Segments.

Table A-4: Urban Street Segment Levels of Service (Motorized Vehicle Mode)

LOS	*Travel Speed Threshold by Base Free-Flow Speed (miles/hour)*							*Volume-to-Capacity Ratio*
	55	**50**	**45**	**40**	**35**	**30**	**25**	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Note: a = Volume-to-capacity ratio of through movement at downstream boundary intersection.
Source: Highway Capacity Manual 7th Edition, Exhibit 18-1.

Basic Freeway and Multilane Highway Segments

Segments of multilane highways and basic freeways outside the influence of merging maneuvers, diverging maneuvers, weaving maneuvers, or signalized intersections define LOS by density. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Chapter 12 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are still easily absorbed.

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.

LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.

Basic Freeway

Basic Freeway segments generally have four to eight lanes (in both directions) and posted speed limits between 50 and 75 mi/hr. The median type depends on right-of-way constraints and other factors. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The following performance measures are evaluated for each segment: capacity, FFS, demand-to-capacity or volume-to-capacity ratios, space mean average, average density, travel time, vehicle miles traveled, vehicle hours of travel and vehicle hours of delay. Table A-5 provides a description of LOS for Basic Freeway Segments.

Multilane Highway

Multilane Highway segments generally have four to six lanes (in both directions) and posted speed limits between 40 and 55 mi/hr. These highways may be divided, undivided or divided by a two-way left-turn lane. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The following performance measures are evaluated for each segment: capacity, FFS, demand-to-capacity or volume-to-capacity ratios, space mean average, average density, travel time, vehicle miles traveled, vehicle hours of travel and vehicle hours of delay. Table A-5 provides a description of LOS for Multilane Highway Segments.

Table A-5: Basic Freeway and Multilane Highway Segment Level of Service Description

Level of Service	*Density (Passenger Cars per Mile per Lane)*	
	Urban	*Rural*
A	≤11	≤6
B	>11 to 18	>6 to 14
C	>18 to 26	>14 to 22
D	>26 to 35	>22 to 29
E	>35 to 45	>29 to 39
F	>45 or Demand Exceeds Capacity	>39 or Demand Exceeds Capacity

Note: Source: HCM 7th Edition, Exhibit 10-6.

Two-Lane Highway Segments

Two-Lane Highways generally have one lane per direction. The single lane in each direction may be supplemented with passing lanes, truck climbing lanes, turnouts or pullouts. If allowed, passing maneuvers are limited by the availability of gaps in the opposing traffic stream and by the availability of sufficient sight distance for a driver to discern the approach of an opposing vehicle safely. A principal measure of LOS is average speed, percent followers and follower density. Chapter 15 of the Highway Capacity Manual categorizes each LOS as follows:

At **LOS A**, motorists experience operating speeds near the posted speed limit and little difficulty in passing. Platooning is minimal and follower density is very low.

At **LOS B through LOS D,** represent gradations between the conditions for LOS A and LOS E.

At **LOS E**, speeds may still be reasonable, but platooning is significant and follower density is high. Passing, if allowed is essentially impossible.

LOS F exists whenever demand flow in one or both directions exceeds the segment's capacity. When demand exceeds capacity, it is expected that there will be a reduction in the capacity at the bottleneck.

Two-Lane Highway

The performance measures include average speed, FFS and follower density. The LOS output is calculated for an establish segment boundary that includes consistent terrain, lane widths, shoulder widths, facility classification and demand flow rate. Table A-6 provides a description of LOS for Two-Lane Highway Segments.

Table A-6: Two-Lane Highway Segment Level of Service Description

LOS	*Follower Density (Followers per Mile per Lane)*	
	Higher-Speed Highways Posted Speed Limit ≥ 50 miles per hour	*Lower-Speed Highways Posted Speed Limit < 50 miles per hour*
A	≤2.0	≤2.5
B	>2.0 to 4.0	>2.5 to 5.0
C	>4.0 to 8.0	>5.0 to 10.0
D	>8.0 to 12.0	>10.0 to 15.0
E	>12.0	>15.0

Note: Source: HCM 7th Edition, Exhibit 15-6.

Appendix E: Collision Data

Primary Rd **HARVEY AVE** *Distance (ft)* **75.0** *Direction* **W** *Secondary Rd* **BOND ST** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **S/E** *Beat* *Type* **0** *CalTrans* *Badge* **P1748** *Collision Date* **20210522** *Time* **1837** *Day* **SAT**
Primary Collision Factor **PED VIOL** *Violation* **21954A** *Collision Type* **AUTO/PED** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210531**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PED** *Lighting* **DAYLIGHT** *Ped Action* **NOT IN X-** *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	PED	11	M	H			PROC ST	N	N	6000	-		-	3	N		-	-	-	PED	POSSIBL	11	M	9	-	-	-
2	DRVR	26	F	H	HNBD		PROC ST	W	A	0100	NISSA	2017	-	3	N		-	M	G								

Primary Rd **HARVEY AVE** *Distance (ft)* **354.** *Direction* **W** *Secondary Rd* **VILLA AVE (N)** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **SOUTH** *Beat* **00B** *Type* **0** *CalTrans* *Badge* **P1953** *Collision Date* **20210401** *Time* **0450** *Day* **THU**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210427**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DUSK/DAWN** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	22	F	W	HNBD		BACKING	W	J	4100	MERCE	2017	-	-	N		-	M	G								
2	PRKD	998	-		[illegible]		[illegible]	E	-	[illegible]	CADIL	[illegible]	-	-	N		-	-	-								

Primary Rd **HAYES AVE** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **PALO ALTO AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW FR** *Beat* **1343** *Type* **0** *CalTrans* *Badge* **P864** *Collision Date* **20210812** *Time* **1520** *Day* **THU**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20210819**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	38	F	B	HNBD		LFT TURN	N	A	0100	CHEVR	2018	-	3	N		-	M	G	DRVR	POSSIBL	38	F	1	0	M	G
2	DRVR	38	M	H	HNBD		RGT TURN	S	D	2200	CHEVR	2017	-	3	N		-	M	G								

Primary Rd **HAYES AVENUE** *Distance (ft)* **450.** *Direction* **S** *Secondary Rd* **CLINTON AVENUE** *NCIC* **9435** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* *Beat* **010** *Type* **3** *CalTrans* *Badge* **015986** *Collision Date* **20211123** *Time* **1154** *Day* **TUE**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20211124**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	41	M	H	HNBD		UNS TURN	S	A	0100	FORD	2019	-	3	N		-	L	G								

Primary Rd **HAZELWOOD BLVD** *Distance (ft)* **90.0** *Direction* **S** *Secondary Rd* **BRALY AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* *Beat* *Type* **0** *CalTrans* *Badge* **P1574** *Collision Date* **20210802** *Time* **0755** *Day* **MON**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **SIDESWIPE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20210804**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **PKD MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	20	F	H	HNBD		PROC ST	S	A	0100	TOYOT	2007	-	3	N		-	L	G	DRVR	MINOR	20	F	1	0	L	G
2	PRKD	998	-		HNBD		PARKED	S	A	0100	MERCU	2003	-	3	N		-	-	-								

Primary Rd HERNDON AVE Distance (ft) 303. Direction W Secondary Rd HAYES AVE NCIC 1005 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Fresno County Fresno Population 7 Rpt Dist NORTH Beat 00A Type 0 CalTrans Badge P1753 Collision Date 20210124 Time 2100 Day SUN
Primary Collision Factor R-O-W AUTO Violation 21453B Collision Type OVERTURNED Severity PDO #Killed 0 #Injured 0 Tow Away? Y Process Date 20210201
Weather1 RAINING Weather2 Rdwy Surface WET Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With FIXED OBJ Lighting DARK - ST Ped Action Cntrl Dev NT PRS/FCTR Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	50	F	W	HBD-UI		RAN OFF RD	W	A	0100	FORD	2017	-	-	A	-	L	G								

Primary Rd HERNDON AVE Distance (ft) 280. Direction W Secondary Rd HAYES AVE NCIC 1005 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Fresno County Fresno Population 7 Rpt Dist NW Beat 00A Type 0 CalTrans Badge P1477 Collision Date 20211007 Time 2045 Day THU
Primary Collision Factor LANE CHANGE Violation 21658A Collision Type HIT OBJECT Severity PDO #Killed 0 #Injured 0 Tow Away? Y Process Date 20211015
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With FIXED OBJ Lighting DARK - ST Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	40	M	H	HBD-UI		PROC ST	W	A	0100	ACURA	2019	-	-	A	-	L	-								

Primary Rd HERNDON AVE Distance (ft) 42.0 Direction E Secondary Rd HAYES AVE NCIC 1005 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Fresno County Fresno Population 7 Rpt Dist NW Beat Type 0 CalTrans Badge P1490 Collision Date 20211214 Time 1706 Day TUE
Primary Collision Factor UNSAFE SPEED Violation 22350 Collision Type REAR END Severity INJURY #Killed 0 #Injured 1 Tow Away? Y Process Date 20220117
Weather1 CLOUDY Weather2 Rdwy Surface WET Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DARK - ST Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	17	M	W	HNBD		UNS TURN	W	A	0100	CHEVR	2001	-	3	N	-	-	G								
2	DRVR	18	M	O	HNBD		STOPPED	W	A	0100	ACURA	2015	-	3	N	-	M	G	DRVR	POSSIBL	18	M	1	0	M	G

Primary Rd HERNDON AVE Distance (ft) 0.00 Direction Secondary Rd INGRAM AVE NCIC 1005 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Fresno County Fresno Population 7 Rpt Dist NW Beat 00B Type 0 CalTrans Badge P1913 Collision Date 20210725 Time 1042 Day SUN
Primary Collision Factor R-O-W AUTO Violation 21800A Collision Type SIDESWIPE Severity INJURY #Killed 0 #Injured 1 Tow Away? N Process Date 20210928
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DAYLIGHT Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	72	F	H	HBD-NUI		RGT TURN	W	A	0100	HONDA	2001	-	-	N	-	L	G	DRVR	MINOR	72	F	1	0	L	G
2	DRVR	24	M	H	HBD-NUI		PROC ST	W	A	0100	FORD	2018	-	-	A	-	M	G								

Primary Rd HERNDON AVE Distance (ft) 144. Direction W Secondary Rd MAPLE AVE NCIC 1005 State Hwy? N Route Postmile Prefix Postmile Side of Hwy
City Fresno County Fresno Population 7 Rpt Dist NORTH Beat 00B Type 0 CalTrans Badge P1402 Collision Date 20210819 Time 1048 Day THU
Primary Collision Factor R-O-W AUTO Violation 21453B Collision Type SIDESWIPE Severity PDO #Killed 0 #Injured 0 Tow Away? Y Process Date 20210826
Weather1 CLEAR Weather2 Rdwy Surface DRY Rdwy Cond1 NO UNUSL CND Rdwy Cond2 Spec Cond 0
Hit and Run Motor Vehicle Involved With OTHER MV Lighting DAYLIGHT Ped Action Cntrl Dev FNCTNG Loc Type Ramp/Int

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety Equip		ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	48	F	O	HNBD		RGT TURN	W	A	0100	TOYOT	2005	-	3	N	-	M	G								
2	DRVR	19	F	W	HNBD		PROC ST	W	A	0100	HYUND	2017	-	3	N	-	M	G								
3	DRVR	28	F	H	HNBD		PROC ST	W	A	0100	CHEVR	2013	-	3	N	-	M	G								

Primary Rd **HERNDON AVE** *Distance (ft)* **189.** *Direction* **E** *Secondary Rd* **FRUIT AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NORTH** *Beat* **00B** *Type* **0** *CalTrans* *Badge* **P2135** *Collision Date* **20221201** *Time* **2249** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20221213**
Weather1 **CLOUDY** *Weather2* *Rdwy Surface* **WET** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	29	M	H	HBD-UI		RAN OFF RD	W	A	0100	MAZDA	2016	-	3	A	-	M	-								

Primary Rd **HERNDON AVE** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **FRWY 41** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NORTH** *Beat* **00B** *Type* **0** *CalTrans* *Badge* **P1451** *Collision Date* **20220806** *Time* **1230** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20220811**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **FELONY** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	W	A	0100	HONDA		-	3	A	-	-	-								
2	DRVR	23	F	H			STOPPED	W	A	0100	KIA	2017	-	-	N	-	M	G	DRVR	POSSIBLE	23	F	1	0	M	G

Primary Rd **HERNDON AVE** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **HAYES AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00A** *Type* **0** *CalTrans* *Badge* **P2018** *Collision Date* **20220126** *Time* **0008** *Day* **WED**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20220223**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	42	M	O		DRUG	LFT TURN	W	A	0100	FORD	2013	-	-	N	-	L	-								

Primary Rd **HERNDON AVE** *Distance (ft)* **622.** *Direction* **W** *Secondary Rd* **HAYES AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NORTH** *Beat* *Type* **0** *CalTrans* *Badge* **S194** *Collision Date* **20220524** *Time* **1350** *Day* **TUE**
Primary Collision Factor **LANE CHANGE** *Violation* **21658A** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20220603**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	37	F	H	HNBD		CHANG LN	W	I	1900	GILLI	2012	-	-	N	-	L	G								
2	DRVR	28	M	H	HNBD		PROC ST	W	A	0100	FORD	2002	-	-	A	-	M	G								

Primary Rd **HERNDON AVE** *Distance (ft)* **1229** *Direction* **W** *Secondary Rd* **HAYES AVE** *NCIC* **1005** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00A** *Type* **0** *CalTrans* *Badge* **P1920** *Collision Date* **20221111** *Time* **0226** *Day* **FRI**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20221216**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party Info																			Victim Info							
Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	46	F	W			PROC ST	W	A	0100	HONDA	2008	-	3	A	-	L	G								

Primary Rd **HAWES AVE** *Distance (ft)* **200.** *Direction* **E** *Secondary Rd* **TEILMAN AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **SOUTH** *Beat* *Type* **0** *CalTrans* *Badge* **P1976** *Collision Date* **20201220** *Time* **0230** *Day* **SUN**
Primary Collision Factor **UNKNOWN** *Violation* *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20210111**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **PKD MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	998	F		IMP UNK	IMP UNK	PROC ST	E	A	0100	CHEVR	2016	-	-	F		M	-	-							
2	PRKD	998	-				PARKED	E	D	7500	DODGE	1999	-	3	N		-	-	-							

Primary Rd **HAYES AVE** *Distance (ft)* **90.0** *Direction* **N** *Secondary Rd* **HERNDON AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00A** *Type* **0** *CalTrans* *Badge* **P1278** *Collision Date* **20200524** *Time* **0130** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20210408**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	28	F	H	HBD-UI		PROC ST	S	A	0100	KIA	2016	-	3	A		-	M	G							

Primary Rd **HAYES AVE** *Distance (ft)* **75.0** *Direction* **S** *Secondary Rd* **MCKENZIE AVE** *NCIC* **9435** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Fresno** *Population* **9** *Rpt Dist* *Beat* **010** *Type* **3** *CalTrans* *Badge* **018823** *Collision Date* **20200722** *Time* **0740** *Day* **WED**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **OTHER** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **Y** *Process Date* **20200729**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **TRAIN** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	39	F	H	HNBD		PROC ST	S	A	0100	DODG	2018	-	3	N		-	L	G	DRVR	POSSIBL	39	F	1	0	L	G
2	OTHR	44	M	H	HNBD		OTHER	W	M	9595	JTP	1993	-	3	N		-	-	-							

Primary Rd **HAYES AVE** *Distance (ft)* **10.0** *Direction* **N** *Secondary Rd* **OLIVE AVE** *NCIC* **9435** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Fresno** *Population* **9** *Rpt Dist* *Beat* **010** *Type* **3** *CalTrans* *Badge* **019926** *Collision Date* **20200303** *Time* **1510** *Day* **TUE**
Primary Collision Factor **R-O-W AUTO** *Violation* **21802A** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20200310**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	53	M	H	HNBD		LFT TURN	S	G	2531	FREI	2012	-	3	N		-	M	G							
2	DRVR	29	M	H	HNBD		PROC ST	W	A	0100	FORD	2008	-	3	N		-	M	G							

Primary Rd **HAYES AVE** *Distance (ft)* **8.00** *Direction* **N** *Secondary Rd* **SANTA ANA AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00C** *Type* **0** *CalTrans* *Badge* **P1005** *Collision Date* **20200927** *Time* **0130** *Day* **SUN**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20201007**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	PROC ST	N	A	0100	PONTI	2007	-	3	N		-	M	-							

Primary Rd **HERNDON AVE** *Distance (ft)* **632.** *Direction* **W** *Secondary Rd* **GOLDEN STATE** *NCIC* **1005** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00C** *Type* **0** *CalTrans* *Badge* **P1911** *Collision Date* **20201120** *Time* **0511** *Day* **FRI**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20201130**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	47	M	B			PROC ST	E	A	0100	TOYOT	1997	-	3	N		-	M	G							
2	DRVR	38	M	O			LFT TURN	W	A	0700	LEXUS	2019	-	3	N		-	M	G	DRVR	POSSIBL	38	M	1	0	M	G

Primary Rd **HERNDON AVE** *Distance (ft)* **668.** *Direction* **W** *Secondary Rd* **GOLDEN STATE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **FRESN** *Beat* **1341** *Type* **0** *CalTrans* *Badge* **P864** *Collision Date* **20201203** *Time* **1650** *Day* **THU**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20201209**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	42	M	W	HNBD		PROC ST	E	D	2200	DODGE	2008	-	3	N		-	M	G							
2	DRVR	43	F	W	HNBD		STOPPED	E	A	0100	HYUND	2018	-	3	N		-	M	G	DRVR	POSSIBL	43	F	1	0	M	G

Primary Rd **HERNDON AVE** *Distance (ft)* **367.** *Direction* **E** *Secondary Rd* **GOLDEN STATE** *NCIC* **1005** *State Hwy?* **Y** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NORTH** *Beat* **00A** *Type* **0** *CalTrans* *Badge* **P1911** *Collision Date* **20201203** *Time* **2240** *Day* **THU**
Primary Collision Factor **DRVR ALC|DRG** *Violation* **23152A** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20201229**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	21	M	O	HBD-UI		LFT TURN	E	A	0100	SAAB	2005	-	3	N		-	M	G							

Primary Rd **HERNDON AVE** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **HARRISON** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NORTH** *Beat* *Type* **0** *CalTrans* *Badge* **P1239** *Collision Date* **20200131** *Time* **1948** *Day* **FRI**
Primary Collision Factor **NOT STATED** *Violation* *Collision Type* **OTHER** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20200330**
Weather1 *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DARK - NO** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	998	-		IMP UNK	IMP UNK	CHANG LN	W	F	2600	TOYOT		-	-	A		-	-	-							
2	DRVR	38	F	W	HNBD		[illegible]	W	F	[illegible]	[illegible]	2003	-	-	N		-	M	G							

Primary Rd **HERNDON AVE** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **HAYES AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **NW** *Beat* **00A** *Type* **0** *CalTrans* *Badge* **P1117** *Collision Date* **20200415** *Time* **1244** *Day* **WED**
Primary Collision Factor **STOP SGN|SIG** *Violation* **21453A** *Collision Type* **BROADSIDE** *Severity* **INJURY** *#Killed* **0** *#Injured* **1** *Tow Away?* **N** *Process Date* **20200420**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **BICYCLE** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **FNCTNG** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	BICY	17	F	W	HNBD		PROC ST	N	L	0400	-		-	3	N		-	-	-	BICY	MINOR	17	F	9	1	-	-
2	DRVR	19	F	H	HNBD		PROC ST	W	C	0200	INFIN	2003	-	3	N		-	-	G							

Primary Rd **VENTURA ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **SIXTH ST** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **SE** *Beat* *Type* **0** *CalTrans* *Badge* **P1066** *Collision Date* **20200618** *Time* **0823** *Day* **THU**
Primary Collision Factor **IMPROP TURN** *Violation* **22107** *Collision Type* **SIDESWIPE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20200619**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	CHANG LN	E	E	2335	GMC	1997	-	-	A		-	-	-							
2	DRVR	23	M	W	HNBD		PROC ST	E	D	2200	FORD	2017	-	3	N		-	M	G							
3	DRVR	44	M	H	HNBD		PROC ST	W	D	2200	CHEVR	2013	-	3	N		-	M	G							

Primary Rd **VENTURA ST** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **TENTH ST (E)** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* **SOUTH** *Beat* **00E** *Type* **0** *CalTrans* *Badge* **P1689** *Collision Date* **20200811** *Time* **1640** *Day* **TUE**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **REAR END** *Severity* **INJURY** *#Killed* **0** *#Injured* **3** *Tow Away?* **N** *Process Date* **20200813**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	66	M	H	HNBD		PROC ST	E	A	0100	CHEVR	2010	-	-	N		-	M	G							
2	DRVR	54	M	H	HNBD		STOPPED	E	A	0100	NISSA	2013	-	-	N		-	M	G	DRVR	POSSIBL	54	M	1	0	M	G
																			PASS	POSSIBL	51	F	3	0	M	G
																			PASS	POSSIBL	12	F	6	0	M	G

Primary Rd **VENTURA ST** *Distance (ft)* **55.0** *Direction* **E** *Secondary Rd* **THIRD ST** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* *Beat* *Type* **0** *CalTrans* *Badge* **P1975** *Collision Date* **20200916** *Time* **0322** *Day* **WED**
Primary Collision Factor **OTHER IMPROP DRV** *Violation* *Collision Type* **HEAD-ON** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **N** *Process Date* **20200918**
Weather1 *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1	DRVR	39	M	H	HNBD		RAN OFF RD	W	A	0100	CHRYS	2016		3	A		F	L	G							

Primary Rd **VETERANS BLVD** *Distance (ft)* **0.00** *Direction* *Secondary Rd* **HAYES AVE** *NCIC* **1005** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **Fresno** *County* **Fresno** *Population* **7** *Rpt Dist* *Beat* *Type* **0** *CalTrans* *Badge* **P1674** *Collision Date* **20200829** *Time* **0013** *Day* **SAT**
Primary Collision Factor **UNSAFE SPEED** *Violation* **22350** *Collision Type* **HIT OBJECT** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20200831**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run **MSDMNR** *Motor Vehicle Involved With* **FIXED OBJ** *Lighting* **DARK - ST** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	998	-		IMP UNK	IMP UNK	RGT TURN	-	A	0100	NISSA	2015	-	3	N		-	-	-							

Primary Rd **VIAU AVENUE** *Distance (ft)* **721.** *Direction* **N** *Secondary Rd* **BELMONT** *NCIC* **0405** *State Hwy?* **N** *Route* *Postmile Prefix* *Postmile* *Side of Hwy*
City **UNINCORP.** *County* **Fresno** *Population* **9** *Rpt Dist* *Beat* **025** *Type* **3** *CalTrans* *Badge* **020942** *Collision Date* **20200122** *Time* **1600** *Day* **WED**
Primary Collision Factor **STRTNG|BCKNG** *Violation* **22106** *Collision Type* **BROADSIDE** *Severity* **PDO** *#Killed* **0** *#Injured* **0** *Tow Away?* **Y** *Process Date* **20200131**
Weather1 **CLEAR** *Weather2* *Rdwy Surface* **DRY** *Rdwy Cond1* **NO UNUSL CND** *Rdwy Cond2* *Spec Cond* **0**
Hit and Run *Motor Vehicle Involved With* **OTHER MV** *Lighting* **DAYLIGHT** *Ped Action* *Cntrl Dev* **NT PRS/FCTR** *Loc Type* *Ramp/Int*

Party	Type	Age	Sex	Race	Sobriety1	Sobriety2	Move Pre	Dir	SW Veh	CHP Veh	Make	Year	SP Info	OAF1	Viol	OAF2	Safety	Equip	ROLE	Ext Of Inj	AGE	Sex	Seat Pos	Safety	EQUIP	Ejected
1F	DRVR	32	F	H	HNBD		BACKING	E	D	2200	NISSA	2000	-	3	N		-	M	G							
2	DRVR	36	M	W	HNBD		PROC ST	S	D	2200	FORD	2019	-	3	N		-	M	G							
3	PRKD	998	-		HNBD		PARKED	S	A	0100	HYUND	2010	-	3	N		-	-	-							

Appendix F: Existing Traffic Conditions

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	40	643	25	1	28	556	12	25	51	7	12	138
Future Volume (veh/h)	40	643	25	1	28	556	12	25	51	7	12	138
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No				No			No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856		1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	684	27		30	591	13	27	54	7	13	147
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3		3	3	3	3	3	3	3	3
Cap, veh/h	246	1087	485		185	1473	457	170	670	299	89	587
Arrive On Green	0.07	0.31	0.31		0.05	0.29	0.29	0.05	0.19	0.19	0.03	0.17
Sat Flow, veh/h	3428	3526	1572		3428	5066	1571	3428	3526	1572	3428	3526
Grp Volume(v), veh/h	43	684	27		30	591	13	27	54	7	13	147
Grp Sat Flow(s),veh/h/ln	1714	1763	1572		1714	1689	1571	1714	1763	1572	1714	1763
Q Serve(g_s), s	0.5	7.7	0.6		0.4	4.3	0.3	0.3	0.6	0.2	0.2	1.7
Cycle Q Clear(g_c), s	0.5	7.7	0.6		0.4	4.3	0.3	0.3	0.6	0.2	0.2	1.7
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	246	1087	485		185	1473	457	170	670	299	89	587
V/C Ratio(X)	0.17	0.63	0.06		0.16	0.40	0.03	0.16	0.08	0.02	0.15	0.25
Avail Cap(c_a), veh/h	581	2812	1254		581	4041	1253	581	2935	1309	581	2988
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
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	13.7	11.2		20.8	13.1	11.7	20.9	15.3	15.2	21.9	16.7
Incr Delay (d2), s/veh	0.3	0.6	0.0		0.4	0.2	0.0	0.4	0.1	0.0	0.7	0.2
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
%ile BackOfQ(50%),veh/ln	0.2	2.2	0.1		0.1	1.2	0.1	0.1	0.2	0.0	0.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.4	14.3	11.2		21.2	13.3	11.7	21.4	15.4	15.2	22.7	16.9
LnGrp LOS	C	B	B		C	B	B	C	B	B	C	B
Approach Vol, veh/h		754				634			88			254
Approach Delay, s/veh		14.5				13.6			17.2			17.5
Approach LOS		B				B			B			B

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	14.0	6.7	19.9	6.5	13.0	7.5	19.1
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	2.6	2.4	9.7	2.3	4.4	2.5	6.3
Green Ext Time (p_c), s	0.0	0.3	0.0	4.4	0.0	1.2	0.0	3.8

Intersection Summary	
HCM 7th Control Delay, s/veh	14.8
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	88
Future Volume (veh/h)	88
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	94
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	262
Arrive On Green	0.17
Sat Flow, veh/h	1572
Grp Volume(v), veh/h	94
Grp Sat Flow(s),veh/h/ln	1572
Q Serve(g_s), s	2.4
Cycle Q Clear(g_c), s	2.4
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	262
V/C Ratio(X)	0.36
Avail Cap(c_a), veh/h	1333
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	17.0
Incr Delay (d2), s/veh	0.8
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.7
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	17.8
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer - Assigned Phs

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	118	315	46	44	246
Future Vol, veh/h	63	118	315	46	44	246
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	74	139	371	54	52	289
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay, s/veh	11.1	19.5	15.6
HCM LOS	B	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	15%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	15%	0%	100%	100%
Vol Right, %	85%	0%	85%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	290	42	139	315	23	23
LT Vol	44	0	0	315	0	0
Through Vol	0	42	21	0	23	23
RT Vol	246	0	118	0	0	0
Lane Flow Rate	341	49	164	371	27	27
Geometry Grp	5	6	6	5	5	5
Degree of Util (X)	0.552	0.094	0.283	0.666	0.045	0.031
Departure Headway (Hd)	5.827	6.831	6.224	6.467	5.959	4.18
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	618	523	576	560	600	853
Service Time	3.577	4.595	3.987	4.21	3.702	1.922
HCM Lane V/C Ratio	0.552	0.094	0.285	0.663	0.045	0.032
HCM Control Delay, s/veh	15.6	10.3	11.4	21.2	9	7.1
HCM Lane LOS	C	B	B	C	A	A
HCM 95th-tile Q	3.4	0.3	1.2	4.9	0.1	0.1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	124	204	37	235	692	546	137
Future Volume (veh/h)	124	204	37	235	692	546	137
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	146	240		276	814	642	161
Peak Hour Factor	0.85	0.85		0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	336	527		661	2874	1371	426
Arrive On Green	0.19	0.19		0.19	0.57	0.27	0.27
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	146	240		276	814	642	161
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	2.9	3.1		2.9	3.4	4.3	3.4
Cycle Q Clear(g_c), s	2.9	3.1		2.9	3.4	4.3	3.4
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	336	527		661	2874	1371	426
V/C Ratio(X)	0.43	0.46		0.42	0.28	0.47	0.38
Avail Cap(c_a), veh/h	1748	2737		746	5035	3407	1057
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	14.5		14.3	4.5	12.3	12.0
Incr Delay (d2), s/veh	0.9	0.6		0.4	0.1	0.2	0.6
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0		0.9	0.5	1.2	0.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	15.3	15.1		14.8	4.6	12.6	12.5
LnGrp LOS	B	B		B	A	B	B
Approach Vol, veh/h	386				1090	803	
Approach Delay, s/veh	15.2				7.1	12.6	
Approach LOS	B				A	B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		27.8		12.6	12.0	15.8	
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9	
Max Green Setting (Gmax), s		40.2		40.0	8.8	27.2	
Max Q Clear Time (g_c+I1), s		5.4		5.1	4.9	6.3	
Green Ext Time (p_c), s		6.1		1.4	0.3	4.7	

Intersection Summary							
HCM 7th Control Delay, s/veh			10.4				
HCM 7th LOS			B				

Notes
User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	4	66	666	5	7	702	16	10	87	3	12	41
Future Volume (veh/h)	4	66	666	5	7	702	16	10	87	3	12	41
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		70	709	5	7	747	17	11	93	3	13	44
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h		344	1317	588	50	1458	451	76	575	257	89	588
Arrive On Green		0.10	0.37	0.37	0.01	0.29	0.29	0.02	0.16	0.16	0.03	0.17
Sat Flow, veh/h		3428	3526	1572	3428	5066	1566	3428	3526	1572	3428	3526
Grp Volume(v), veh/h		70	709	5	7	747	17	11	93	3	13	44
Grp Sat Flow(s),veh/h/ln		1714	1763	1572	1714	1689	1566	1714	1763	1572	1714	1763
Q Serve(g_s), s		0.9	7.2	0.1	0.1	5.7	0.4	0.1	1.0	0.1	0.2	0.5
Cycle Q Clear(g_c), s		0.9	7.2	0.1	0.1	5.7	0.4	0.1	1.0	0.1	0.2	0.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		344	1317	588	50	1458	451	76	575	257	89	588
V/C Ratio(X)		0.20	0.54	0.01	0.14	0.51	0.04	0.14	0.16	0.01	0.15	0.07
Avail Cap(c_a), veh/h		583	2819	1257	583	4050	1252	583	2942	1312	583	2996
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
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		19.0	11.3	9.0	22.3	13.7	11.8	22.0	16.5	16.1	21.9	16.1
Incr Delay (d2), s/veh		0.3	0.3	0.0	1.3	0.3	0.0	0.9	0.1	0.0	0.7	0.1
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
%ile BackOfQ(50%),veh/ln		0.3	1.9	0.0	0.0	1.6	0.1	0.1	0.4	0.0	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		19.3	11.6	9.0	23.6	13.9	11.8	22.9	16.6	16.1	22.6	16.2
LnGrp LOS		B	B	A	C	B	B	C	B	B	C	B
Approach Vol, veh/h			784			771			107			100
Approach Delay, s/veh			12.3			14.0			17.3			17.2
Approach LOS			B			B			B			B

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	12.8	4.9	22.9	5.2	13.0	8.8	18.9
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.0	2.1	9.2	2.1	3.1	2.9	7.7
Green Ext Time (p_c), s	0.0	0.5	0.0	4.6	0.0	0.4	0.1	5.0

Intersection Summary	
HCM 7th Control Delay, s/veh	13.6
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	40
Future Volume (veh/h)	40
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	43
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	262
Arrive On Green	0.17
Sat Flow, veh/h	1567
Grp Volume(v), veh/h	43
Grp Sat Flow(s),veh/h/ln	1567
Q Serve(g_s), s	1.1
Cycle Q Clear(g_c), s	1.1
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	262
V/C Ratio(X)	0.16
Avail Cap(c_a), veh/h	1331
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	16.4
Incr Delay (d2), s/veh	0.3
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.3
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	16.7
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer - Assigned Phs

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	21	96	72	21	74
Future Vol, veh/h	31	21	96	72	21	74
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	24	112	84	24	86
Number of Lanes	2	0	1	2	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	3
HCM Control Delay, s/veh	7.9	8.2	8.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	22%	0%	0%	100%	0%	0%
Vol Thru, %	0%	100%	33%	0%	100%	100%
Vol Right, %	78%	0%	67%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	21	31	96	36	36
LT Vol	21	0	0	96	0	0
Through Vol	0	21	10	0	36	36
RT Vol	74	0	21	0	0	0
Lane Flow Rate	110	24	36	112	42	42
Geometry Grp	5	6	6	5	5	5
Degree of Util (X)	0.144	0.035	0.048	0.167	0.057	0.036
Departure Headway (Hd)	4.705	5.232	4.761	5.382	4.88	3.135
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	764	686	754	669	736	1149
Service Time	2.418	2.951	2.479	3.094	2.592	0.835
HCM Lane V/C Ratio	0.144	0.035	0.048	0.167	0.057	0.037
HCM Control Delay, s/veh	8.2	8.1	7.7	9.2	7.9	6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0.2	0.6	0.2	0.1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	49	63	18	125	683	699	47
Future Volume (veh/h)	49	63	18	125	683	699	47
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	53	68		136	742	760	51
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	257	402		677	3073	1533	476
Arrive On Green	0.15	0.15		0.20	0.61	0.30	0.30
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	53	68		136	742	760	51
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	1.0	0.9		1.3	2.7	4.9	0.9
Cycle Q Clear(g_c), s	1.0	0.9		1.3	2.7	4.9	0.9
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	257	402		677	3073	1533	476
V/C Ratio(X)	0.21	0.17		0.20	0.24	0.50	0.11
Avail Cap(c_a), veh/h	1791	2804		764	5158	3490	1083
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	14.8		13.2	3.6	11.3	9.9
Incr Delay (d2), s/veh	0.4	0.2		0.1	0.0	0.2	0.1
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.7		0.4	0.3	1.3	0.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	15.3	15.0		13.4	3.6	11.5	10.0
LnGrp LOS	B	B		B	A	B	B
Approach Vol, veh/h	121				878	811	
Approach Delay, s/veh	15.1				5.1	11.4	
Approach LOS	B				A	B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		28.8		10.6	12.0	16.8	
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9	
Max Green Setting (Gmax), s		40.2		40.0	8.8	27.2	
Max Q Clear Time (g_c+I1), s		4.7		3.0	3.3	6.9	
Green Ext Time (p_c), s		5.5		0.4	0.2	5.1	

Intersection Summary	
HCM 7th Control Delay, s/veh	8.6
HCM 7th LOS	A

Notes
User approved ignoring U-Turning movement.

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	64	45	192	182	19	25	45	125	139	146	12	50
Average Queue (ft)	24	6	89	77	4	4	18	60	63	27	1	20
95th Queue (ft)	44	29	152	144	15	20	38	108	110	83	6	46
Link Distance (ft)			2418	2418	2418			3368	3368	3368		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	R
Maximum Queue (ft)	72	51	27	26	74	87	63
Average Queue (ft)	24	2	5	10	22	39	29
95th Queue (ft)	57	17	22	30	53	78	54
Link Distance (ft)	337	337			249	249	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			180	100			80
Storage Blk Time (%)						0	0
Queuing Penalty (veh)						0	0

Intersection: 5: Palo Alto Avenue & Hayes Avenue

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	48	111	99	56	31	112
Average Queue (ft)	21	55	62	21	8	65
95th Queue (ft)	45	89	92	50	31	103
Link Distance (ft)	617	617		454	454	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	91	87	61	286	286	267	256	120	155	155	72	74
Average Queue (ft)	46	29	25	126	51	73	72	31	94	66	14	35
95th Queue (ft)	77	55	51	220	172	168	157	82	137	122	48	61
Link Distance (ft)	454	454				1592	1592	1592	1778	1778	1778	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				3	0	0						
Queuing Penalty (veh)				6	1	0						

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	60	56	173	162	14	22	18	148	128	114	15	31
Average Queue (ft)	25	9	72	62	1	2	1	68	67	32	4	12
95th Queue (ft)	49	38	142	127	6	12	8	124	120	79	12	34
Link Distance (ft)			2418	2418	2418			3368	3368	3368		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	R
Maximum Queue (ft)	133	56	27	48	44	46	44
Average Queue (ft)	56	3	2	13	5	16	11
95th Queue (ft)	102	25	12	35	22	40	31
Link Distance (ft)	337	337			249	249	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			180	100			80
Storage Blk Time (%)	0						
Queuing Penalty (veh)	0						

Intersection: 5: Palo Alto Avenue & Hayes Avenue

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	31	52	79	58	32	56
Average Queue (ft)	10	21	36	33	15	32
95th Queue (ft)	32	48	65	49	41	56
Link Distance (ft)	617	617		454	454	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	46	44	41	144	77	138	120	53	163	146	130	53
Average Queue (ft)	24	15	10	60	24	49	37	10	98	71	34	22
95th Queue (ft)	49	33	27	107	55	125	98	38	155	136	99	46
Link Distance (ft)	454	454				1592	1592	1592	1778	1778	1778	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)											0	
Queuing Penalty (veh)											0	

Network Summary

Network wide Queuing Penalty: 0

Appendix G: Existing plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	40	643	38	1	42	556	12	40	62	39	12	150
Future Volume (veh/h)	40	643	38	1	42	556	12	40	62	39	12	150
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	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
Work Zone On Approach		No				No			No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856		1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	684	40		45	591	13	43	66	41	13	160
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3		3	3	3	3	3	3	3	3
Cap, veh/h	242	1064	475		250	1542	478	242	716	319	89	558
Arrive On Green	0.07	0.30	0.30		0.07	0.30	0.30	0.07	0.20	0.20	0.03	0.16
Sat Flow, veh/h	3428	3526	1572		3428	5066	1571	3428	3526	1572	3428	3526
Grp Volume(v), veh/h	43	684	40		45	591	13	43	66	41	13	160
Grp Sat Flow(s),veh/h/ln	1714	1763	1572		1714	1689	1571	1714	1763	1572	1714	1763
Q Serve(g_s), s	0.6	8.2	0.9		0.6	4.5	0.3	0.6	0.7	1.0	0.2	2.0
Cycle Q Clear(g_c), s	0.6	8.2	0.9		0.6	4.5	0.3	0.6	0.7	1.0	0.2	2.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	242	1064	475		250	1542	478	242	716	319	89	558
V/C Ratio(X)	0.18	0.64	0.08		0.18	0.38	0.03	0.18	0.09	0.13	0.15	0.29
Avail Cap(c_a), veh/h	546	2643	1179		546	3797	1178	546	2758	1230	546	2808
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
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	14.8	12.2		21.3	13.4	11.9	21.4	15.8	16.0	23.3	18.2
Incr Delay (d2), s/veh	0.3	0.7	0.1		0.3	0.2	0.0	0.3	0.1	0.2	0.8	0.3
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
%ile BackOfQ(50%),veh/ln	0.2	2.5	0.2		0.2	1.3	0.1	0.2	0.3	0.3	0.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.8	15.5	12.3		21.7	13.6	12.0	21.8	15.9	16.1	24.1	18.4
LnGrp LOS	C	B	B		C	B	B	C	B	B	C	B
Approach Vol, veh/h		767				649			150			267
Approach Delay, s/veh		15.6				14.1			17.6			19.1
Approach LOS		B				B			B			B

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	15.2	7.8	20.5	7.7	13.1	7.7	20.6
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.0	2.6	10.2	2.6	4.6	2.6	6.5
Green Ext Time (p_c), s	0.0	0.5	0.0	4.5	0.0	1.3	0.0	3.8

Intersection Summary	
HCM 7th Control Delay, s/veh	15.8
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	88
Future Volume (veh/h)	88
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	94
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	249
Arrive On Green	0.16
Sat Flow, veh/h	1572
Grp Volume(v), veh/h	94
Grp Sat Flow(s),veh/h/ln	1572
Q Serve(g_s), s	2.6
Cycle Q Clear(g_c), s	2.6
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	249
V/C Ratio(X)	0.38
Avail Cap(c_a), veh/h	1253
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	18.4
Incr Delay (d2), s/veh	0.9
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.8
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	19.4
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	74	13	152	39	37	193
Future Vol, veh/h	74	13	152	39	37	193
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	84	15	173	44	42	219

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	389	109	0	0	217	0
Stage 1	195	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	585	921	-	-	1343	-
Stage 1	816	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	567	921	-	-	1343	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	791	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.16	0	1.25
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	601	1343	-
HCM Lane V/C Ratio	-	-	0.164	0.031	-
HCM Ctrl Dly (s/v)	-	-	12.2	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	21	8	0	267	183	0
Future Vol, veh/h	21	8	0	267	183	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	9	0	303	208	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	360	104	-	0	-	0
Stage 1	208	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	610	927	0	-	-	0
Stage 1	804	-	0	-	-	0
Stage 2	857	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	610	927	-	-	-	-
Mov Cap-2 Maneuver	656	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	10.29	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	713	-
HCM Lane V/C Ratio	-	0.046	-
HCM Ctrl Dly (s/v)	-	10.3	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Intersection Delay, s/veh	20.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	143	132	315	134	33	51	2	249	58	28	5
Future Vol, veh/h	3	143	132	315	134	33	51	2	249	58	28	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	168	155	371	158	39	60	2	293	68	33	6
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	13.6	24.3	23	13.8
HCM LOS	B	C	C	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	17%	100%	0%	0%	100%	0%	0%	64%
Vol Thru, %	1%	0%	100%	27%	0%	100%	58%	31%
Vol Right, %	82%	0%	0%	73%	0%	0%	42%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	302	3	95	180	315	89	78	91
LT Vol	51	3	0	0	315	0	0	58
Through Vol	2	0	95	48	0	89	45	28
RT Vol	249	0	0	132	0	0	33	5
Lane Flow Rate	355	4	112	211	371	105	91	107
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.678	0.008	0.232	0.405	0.771	0.204	0.169	0.248
Departure Headway (Hd)	6.872	7.951	7.433	6.901	7.488	6.973	6.666	8.323
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	526	449	482	520	482	514	537	430
Service Time	4.623	5.715	5.197	4.664	5.243	4.728	4.421	6.093
HCM Lane V/C Ratio	0.675	0.009	0.232	0.406	0.77	0.204	0.169	0.249
HCM Control Delay, s/veh	23	10.8	12.4	14.3	31.3	11.5	10.8	13.8
HCM Lane LOS	C	B	B	B	D	B	B	B
HCM 95th-tile Q	5.1	0	0.9	1.9	6.8	0.8	0.6	1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	167	302	37	307	692	546	186
Future Volume (veh/h)	167	302	37	307	692	546	186
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	196	355		361	814	642	219
Peak Hour Factor	0.85	0.85		0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	372	582		628	2834	1406	436
Arrive On Green	0.21	0.21		0.18	0.56	0.28	0.28
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	196	355		361	814	642	219
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	4.2	4.9		4.1	3.6	4.5	5.0
Cycle Q Clear(g_c), s	4.2	4.9		4.1	3.6	4.5	5.0
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	372	582		628	2834	1406	436
V/C Ratio(X)	0.53	0.61		0.57	0.29	0.46	0.50
Avail Cap(c_a), veh/h	1661	2601		1111	5379	3237	1005
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	15.2		15.9	4.9	12.7	12.9
Incr Delay (d2), s/veh	1.2	1.0		0.8	0.1	0.2	0.9
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.8		1.3	0.6	1.3	1.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	16.1	16.3		16.7	5.0	13.0	13.8
LnGrp LOS	B	B		B	A	B	B
Approach Vol, veh/h	551				1175	861	
Approach Delay, s/veh	16.2				8.6	13.2	
Approach LOS	B				A	B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		28.7		13.9	12.0	16.7	
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9	
Max Green Setting (Gmax), s		45.2		40.0	13.8	27.2	
Max Q Clear Time (g_c+I1), s		5.6		6.9	6.1	7.0	
Green Ext Time (p_c), s		6.2		2.0	0.8	4.8	

Intersection Summary	
HCM 7th Control Delay, s/veh	11.7
HCM 7th LOS	B

Notes
User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	4	66	666	23	21	702	16	25	99	37	12	53
Future Volume (veh/h)	4	66	666	23	21	702	16	25	99	37	12	53
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		70	709	24	22	747	17	27	105	39	13	56
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h		338	1196	533	142	1428	441	168	667	298	89	585
Arrive On Green		0.10	0.34	0.34	0.04	0.28	0.28	0.05	0.19	0.19	0.03	0.17
Sat Flow, veh/h		3428	3526	1572	3428	5066	1566	3428	3526	1572	3428	3526
Grp Volume(v), veh/h		70	709	24	22	747	17	27	105	39	13	56
Grp Sat Flow(s),veh/h/ln		1714	1763	1572	1714	1689	1566	1714	1763	1572	1714	1763
Q Serve(g_s), s		0.9	8.0	0.5	0.3	6.0	0.4	0.4	1.2	1.0	0.2	0.6
Cycle Q Clear(g_c), s		0.9	8.0	0.5	0.3	6.0	0.4	0.4	1.2	1.0	0.2	0.6
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		338	1196	533	142	1428	441	168	667	298	89	585
V/C Ratio(X)		0.21	0.59	0.04	0.16	0.52	0.04	0.16	0.16	0.13	0.15	0.10
Avail Cap(c_a), veh/h		557	2696	1203	557	3874	1198	557	2814	1255	557	2865
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
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		19.9	13.1	10.6	22.2	14.5	12.5	21.9	16.3	16.2	22.9	17.0
Incr Delay (d2), s/veh		0.3	0.5	0.0	0.5	0.3	0.0	0.4	0.1	0.2	0.8	0.1
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
%ile BackOfQ(50%),veh/ln		0.3	2.3	0.1	0.1	1.7	0.1	0.1	0.4	0.3	0.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		20.2	13.6	10.7	22.7	14.8	12.5	22.3	16.4	16.4	23.6	17.0
LnGrp LOS		C	B	B	C	B	B	C	B	B	C	B
Approach Vol, veh/h			803			786			171			112
Approach Delay, s/veh			14.1			15.0			17.3			18.0
Approach LOS			B			B			B			B

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	14.4	6.2	22.0	6.6	13.3	8.9	19.2
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.2	2.3	10.0	2.4	3.1	2.9	8.0
Green Ext Time (p_c), s	0.0	0.7	0.0	4.6	0.0	0.4	0.1	5.0

Intersection Summary	
HCM 7th Control Delay, s/veh	15.0
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	40
Future Volume (veh/h)	40
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	43
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	260
Arrive On Green	0.17
Sat Flow, veh/h	1567
Grp Volume(v), veh/h	43
Grp Sat Flow(s),veh/h/ln	1567
Q Serve(g_s), s	1.1
Cycle Q Clear(g_c), s	1.1
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	260
V/C Ratio(X)	0.17
Avail Cap(c_a), veh/h	1273
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	17.2
Incr Delay (d2), s/veh	0.3
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.3
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	17.5
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	14	155	55	38	59
Future Vol, veh/h	80	14	155	55	38	59
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	-	-	-	60	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	91	16	176	63	43	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	327	119	0	0	239	0
Stage 1	207	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	639	907	-	-	1318	-
Stage 1	804	-	-	-	-	-
Stage 2	889	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	618	907	-	-	1318	-
Mov Cap-2 Maneuver	618	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	860	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.64	0	3.06
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	649	1318	-
HCM Lane V/C Ratio	-	-	0.165	0.033	-
HCM Ctrl Dly (s/v)	-	-	11.6	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	13	7	0	139	203	0
Future Vol, veh/h	13	7	0	139	203	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	15	8	0	158	231	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	310	115	-	0	-	0
Stage 1	231	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	655	912	0	-	-	0
Stage 1	783	-	0	-	-	0
Stage 2	932	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	655	912	-	-	-	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	9.99	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	745	-
HCM Lane V/C Ratio	-	0.031	-
HCM Ctrl Dly (s/v)	-	10	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	107	30	96	165	107	28	6	74	46	6	3
Future Vol, veh/h	14	107	30	96	165	107	28	6	74	46	6	3
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	124	35	112	192	124	33	7	86	53	7	3
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	9	9.4	9.8	10
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	26%	100%	0%	0%	100%	0%	0%	84%
Vol Thru, %	6%	0%	100%	54%	0%	100%	34%	11%
Vol Right, %	69%	0%	0%	46%	0%	0%	66%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	108	14	71	66	96	110	162	55
LT Vol	28	14	0	0	96	0	0	46
Through Vol	6	0	71	36	0	110	55	6
RT Vol	74	0	0	30	0	0	107	3
Lane Flow Rate	126	16	83	76	112	128	188	64
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.196	0.027	0.128	0.111	0.18	0.188	0.252	0.114
Departure Headway (Hd)	5.605	6.054	5.549	5.226	5.796	5.292	4.825	6.414
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	634	587	640	679	615	674	738	554
Service Time	3.392	3.84	3.335	3.012	3.566	3.061	2.595	4.212
HCM Lane V/C Ratio	0.199	0.027	0.13	0.112	0.182	0.19	0.255	0.116
HCM Control Delay, s/veh	9.8	9	9.2	8.7	9.8	9.3	9.2	10
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.4	0.4	0.7	0.7	1	0.4

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	86	148	18	247	683	699	125
Future Volume (veh/h)	86	148	18	247	683	699	125
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	93	161		268	742	760	136
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	313	490		641	2978	1520	472
Arrive On Green	0.18	0.18		0.19	0.59	0.30	0.30
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	93	161		268	742	760	136
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	1.9	2.1		2.9	2.9	5.2	2.8
Cycle Q Clear(g_c), s	1.9	2.1		2.9	2.9	5.2	2.8
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	313	490		641	2978	1520	472
V/C Ratio(X)	0.30	0.33		0.42	0.25	0.50	0.29
Avail Cap(c_a), veh/h	1695	2655		723	4883	3304	1026
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	15.0		15.0	4.2	12.0	11.2
Incr Delay (d2), s/veh	0.5	0.4		0.4	0.0	0.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0		0.9	0.4	1.5	0.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	15.4	15.4		15.4	4.2	12.3	11.5
LnGrp LOS	B	B		B	A	B	B
Approach Vol, veh/h	254				1010	896	
Approach Delay, s/veh	15.4				7.2	12.2	
Approach LOS	B				A	B	

Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		29.4		12.3	12.0	17.4	
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9	
Max Green Setting (Gmax), s		40.2		40.0	8.8	27.2	
Max Q Clear Time (g_c+I1), s		4.9		4.1	4.9	7.2	
Green Ext Time (p_c), s		5.5		0.9	0.3	5.4	

Intersection Summary		
HCM 7th Control Delay, s/veh		10.2
HCM 7th LOS		B

Notes
User approved ignoring U-Turning movement.

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	47	43	191	196	19	62	45	145	151	131	15	50
Average Queue (ft)	19	3	89	72	5	15	12	52	56	19	2	7
95th Queue (ft)	43	20	159	147	17	38	30	101	112	62	8	29
Link Distance (ft)			2418	2418	2418			3368	3368	3368		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	T	T	R
Maximum Queue (ft)	73	74	47	30	26	47	90	77
Average Queue (ft)	27	34	2	11	8	27	40	31
95th Queue (ft)	58	74	16	32	26	56	77	58
Link Distance (ft)		385	385			249	249	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	140			180	100			80
Storage Blk Time (%)							1	0
Queuing Penalty (veh)							1	0

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	96	30
Average Queue (ft)	36	3
95th Queue (ft)	68	17
Link Distance (ft)	180	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		60
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	18
95th Queue (ft)	42
Link Distance (ft)	220
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	31	55	99	126	94	92	164	71
Average Queue (ft)	3	27	58	83	31	37	71	36
95th Queue (ft)	17	49	90	119	59	68	113	60
Link Distance (ft)		298	298		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	167	84	104	247	208	187	146	120	161	159	109	76
Average Queue (ft)	72	26	32	122	77	86	62	35	109	91	37	47
95th Queue (ft)	136	55	67	203	155	148	116	84	156	145	100	71
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				0							0	
Queuing Penalty (veh)				0							0	

Network Summary

Network wide Queuing Penalty: 1

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	113	56	204	204	38	42	45	130	150	149	15	52
Average Queue (ft)	41	11	83	74	6	13	6	74	74	37	2	20
95th Queue (ft)	78	46	153	148	22	32	25	127	125	95	10	48
Link Distance (ft)			2418	2418	2418			3368	3368	3368		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)										0		
Queuing Penalty (veh)										0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	T	R	L	L	T	T	R
Maximum Queue (ft)	95	48	72	24	26	47	46	42
Average Queue (ft)	43	2	22	1	7	14	10	12
95th Queue (ft)	86	16	54	8	25	39	30	29
Link Distance (ft)	384	384				249	249	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			180	100	100			80
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	101	53
Average Queue (ft)	33	7
95th Queue (ft)	66	29
Link Distance (ft)	180	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		60
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	14
95th Queue (ft)	39
Link Distance (ft)	282
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	31	31	98	74	88	80	56	52
Average Queue (ft)	9	21	34	35	38	46	36	23
95th Queue (ft)	31	44	62	64	61	70	56	46
Link Distance (ft)		310	310		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	90	83	70	141	130	156	135	117	184	167	134	117
Average Queue (ft)	34	26	16	71	74	63	55	19	112	95	44	41
95th Queue (ft)	68	61	40	117	118	127	115	61	177	163	118	78
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)											0	1
Queuing Penalty (veh)											0	1

Network Summary

Network wide Queuing Penalty: 2

Appendix H: Near Term plus Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	28	47	798	43	1	118	647	12	47	64	39	12
Future Volume (veh/h)	28	47	798	43	1	118	647	12	47	64	39	12
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		50	849	46		126	688	13	50	68	41	13
Peak Hour Factor		0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3		3	3	3	3	3	3	3
Cap, veh/h		255	1201	535		400	1940	602	255	645	288	87
Arrive On Green		0.07	0.34	0.34		0.12	0.38	0.38	0.07	0.18	0.18	0.03
Sat Flow, veh/h		3428	3526	1572		3428	5066	1571	3428	3526	1572	3428
Grp Volume(v), veh/h		50	849	46		126	688	13	50	68	41	13
Grp Sat Flow(s),veh/h/ln		1714	1763	1572		1714	1689	1571	1714	1763	1572	1714
Q Serve(g_s), s		0.8	12.1	1.2		2.0	5.6	0.3	0.8	0.9	1.3	0.2
Cycle Q Clear(g_c), s		0.8	12.1	1.2		2.0	5.6	0.3	0.8	0.9	1.3	0.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		255	1201	535		400	1940	602	255	645	288	87
V/C Ratio(X)		0.20	0.71	0.09		0.31	0.35	0.02	0.20	0.11	0.14	0.15
Avail Cap(c_a), veh/h		461	2229	994		461	3203	993	461	2326	1038	461
HCM Platoon Ratio		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	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		25.2	16.6	13.0		23.5	12.8	11.1	25.2	19.7	19.9	27.7
Incr Delay (d2), s/veh		0.4	0.8	0.1		0.4	0.1	0.0	0.4	0.1	0.2	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
%ile BackOfQ(50%),veh/ln		0.3	4.0	0.3		0.7	1.7	0.1	0.3	0.3	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		25.6	17.4	13.1		24.0	12.9	11.2	25.6	19.8	20.1	28.5
LnGrp LOS		C	B	B		C	B	B	C	B	C	C
Approach Vol, veh/h			945				827			159		
Approach Delay, s/veh			17.6				14.6			21.7		
Approach LOS			B				B			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	15.9	11.0	25.5	8.5	13.1	8.5	27.9
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.3	4.0	14.1	2.8	5.3	2.8	7.6
Green Ext Time (p_c), s	0.0	0.5	0.1	5.6	0.0	1.4	0.0	4.5

Intersection Summary	
HCM 7th Control Delay, s/veh	17.6
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBT	SBR
Lane Configurations	↑↑	↱
Traffic Volume (veh/h)	162	92
Future Volume (veh/h)	162	92
Initial Q (Qb), veh	0	0
Lane Width Adj.	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1856	1856
Adj Flow Rate, veh/h	172	98
Peak Hour Factor	0.94	0.94
Percent Heavy Veh, %	3	3
Cap, veh/h	473	211
Arrive On Green	0.13	0.13
Sat Flow, veh/h	3526	1572
Grp Volume(v), veh/h	172	98
Grp Sat Flow(s),veh/h/ln	1763	1572
Q Serve(g_s), s	2.6	3.3
Cycle Q Clear(g_c), s	2.6	3.3
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	473	211
V/C Ratio(X)	0.36	0.46
Avail Cap(c_a), veh/h	2369	1057
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.9	23.2
Incr Delay (d2), s/veh	0.5	1.6
Initial Q Delay(d3), s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d), s/veh	23.3	24.8
LnGrp LOS	C	C
Approach Vol, veh/h	283	
Approach Delay, s/veh	24.1	
Approach LOS	C	

Timer - Assigned Phs

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	149	127	174	241	82
Future Vol, veh/h	0	149	127	174	241	82
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	55	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	169	144	198	274	93

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	184	367	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	824	1181	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	824	1181	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.49	3.57	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1181	-	824	-	-
HCM Lane V/C Ratio	0.122	-	0.205	-	-
HCM Ctrl Dly (s/v)	8.5	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.8	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	74	13	288	39	37	353
Future Vol, veh/h	74	13	288	39	37	353
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	84	15	327	44	42	401

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	634	186	0	0	372	0
Stage 1	349	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	409	822	-	-	1176	-
Stage 1	682	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	394	822	-	-	1176	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	709	-	-	-	-	-

Approach	WB		NB		SB	
HCM Ctrl Dly, s/v	15.93		0		0.78	
HCM LOS	C					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	428	1176	-
HCM Lane V/C Ratio	-	-	0.231	0.036	-
HCM Ctrl Dly (s/v)	-	-	15.9	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection						
Int Delay, s/veh	0.4					

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	21	8	0	427	319	0
Future Vol, veh/h	21	8	0	427	319	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	9	0	485	363	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	605	181	-	0	-	0
Stage 1	363	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	427	827	0	-	-	0
Stage 1	672	-	0	-	-	0
Stage 2	772	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	427	827	-	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	11.58	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	580	-
HCM Lane V/C Ratio	-	0.057	-
HCM Ctrl Dly (s/v)	-	11.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Intersection Delay, s/veh	26.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	294	141	316	267	33	54	2	253	58	28	5
Future Vol, veh/h	3	294	141	316	267	33	54	2	253	58	28	5
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	346	166	372	314	39	64	2	298	68	33	6
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	19.9	28.8	32.7	15.8
HCM LOS	C	D	D	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	17%	100%	0%	0%	100%	0%	0%	64%
Vol Thru, %	1%	0%	100%	41%	0%	100%	73%	31%
Vol Right, %	82%	0%	0%	59%	0%	0%	27%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	309	3	196	239	316	178	122	91
LT Vol	54	3	0	0	316	0	0	58
Through Vol	2	0	196	98	0	178	89	28
RT Vol	253	0	0	141	0	0	33	5
Lane Flow Rate	364	4	231	281	372	209	144	107
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.777	0.008	0.511	0.59	0.842	0.444	0.297	0.281
Departure Headway (Hd)	7.699	8.501	7.98	7.55	8.155	7.636	7.439	9.442
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	419	450	475	442	469	481	383
Service Time	5.482	6.297	5.776	5.345	5.947	5.427	5.23	7.142
HCM Lane V/C Ratio	0.776	0.01	0.513	0.592	0.842	0.446	0.299	0.279
HCM Control Delay, s/veh	32.7	11.4	18.9	20.8	41.6	16.5	13.4	15.8
HCM Lane LOS	D	B	C	C	E	C	B	C
HCM 95th-tile Q	6.8	0	2.8	3.7	8.2	2.2	1.2	1.1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	171	453	37	440	808	645	187
Future Volume (veh/h)	171	453	37	440	808	645	187
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	201	533		518	951	759	220
Peak Hour Factor	0.85	0.85		0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	472	739		674	2771	1372	426
Arrive On Green	0.27	0.27		0.20	0.55	0.27	0.27
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	201	533		518	951	759	220
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	5.0	9.2		7.5	5.5	6.8	6.2
Cycle Q Clear(g_c), s	5.0	9.2		7.5	5.5	6.8	6.2
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	472	739		674	2771	1372	426
V/C Ratio(X)	0.43	0.72		0.77	0.34	0.55	0.52
Avail Cap(c_a), veh/h	1342	2101		898	4346	2615	812
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	17.5		20.0	6.7	16.5	16.3
Incr Delay (d2), s/veh	0.6	1.4		2.9	0.1	0.4	1.0
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.9		2.8	1.3	2.2	2.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	16.6	18.9		22.9	6.7	16.8	17.3
LnGrp LOS	B	B		C	A	B	B
Approach Vol, veh/h	734				1469	979	
Approach Delay, s/veh	18.3				12.4	16.9	
Approach LOS	B				B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.7		19.0	14.6	19.2
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9
Max Green Setting (Gmax), s		45.2		40.0	13.8	27.2
Max Q Clear Time (g_c+I1), s		7.5		11.2	9.5	8.8
Green Ext Time (p_c), s		7.5		2.8	0.8	5.5

Intersection Summary	
HCM 7th Control Delay, s/veh	15.2
HCM 7th LOS	B

Notes
User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	14	78	931	42	81	814	16	43	110	37	12	60
Future Volume (veh/h)	14	78	931	42	81	814	16	43	110	37	12	60
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		83	990	45	86	866	17	46	117	39	13	64
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h		330	1344	599	336	1939	600	237	631	281	87	476
Arrive On Green		0.10	0.38	0.38	0.10	0.38	0.38	0.07	0.18	0.18	0.03	0.14
Sat Flow, veh/h		3428	3526	1572	3428	5066	1568	3428	3526	1572	3428	3526
Grp Volume(v), veh/h		83	990	45	86	866	17	46	117	39	13	64
Grp Sat Flow(s),veh/h/ln		1714	1763	1572	1714	1689	1568	1714	1763	1572	1714	1763
Q Serve(g_s), s		1.4	14.8	1.1	1.4	7.8	0.4	0.8	1.7	1.3	0.2	1.0
Cycle Q Clear(g_c), s		1.4	14.8	1.1	1.4	7.8	0.4	0.8	1.7	1.3	0.2	1.0
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		330	1344	599	336	1939	600	237	631	281	87	476
V/C Ratio(X)		0.25	0.74	0.08	0.26	0.45	0.03	0.19	0.19	0.14	0.15	0.13
Avail Cap(c_a), veh/h		437	2113	942	437	3036	939	437	2205	983	437	2245
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
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		25.6	16.3	12.1	25.6	14.1	11.8	26.9	21.4	21.2	29.2	23.3
Incr Delay (d2), s/veh		0.4	0.8	0.1	0.4	0.2	0.0	0.4	0.1	0.2	0.8	0.1
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
%ile BackOfQ(50%),veh/ln		0.5	4.8	0.3	0.5	2.4	0.1	0.3	0.7	0.4	0.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		26.0	17.1	12.1	26.0	14.2	11.8	27.3	21.5	21.4	30.0	23.5
LnGrp LOS		C	B	B	C	B	B	C	C	C	C	C
Approach Vol, veh/h			1118			969			202			125
Approach Delay, s/veh			17.6			15.2			22.8			24.4
Approach LOS			B			B			C			C

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	16.3	10.2	29.0	8.4	13.6	10.1	29.1
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.7	3.4	16.8	2.8	3.7	3.4	9.8
Green Ext Time (p_c), s	0.0	0.8	0.1	6.4	0.0	0.5	0.1	5.8

Intersection Summary	
HCM 7th Control Delay, s/veh	17.4
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	45
Future Volume (veh/h)	45
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	48
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	211
Arrive On Green	0.14
Sat Flow, veh/h	1566
Grp Volume(v), veh/h	48
Grp Sat Flow(s),veh/h/ln	1566
Q Serve(g_s), s	1.7
Cycle Q Clear(g_c), s	1.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	211
V/C Ratio(X)	0.23
Avail Cap(c_a), veh/h	997
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	23.6
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.6
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	24.2
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer - Assigned Phs

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	149	115	198	121	62
Future Vol, veh/h	0	149	115	198	121	62
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	55	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	169	131	225	138	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	104	208	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	927	1353	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	927	1353	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB		NB		SB	
HCM Ctrl Dly, s/v	9.75		2.92		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1353	-	927	-	-
HCM Lane V/C Ratio	0.097	-	0.183	-	-
HCM Ctrl Dly (s/v)	7.9	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.7	-	-

Intersection						
Int Delay, s/veh	2.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	14	299	55	38	232
Future Vol, veh/h	80	14	299	55	38	232
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	91	16	340	63	43	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	589	201	0	0	402	0
Stage 1	371	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	437	803	-	-	1146	-
Stage 1	665	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	420	803	-	-	1146	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	764	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.4	0	1.16
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	453	1146	-
HCM Lane V/C Ratio	-	-	0.236	0.038	-
HCM Ctrl Dly (s/v)	-	-	15.4	8.3	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	13	7	0	312	347	0
Future Vol, veh/h	13	7	0	312	347	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	15	8	0	355	394	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	572	197	-	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	177	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	448	808	0	-	-	0
Stage 1	647	-	0	-	-	0
Stage 2	833	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	448	808	-	-	-	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	833	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	11.22	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	602	-
HCM Lane V/C Ratio	-	0.038	-
HCM Ctrl Dly (s/v)	-	11.2	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	277	33	98	307	107	30	6	75	46	6	3
Future Vol, veh/h	14	277	33	98	307	107	30	6	75	46	6	3
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	322	38	114	357	124	35	7	87	53	7	3
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	11.2	11.3	11.3	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	27%	100%	0%	0%	100%	0%	0%	84%
Vol Thru, %	5%	0%	100%	74%	0%	100%	49%	11%
Vol Right, %	68%	0%	0%	26%	0%	0%	51%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	14	185	125	98	205	209	55
LT Vol	30	14	0	0	98	0	0	46
Through Vol	6	0	185	92	0	205	102	6
RT Vol	75	0	0	33	0	0	107	3
Lane Flow Rate	129	16	215	146	114	238	243	64
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.234	0.029	0.356	0.234	0.197	0.379	0.363	0.131
Departure Headway (Hd)	6.525	6.478	5.971	5.785	6.233	5.726	5.364	7.389
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	550	553	601	621	577	628	672	485
Service Time	4.272	4.217	3.71	3.523	3.965	3.459	3.096	5.142
HCM Lane V/C Ratio	0.235	0.029	0.358	0.235	0.198	0.379	0.362	0.132
HCM Control Delay, s/veh	11.3	9.4	12	10.3	10.5	11.9	11.1	11.3
HCM Lane LOS	B	A	B	B	B	B	B	B
HCM 95th-tile Q	0.9	0.1	1.6	0.9	0.7	1.8	1.7	0.4

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	87	318	18	389	847	867	127
Future Volume (veh/h)	87	318	18	389	847	867	127
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	95	346		423	921	942	138
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	342	536		578	3011	1696	526
Arrive On Green	0.19	0.19		0.17	0.59	0.33	0.33
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	95	346		423	921	942	138
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	2.1	5.3		5.4	4.2	7.0	3.0
Cycle Q Clear(g_c), s	2.1	5.3		5.4	4.2	7.0	3.0
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	342	536		578	3011	1696	526
V/C Ratio(X)	0.28	0.65		0.73	0.31	0.56	0.26
Avail Cap(c_a), veh/h	1529	2395		653	4405	2981	925
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.9	17.2		18.2	4.6	12.6	11.2
Incr Delay (d2), s/veh	0.4	1.3		3.7	0.1	0.3	0.3
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1		2.1	0.7	2.0	0.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	16.3	18.5		21.9	4.7	12.9	11.5
LnGrp LOS	B	B		C	A	B	B
Approach Vol, veh/h	441				1344	1080	
Approach Delay, s/veh	18.0				10.1	12.7	
Approach LOS	B				B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.4		13.9	12.0	20.4
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9
Max Green Setting (Gmax), s		40.2		40.0	8.8	27.2
Max Q Clear Time (g_c+I1), s		6.2		7.3	7.4	9.0
Green Ext Time (p_c), s		7.1		1.7	0.2	6.4

Intersection Summary	
HCM 7th Control Delay, s/veh	12.3
HCM 7th LOS	B

Notes
User approved ignoring U-Turning movement.

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	91	56	238	240	14	128	137	155	133	128	17	30
Average Queue (ft)	45	13	116	136	6	25	58	58	60	51	3	3
95th Queue (ft)	83	51	206	219	16	68	103	121	110	106	12	16
Link Distance (ft)			2418	2418	2418			3369	3369	3369		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)			0									
Queuing Penalty (veh)			0									

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	52	87	47	45	28	26	102	128	66
Average Queue (ft)	27	32	2	15	1	5	34	58	24
95th Queue (ft)	50	71	15	38	10	20	78	96	47
Link Distance (ft)		286	286				249	249	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	140			180	100	100			80
Storage Blk Time (%)							1	2	0
Queuing Penalty (veh)							0	2	0

Intersection: 2: Hayes Avenue & Western Driveway

Movement	EB	NB	SB
Directions Served	R	L	TR
Maximum Queue (ft)	76	68	22
Average Queue (ft)	41	24	1
95th Queue (ft)	65	55	7
Link Distance (ft)	190		286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		55	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	66	31
Average Queue (ft)	35	9
95th Queue (ft)	53	32
Link Distance (ft)	114	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		55
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	21
95th Queue (ft)	43
Link Distance (ft)	195
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	26	158	196	143	119	78	156	97
Average Queue (ft)	1	36	83	88	51	42	81	38
95th Queue (ft)	9	81	149	130	88	65	129	69
Link Distance (ft)		286	286		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0		0				
Queuing Penalty (veh)		0		0				

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	132	132	126	340	420	1644	1607	1605	158	158	141	121
Average Queue (ft)	76	50	58	332	406	1116	1058	493	106	93	89	59
95th Queue (ft)	140	90	97	379	488	1930	1884	1527	152	138	141	100
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)						29	5	0				
Queuing Penalty (veh)						0	0	0				
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				86	80	0					4	1
Queuing Penalty (veh)				230	216	0					7	2

Network Summary

Network wide Queuing Penalty: 457

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	157	283	315	347	41	48	87	149	163	168	17	30
Average Queue (ft)	72	39	156	170	9	19	40	82	89	77	3	6
95th Queue (ft)	139	136	256	283	24	43	77	132	139	146	14	25
Link Distance (ft)			2418	2418	2418			3369	3369	3369		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)			2							1		
Queuing Penalty (veh)			2							0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	T	T	R
Maximum Queue (ft)	52	108	50	49	26	25	67	46
Average Queue (ft)	25	54	2	16	10	6	25	19
95th Queue (ft)	52	95	16	40	29	23	58	40
Link Distance (ft)		286	286			249	249	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	140			180	100			80
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 2: Hayes Avenue & Western Driveway

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	52	31
Average Queue (ft)	32	13
95th Queue (ft)	50	37
Link Distance (ft)	190	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		55
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	102	31
Average Queue (ft)	40	6
95th Queue (ft)	68	27
Link Distance (ft)	114	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		55
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	17
95th Queue (ft)	41
Link Distance (ft)	216
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	28	28	88	73	111	81	92	52
Average Queue (ft)	11	23	42	41	60	53	43	26
95th Queue (ft)	33	39	68	61	94	77	72	47
Link Distance (ft)		286	286		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	67	80	69	340	419	614	465	139	164	181	187	74
Average Queue (ft)	37	31	36	255	266	153	80	55	93	101	86	33
95th Queue (ft)	69	56	62	423	497	430	208	116	149	156	157	58
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				34	43	1					3	
Queuing Penalty (veh)				97	120	4					4	

Network Summary

Network wide Queuing Penalty: 226

Appendix I: Cumulative Year 2046 plus Project Traffic Conditions

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	28	47	798	45	1	118	730	19	65	127	39	12
Future Volume (veh/h)	28	47	798	45	1	118	730	19	65	127	39	12
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		50	849	48		126	777	20	69	135	41	13
Peak Hour Factor		0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3		3	3	3	3	3	3	3
Cap, veh/h		253	1192	532		394	1921	596	306	688	307	87
Arrive On Green		0.07	0.34	0.34		0.11	0.38	0.38	0.09	0.20	0.20	0.03
Sat Flow, veh/h		3428	3526	1572		3428	5066	1571	3428	3526	1572	3428
Grp Volume(v), veh/h		50	849	48		126	777	20	69	135	41	13
Grp Sat Flow(s),veh/h/ln		1714	1763	1572		1714	1689	1571	1714	1763	1572	1714
Q Serve(g_s), s		0.8	12.5	1.2		2.0	6.7	0.5	1.1	1.9	1.3	0.2
Cycle Q Clear(g_c), s		0.8	12.5	1.2		2.0	6.7	0.5	1.1	1.9	1.3	0.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		253	1192	532		394	1921	596	306	688	307	87
V/C Ratio(X)		0.20	0.71	0.09		0.32	0.40	0.03	0.23	0.20	0.13	0.15
Avail Cap(c_a), veh/h		450	2178	972		450	3130	971	450	2273	1014	450
HCM Platoon Ratio		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	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		25.9	17.1	13.4		24.2	13.5	11.6	25.1	20.0	19.8	28.3
Incr Delay (d2), s/veh		0.4	0.8	0.1		0.5	0.1	0.0	0.4	0.1	0.2	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
%ile BackOfQ(50%),veh/ln		0.3	4.1	0.4		0.7	2.0	0.1	0.4	0.7	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		26.2	17.9	13.5		24.6	13.7	11.6	25.5	20.1	19.9	29.1
LnGrp LOS		C	B	B		C	B	B	C	C	B	C
Approach Vol, veh/h			947				923			245		
Approach Delay, s/veh			18.2				15.1			21.6		
Approach LOS			B				B			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	16.9	11.0	25.8	9.5	13.1	8.6	28.2
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.9	4.0	14.5	3.1	5.4	2.8	8.7
Green Ext Time (p_c), s	0.0	0.9	0.1	5.5	0.1	1.6	0.0	5.2

Intersection Summary	
HCM 7th Control Delay, s/veh	18.2
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	190	92
Future Volume (veh/h)	190	92
Initial Q (Qb), veh	0	0
Lane Width Adj.	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1856	1856
Adj Flow Rate, veh/h	202	98
Peak Hour Factor	0.94	0.94
Percent Heavy Veh, %	3	3
Cap, veh/h	463	206
Arrive On Green	0.13	0.13
Sat Flow, veh/h	3526	1572
Grp Volume(v), veh/h	202	98
Grp Sat Flow(s),veh/h/ln	1763	1572
Q Serve(g_s), s	3.1	3.4
Cycle Q Clear(g_c), s	3.1	3.4
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	463	206
V/C Ratio(X)	0.44	0.47
Avail Cap(c_a), veh/h	2315	1032
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	23.8	23.9
Incr Delay (d2), s/veh	0.6	1.7
Initial Q Delay(d3), s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d), s/veh	24.4	25.6
LnGrp LOS	C	C
Approach Vol, veh/h	313	
Approach Delay, s/veh	25.0	
Approach LOS	C	

Timer - Assigned Phs

Intersection						
Int Delay, s/veh	3.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	149	127	174	241	82
Future Vol, veh/h	0	149	127	174	241	82
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	55	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	169	144	198	274	93

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	184	367	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	824	1181	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	824	1181	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.49	3.57	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1181	-	824	-	-
HCM Lane V/C Ratio	0.122	-	0.205	-	-
HCM Ctrl Dly (s/v)	8.5	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.8	-	-

Intersection						
Int Delay, s/veh	2.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	74	13	288	39	37	353
Future Vol, veh/h	74	13	288	39	37	353
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	84	15	327	44	42	401

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	634	186	0	0	372	0
Stage 1	349	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	409	822	-	-	1176	-
Stage 1	682	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	394	822	-	-	1176	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	709	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.93	0	0.78
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	428	1176	-
HCM Lane V/C Ratio	-	-	0.231	0.036	-
HCM Ctrl Dly (s/v)	-	-	15.9	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	21	8	0	427	319	0
Future Vol, veh/h	21	8	0	427	319	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	9	0	485	363	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	605	181	-	0	-	0
Stage 1	363	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	427	827	0	-	-	0
Stage 1	672	-	0	-	-	0
Stage 2	772	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	427	827	-	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	11.58	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	580	-
HCM Lane V/C Ratio	-	0.057	-
HCM Ctrl Dly (s/v)	-	11.6	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Intersection Delay, s/veh	29.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	294	141	354	267	33	54	2	253	58	28	5
Future Vol, veh/h	3	294	141	354	267	33	54	2	253	58	28	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	3	342	164	412	310	38	63	2	294	67	33	6
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	19.9	37.3	32.7	15.9
HCM LOS	C	E	D	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	17%	100%	0%	0%	100%	0%	0%	64%
Vol Thru, %	1%	0%	100%	41%	0%	100%	73%	31%
Vol Right, %	82%	0%	0%	59%	0%	0%	27%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	309	3	196	239	354	178	122	91
LT Vol	54	3	0	0	354	0	0	58
Through Vol	2	0	196	98	0	178	89	28
RT Vol	253	0	0	141	0	0	33	5
Lane Flow Rate	359	3	228	278	412	207	142	106
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.775	0.008	0.509	0.587	0.931	0.438	0.293	0.28
Departure Headway (Hd)	7.767	8.656	8.035	7.605	8.142	7.623	7.426	9.52
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	463	416	447	472	445	470	481	380
Service Time	5.551	6.356	5.834	5.404	5.937	5.417	5.22	7.22
HCM Lane V/C Ratio	0.775	0.007	0.51	0.589	0.926	0.44	0.295	0.279
HCM Control Delay, s/veh	32.7	11.4	19	20.8	56.2	16.3	13.3	15.9
HCM Lane LOS	D	B	C	C	F	C	B	C
HCM 95th-tile Q	6.8	0	2.8	3.7	10.6	2.2	1.2	1.1

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	171	453	37	440	1287	656	190
Future Volume (veh/h)	171	453	37	440	1287	656	190
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	186	492		478	1399	713	207
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	449	704		674	2774	1348	418
Arrive On Green	0.25	0.25		0.20	0.55	0.27	0.27
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	186	492		478	1399	713	207
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	4.3	8.0		6.4	8.5	5.9	5.5
Cycle Q Clear(g_c), s	4.3	8.0		6.4	8.5	5.9	5.5
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	449	704		674	2774	1348	418
V/C Ratio(X)	0.41	0.70		0.71	0.50	0.53	0.49
Avail Cap(c_a), veh/h	1429	2237		1303	5139	2785	864
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	16.7		18.6	7.0	15.5	15.3
Incr Delay (d2), s/veh	0.6	1.3		1.4	0.1	0.3	0.9
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.0		2.3	1.9	1.9	1.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	16.0	18.0		19.9	7.1	15.8	16.3
LnGrp LOS	B	B		B	A	B	B
Approach Vol, veh/h	678				1877	920	
Approach Delay, s/veh	17.4				10.4	15.9	
Approach LOS	B				B	B	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	32.0	17.5	13.9	18.1
Change Period (Y+Rc), s	4.9	4.9	4.2	4.9
Max Green Setting (Gmax), s	50.2	40.0	18.8	27.2
Max Q Clear Time (g_c+I1), s	10.5	10.0	8.4	7.9
Green Ext Time (p_c), s	12.9	2.6	1.3	5.2

Intersection Summary	
HCM 7th Control Delay, s/veh	13.2
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	14	78	931	46	81	814	16	43	110	37	13	144
Future Volume (veh/h)	14	78	931	46	81	814	16	43	110	37	13	144
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		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
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h		83	990	49	86	866	17	46	117	39	14	153
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h		330	1344	599	335	1938	600	237	627	280	93	478
Arrive On Green		0.10	0.38	0.38	0.10	0.38	0.38	0.07	0.18	0.18	0.03	0.14
Sat Flow, veh/h		3428	3526	1572	3428	5066	1568	3428	3526	1572	3428	3526
Grp Volume(v), veh/h		83	990	49	86	866	17	46	117	39	14	153
Grp Sat Flow(s),veh/h/ln		1714	1763	1572	1714	1689	1568	1714	1763	1572	1714	1763
Q Serve(g_s), s		1.4	14.8	1.2	1.4	7.8	0.4	0.8	1.7	1.3	0.2	2.4
Cycle Q Clear(g_c), s		1.4	14.8	1.2	1.4	7.8	0.4	0.8	1.7	1.3	0.2	2.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		330	1344	599	335	1938	600	237	627	280	93	478
V/C Ratio(X)		0.25	0.74	0.08	0.26	0.45	0.03	0.19	0.19	0.14	0.15	0.32
Avail Cap(c_a), veh/h		436	2109	941	436	3031	938	436	2201	982	436	2242
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
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		25.7	16.3	12.1	25.6	14.1	11.8	26.9	21.4	21.3	29.2	23.9
Incr Delay (d2), s/veh		0.4	0.8	0.1	0.4	0.2	0.0	0.4	0.1	0.2	0.7	0.4
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
%ile BackOfQ(50%),veh/ln		0.5	4.8	0.3	0.5	2.4	0.1	0.3	0.7	0.4	0.1	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh		26.1	17.1	12.2	26.0	14.3	11.8	27.3	21.6	21.5	29.9	24.3
LnGrp LOS		C	B	B	C	B	B	C	C	C	C	C
Approach Vol, veh/h			1122			969			202			215
Approach Delay, s/veh			17.6			15.3			22.9			24.7
Approach LOS			B			B			C			C

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	16.2	10.2	29.1	8.4	13.6	10.1	29.2
Change Period (Y+Rc), s	4.2	5.3	4.2	5.7	4.2	* 5.3	4.2	5.7
Max Green Setting (Gmax), s	7.8	38.3	7.8	36.7	7.8	* 39	7.8	36.7
Max Q Clear Time (g_c+I1), s	2.2	3.7	3.4	16.8	2.8	4.4	3.4	9.8
Green Ext Time (p_c), s	0.0	0.8	0.1	6.4	0.0	1.1	0.1	5.8

Intersection Summary	
HCM 7th Control Delay, s/veh	17.7
HCM 7th LOS	B

Notes

User approved ignoring U-Turning movement.

* HCM 7th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	45
Future Volume (veh/h)	45
Initial Q (Qb), veh	0
Lane Width Adj.	1.00
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1856
Adj Flow Rate, veh/h	48
Peak Hour Factor	0.94
Percent Heavy Veh, %	3
Cap, veh/h	212
Arrive On Green	0.14
Sat Flow, veh/h	1566
Grp Volume(v), veh/h	48
Grp Sat Flow(s),veh/h/ln	1566
Q Serve(g_s), s	1.7
Cycle Q Clear(g_c), s	1.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	212
V/C Ratio(X)	0.23
Avail Cap(c_a), veh/h	995
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	23.6
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3), s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.6
Unsig. Movement Delay, s/veh	
LnGrp Delay(d), s/veh	24.2
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer - Assigned Phs

Intersection						
Int Delay, s/veh	3.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	149	115	198	121	62
Future Vol, veh/h	0	149	115	198	121	62
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	55	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	166	128	220	134	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	102	203	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	931	1358	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	931	1358	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.7	2.91	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1358	-	931	-	-
HCM Lane V/C Ratio	0.094	-	0.178	-	-
HCM Ctrl Dly (s/v)	7.9	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.6	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	14	299	55	38	232
Future Vol, veh/h	80	14	299	55	38	232
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	89	16	332	61	42	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	576	197	0	0	393	0
Stage 1	363	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	445	808	-	-	1155	-
Stage 1	671	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	429	808	-	-	1155	-
Mov Cap-2 Maneuver	429	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	769	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	15.07	0	1.16
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	461	1155	-
HCM Lane V/C Ratio	-	-	0.226	0.037	-
HCM Ctrl Dly (s/v)	-	-	15.1	8.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection						
Int Delay, s/veh	0.3					

Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Vol, veh/h	13	7	0	312	347	0
Future Vol, veh/h	13	7	0	312	347	0
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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	14	8	0	347	386	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	559	193	-	0	-	0
Stage 1	386	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	457	813	0	-	-	0
Stage 1	654	-	0	-	-	0
Stage 2	836	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	457	813	-	-	-	-
Mov Cap-2 Maneuver	535	-	-	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	SE	NW
HCM Ctrl Dly, s/v	11.15	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	WBLn1	SET
Capacity (veh/h)	-	608	-
HCM Lane V/C Ratio	-	0.037	-
HCM Ctrl Dly (s/v)	-	11.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	277	37	98	307	107	30	6	109	46	6	3
Future Vol, veh/h	14	277	37	98	307	107	30	6	109	46	6	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	308	41	109	341	119	33	7	121	51	7	3
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay, s/veh	11.3	11.3	11.7	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	21%	100%	0%	0%	100%	0%	0%	84%
Vol Thru, %	4%	0%	100%	71%	0%	100%	49%	11%
Vol Right, %	75%	0%	0%	29%	0%	0%	51%	5%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	14	185	129	98	205	209	55
LT Vol	30	14	0	0	98	0	0	46
Through Vol	6	0	185	92	0	205	102	6
RT Vol	109	0	0	37	0	0	107	3
Lane Flow Rate	161	16	205	144	109	227	233	61
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.286	0.028	0.345	0.233	0.191	0.367	0.352	0.126
Departure Headway (Hd)	6.384	6.559	6.051	5.848	6.322	5.815	5.453	7.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	562	545	593	614	567	619	658	483
Service Time	4.133	4.304	3.796	3.593	4.062	3.555	3.192	5.167
HCM Lane V/C Ratio	0.286	0.029	0.346	0.235	0.192	0.367	0.354	0.126
HCM Control Delay, s/veh	11.7	9.5	12	10.4	10.6	11.9	11.1	11.2
HCM Lane LOS	B	A	B	B	B	B	B	B
HCM 95th-tile Q	1.2	0.1	1.5	0.9	0.7	1.7	1.6	0.4

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	87	318	18	389	847	1208	127
Future Volume (veh/h)	87	318	18	389	847	1208	127
Initial Q (Qb), veh	0	0		0	0	0	0
Lane Width Adj.	1.00	1.00		1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No				No	No	
Adj Sat Flow, veh/h/ln	1856	1856		1856	1856	1856	1856
Adj Flow Rate, veh/h	95	346		423	921	1313	138
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	327	512		541	3197	1998	620
Arrive On Green	0.18	0.18		0.16	0.63	0.39	0.39
Sat Flow, veh/h	1767	2768		3428	5233	5233	1572
Grp Volume(v), veh/h	95	346		423	921	1313	138
Grp Sat Flow(s),veh/h/ln	1767	1384		1714	1689	1689	1572
Q Serve(g_s), s	2.5	6.2		6.3	4.4	11.3	3.1
Cycle Q Clear(g_c), s	2.5	6.2		6.3	4.4	11.3	3.1
Prop In Lane	1.00	1.00		1.00			1.00
Lane Grp Cap(c), veh/h	327	512		541	3197	1998	620
V/C Ratio(X)	0.29	0.68		0.78	0.29	0.66	0.22
Avail Cap(c_a), veh/h	1328	2079		567	3825	2588	803
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	20.2		21.5	4.4	13.2	10.7
Incr Delay (d2), s/veh	0.5	1.6		6.7	0.0	0.4	0.2
Initial Q Delay(d3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1		2.7	0.8	3.4	0.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d), s/veh	19.2	21.8		28.3	4.5	13.6	10.9
LnGrp LOS	B	C		C	A	B	B
Approach Vol, veh/h	441				1344	1451	
Approach Delay, s/veh	21.2				12.0	13.3	
Approach LOS	C				B	B	
Timer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc), s		38.5		14.7	12.6	25.9	
Change Period (Y+Rc), s		4.9		4.9	4.2	4.9	
Max Green Setting (Gmax), s		40.2		40.0	8.8	27.2	
Max Q Clear Time (g_c+I1), s		6.4		8.2	8.3	13.3	
Green Ext Time (p_c), s		7.1		1.7	0.1	7.7	
Intersection Summary							
HCM 7th Control Delay, s/veh			13.8				
HCM 7th LOS			B				

Notes

User approved ignoring U-Turning movement.

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	104	56	220	276	39	65	128	140	149	144	36	77
Average Queue (ft)	49	10	133	155	9	26	48	78	84	69	6	9
95th Queue (ft)	86	42	213	245	23	56	87	130	132	122	21	37
Link Distance (ft)			2418	2418	2418			3369	3369	3369		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)										1		
Queuing Penalty (veh)										0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	T	T	R
Maximum Queue (ft)	93	155	50	72	44	96	126	45
Average Queue (ft)	37	69	5	20	13	32	48	25
95th Queue (ft)	71	125	28	47	34	71	100	41
Link Distance (ft)		286	286			249	249	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	140			180	100			80
Storage Blk Time (%)		1				0	3	
Queuing Penalty (veh)		0				0	3	

Intersection: 2: Hayes Avenue & Western Driveway

Movement	EB	NB	SB
Directions Served	R	L	TR
Maximum Queue (ft)	74	88	22
Average Queue (ft)	39	24	1
95th Queue (ft)	65	64	7
Link Distance (ft)	190		286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		55	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		1	

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	100	31
Average Queue (ft)	43	8
95th Queue (ft)	85	30
Link Distance (ft)	114	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		55
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	21
95th Queue (ft)	45
Link Distance (ft)	254
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	136	232	184	192	121	222	117
Average Queue (ft)	5	41	96	122	65	50	93	44
95th Queue (ft)	23	96	181	176	121	90	159	76
Link Distance (ft)		286	286		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)		0		2	1			
Queuing Penalty (veh)		0		3	2			

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	146	84	82	340	380	378	342	220	159	154	124	110
Average Queue (ft)	75	38	50	243	207	135	110	107	102	108	93	50
95th Queue (ft)	135	67	78	352	367	293	218	186	143	143	131	87
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				12	12	1					4	1
Queuing Penalty (veh)				50	52	7					7	1

Network Summary

Network wide Queuing Penalty: 126

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	UL	L	T	T	R	UL	L	T	T	T	R	L
Maximum Queue (ft)	107	113	266	302	18	47	66	128	131	146	17	30
Average Queue (ft)	59	27	127	135	9	19	36	81	88	79	4	5
95th Queue (ft)	99	75	204	214	20	45	68	120	133	142	15	23
Link Distance (ft)			2418	2418	2418			3369	3369	3369		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250	250				250	250				150	140
Storage Blk Time (%)			0							0		
Queuing Penalty (veh)			0							0		

Intersection: 1: Hayes Avenue & Herndon Avenue

Movement	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	52	143	50	51	28	48	73	131	44
Average Queue (ft)	29	58	2	16	1	12	34	41	15
95th Queue (ft)	57	104	17	39	9	34	67	90	35
Link Distance (ft)		286	286				249	249	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	140			180	100	100			80
Storage Blk Time (%)		0						2	
Queuing Penalty (veh)		0						1	

Intersection: 2: Hayes Avenue & Western Driveway

Movement	EB	NB	SB
Directions Served	R	L	TR
Maximum Queue (ft)	75	51	45
Average Queue (ft)	35	11	1
95th Queue (ft)	57	38	15
Link Distance (ft)	190		286
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		55	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 3: Hayes Avenue & Southern Commerical Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	129	55
Average Queue (ft)	45	8
95th Queue (ft)	84	34
Link Distance (ft)	114	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		55
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 4: Hayes Avenue & Northern Residential Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	14
95th Queue (ft)	38
Link Distance (ft)	231
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Palo Alto Avenue/Residential Driveway & Hayes Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	29	53	90	73	96	86	140	50
Average Queue (ft)	5	26	41	40	60	56	53	27
95th Queue (ft)	23	44	67	70	88	83	94	46
Link Distance (ft)		284	284		447	447	1263	270
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: Veterans Boulevard & Hayes Avenue

Movement	EB	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	R	R	UL	L	T	T	T	T	T	T	R
Maximum Queue (ft)	86	83	84	260	273	278	153	138	242	221	243	240
Average Queue (ft)	36	36	42	152	135	60	60	55	130	138	126	48
95th Queue (ft)	68	64	79	244	245	140	112	115	206	222	215	115
Link Distance (ft)	447	447				1592	1592	1592	571	571	571	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			170	260	260							100
Storage Blk Time (%)				0	0	0					13	0
Queuing Penalty (veh)				0	0	0					16	1

Network Summary

Network wide Queuing Penalty: 19

Appendix J: Traffic Signal Warrants

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

DIST	CO	RTE	KPM
006	Fresno	N/A	N/A

COUNT DATE 04/09/24
CALC AD DATE 06/06/24
CHK MA DATE 06/06/24

Major St: **Hayes Ave** Critical Approach Speed 40 MPH
Minor St: **Palo Alto Ave** Critical Approach Speed 40 MPH

Critical speed of major street traffic > 64 km/h (40 mph)……………… ☐ or RURAL (R)
In built up area of isolated community of < 10,000 population ………. ☐
☑ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED** **YES** ☐ **NO** ☑
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED** **YES** ☐ **NO** ☑
80 % SATISFIED **YES** ☐ **NO** ☑

APPROACH LANES		U (1)	R (1)	U (2 or More)	R (2 or More)	7:00 AM	8:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Both Approaches Major Street		500	350	600	420	514	208	168	291	201	225	198	135
		(400)	(280)	(480)	(336)	514	208	168	291	201	225	198	135
Highest Approach Minor Street		150	105	200	140	301	66	53	245	108	133	77	39
		(120)	(84)	(160)	(112)	301	66	53	245	108	133	77	39

MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)

Condition B - Interruption of Continuous Traffic **100% SATISFIED** **YES** ☐ **NO** ☑
80 % SATISFIED **YES** ☐ **NO** ☑

APPROACH LANES		U (1)	R (1)	U (2 or More)	R (2 or More)	7:00 AM	8:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM
Both Approaches Major Street		750	525	900	630	514	208	168	291	201	225	198	135
		(600)	(420)	(720)	(504)	514	208	168	291	201	225	198	135
Highest Approach Minor Street		75	53	100	70	301	66	53	245	108	133	77	39
		(60)	(42)	(80)	(56)	301	66	53	245	108	133	77	39

MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B **SATISFIED** **YES** ☐ **NO** ☑

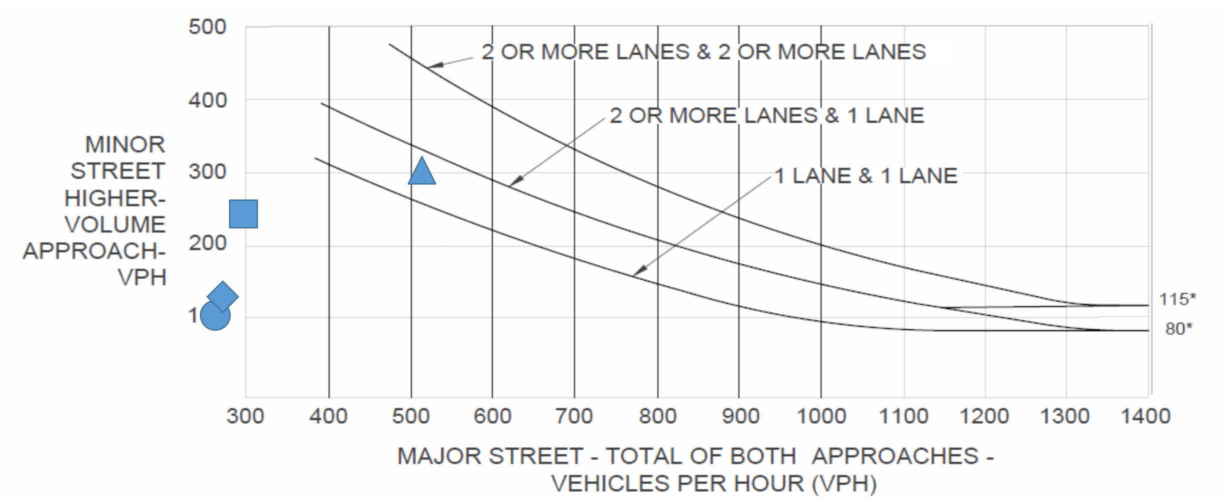
REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

JLB TRAFFIC ENGINEERING, INC.
www.JLBtraffic.com
info@JLBtraffic.com
516 W. Shaw Ave., Ste. 103
Fresno, CA 93704
(559) 570 - 8991

Warrant 2: Four-Hour Vehicular Volume (Urban)

Existing Traffic Conditions

5. Hayes Ave / Palo Alto Ave



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

	1 Lane & 1 Lane	2 or More Lanes & 1 Lane	2 or More Lanes & 2 or More Lanes	▲ 7:00 AM Volume	■ 2:00 PM Volume	● 3:00 PM Volume	◆ 4:00 PM Volume
Major Street (Total of Both Approaches)	☐	☑	☐	514	291	201	225
Minor Street (Higher Volume Approach)				301	245	108	133

Satisfied: ☐ **Yes** ☑ **No**

Calculated By: AD Date: 06/06/24
Checked By: MA Date: 06/06/24

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

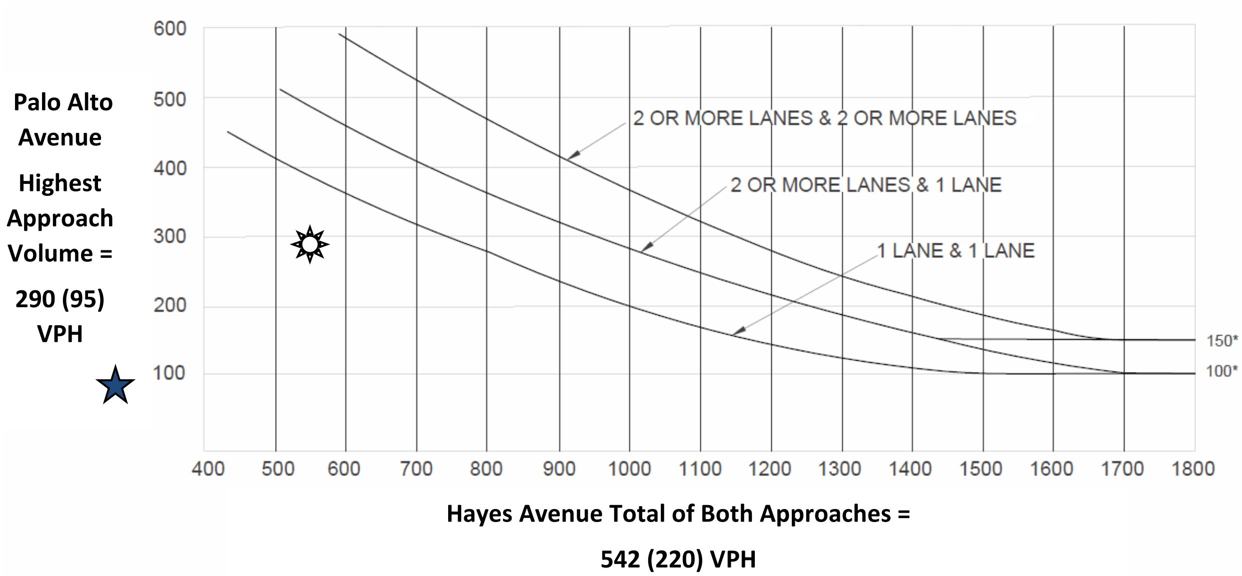
JLB TRAFFIC ENGINEERING, INC.

www.JLBTraffic.com
info@JLBTraffic.com

516 W Shaw Ave., Ste 103
Fresno, CA 93704
(559) 570-8991

Warrant 3: Peak Hour (Urban)

Existing Traffic Conditions
5. Palo Alto Avenue / Hayes Avenue
AM (PM) Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

☼ **AM Peak Hour – Signal Warrant is Not Met**
★ **PM Peak Hour – Signal Warrant is Not Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

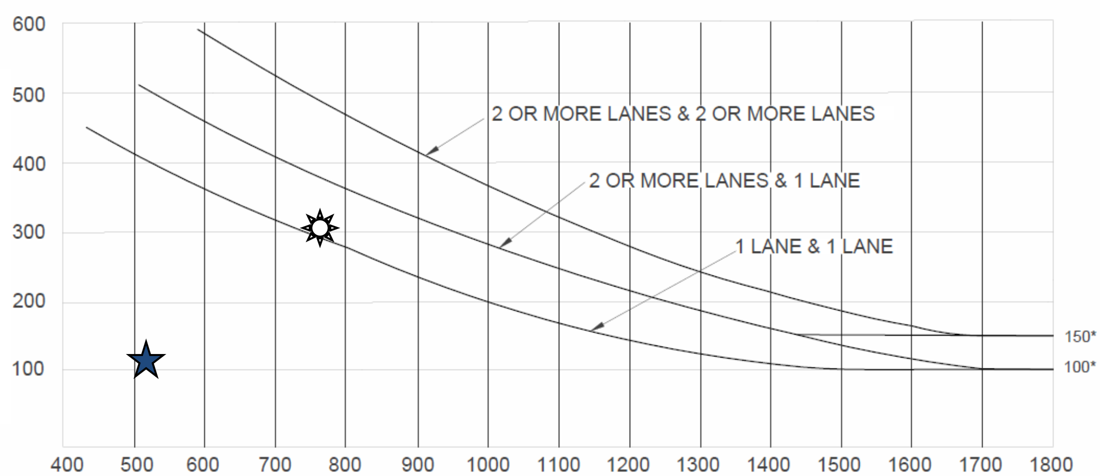
Warrant 3: Peak Hour (Urban)

Existing plus Project Traffic Conditions
5. Palo Alto Avenue / Hayes Avenue
AM (PM) Peak Hour

Palo Alto Avenue

Highest Approach Volume =

302 (108) VPH



Hayes Avenue Total of Both Approaches =

760 (519) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

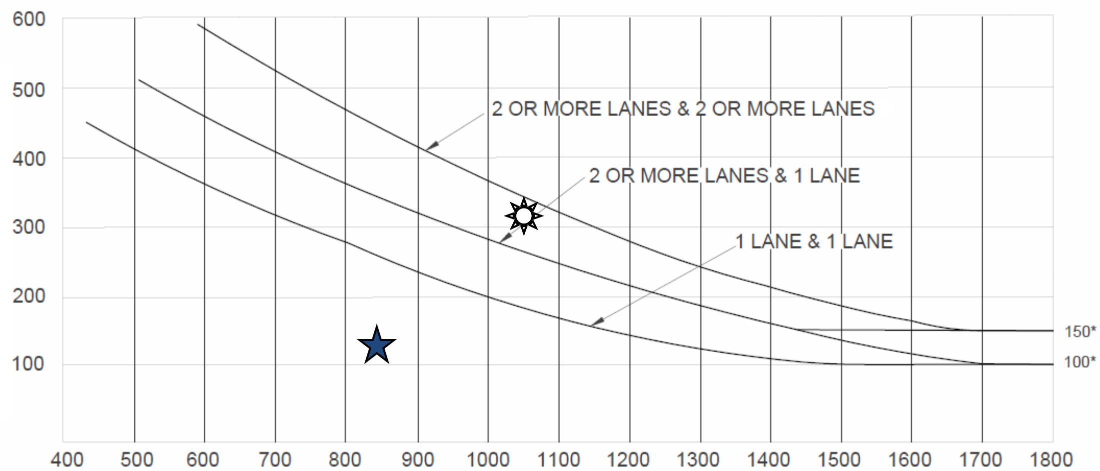
Warrant 3: Peak Hour (Urban)

Near Term plus Project Traffic Conditions
5. Palo Alto Avenue / Hayes Avenue
AM (PM) Peak Hour

Palo Alto Avenue

Highest Approach Volume =

309 (111) VPH



Hayes Avenue Total of Both Approaches =

1054 (836) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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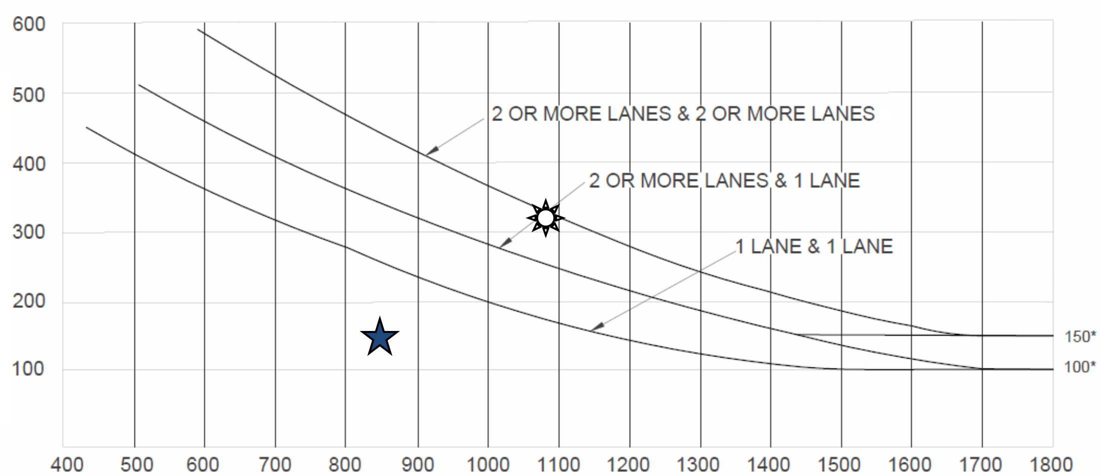
Warrant 3: Peak Hour (Urban)

Cumulative Year 2046 plus Project Traffic Conditions
5. Palo Alto Avenue / Hayes Avenue
AM (PM) Peak Hour

Palo Alto Avenue

Highest Approach Volume =

309 (145) VPH



Hayes Avenue Total of Both Approaches =

1092 (840) VPH

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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