

PLANNING COMMISSION AGENDA

CHAIRPERSON:

Marvin Hansen



VICE CHAIRPERSON:

Adam Peck

COMMISSIONERS: Mary Beatie, Chris Gomez, Chris Tavarez, Adam Peck, Marvin Hansen

MONDAY, JUNE 26, 2023
VISALIA COUNCIL CHAMBERS
LOCATED AT 707 W. ACEQUIA AVENUE, VISALIA, CA
MEETING TIME: 7:00 PM

1. CALL TO ORDER –
2. THE PLEDGE OF ALLEGIANCE –
3. CITIZEN'S COMMENTS – This is the time for citizens to comment on subject matters that are not on the agenda but are within the jurisdiction of the Visalia Planning Commission. You may provide comments to the Planning Commission at this time, but the Planning Commission may only legally discuss those items already on tonight's agenda.

The Commission requests that a five (5) minute time limit be observed for Citizen Comments. You will be notified when your five minutes have expired.
4. CHANGES OR COMMENTS TO THE AGENDA –
5. CONSENT CALENDAR - All items under the consent calendar are to be considered routine and will be enacted by one motion. For any discussion of an item on the consent calendar, it will be removed at the request of the Commission and made a part of the regular agenda.
 - No Items on the Consent Calendar
6. PUBLIC HEARING – Josh Dan, Senior Planner

Conditional Use Permit No. 2023-20: A request by Andrew Goodwin Designs to construct a 1,597 square foot commercial building with a drive-thru lane for the Lady's Chicken and Rice quick serve restaurant. The site is zoned C-MU (Commercial Mixed Use) and is located on the southeast corner of the East Houston Avenue and North Santa Fe Street roundabout (APN: 094-130-049). The project is Categorically Exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15303, Categorical Exemption No. 2023-31.

7. PUBLIC HEARING – Josh Dan, Senior Planner

Conditional Use Permit No. 2023-21: A request by Supreme Construction, Inc. to convert the former Main Street Theater into an indoor virtual golf club with seven virtual golf simulator rooms, lobby, seating area, and full-service bar and dining area. The site is zoned D-MU (Downtown Mixed Use) and is located at 307 East Main Street (APN: 094-296-001). The project is Categorically Exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 153301, Categorical Exemption No. 2023-29.

8. PUBLIC HEARING – Brandon Smith, Principal Planner

- a. Annexation No. 2022-04: A request by D.R. Horton to annex one parcel totaling approximately 40.44 acres into the city limits of Visalia. Upon annexation, the area would be zoned R-1-5 (Single-family Residential 5,000 square foot minimum lot area) and QP (Quasi-Public) zone designations, consistent with the General Plan Land Use Designation of Residential Low Density and Parks/Recreation. The project site is located on the east side of Road 88, approximately ¼ mile south of West Goshen Avenue (APN: 081-030-080). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2023-32 be adopted (State Clearinghouse No. 2023050712).
- b. Shepherds Ranch II Tentative Subdivision Map No. 5589: A request by D.R. Horton to subdivide a 40.44-acre parcel into 200 lots for single-family residential use and additional lots for landscaping, park, and trail purposes, to be located within the R-1-5 (Single-family Residential 5,000 square foot minimum lot area) and QP (Quasi-Public) zone designations. The Project would result in onsite infrastructure improvements including but not limited to new utilities, new public residential streets, and improvements to the frontage of Road 88. The project site is located on the east side of Road 88, approximately ¼ mile south of West Goshen Avenue (APN: 081-030-080). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2023-32 be adopted (State Clearinghouse No. 2023050712).
- c. Tentative Parcel Map No. 2022-03: A request by D.R. Horton to subdivide 40.44 acres into three parcels for phasing and financing purposes to be located within the R-1-5 (Single-family Residential 5,000 square foot minimum lot area) and QP (Quasi-Public) zone designations. The project site is located on the east side of Road 88, approximately ¼ mile south of West Goshen Avenue (APN: 081-030-080). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2023-32 be adopted (State Clearinghouse No. 2023050712).

9. PUBLIC HEARING – Cristobal Carrillo, Associate Planner

- a. Annexation No. 2022-03: A request by Woodside Homes to annex one parcel totaling approximately 69.35 acres into the city limits of Visalia. Upon annexation the area would be zoned R-1-20 (Single-Family Residential, minimum 20,000 square foot lot size), which is consistent with the General Plan Land Use Designation of Residential Very Low Density. The project site is located at the northwest corner of South Roeben Street and West Whitendale Avenue (APN: 119-022-041). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2022-18 be adopted (State Clearinghouse No. 2023050728).
- b. Barr & Wood Tentative Subdivision Map No. 5588: A request by Woodside Homes to subdivide a 69.35-acre parcel into 136 lots for single-family residential use and additional lots for private streets, landscaping and lighting district lots, and a pocket park, to be located within the R-1-20 (Single-Family Residential, minimum 20,000 square foot lot size) zone. The Project would result in onsite and offsite infrastructure improvements including but not limited to new and relocated utilities, new private and public residential streets, improvements of South Roeben Street and South Shirk Road, and the continuation and improvement of West Whitendale Avenue. The project site is located at the northwest corner of South Roeben Street and West Whitendale Avenue (APN: 119-022-041). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2022-18 be adopted (State Clearinghouse No. 2023050728).
- c. Conditional Use Permit No. 2022-06: A request by Woodside Homes to allow a planned unit development on a 69.35-acre parcel consisting of 136 single-family residential lots, private streets, two gated entries, landscaping and lighting district lots, and a pocket park, to be located within the R-1-20 (Single-Family Residential, minimum 20,000 square foot lot size) zone. The project site is located at the northwest corner of South Roeben Street and West Whitendale Avenue (APN: 119-022-041). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2022-18 be adopted (State Clearinghouse No. 2023050728).
- d. Tentative Parcel Map No. 2022-02: A request by Woodside Homes to subdivide 69.35 acres into three parcels for phasing and financing purposes, to be located within the R-1-20 (Single-Family Residential, minimum 20,000 square foot lot size) zone. The project site is located at the northwest corner of South Roeben Street and West Whitendale Avenue (APN: 119-022-041). An Initial Study was prepared for this project, consistent with the California Environmental Quality Act (CEQA), which disclosed that environmental impacts are determined to be not significant and that Mitigated Negative Declaration No. 2022-18 be adopted (State Clearinghouse No. 2023050728).

10. CITY PLANNER/ PLANNING COMMISSION DISCUSSION –

- a. Upcoming July 10th Planning Commission meeting:
 - Swearing in of new Planning Commissioner
 - Election of Chair and Vice Chair

The Planning Commission meeting may end no later than 11:00 P.M. Any unfinished business may be continued to a future date and time to be determined by the Commission at this meeting. The Planning Commission routinely visits the project sites listed on the agenda.

For Hearing Impaired – Call (559) 713-4900 (TTY) 48-hours in advance of the scheduled meeting time to request signing services.

Any written materials relating to an item on this agenda submitted to the Planning Commission after distribution of the agenda packet are available for public inspection in the City Office, 315 E. Acequia Visalia, CA 93291, during normal business hours.

APPEAL PROCEDURE

THE LAST DAY TO FILE AN APPEAL IS THURSDAY, JULY 6, 2023, BEFORE 5 PM

According to the City of Visalia Zoning Ordinance Section 17.02.145 and Subdivision Ordinance Section 16.04.040, an appeal to the City Council may be submitted within ten days following the date of a decision by the Planning Commission. An appeal form with applicable fees shall be filed with the City Clerk at 220 N. Santa Fe, Visalia, CA 93291. The appeal shall specify errors or abuses of discretion by the Planning Commission, or decisions not supported by the evidence in the record. The appeal form can be found on the city's website www.visalia.city or from the City Clerk.

THE NEXT REGULAR MEETING WILL BE HELD ON MONDAY, JULY 10, 2023



REPORT TO CITY OF VISALIA PLANNING COMMISSION

HEARING DATE: June 26, 2023

PROJECT PLANNER: Josh Dan, Senior Planner
Phone No.: (559) 713-4003
E-mail: josh.dan@visalia.city

SUBJECT: Conditional Use Permit 2023-20: A request by Andrew Goodwin Designs to construct a 1,597 square foot commercial building with a drive-thru lane for the Lady's Chicken and Rice quick serve restaurant. The site is zoned C-MU (Commercial Mixed Use) and is located on the southeast corner of the East Houston Avenue and North Santa Fe Street roundabout (APN: 094-130-049).

STAFF RECOMMENDATION

Staff recommends approval of Conditional Use Permit No. 2023-20, as conditioned, based on the findings and conditions in Resolution No. 2023-27. Staff's recommendation is based on the conclusion that the request is consistent with the Visalia General Plan and Zoning Ordinance.

RECOMMENDED MOTION

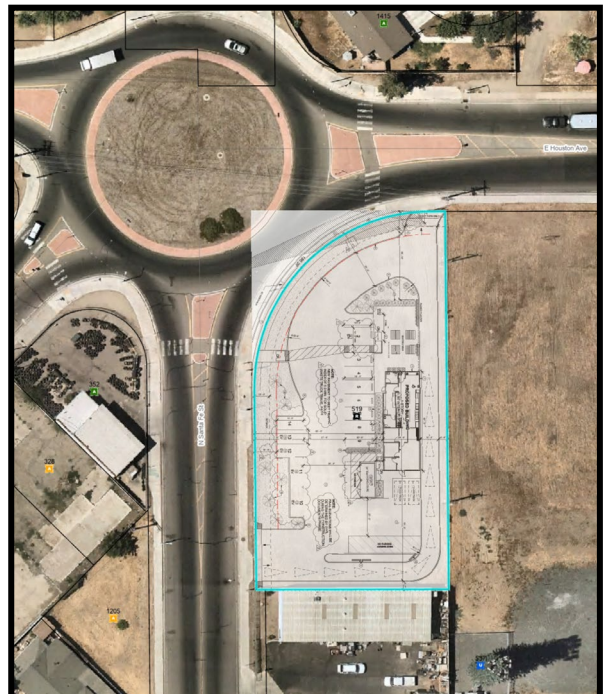
I move to approve Conditional Use Permit No. 2023-20 based on the findings and conditions in Resolution No. 2023-27.

PROJECT DESCRIPTION

Conditional Use Permit No. 2023-20 is a request to construct a "brick and mortar" walk-up fast-food restaurant with a drive-thru lane for the Lady's Chicken and Rice quick serve restaurant (see Exhibit "A"). A Conditional Use Permit (CUP) is required since the proposed drive-thru is located within 250-feet of a residentially zoned parcel with an existing residence to the north. The proposed building will measure 1,597 square feet as a walk-up restaurant without an indoor dining area, plus an outdoor seating patio as detailed on the Site Plan in Exhibit "A". Lady's Chicken and Rice will be developed on the vacant southeast corner of North Santa Fe Street and East Houston Avenue.

The fast-food restaurant, as seen in the image to the right and in Exhibit "A", is proposed to be oriented in a north-south orientation. The drive-thru lane, as designed, can accommodate up to 10 cars. The floor plan (see Exhibit "B") depicts the interior layout of a fast-food restaurant which includes food service areas but does not include a dining room for patrons. Walk-up food service windows are included on the north side of the building. The elevations provided (see Exhibit "C" & "D") identify the building materials proposed for this restaurant.

The Operational Statement (see Exhibit "E") details



that the Lady’s Chicken and Rice restaurant will operate Monday through Saturday from 10:00 a.m. to 9:00 p.m. There are single-family residences located to the north and west (across Santa Fe Street and Houston Avenue), and multi-family residences to the east. The site plan (see Exhibit “A”) places two menu boards with an orientation southward and one speaker box toward the southeast corner of the lot. The distance from the speaker box to the closest residential structure is ±216 feet.

The project site is vacant and is adjacent to a commercial-zoned vacant property to the east, a sign fabrication business to the south, Santa Fe Street to the west and Houston Avenue to the north. Both of these streets are designated as arterial streets.

The operator of Lady’s Chicken and Rice has been a long-time operator in the Mobile Food Vending Overlay District operating under a Temporary Conditional Use Permit (TCUP) for the preparation and sale of food from a mobile vending vehicle. The operator has applied for and has been approved for Mobile Food Truck TCUPs at their location on West Placer Avenue since 2017.

BACKGROUND INFORMATION

General Plan Land Use Designation:	Commercial Mixed Use
Zoning:	C-MU (Commercial Mixed-Use)
Surrounding Zoning and Land Use:	North: R-1-5 (Single Family Residential) – Houston Ave. / Katie Village Subdivision
	South: C-MU (Commercial Mixed-Use) – small warehouses / PureLife/Arrowhead Water
	East: C-MU (Commercial Mixed-Use) – Vacant lot
	West: C-MU (Commercial Mixed-Use) – Santa Fe St. / Franks Roundabout Tires
Environmental Review:	Categorical Exemption No. 2023-31
Special Districts:	N/A
Site Plan:	2022-124

RELATED PLANS AND POLICIES

All related plans and policies are reprinted in the attachment to this staff report entitled “Related Plans and Policies”.

RELATED PROJECTS

There is no related project associated with the site.

PROJECT EVALUATION

Staff recommends approval of the requested Conditional Use Permit based on project consistency with the General Plan and the Zoning Ordinance.

Land Use Compatibility

The site is currently vacant, but was developed with a residential structure that was removed due to extensive fire damage that occurred in late 2018. The site is developed with drive approaches on both road frontages. Fast food restaurant uses are considered a permitted use in the C-MU (Commercial Mixed-Use) zone. Similarly, drive-thrus are also considered a

permitted use, subject to the drive-thru performance standards established in Section 17.32.162 of the VMC.

Drive-Thru Performance Standards

Per the VMC, drive-thru lanes require a CUP unless they can meet the six performances standards specified in VMC Section 17.32.162. In general, the performance standards pertain to the following:

1. Separation from residences;
2. Vehicle queue stacking;
3. Circulation;
4. Noise;
5. Screening;
6. Menu boards and signage.

A CUP is necessary as the proposed drive-thru does not comply with subsection B(1) of the above reference section, since the drive-thru is within 250 feet of a residence and residentially zoned property to the north, east, and west.

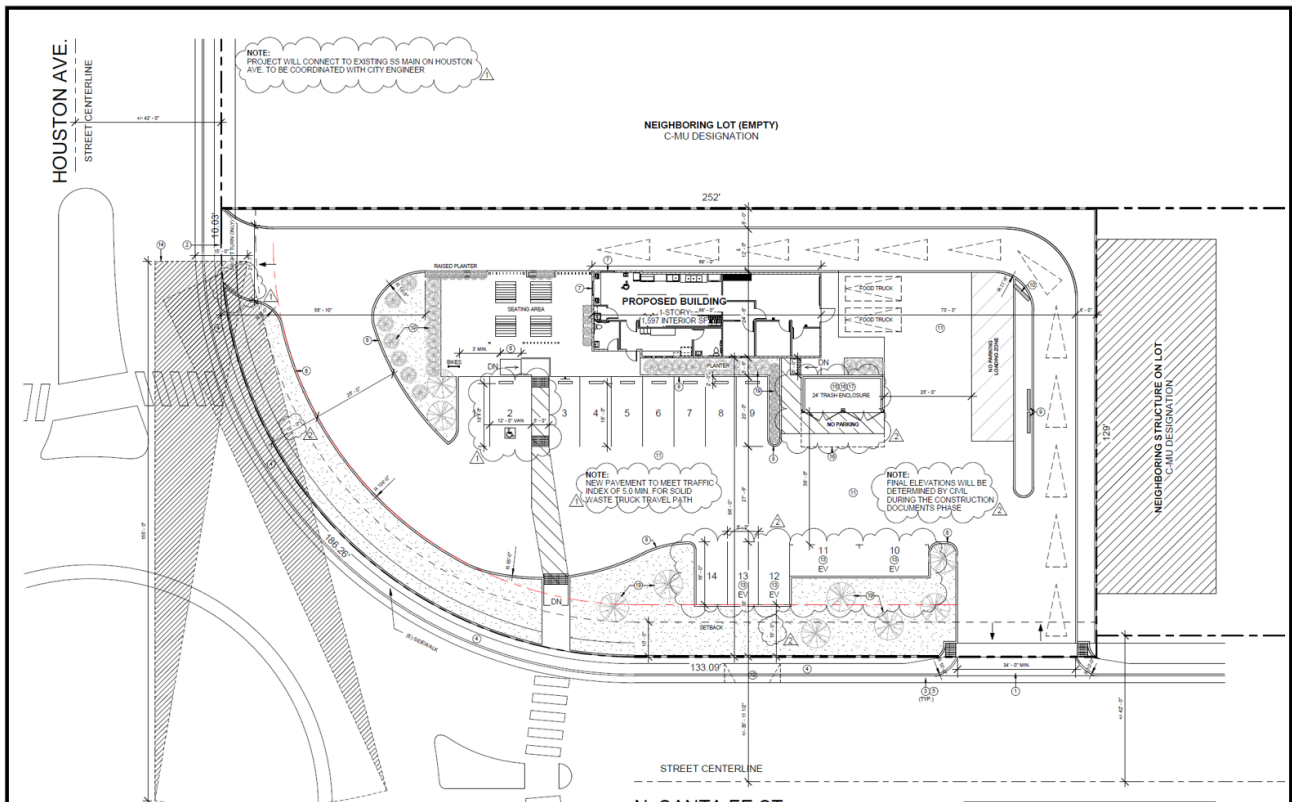
The project complies with the remaining drive-thru standards of the VMC, however, staff has added Condition No. 7 requiring that a sign shall be installed at the entrance of the “drive-thru only lane” (i.e., right behind sidewalk) informing motorist that queuing into the City’s right-of-way is prohibited and motorists will be cited for illegal parking by the Visalia Police Dept. pursuant to the applicable traffic code. Additionally, Condition No. 6 has been added requiring screening in the form of trees and shrubs shall be placed along the east property line and drive-thru lane limiting visual impacts to the surrounding area. Impacts to nearby residences will be lessened through placement of order board speaker boxes away from neighboring sensitive uses. The site plan (see Exhibit “A”) places two menu boards with an orientation southward and one speaker box toward the southeast corner of the lot. The distance from the speaker box to the closest residential structure is ±216 feet. Noises emitted from the speaker box of the drive-thru are required to meet the community noise standards as set forth in Chapter 8.36 (Noise Ordinance) of the Municipal Code. The requirement to comply with the City’s Noise Ordinance is included as Condition No. 5 of the Conditions of Approval for the project.

Access and Circulation

The site will utilize and expand existing drive approaches at both North Santa Fe Street and East Houston Avenue. The proposed layout will limit vehicular movement at the drive approach along Houston Avenue to a “right turn exit only”. Interior drive aisles will lead vehicles from the entrance along Santa Fe into either the drive-thru lane or toward onsite parking. At the request of the Traffic Engineer, the applicant’s traffic consultant produced a Traffic Impact Study (TIS) which also included a queuing analysis (see Exhibit “F”). The TIS has suggested, to the acceptance of the Traffic Engineer, that the use upon the site will not be a deterrent to the traffic movement in relation to the roundabout near the site and fast-food restaurant. On-site queuing capacity has been addressed within Section 3.8 On-site Circulation of the TIS. The analysis determines that the use can produce a service rate of 90 seconds per vehicle or 40 vehicles per hour, meaning that given the overall queue length and rate of service, the use does not anticipate more than three vehicles stacking, whereas the overall drive-through may support 12 vehicles stacked. The TIS did not identify any need for mitigation as all improvements and the proposed use will be fully served by existing infrastructure.

Parking

Zoning Ordinance Section 17.34.020.F.10 prescribes parking as one space per 150 square feet of floor area for restaurant uses. Based on this parking requirement, the restaurant exceeds the parking ratio required for this commercial pad, providing 14 total parking stalls when only 11 are required.



Environmental Review

This project is considered Categorically Exempt under Section 15303(c) of the Guidelines for the Implementation of the California Environmental Quality Act (CEQA) for new construction a restaurant measuring less than 2,500 square feet in an urban area (Categorical Exemption No. 2023-31).

RECOMMENDED FINDINGS

1. That the proposed project will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed conditional use permit is consistent with the policies and intent of the General Plan and Zoning Ordinance. Specifically, the project is consistent with the required findings of Zoning Ordinance Section 17.38.110:
 - a. The proposed location of the conditional use permit is in accordance with the objectives of the Zoning Ordinance and the purposes of the zone in which the site is located. The project site has adequate ingress and egress and parking for the proposed fast-food restaurant.
 - b. The proposed location of the conditional use and the conditions under which it would be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity. The project site has adequate ingress and egress and parking for the proposed fast-food restaurant.
3. That the project is considered Categorically Exempt under Section 15303 of the Guidelines for the Implementation of the California Environmental Quality Act (CEQA), for new construction less than 10,000 square feet in urban areas (Categorical Exemption No. 2023-31).

RECOMMENDED CONDITIONS OF APPROVAL

1. That the project be developed in substantial compliance with the comments from the approved Site Plan Review No. 2022-124.
2. That the site be developed in substantial compliance with the Site Plan in Exhibit "A".
3. That the building elevations be developed in substantial compliance with the elevations shown in Exhibit "C" and "D".
4. That landscape and irrigation plans be submitted with the building permit, designed by a professional landscape architect. In addition, landscape and irrigation plans shall comply with the State Model Water Efficient Landscape Ordinance by submittal of Landscape Documentation Packages and Certificates of Compliance certified by a California licensed landscape architect with sections signed by appropriately licensed or certified persons as required by ordinance.
5. That the noise emitted from the drive-thru teller speaker box shall meet all community noise standards as identified in the City's Noise Ordinance Chapter 8.36.
6. That the landscape strip along the east property line and the drive-thru lane be planted with trees or shrubs appropriate for screening vehicles in the drive-thru queue.
7. That a sign shall be installed at the entrance of the "drive-thru only lane" (i.e., right behind sidewalk) informing motorist that queuing into the City's right-of-way is prohibited and motorists will be cited for illegal stopping by the Visalia Police Dept. pursuant to the applicable traffic code.
8. That all signs shall require a separate building permit.
9. That all other federal, state and city codes, ordinances and laws be met.

APPEAL INFORMATION

According to the City of Visalia Zoning Ordinance Section 17.02.145, an appeal to the City Council may be submitted within ten days following the date of a decision by the Planning Commission. An appeal with applicable fees shall be in writing and shall be filed with the City Clerk at 220 N. Santa Fe Street. The appeal shall specify errors or abuses of discretion by the Planning Commission, or decisions not supported by the evidence in the record. The appeal form can be found on the city's website www.visalia.city or from the City Clerk.

Attachments:

- Related Plans and Policies
- Resolution
- Exhibit "A" – Site Plan
- Exhibit "B" – Floor Plan
- Exhibit "C" – Building Elevations
- Exhibit "D" – Building Elevations
- Exhibit "E" – Operational Statement
- Exhibit "F" – Traffic Impact Study and Queuing Analysis
- Site Plan Review Comments
- General Plan Land Use Map
- Zoning Map
- Aerial Photo
- Location Map

Related Plans & Policies
Conditional Use Permits
(Visalia Municipal Code, Chapter 17.38)

17.38.010 Purposes and powers

In certain zones conditional uses are permitted subject to the granting of a conditional use permit. Because of their unusual characteristics, conditional uses require special consideration so that they may be located properly with respect to the objectives of the zoning ordinance and with respect to their effects on surrounding properties. In order to achieve these purposes and thus give the zone use regulations the flexibility necessary to achieve the objectives of this title, the planning commission is empowered to grant or deny applications for conditional use permits and to impose reasonable conditions upon the granting of such permits. (Prior code § 7525)

17.38.020 Application procedures

- A. Application for a conditional use permit shall be made to the planning commission on a form prescribed by the commission which shall include the following data:
1. Name and address of the applicant;
 2. Statement that the applicant is the owner of the property or is the authorized agent of the owner;
 3. Address and legal description of the property;
 4. The application shall be accompanied by such sketches or drawings as may be necessary by the planning division to clearly show the applicant's proposal;
 5. The purposes of the conditional use permit and the general description of the use proposed;
 6. Additional information as required by the historic preservation advisory committee.
- B. The application shall be accompanied by a fee set by resolution of the city council sufficient to cover the cost of handling the application. (Prior code § 7526)

17.38.030 Lapse of conditional use permit

A conditional use permit shall lapse and shall become void twenty-four (24) months after the date on which it became effective, unless the conditions of the permit allowed a shorter or greater time limit, or unless prior to the expiration of twenty-four (24) months a building permit is issued by the city and construction is commenced and diligently pursued toward completion on the site which was the subject of the permit. A permit may be renewed for an additional period of one year; provided, that prior to the expiration of twenty-four (24) months from the date the permit originally became effective, an application for renewal is filed with the planning commission. The commission may grant or deny an application for renewal of a conditional use permit. In the case of a planned residential development, the recording of a final map and improvements thereto shall be deemed the same as a building permit in relation to this section. (Ord. 2001-13 § 4 (part), 2001: prior code § 7527)

17.38.040 Revocation

Upon violation of any applicable provision of this title, or, if granted subject to a condition or conditions, upon failure to comply with the condition or conditions, a conditional use permit shall be suspended automatically. The planning commission shall hold a public hearing within sixty (60) days, in accordance with the procedure prescribed in Section 17.38.080, and if not satisfied that the regulation, general provision or condition is being complied with, may revoke the permit or take such action as may be necessary to insure compliance with the regulation, general provision or condition. Appeals of the decision of the planning commission may be made to the city council as provided in Section 17.38.120. (Prior code § 7528)

17.38.050 New application

Following the denial of a conditional use permit application or the revocation of a conditional use permit, no application for a conditional use permit for the same or substantially the same conditional use on the same or substantially the same site shall be filed within one year from the date of denial or revocation of the permit unless such denial was a denial without prejudice by the planning commission or city council. (Prior code § 7530)

17.38.060 Conditional use permit to run with the land

A conditional use permit granted pursuant to the provisions of this chapter shall run with the land and shall continue to be valid upon a change of ownership of the site or structure which was the subject of the permit application subject to the provisions of Section 17.38.065. (Prior code § 7531)

17.38.065 Abandonment of conditional use permit

If the use for which a conditional use permit was approved is discontinued for a period of one hundred eighty (180) days, the use shall be considered abandoned and any future use of the site as a conditional use will require the approval of a new conditional use permit.

17.38.070 Temporary uses or structures

- A. Conditional use permits for temporary uses or structures may be processed as administrative matters by the city planner and/or planning division staff. However, the city planner may, at his/her discretion, refer such application to the planning commission for consideration.
- B. The city planner and/or planning division staff is authorized to review applications and to issue such temporary permits, subject to the following conditions:
 1. Conditional use permits granted pursuant to this section shall be for a fixed period not to exceed thirty (30) days for each temporary use not occupying a structure, including promotional enterprises, or six months for all other uses or structures.
 2. Ingress and egress shall be limited to that designated by the planning division. Appropriate directional signing, barricades, fences or landscaping shall be provided where required. A security officer may be required for promotional events.
 3. Off-street parking facilities shall be provided on the site of each temporary use as prescribed in Section 17.34.020.
 4. Upon termination of the temporary permit, or abandonment of the site, the applicant shall remove all materials and equipment and restore the premises to their original condition.
 5. Opening and closing times for promotional enterprises shall coincide with the hours of operation of the sponsoring commercial establishment. Reasonable time limits for other uses may be set by the city planner and planning division staff.
 6. Applicants for a temporary conditional use permit shall have all applicable licenses and permits prior to issuance of a conditional use permit.
 7. Signing for temporary uses shall be subject to the approval of the city planner.
 8. Notwithstanding underlying zoning, temporary conditional use permits may be granted for fruit and vegetable stands on properties primarily within undeveloped agricultural areas. In reviewing applications for such stands, issues of traffic safety and land use compatibility shall be evaluated and mitigation measures and conditions may be imposed to ensure that the stands are built and are operated consistent with appropriate construction standards, vehicular access and off-street parking. All fruits and vegetables sold at such stands shall be grown by the owner/operator or purchased by said party directly from a grower/farmer.
- C. The applicant may appeal an administrative decision to the planning commission. (Ord. 9605 § 30 (part), 1996: prior code § 7532)

17.38.080 Public hearing--Notice

- A. The planning commission shall hold at least one public hearing on each application for a conditional use permit.
- B. Notice of the public hearing shall be given not less than ten days nor more than thirty (30) days prior to the date of the hearing by mailing a notice of the time and place of the hearing to property owners within three hundred (300) feet of the boundaries of the area occupied or to be occupied by the use which is the subject of the hearing, and by publication in a newspaper of general circulation within the city. (Prior code § 7533)

17.38.090 Investigation and report

The planning staff shall make an investigation of the application and shall prepare a report thereon which shall be submitted to the planning commission. (Prior code § 7534)

17.38.100 Public hearing--Procedure

At the public hearing the planning commission shall review the application and the statement and drawing submitted therewith and shall receive pertinent evidence concerning the proposed use and the proposed conditions under which it would be operated or maintained, particularly with respect to the findings prescribed in Section 17.38.110. The planning commission may continue a public hearing from time to time as it deems necessary. (Prior code § 7535)

17.38.110 Action by planning commission

- A. The planning commission may grant an application for a conditional use permit as requested or in modified form, if, on the basis of the application and the evidence submitted, the commission makes the following findings:
 1. That the proposed location of the conditional use is in accordance with the objectives of the zoning ordinance and the purposes of the zone in which the site is located;
 2. That the proposed location of the conditional use and the conditions under which it would be operated or maintained will not be detrimental to the public health, safety or welfare, or materially injurious to properties or improvements in the vicinity.
- B. A conditional use permit may be revocable, may be granted for a limited time period, or may be granted subject to such conditions as the commission may prescribe. The commission may grant conditional approval for a permit subject to the effective date of a change of zone or other ordinance amendment.
- C. The commission may deny an application for a conditional use permit. (Prior code § 7536)

17.38.120 Appeal to city council

The decision of the City planning commission on a conditional use permit shall be subject to the appeal provisions of Section 17.02.145. (Prior code § 7537) (Ord. 2006-18 § 6, 2007)

17.38.130 Effective date of conditional use permit

A conditional use permit shall become effective immediately when granted or affirmed by the council, or upon the sixth working day following the granting of the conditional use permit by the planning commission if no appeal has been filed. (Prior code § 7539)

17.32.163 Drive-thru lanes performance standards.

- A. Purpose and Intent. It is the purpose of this section to specify performance standards applicable to uses that seek to incorporate a drive-thru lane in association with a specified use. This section does not apply to carwashes and lube and oil changing stations.
- B. Performance standards:
 1. Separation from residences. The drive-thru lane shall be no less than two hundred fifty (250) feet from the nearest residence or residentially zoned property.
 2. Stacking. The drive-thru lane shall contain no less than ten (10) vehicle stacking, measured from pickup window to the designated entrance to the drive-thru lane. There shall be no less than three vehicle spaces distance from the order menu/speaker (or like device) to the designated entrance to the order window.
 3. Circulation. No portion of the drive-thru lane shall obstruct any drive aisles or required on-site parking. The drive-thru shall not take ingress or egress from a local residential road.
 4. Noise. No component or aspect of the drive-thru lane or its operation shall generate noise levels in excess of 60 dB between the hours of 7:00 p.m. and 6:00 a.m. daily.
 5. Screening. The entire drive-thru lane shall be screened from adjacent street and residential view to a height of three feet. Screening devices shall be a combination of berming, hedge and landscape materials, and solid walls as approved by the City Planner.
 6. Menu boards and signage. Shall be oriented or screened to avoid direct visibility from adjacent public streets. (Ord. 2017-01 (part), 2017: Ord. 2014-07 § 3, 2014)

Table 17.25.030

Commercial, Mixed Use, Office, and Industrial Zones Use Matrix												
P = Use is Permitted by Right			C = Use Requires Conditional Use Permit									
T = Use Requires Temporary Use Permit			Blank = Use is Not Allowed									
USE	Commercial and Mixed Use Zones					Office Zones			Industrial Zones		Special Use Standards (See identified Chapter or Section)	
	C-N	C-R	C-S	C-MU	D-MU	O-PA	O-C	BRP	I-L	I		
D												
DAYCARE, LICENSED												
D1	Adult – six or fewer adults	P	P	P	P	P	P	P	P	P	P	
D2	Adult – 7 to 12 adults	P	P	P	P	P	P	P	P	P	P	
D3	Adult – 13 or more adults	C	C	C	C	C	C	C	C	C	C	
D4	Children – 8 or fewer	P	P	P	P	P	P	P	P	P	P	
D5	Children – 9 to 14	P	P	P	P	P	P	P	P	P	P	
D6	Children – 15 or more	C	C	C	C	C	C	C	C	C	C	
D7	In Conjunction with Primary Use	P	P	P	P	P	P		P	P	P	
D8	Drive-Thru Lanes Meeting All Standards in Sect. 17.32.162	P	P	P	P		P		P			17.32.162
D9	Drive-Thru Lanes Not Meeting All Standards in Sect. 17.32.162	C	C	C	C		C		P			17.32.162
D10	Drive-Thru Lanes in Industrial Zone									C	C	17.32.161
E												
EATING & DRINKING ESTABLISHMENTS												
E1	Bars/Taverns – within 300 feet of any residence/public use	C	C		C							
E2	Bars/Taverns – not within 300 feet of any residence/public use		P		C							

RESOLUTION NO. 2023-27

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF VISALIA APPROVING CONDITIONAL USE PERMIT NO. 2023-20, A REQUEST BY ANDREW GOODWIN DESIGNS TO CONSTRUCT A 1,597 SQUARE FOOT COMMERCIAL BUILDING WITH A DRIVE-THRU LANE FOR THE LADY'S CHICKEN AND RICE QUICK SERVE RESTAURANT. THE SITE IS ZONED C-MU (COMMERCIAL MIXED USE) AND IS LOCATED ON THE SOUTHEAST CORNER OF THE EAST HOUSTON AVENUE AND NORTH SANTA FE STREET ROUNDABOUT (APN: 094-130-049).

WHEREAS, Conditional Use Permit No. 2023-20 is A request by Andrew Goodwin Designs to construct a 1,597 square foot commercial building with a drive-thru lane for the Lady's Chicken and Rice quick serve restaurant. The site is zoned C-MU (Commercial Mixed Use) and is located on the southeast corner of the East Houston Avenue and North Santa Fe Street roundabout (APN: 094-130-049); and

WHEREAS, the Planning Commission of the City of Visalia, after duly published notice, did hold a public hearing before said Commission on June 26, 2023; and

WHEREAS, the Planning Commission of the City of Visalia finds the Conditional Use Permit to be in accordance with Section 17.38.110 of the Zoning Ordinance of the City of Visalia based on the evidence contained in the staff report and testimony presented at the public hearing; and

WHEREAS, the Planning Commission finds the project to be Categorically Exempt consistent with the California Environmental Quality Act (CEQA) and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT RESOLVED that the project is exempt from further environmental review pursuant to CEQA Section 15303.

BE IT FURTHER RESOLVED that the Planning Commission of the City of Visalia makes the following specific findings based on the evidence presented:

1. That the proposed project will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
2. That the proposed conditional use permit is consistent with the policies and intent of the General Plan and Zoning Ordinance. Specifically, the project is consistent with the required findings of Zoning Ordinance Section 17.38.110:
 - a. The proposed location of the conditional use permit is in accordance with the objectives of the Zoning Ordinance and the purposes of the zone in which the site is located. The project site has adequate ingress and egress and parking for the proposed fast-food restaurant.
 - b. The proposed location of the conditional use and the conditions under which it would be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity. The project site has adequate ingress and egress and parking for the proposed fast-food restaurant.

3. That the project is considered Categorically Exempt under Section 15303 of the Guidelines for the Implementation of the California Environmental Quality Act (CEQA), for new construction less than 10,000 square feet in urban areas (Categorical Exemption No. 2023-31).

BE IT FURTHER RESOLVED that the Planning Commission hereby approves the Conditional Use Permit on the real property here described in accordance with the terms of this resolution under the provisions of Section 17.38.110 of the Ordinance Code of the City of Visalia, subject to the following conditions:

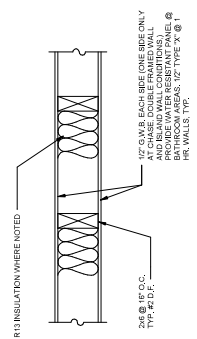
1. That the project be developed in substantial compliance with the comments from the approved Site Plan Review No. 2022-124.
2. That the site be developed in substantial compliance with the Site Plan in Exhibit "A".
3. That the building elevations be developed in substantial compliance with the elevations shown in Exhibit "C" and "D".
4. That landscape and irrigation plans be submitted with the building permit, designed by a professional landscape architect. In addition, landscape and irrigation plans shall comply with the State Model Water Efficient Landscape Ordinance by submittal of Landscape Documentation Packages and Certificates of Compliance certified by a California licensed landscape architect with sections signed by appropriately licensed or certified persons as required by ordinance.
5. That the noise emitted from the drive-thru teller speaker box shall meet all community noise standards as identified in the City's Noise Ordinance Chapter 8.36.
6. That the landscape strip along the east property line and the drive-thru lane be planted with trees or shrubs which could be used to screen the vehicles in the drive-thru queue.
7. That a sign shall be installed at the entrance of the "drive-thru only lane" (i.e., right behind sidewalk) informing motorist that queuing into the City's right-of-way is prohibited and motorist will be cited for illegal parking by the Visalia Police Dept. pursuant to the applicable traffic code.
8. That all signs shall require a separate building permit.
9. That all other federal, state and city codes, ordinances and laws be met.



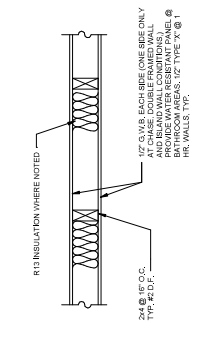
BUILDING AREA AND WALL/FIXTURE LEGEND

STORAGE AREA (INCLUDES FRIG/BREAK RM)	686 S.F.
TOTAL BUILDING AREA	1,897 S.F.
2x4 D.F. #2 CONTINUOUS STUD WALL @ 16" O.C. (PROVIDE 2x FRIESEL SHEATHING AT WALLS OVER 10'-4")	
2x4 OR 2x4 D.F. #3 STUD WALL - RE. FLOOR PLAN FOR WALL WIDTH	
2x4 HALF WALL	

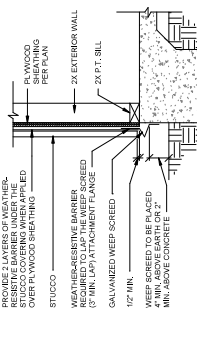
11 FLOOR PLAN - AREAS & WALL LEGEND



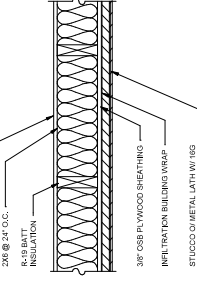
5 1/2" INTERIOR WALL



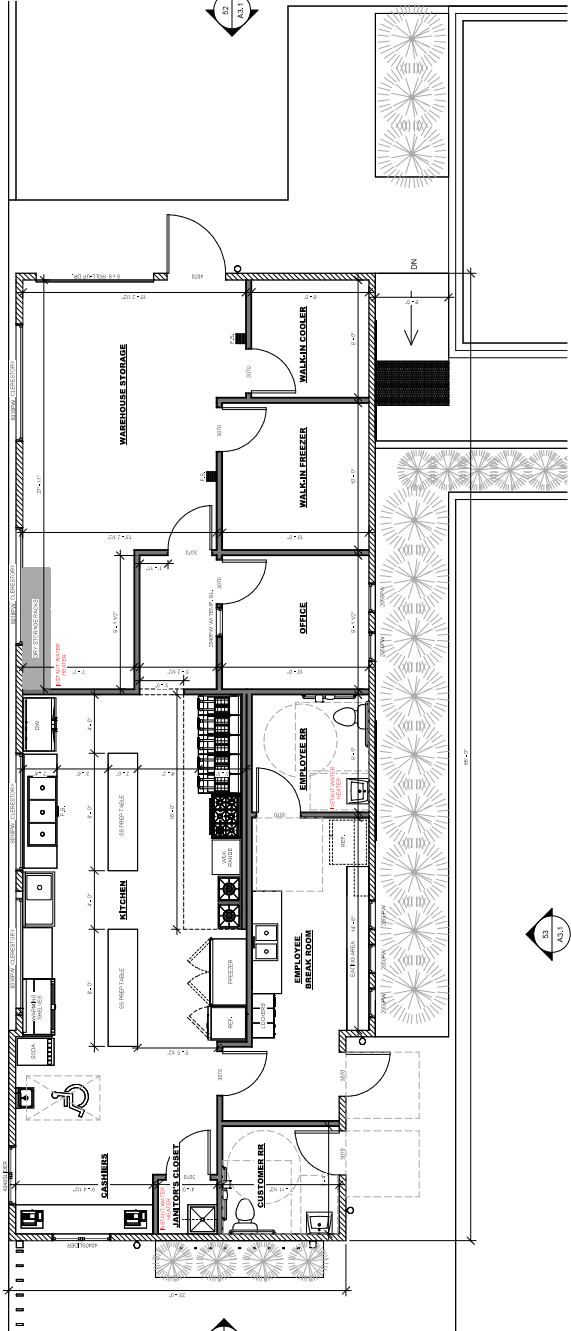
3 1/2" INTERIOR WALL



41 Weep Screed



51 Exterior Wall - Type I (2x6)



SEAL

NOT FOR CONSTRUCTION

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PROJECT
LADY'S CHICKEN AND RICE
519 E. HOUSTON AVE.
VISALIA, CA 93232

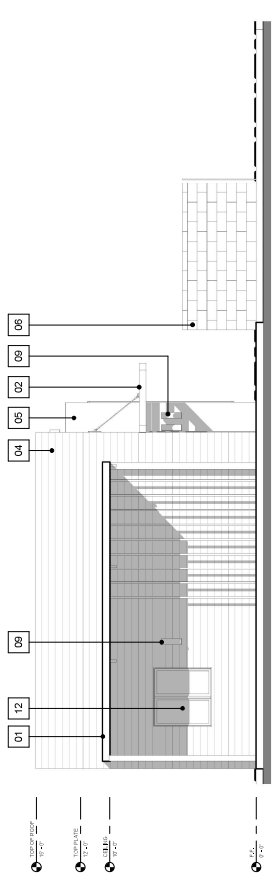
CLIENT
BOULEVARD AND JIMMY THOMPSON

REVISIONS
REV # | REV DATE | REV DESCRIPTION

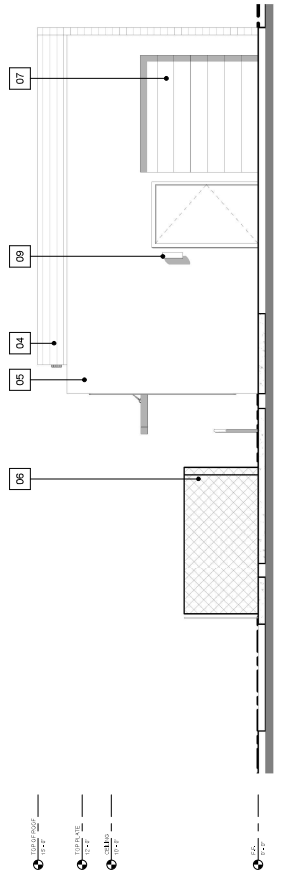
SHEET TITLE
BUILDING ELEVATIONS

DATE 03/29/2023
TECHNICIAN ER
PROJECT MANAGER AC

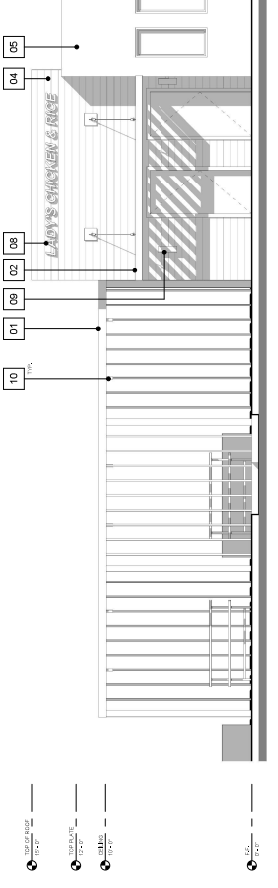
JOB NUMBER 827
SHEET NUMBER A3.1



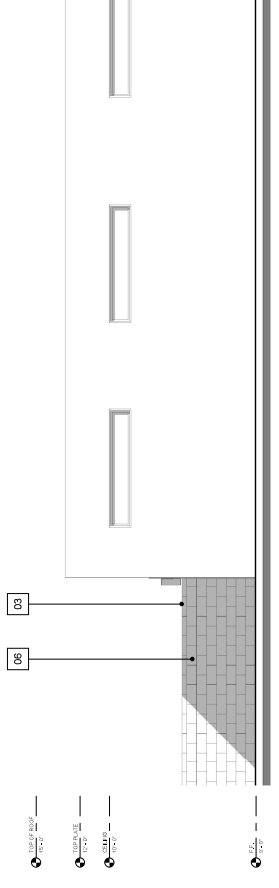
51 NORTH ELEVATION
1/4" = 1'-0"



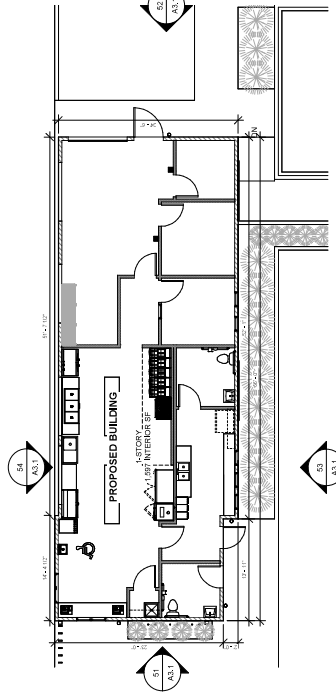
52 SOUTH ELEVATION
1/4" = 1'-0"



53 WEST ELEVATION
1/4" = 1'-0"



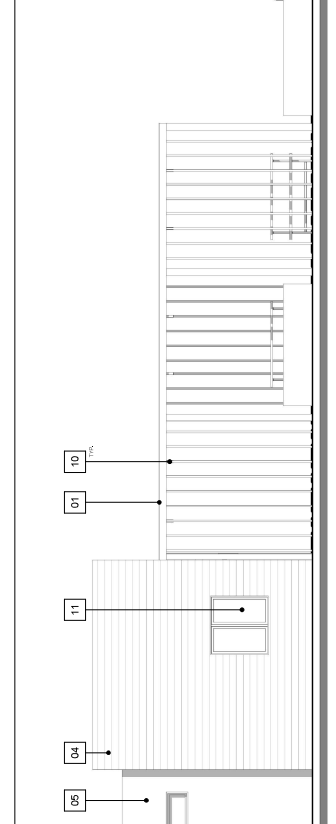
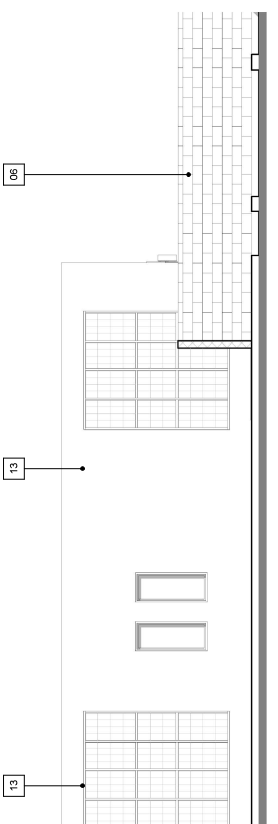
54 EAST ELEVATION
1/4" = 1'-0"



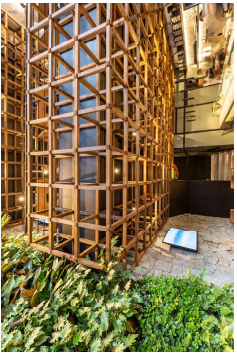
21 FLOOR PLAN KEY
1/8" = 1'-0"

- KEYNOTES - ELEVATIONS**
1. WOOD OR METAL PERIODA
 2. WOOD SHADE DEVICE
 3. NOT USED.
 4. METAL WALL PANELS
 5. SMOOTH PLASTER FINISH
 6. 20# TRASH ENCLOSURE WITH 20 GAUGE CORRUGATED METAL DOORS PER CITY STANDARDS
 7. ROLL-UP DOOR
 8. ILLUMINATED SIGN
 9. WALL-MOUNTED PENDANT LIGHT
 10. SURFACE-MOUNTED PENDANT LIGHT
 11. DRIVE-THRU SERVICE WINDOW
 12. WALK-UP SERVICE WINDOW
 13. WALL-MOUNTED PAINT FRAME

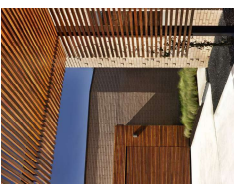
12 ELEVATION - KEYNOTES



12 ELEVATION - KEYNOTES

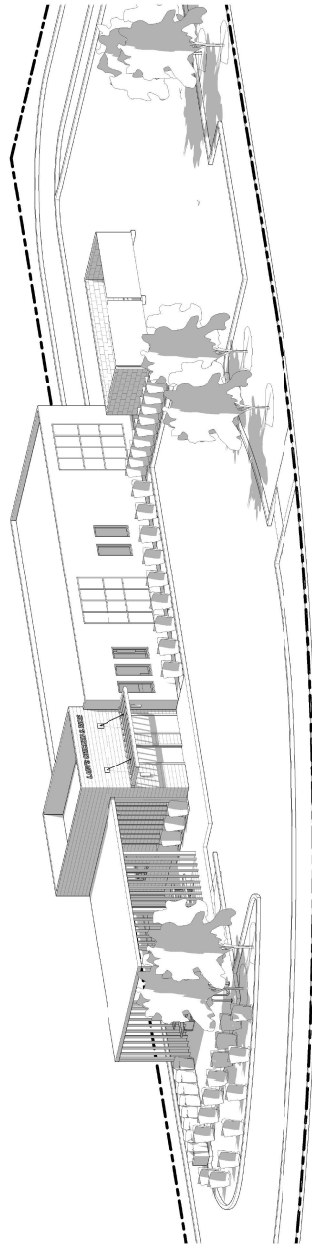


WOOD PERGOLA

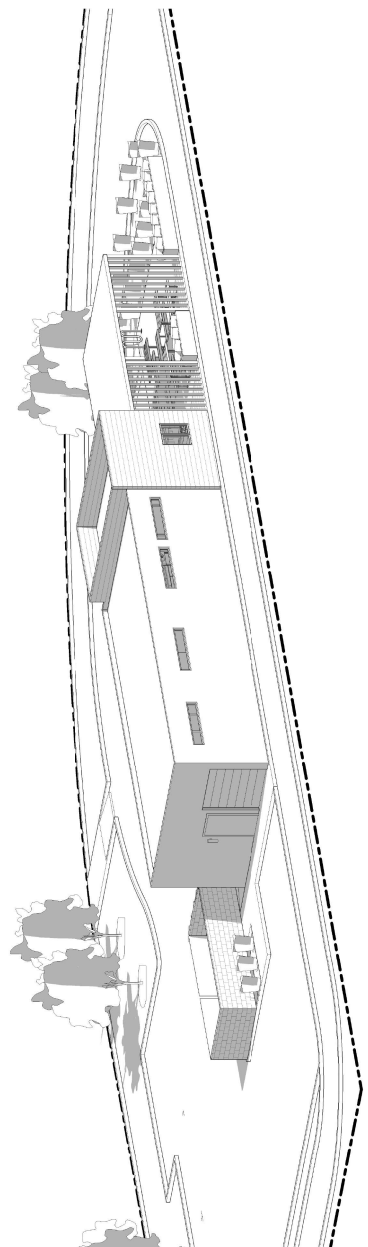


WRAPPING WOOD SHADE STRUCTURE

51 PRECEDENT IMAGERY



53 ORTHO FRONT



54 ORTHO BACK

Operational Statement

Lady's Chicken and Rice

To whom it may concern:

Lady's Chicken and Rice Drive-Through and Walk-up restaurant is a family-owned restaurant that started with food sales out of a food truck, and it still operates out of a food truck. The new restaurant will provide an opportunity to grow and serve the Visalia Community in a better way. There will be sale of various Lao and Thai hot foods and drinks. Staff will be as follows: two cashiers, two fry cooks, four-to-five-line cooks, and one manager. The business will be open to the public on Monday to Saturday from 10 am to 9 pm. There will be parking for customers and easy access to and from the streets as well as easy access for pedestrians to walk up to the restaurant and order food. There will be two food trucks parked overnight at the restaurant's designated parking lot. One of these trucks will be for on-site location while the other will be used for catering events.

Sincerely,

Lady's Chicken and Rice

Lady's Chicken and Rice Development

Traffic Impact Study

February 13, 2023

Prepared by:

VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722



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- Appendix C – U.S. Department of Transportation Federal Highway Administration’s (FHWA) Roundabouts: An Informational Guide (Section 4 – Operations), dated June 2000
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Executive Summary

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Lady's Chicken and Rice Development (Project). The Project is located at the southeast corner of Houston Avenue and Santa Fe Street, approximately a mile north of State Route (SR) 198. The Project seeks to develop a fast-food restaurant that provides drive-through service only. A walk-up window will also be provided along with limited outdoor seating.

Vehicular access to the site would be provided by one (1) driveway along Houston Avenue and one (1) driveway along Santa Fe Street. Regional access to the site is provided via SR 198.

The study intersections evaluated in this TIS include the intersection of Houston Avenue and Santa Fe Street in addition to an evaluation of Project driveways. The study area was developed in consultation with City of Visalia staff and requirements found in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021.

The TIS completed for the Project includes level of service (LOS) analysis for the following traffic scenarios.

- ✓ Existing Conditions
- ✓ Opening Year Without Project
- ✓ Opening Year Plus Project

IMPACTS

Intersection level of service analysis was conducted for the study intersections considering the study scenarios discussed above. Results of the analysis show that study intersections will meet the City of Visalia's minimum level of service criteria (see Table E-1). As a result, no mitigation measures are recommended.

VMT Analysis

The VMT analysis was conducted according to the City of Visalia's VMT Thresholds and Implementation Guidelines (City of Visalia 2021). The first step in the process is to check whether the project would be screened out of requiring a VMT analysis. In this case, the proposed Lady's Chicken and Rice restaurant is a local-serving retail project which would be screened out of requiring a VMT analysis because local-serving retail projects tend to reduce VMT levels. Therefore, the project has a less than significant VMT impact and no VMT mitigation measures are needed.

Table E-1
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING		OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		OPENING YEAR PLUS PROJECT (Alternative Driveway Layout)	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Houston Avenue / Santa Fe Street / 3rd Avenue	Roundabout	D	AM	9.2	A	10.4	B	10.4	B	10.4	B
			PM	9.6	A	11.6	B	12.6	B	12.5	B
2. Houston Avenue / Project Driveway 1	One-Way Stop	D	AM					--	A	--	A
			PM					13.2	B	13.1	B
3. Santa Fe Street / Project Driveway 2	One-Way Stop	D	AM					--	A	--	A
			PM					10.7	B	10.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For roundabout controlled intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst movement.

1.0 Introduction

1.1 Description of the Region/Project

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the Lady's Chicken and Rice Development (Project). The Project is located at the southeast corner of Houston Avenue and Santa Fe Street, approximately a mile north of State Route (SR) 198. The Project seeks to develop a fast-food restaurant that provides drive-through service only. A walk-up window will also be provided along with limited outdoor seating. Figure 1-1 shows the site's regional context while Figure 1-2 shows the Project location within the City of Visalia. Figure 1-3 shows the tentative site plan for the Project.

1.1.1 Project Access

Vehicular access to the site would be provided by one (1) driveway along Houston Avenue and one (1) driveway along Santa Fe Street. Regional access to the site is provided via SR 198.

1.1.2 Study Area

The study intersections included in this TIS are listed below and shown in Figure 1-2. The study intersections were developed in consultation with City of Visalia staff and requirements found in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021. Site access driveways will also be evaluated in this TIS and are discussed in Section 3.0 of this report.

Intersections

- ✓ Houston Avenue / Santa Fe Street

1.1.3 Study Scenarios

The TIS completed for the Project includes level of service (LOS) analysis for the following traffic scenarios.

- ✓ Existing Conditions
- ✓ Opening Year Without Project
- ✓ Opening Year Plus Project

1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the Level of Service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized

intersections or other improvements. Guidelines incorporated in the Highway Capacity Manual (HCM), 6th Edition, published in 2016 were also used in the development of this TIS.

1.2.1 Intersection Analysis

Intersection LOS analysis was conducted using the Synchro software program. Synchro supports HCM methodologies and is deemed an acceptable program by City of Visalia staff for assessment of traffic impacts. Levels of Service can be determined for both signalized and unsignalized intersections.

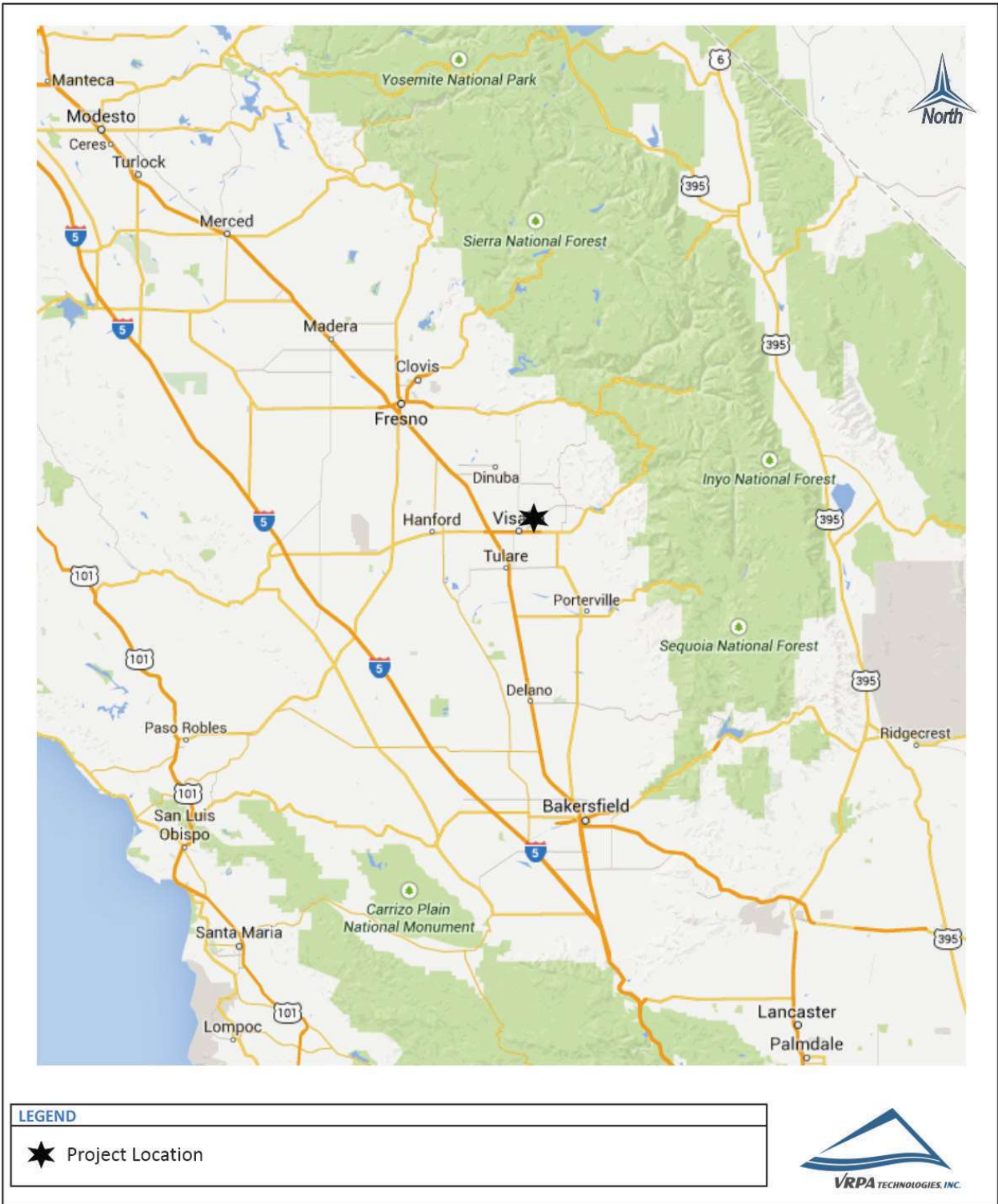
Tables 1-1 and 1-2 indicate the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for the various levels of service ranging from LOS "A" to "F".

The signalized LOS standards applied to calculate intersection LOS are in accordance with the current edition of the HCM. Intersection turning movement counts and roadway geometrics used to develop LOS calculations were obtained from field review findings and count data provided from the traffic count sources identified in Section 2.1.

When an unsignalized intersection does not meet acceptable LOS standards, the investigation of the need for a traffic signal shall be evaluated. The latest edition of the California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) introduces standards for determining the need for traffic signals. The California MUTCD indicates that the satisfaction of one or more traffic signal warrants does not in itself require the installation of a traffic signal. In addition to the warrant analysis, an engineering study of the current or expected traffic conditions should be conducted to determine whether the installation of a traffic signal is justified.

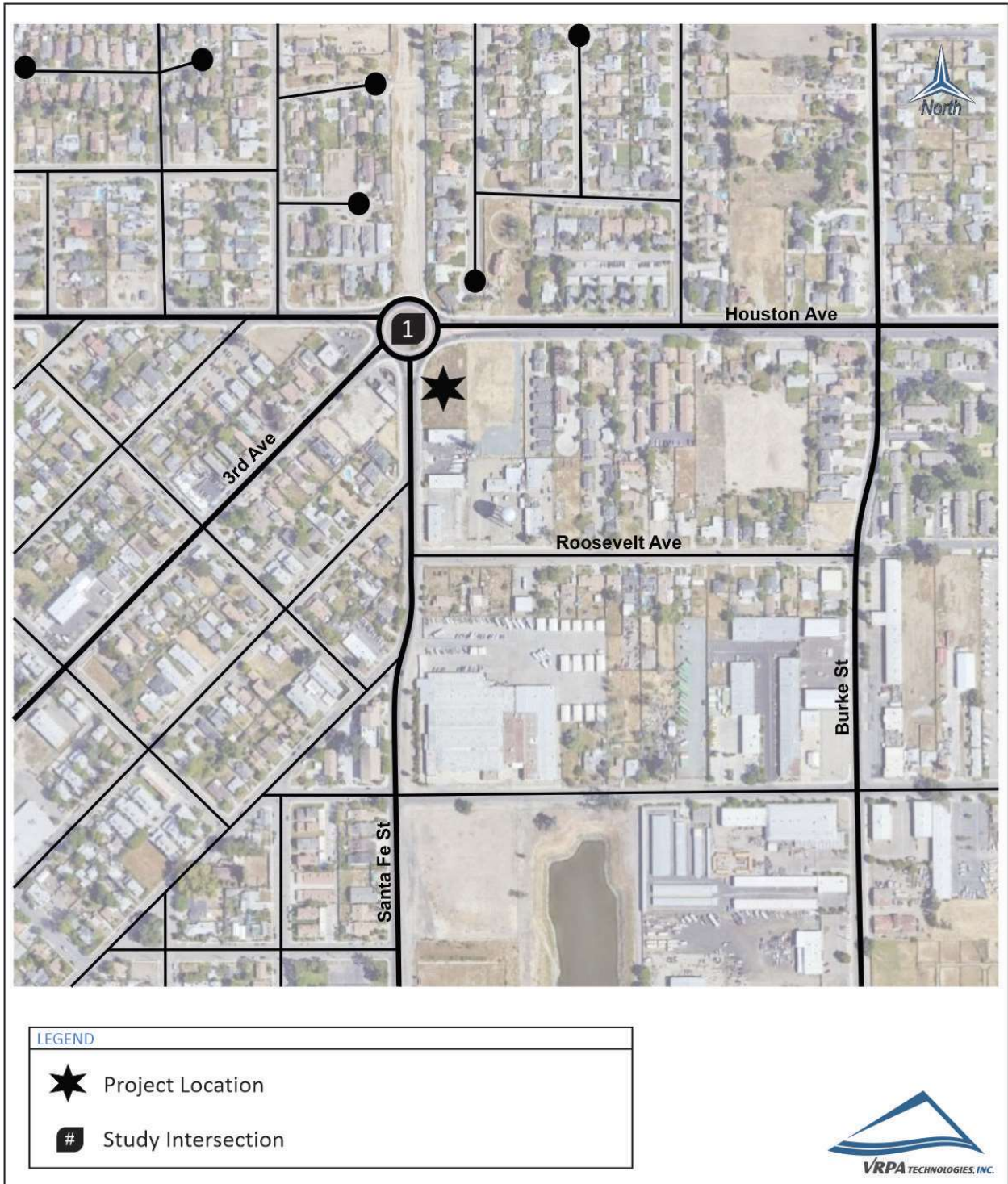
Lady's Chicken and Rice Development
Regional Location

Figure
1-1



**Lady's Chicken and Rice Development
Project Location**

**Figure
1-2**



Lady's Chicken and Rice Development
Project Site Plan

Figure
1-3

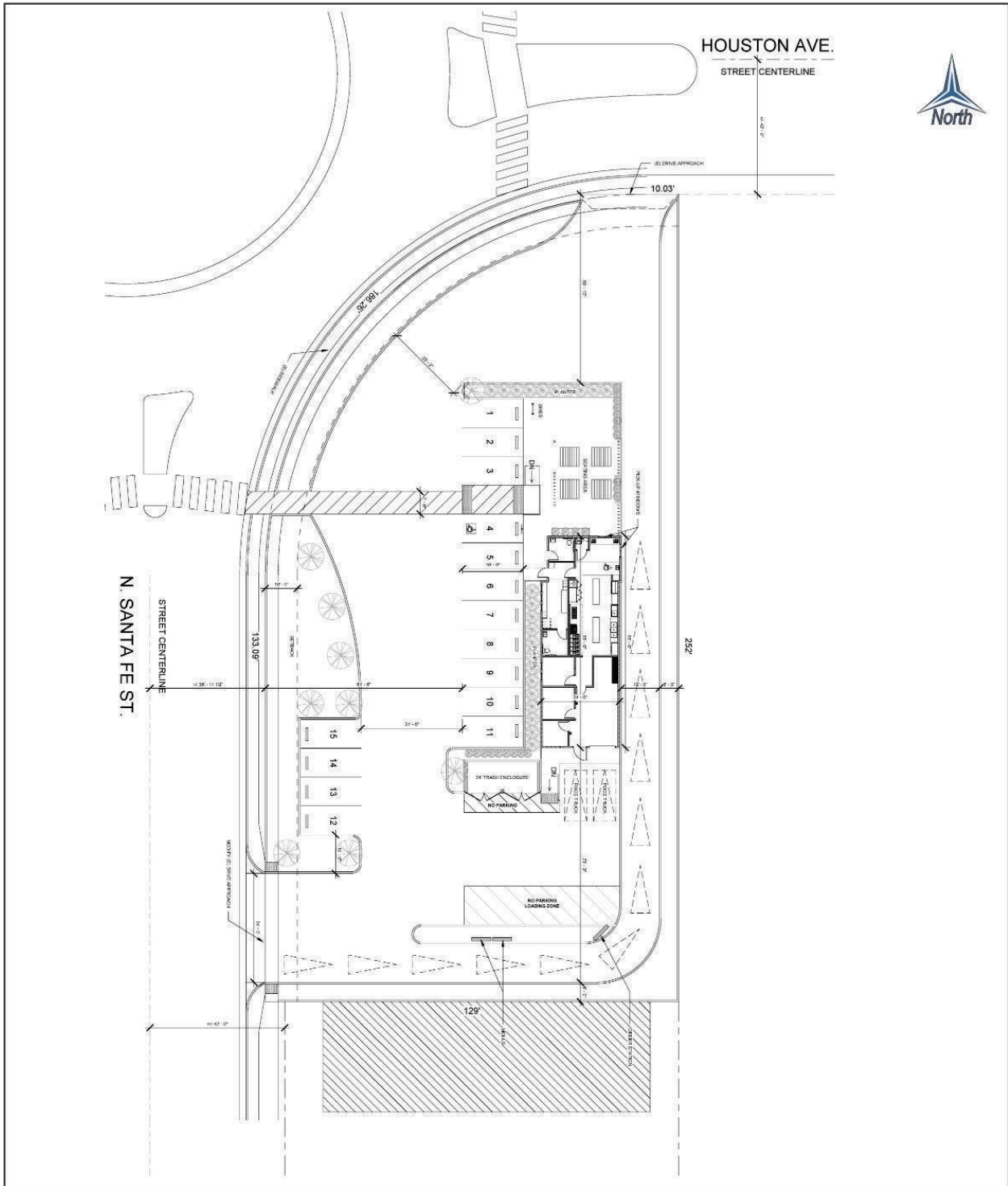


Table 1-1
Signalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

LEVEL OF SERVICE	DEFINITION		AVERAGE TOTAL DELAY (sec/veh)
A	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street.		≤ 10.0
B	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay.		> 10.0 - 20.0
C	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer.		> 20.0 - 35.0
D	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing.		> 35.0 - 55.0
E	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues.		> 55.0 - 80.0
F	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely.		> 80.0

Table 1-2
Unsignalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	No delay for stop-controlled approaches.	0 - 10.0
B	Describes operations with minor delay.	> 10.0 - 15.0
C	Describes operations with moderate delays.	> 15.0 - 25.0
D	Describes operations with some delays.	> 25.0 - 35.0
E	Describes operations with high delays and long queues.	> 35.0 - 50.0
F	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50.0

1.3 Policies to Maintain Level of Service

1.3.1 City of Visalia

The City of Visalia General Plan states the City will plan for LOS “D” for street segments and intersections.

1.4 VMT Analysis

Senate Bill 743 (SB 743) went into effect throughout California on July 1, 2020. This legislation changed the performance measure for CEQA transportation studies from level of service to vehicle miles traveled (VMT). An assessment of potential VMT impacts associated with the Project is provided in Section 3.0 to address changes in CEQA requirements.

2.0 Existing Conditions

2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing AM and PM peak hour turning movements were collected at each study intersection by National Data and Surveying Services. Intersection turning movement counts were conducted for the peak hour periods of 7:00-9:00 AM and 4:00-6:00 PM for study intersections on Tuesday, September 20th, 2022. Traffic count data worksheets are provided in Appendix A.

2.2 Existing Functional Roadway Classification System

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

The current hierarchical system of roadways within the study area consists of the following four (4) basic classifications:

- ✓ **State Freeways and Highways** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the City/County and link the City/County to other parts of the State.
- ✓ **Arterials** – provide for mobility within the City/County, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. Access to abutting private property and intersecting local streets shall generally be restricted.
- ✓ **Collectors** – provide for internal traffic movement within communities and connect local roads to arterials. Direct access to abutting private property shall generally be permitted.
- ✓ **Local Streets** – Roadways which provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. Access to abutting private property and intersecting streets shall be permitted.

2.3 Affected Streets and Highways

The study intersections included in this TIS are listed below. The study intersections were developed in consultation with City of Visalia staff and requirements found in the City of Visalia “Procedures For Traffic Impact Analysis (TIA)”, dated March 2021. Site access driveways will also be evaluated in this TIS and are discussed in Section 3.0 of this report.

Intersections

- ✓ Houston Avenue / Santa Fe Street

The existing lane geometry at study area intersections is shown in Figure 2-1. Figures 2-2 and 2-3 show existing traffic volumes for the AM and PM peak hours in the study area.

2.4 Level of Service

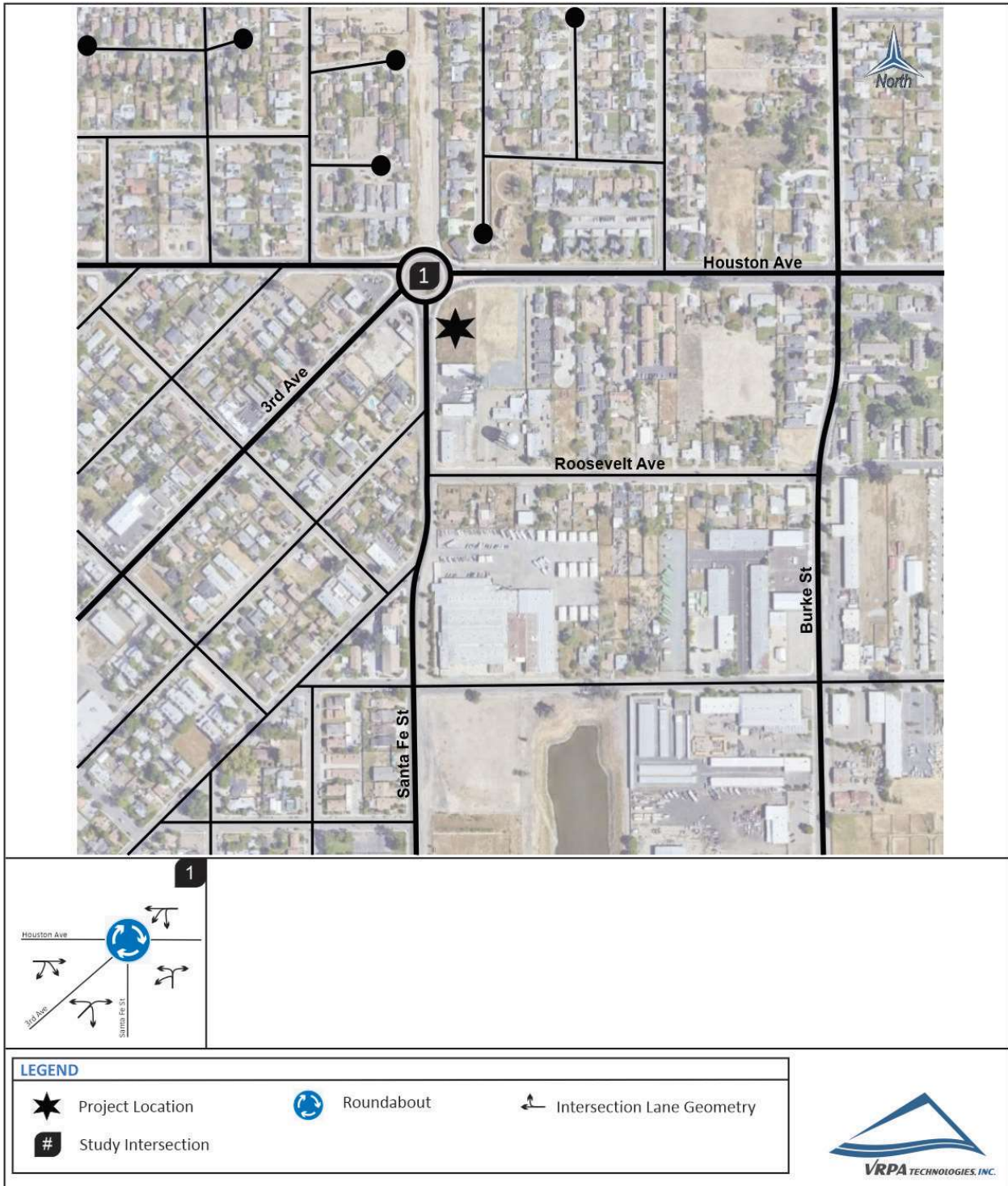
2.4.1 Intersection Capacity Analysis

All intersection LOS analyses were estimated using Synchro 10 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc.) were input into the Synchro 10 Software program to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 6th Edition HCM outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

- ✓ **Lane Geometry**
 - VRPA conducted a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data, where applicable
- ✓ **Traffic Conditions**
 - Peak hour factors (PHF) for each intersection approach was obtained from traffic counts in the study area and were utilized for Existing and Opening Day conditions
 - Heavy vehicle percentages were based on the HCM default
 - Roadway link speed limits were observed in the field and input into the Synchro network to determine roadway link speeds

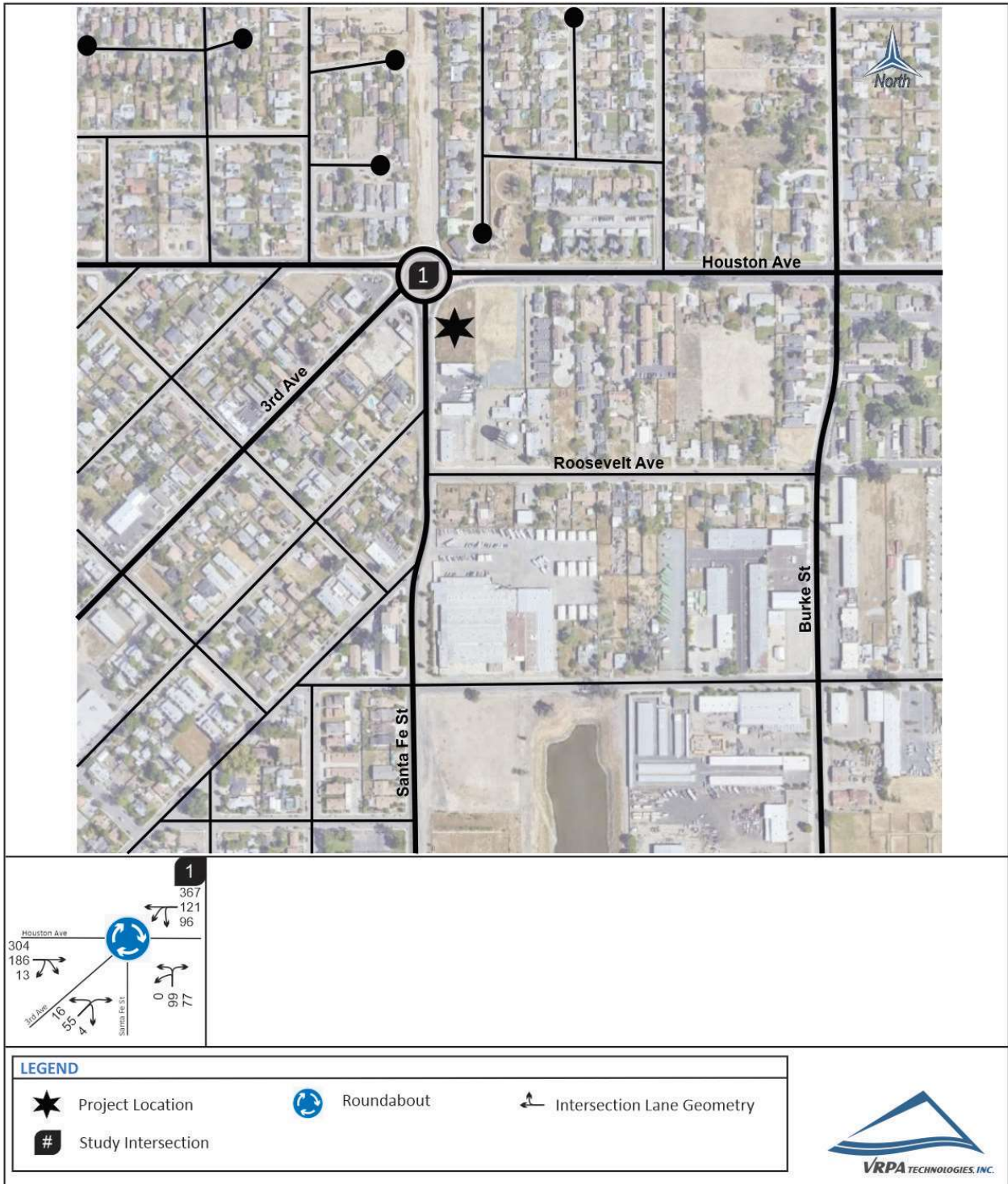
Lady's Chicken and Rice Development
 Existing Lane Geometry

Figure
2-1



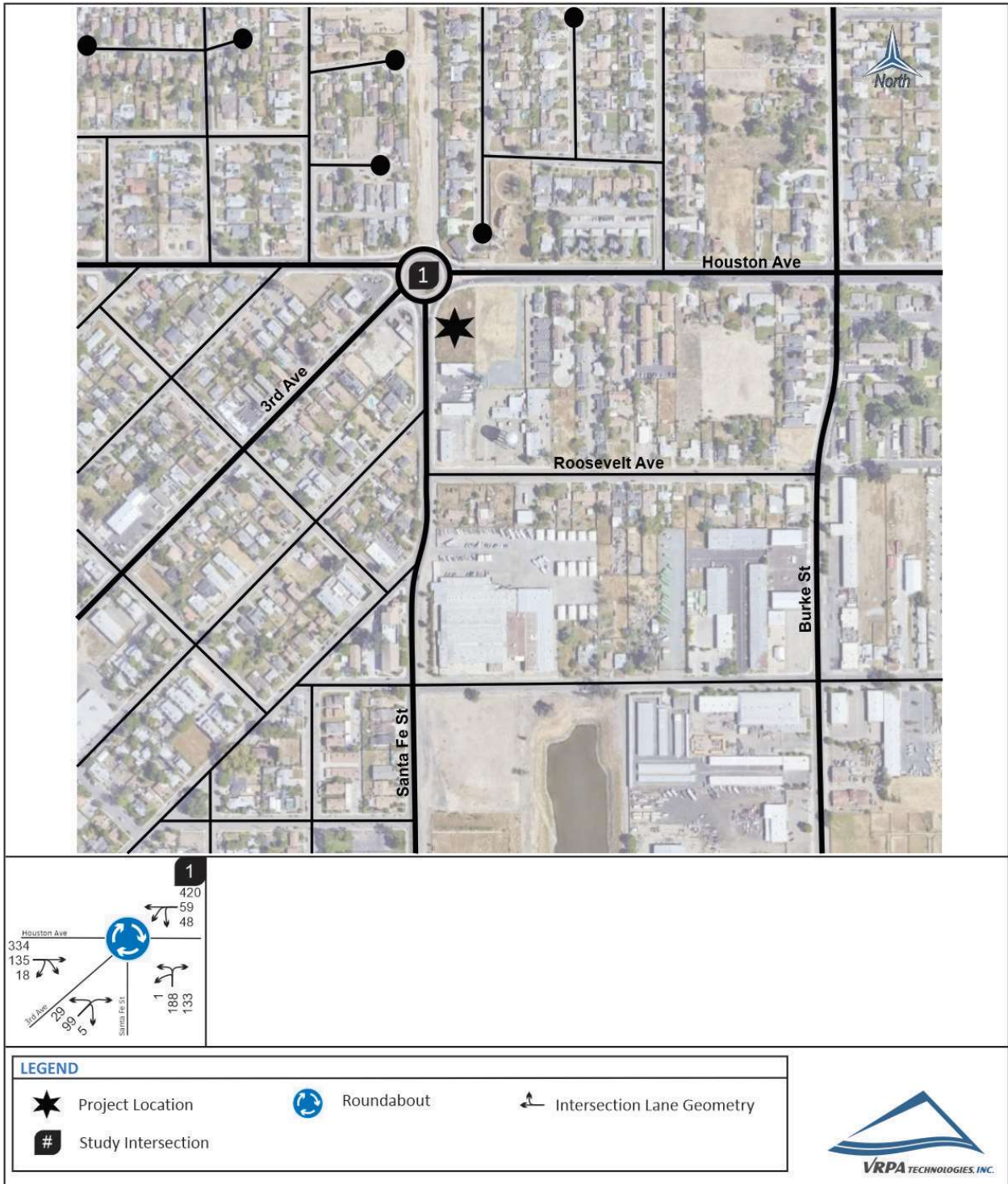
Lady's Chicken and Rice Development
 Existing AM Peak Hour Traffic

Figure
 2-2



**Lady's Chicken and Rice Development
 Existing PM Peak Hour Traffic**

**Figure
 2-3**



Results of the analysis show that the study intersection currently meets the City of Visalia's minimum level of service criteria. Table 2-1 shows the intersection LOS for the existing conditions. Synchro 10 (HCM 6th Edition) Worksheets are provided in Appendix B.

2.4.2 Queuing Analysis

Table 2-2 provides a queue length summary for all approaches at the study intersection for Existing Conditions. Queuing analysis was completed using the queuing formula presented in the U.S. Department of Transportation Federal Highway Administration's (FHWA) *Roundabouts: An Informational Guide* (Section 4 – Operations), dated June 2000 (see Appendix C). As shown in Table 2-2, the longest calculated queue is 37 feet at the westbound through movement during the AM peak hour.

2.5 Study Area Collision Data

The Transportation Injury Mapping System (TIMS) provided by University of California, Berkeley was used to evaluate traffic collisions in the study area. TIMS utilizes geocoded data provided by the Statewide Integrated Traffic Records System (SWITRS). SWITRS is a tool used by California Highway Patrol (CHP) and other Allied Agencies throughout California and includes various types of statistical reports and data. The database serves as a means to collect and process data gathered from a collision scene. Information from the TIMS database shows that approximately 37 injury or fatal accidents (36 injury/1 fatal) have occurred throughout the study area in the past 5 years. A graphical representation of traffic collisions throughout the study area for the past 5 years is provided in Figure 2-4. Collision data worksheets are provided in Appendix D. The City of Visalia area had approximately 2,146 injury or fatal accidents over the same timeframe referenced above. Injury and fatal accidents in the study area represent 1.7% of incidents that occurred in the City of Visalia. Collision data in the study area shows that 'Broadside' collisions are the most common accidents in the study area.

Table 2-1
Existing Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Houston Avenue / Santa Fe Street / 3rd Avenue	Roundabout	D	AM	9.2	A
			PM	9.6	A

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For roundabout controlled intersections, delay results show the average for the entire intersection.

Table 2-2
Existing Queuing Operations

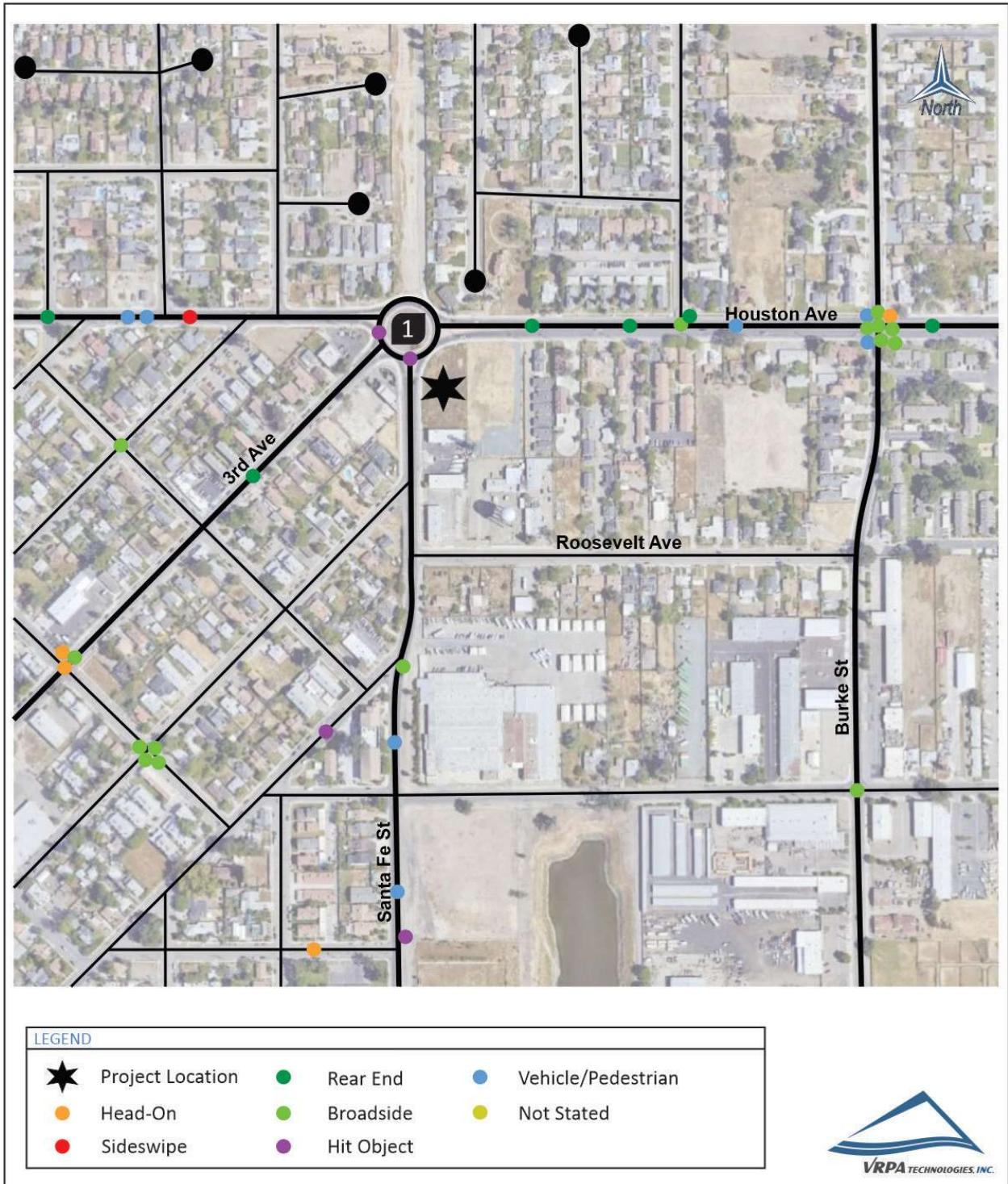
INTERSECTION	INTERSECTION APPROACH	EXISTING CONDITIONS	
		AM Queue	PM Queue
Houston Avenue / Santa Fe Street / 3rd Avenue	NB Through	11	21
	EB Through	32	32
	WB Through	37	35
	NEB Through	5	9

Queue is measured in feet

1: Through lane terminates as right turn at intersection

Lady's Chicken and Rice Development
Study Area Collision Map (1/1/2017 - 12/31/2021)

Figure
2-4



3.0 Traffic Impacts

This chapter provides an assessment of the traffic the Project is expected to generate and the impact of that traffic on the surrounding street system.

3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding roadway network, the first step is to determine Project trip generation. Project trip generation was determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The considerations described above led to the recommended trip generation for the PM (4:00-6:00pm) peak hour shown in Table 3-1.

Table 3-1
Project Trip Generation

LAND USE	INDEPENDENT VARIABLE (IV)	DAILY TRIP ENDS (ADT)		WEEKDAY PM PEAK HOUR				
		RATE ¹	VOLUME	RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL
Lady's Chicken and Rice (935)	1 Drive-Through Lane	842.12	842	59.50	51:49	30	30	60
TOTAL TRIP GENERATION			842			30	30	60

Source: Generation factors from ITE Trip Generation Manual, 11th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1: Daily Rate based upon the ratio of the PM peak hour and Daily 'average' rate of ITE Land Use Code 934 (1,000 sq.ft Independent Variable).

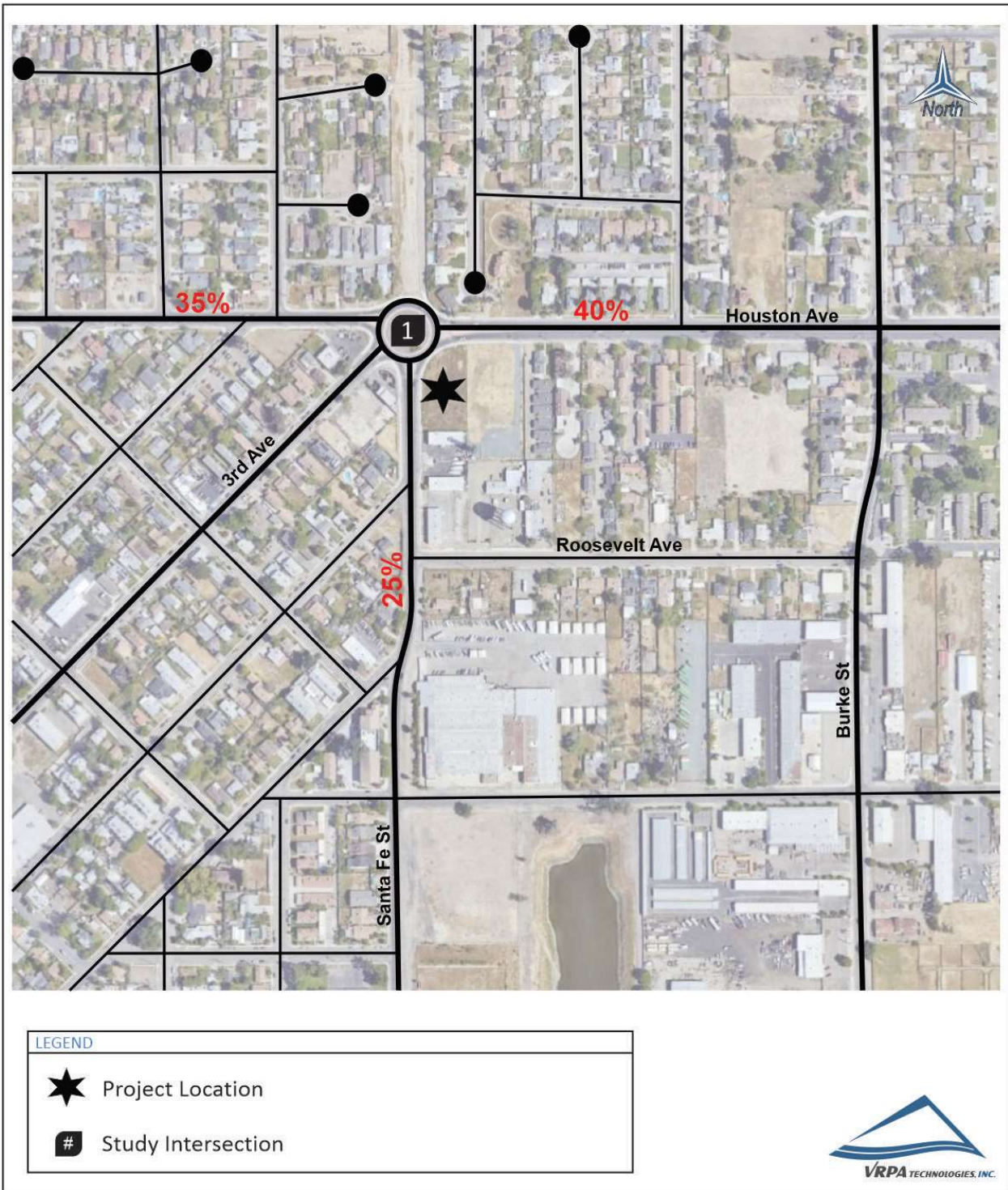
3.2 Trip Distribution

Project trip distribution percentages for the Opening Year scenario is shown in Figure 3-1. These percentages are based upon knowledge of the study area and prevailing traffic patterns in the study area. Vehicular access to the site would be provided by one (1) driveway along Houston Avenue and one (1) driveway along Santa Fe Street. Regional access to the site is provided via SR 198.

Based on the trips shown in Table 3-1, the Project will generate 60 PM peak hour trips. Table 1 of the City of Visalia's *Procedures for Traffic Impact Analysis (TIA)* provides guidance on the level of analysis required for development projects. As noted in the City of Visalia procedure, projects that generate less than 100 peak hour trips are required to perform an Opening Year analysis.

**Lady's Chicken and Rice Development
Project Trip Distribution**

**Figure
3-1**



3.3 Project Traffic

Project traffic as shown in Table 3-1 was distributed to the roadway system using the trip distribution percentages shown in Figures 3-1. A graphical representation of the resulting PM peak hour Project trips used is shown in Figure 3-2. It should be noted that the Project will not generate any AM peak hour trips.

3.4 Approved/Pending Project Traffic

Traffic impact analyses typically require the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. There are several development projects in the Project's vicinity that will add new trips to the intersections being evaluated in this TIS. The approved or pending projects included in this TIS are graphically displayed in Figure 3-3. Trip generation and distribution information for the approved and pending developments was estimated using trip generation rates from the ITE Trip Generation Manual (11th Edition) and engineering judgement and prevailing traffic patterns. Figure 3-4 shows the AM and PM peak hour trips for Approved and Pending project traffic. The peak hour trips for approved and pending project traffic were applied to Opening Year conditions discussed later in the report.

3.5 Opening Year Traffic Conditions

Traffic conditions with and without the Project in the Year 2023 were estimated by applying a growth rate of 2% per year to the existing traffic volumes. A comparison of the TCAG base year and future year travel model showed that the growth in the study area is approximately 2% per year. The resulting traffic for the Opening Year scenario is shown in Figures 3-5, 3-6, 3-7, 3-8a, and 3-8b. Figure 3-8a shows the resulting traffic for the Opening Year scenario considering right-in/right-out access only at the Santa Fe Street and Houston Avenue driveways. Figure 3-8b shows the resulting traffic for the Opening Year scenario considering alternative driveway layouts with left-in and right-in/right-out access at the Santa Fe Street driveway and right-out only access at the Houston Avenue driveway.

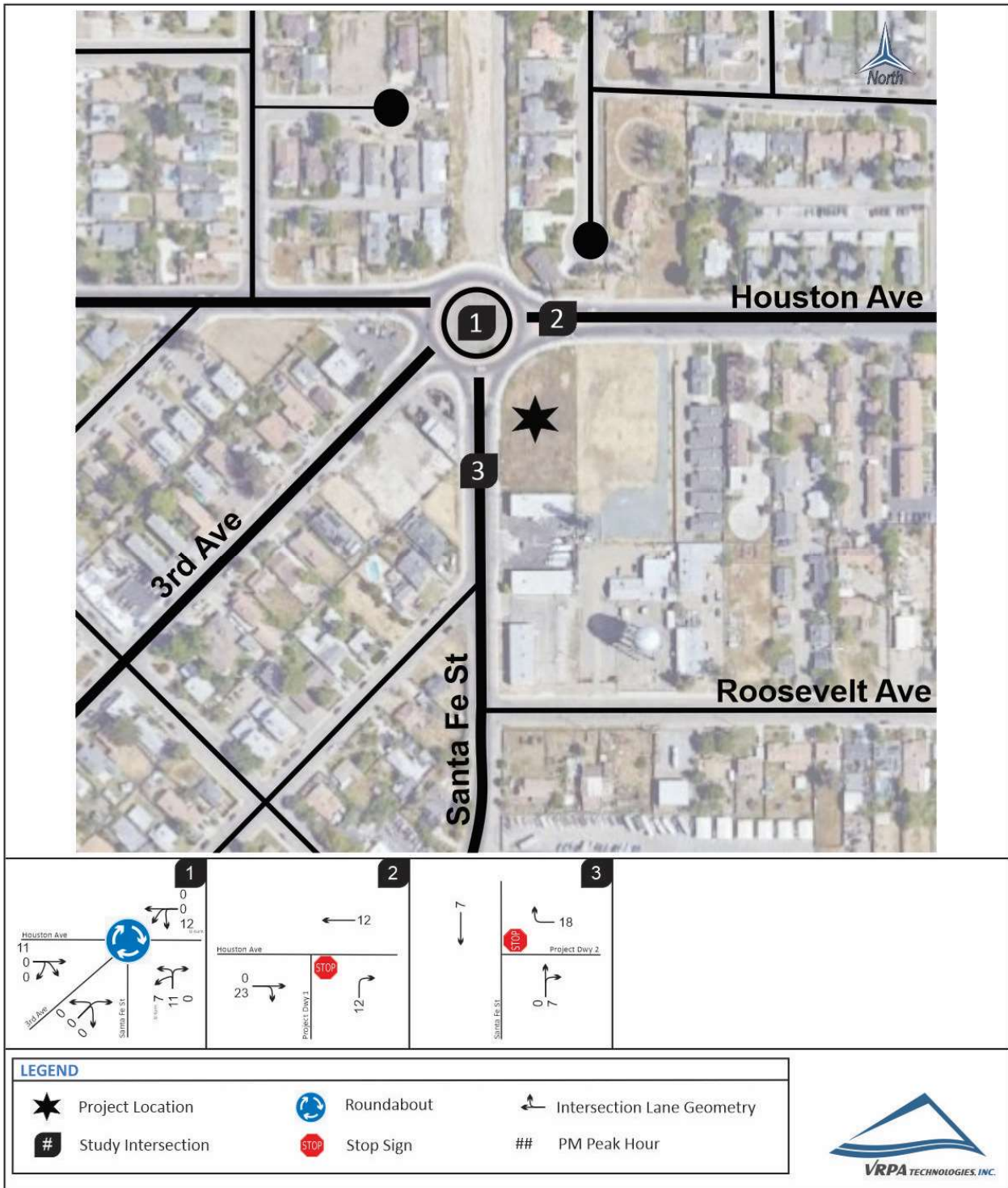
3.6 Impacts

3.6.1 Intersection Capacity Analysis

Table 3-2 provides the intersection level of service analysis for the study intersections considering the study scenarios discussed above. Results of the analysis show that study intersections will meet the City of Visalia's minimum level of service criteria. As a result, no mitigation measures are recommended.

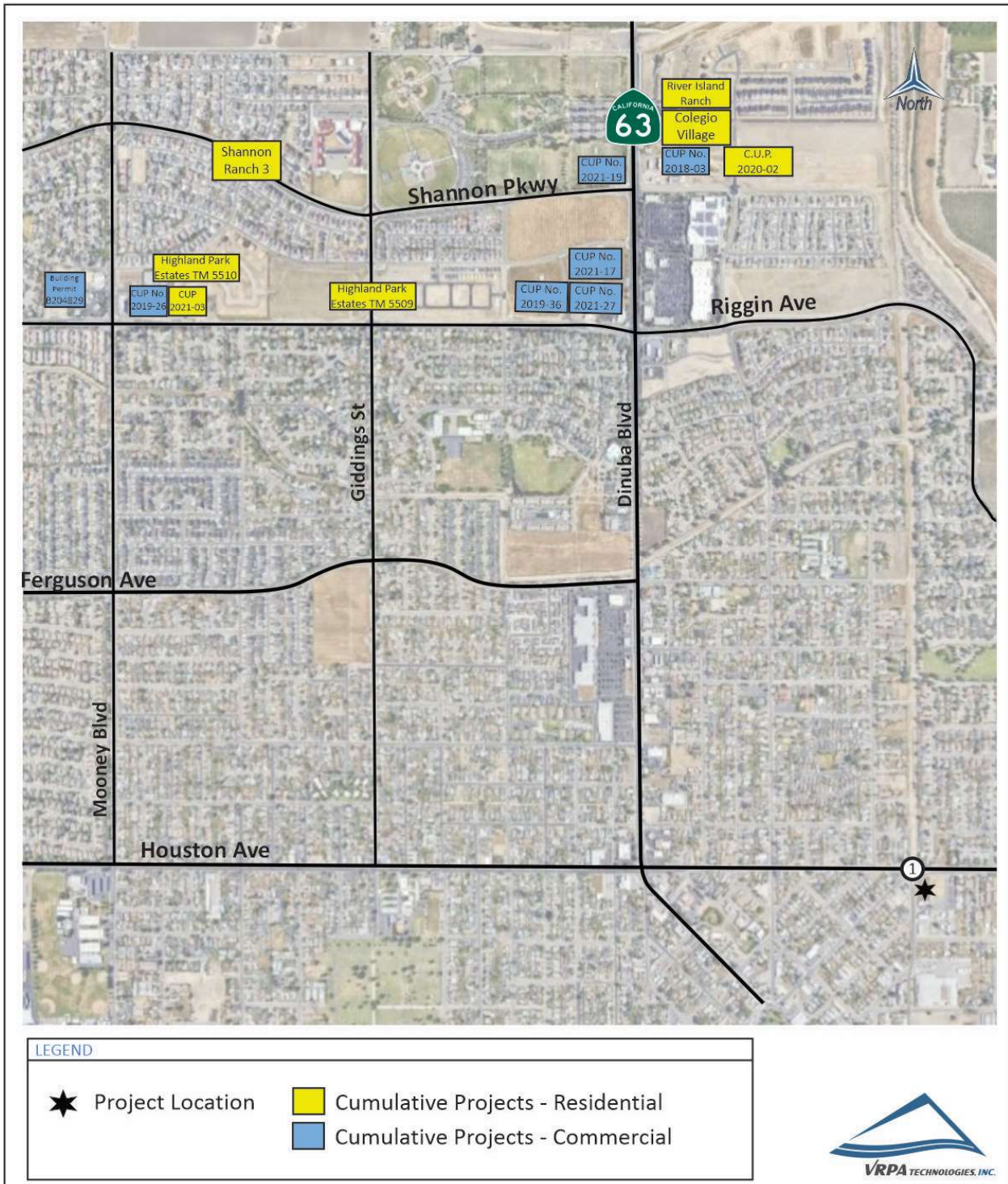
**Lady's Chicken and Rice Development
Project Peak Hour Trips**

**Figure
3-2**



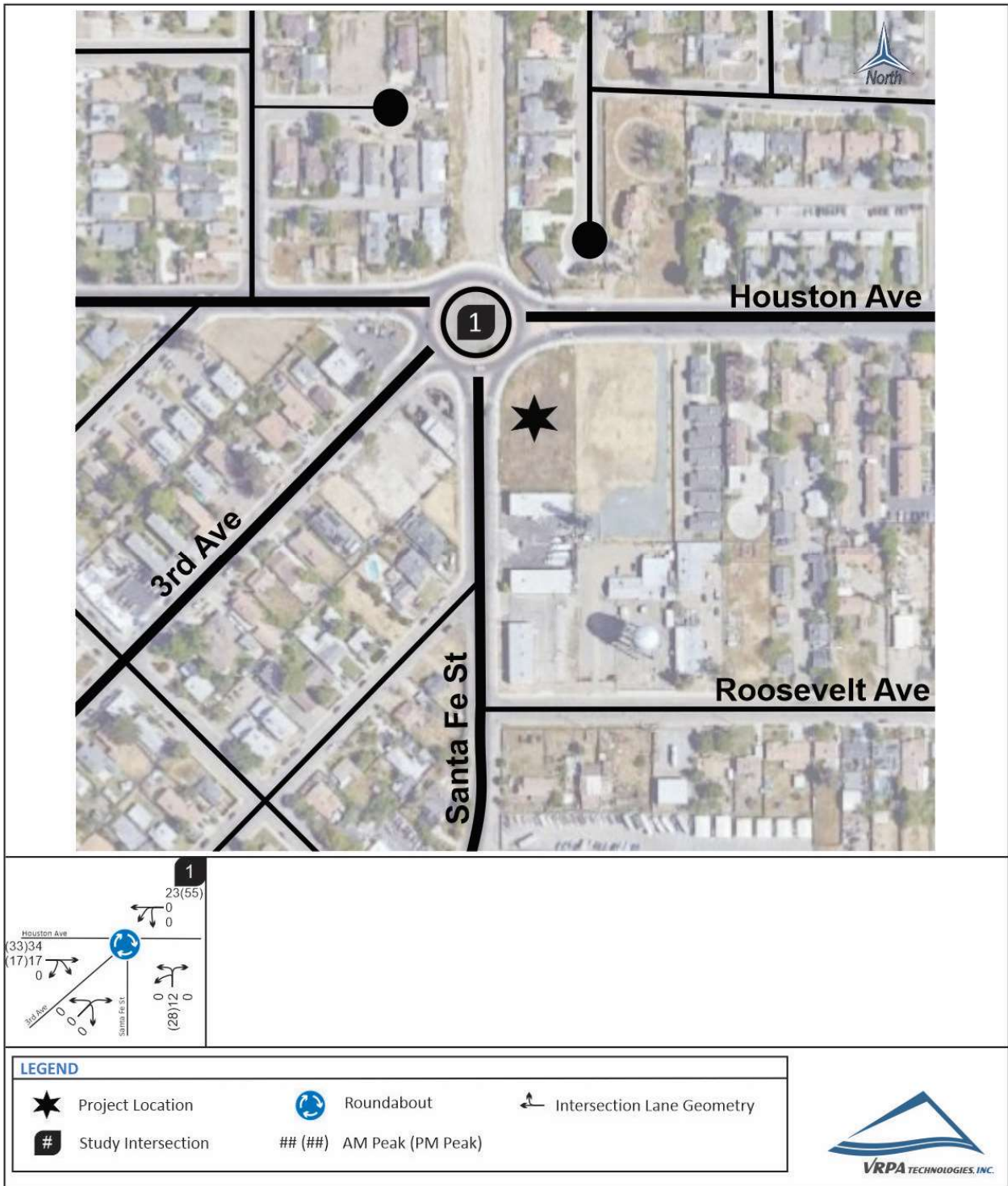
**Lady's Chicken and Rice Development
 Approved/Pending Projects Location**

**Figure
 3-3**



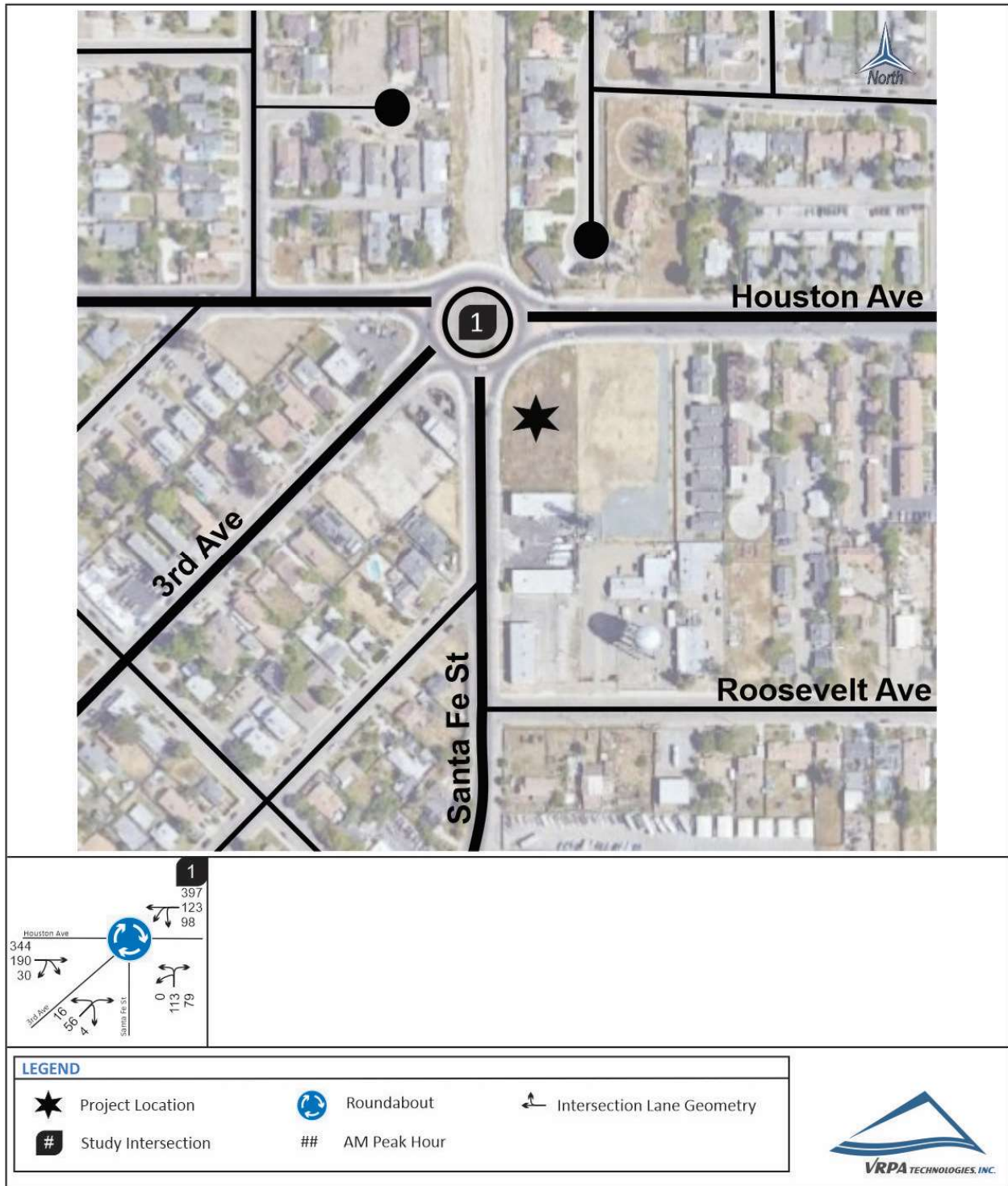
Lady's Chicken and Rice Development
 Approved/Pending Projects AM & PM Peak Hour Trips

Figure
 3-4



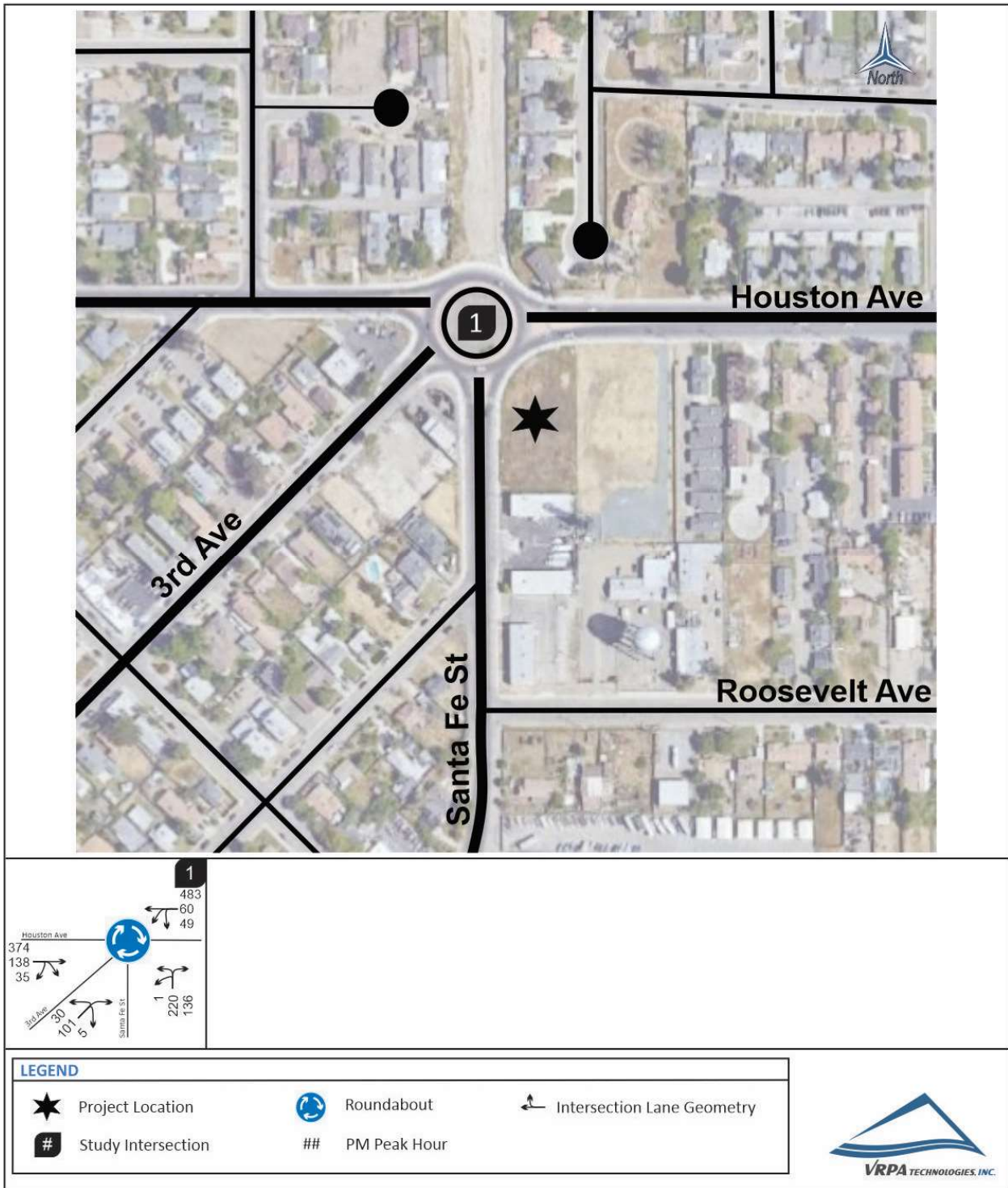
Lady's Chicken and Rice Development
 Opening Year Without Project AM Peak Hour Trips

Figure
 3-5



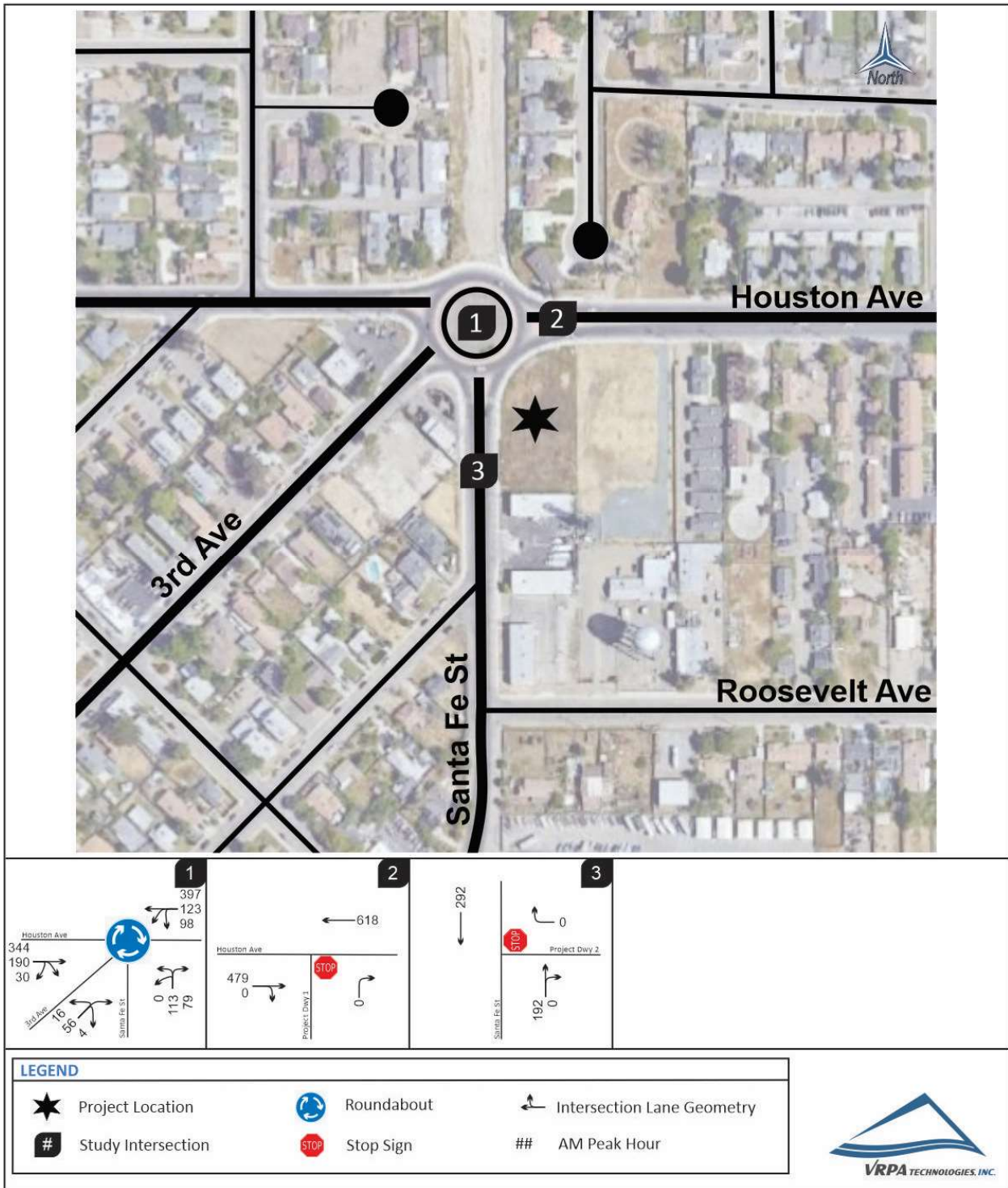
Lady's Chicken and Rice Development
 Opening Year Without Project PM Peak Hour Trips

Figure
 3-6



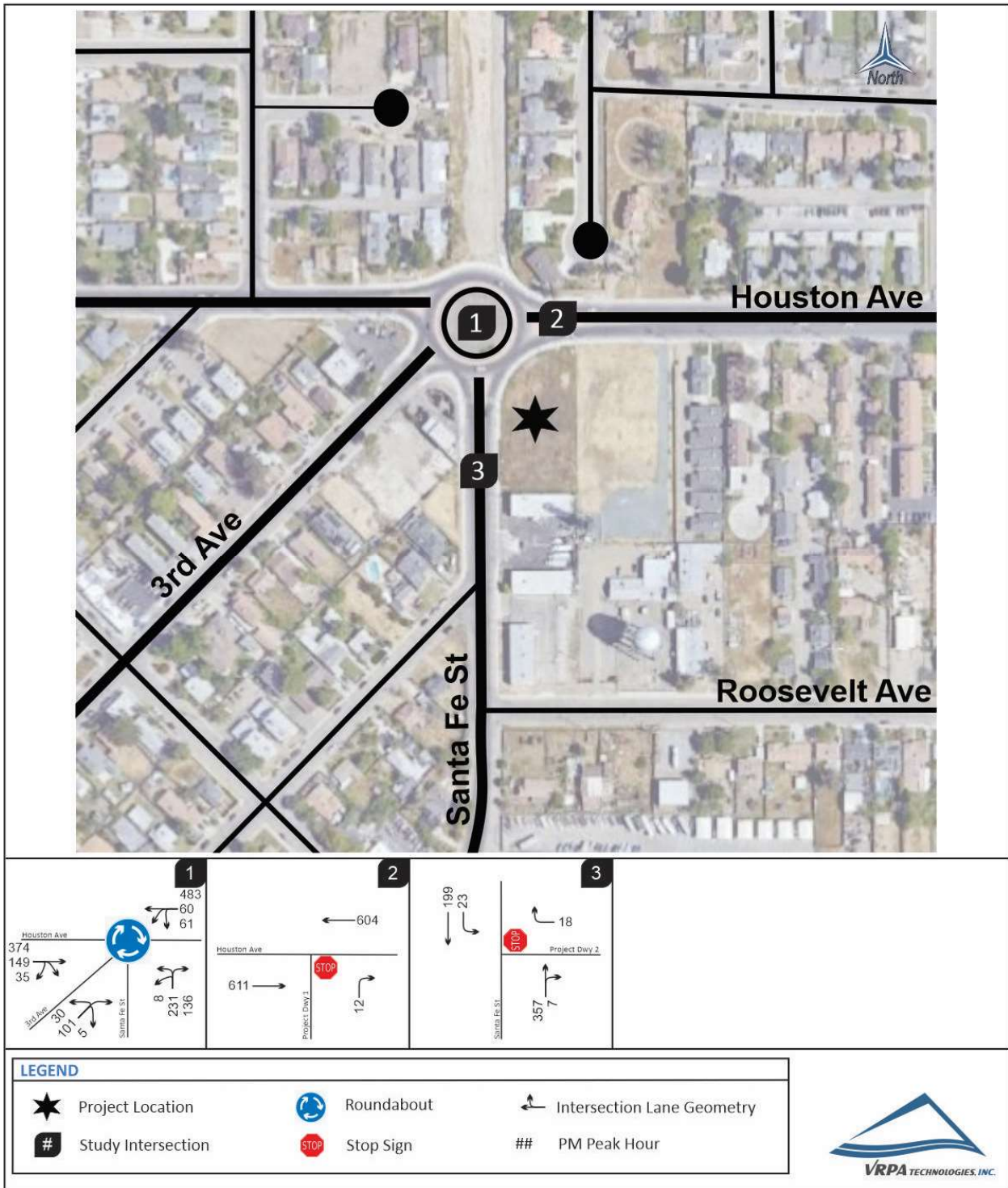
Lady's Chicken and Rice Development
Opening Year Plus Project AM Peak Hour Trips

Figure
3-7



Lady's Chicken and Rice Development
Opening Year Plus Project PM Peak Hour Trips (Alternative Driveway Layout)

Figure
3-8b



3.6.2 Queuing Analysis

Table 3-3 provides a queue length summary for traffic movements at study intersections. Queuing analysis for the Project driveways were completed using the queuing formulas presented in the City of Visalia "Procedures For Traffic Impact Analysis (TIA)", dated March 2021. Queuing analysis for the Houston Avenue at Santa Fe Street intersection was completed using the queuing formula presented in the U.S. Department of Transportation Federal Highway Administration's (FHWA) Roundabouts: An Informational Guide (Section 4 – Operations), dated June 2000 (see Appendix C). The queue lengths presented in Table 3-3 represent the approximate queue lengths for the respective lane movements.

Results of the queuing analysis shows that queuing at the intersection of Houston Avenue and Santa Fe Street will be negligible. As shown in Table 3-3, the longest calculated queue is 52 feet (2 vehicles) at the westbound through movement during the PM peak hour (Alternative Driveway Layout). The queuing analysis also shows that onsite queuing at the Project driveways will be minimal. The westbound movement at Santa Fe Street and Project Driveway 2 has a projected queue length of 15 feet (1 vehicle) based upon PM peak hour trips.

The southbound left movement at Santa Fe Street and Project Driveway 2 (Alternative Driveway Layout) has a projected queue length of 19 feet (1 vehicle) based upon PM peak hour trips. The existing striping and southbound roadway width at the Santa Fee Street and Project Driveway 2 could accommodate an 11-foot southbound left turn lane with a storage pocket of approximately 45 feet which is adequate storage capacity given the queuing analysis (19 feet).

3.7 Preliminary Project Driveway Assessment

Vehicular access to the site would be provided by one (1) driveway along Houston Avenue and one (1) driveway along Santa Fe Street. Based on the results identified in Table 3-2, the proposed intersection configuration(s) for the Project driveways are shown below. The ultimate configuration will be determined in consultation with City of Visalia staff. It should be noted that the National Cooperative Highway Research Program (NCHRP) Report 672 *Roundabouts: An Informational Guide*, provides guidance on driveway access adjacent to roundabouts. In essence, it is preferable to avoid locating driveways in areas that conflict with the circulatory roadway. As a result, the driveway configurations associated with the preferred layout below would be optimal considering the close proximity of the Houston Avenue and Santa Fe Street roundabout.

- ✓ Houston Avenue at Project Driveway 1
 - Intersection Control - One-Way Stop (Project Driveway)
 - Northbound approach - 1 right-turn lane

- Eastbound approach - 1 through lane with a shared right
- Westbound approach - 1 through lane

Alternative Layout

- Intersection Control - One-Way Stop (Project Driveway)
- Northbound approach - 1 right-turn lane
- Eastbound approach - 1 through lane
- Westbound approach - 1 through lane

✓ **Santa Fe Street at Project Driveway 2**

- Intersection Control - One-Way Stop (Project Driveway)
- Northbound approach - 1 through lane with a shared right
- Southbound approach - 1 through lane
- westbound approach - 1 right turn lane

Alternative Layout

- Intersection Control - One-Way Stop (Project Driveway)
- Northbound approach - 1 through lane with a shared right
- Southbound approach - 1 left turn lane and 1 through lane
- westbound approach - 1 right turn lane

The Project driveways will meet acceptable levels of service as one-way stop-controlled intersections.

Chapter 400 of Caltrans' *Highway Design Manual* provides design criteria for at grade intersections along state highway facilities. The *Highway Design Manual* along with the American Association of State Highway and Transportation Officials' (AASHTO) *A Policy on Geometric Design of Highways and Streets* should be used for the design of the Project driveway(s), which will take place during the design phase of the Project. Section 201 of the *Highway Design Manual* provides stopping sight distance requirements for various design speeds. In addition, AASHTO's *A Policy on Geometric Design of Highways and Streets* provides intersection sight distance requirements for specified design speeds.

The roadway design speed in the vicinity of the proposed location of the Project driveway is 20 miles per hour (mph) due to the roundabout located at Houston Avenue and Santa Fe Street. Therefore, the design intersection sight distance standard is 225 feet for left turning movements and 195 feet for right turning movements. The stopping site distance standard for the Project driveways is 125 feet. Figures 3-9a, 3-9b, and 3-9c depicts the intersection sight distance requirements per AASHTO standards. The driver/pedestrian sight distance triangle is represented by the shaded area which is the area that must be kept free of obstructions. Figure 3-10 depicts the sight distance from the south to the driveway along Santa Fe Street and from the west to the driveway along Houston Avenue. Results of the analysis shows that the proposed location of the

Project driveways will meet sight distance requirements as recommended in Caltrans' *Highway Design Manual* and AASHTO's *A Policy on Geometric Design of Highways and Streets*.

3.8 On-site Circulation

As noted previously, the Project will generate approximately 60 trips during the PM peak hour. The site plan for the Project shows an estimated 250-foot storage/drive-through lane which will accommodate approximately 12 vehicles assuming 20 feet per vehicle.

Queuing Information/Data provided in the Transportation Impact Study for the Chick-Fil-A/Starbucks Monrovia Project, the Trip Generation Study of Coffee/Donut Shops in Western NY, and the Drive-Through Queue Generation study was utilized in the development of queuing estimates at the drive-through for the proposed Project. Table 3-4 provides a queue length summary considering Project inbound Trip Generation results presented in Table 3-1 above. It should be noted that the average number of vehicles expected to utilize the drive-through lane is based on the peak hour inbound trip generation. It is anticipated that some patrons will park and place/pick-up orders from the walk-up window. As a result, it was estimated that 85% of inbound trips generated by the Project (26) would utilize the drive-through. The average arrival rate at the Project drive-through was therefore assumed to be 30 vehicles per hour in the PM considering a peak hour factor (PHF) of 1.0. The average arrival rate was also determined considering a PHF of 0.95, 0.90, and 0.85.

For purposes of this analysis, the average service rate at the drive-through window was assumed to be 90 seconds per vehicle or 40 vehicles per hour (3600 seconds/hour / 90 seconds = 40 vehicles/hour). Empirical data from the queuing study prepared by Stantec Consulting Services Inc. for a proposed Starbucks in the City of Pomona (referenced in the Chick-Fil-A/Starbucks study) identifies a service rate of 40 seconds per vehicle. In addition, empirical data from the Trip Generation Study of Coffee/Donuts Shops in Western NY identifies a service rate of 30 seconds per vehicle.

The average vehicle queue during the PM peak hour can be estimated using the arrival and service rates as discussed above. Formulas were developed using the Stochastic Queuing Analysis method which defines Traffic Intensity as follows:

$$\rho = \frac{\lambda}{\mu}$$

Where ρ = traffic intensity, λ = mean arrival rate per hour, and μ = mean service rate per hour

The average vehicle queue in the drive-through lane is then calculated as follows:

$$E(n) = \rho / 1 - \rho$$

The resultant is then multiplied by 20, assuming one vehicle occupies approximately 20 feet. It should be noted that the start of the queue begins from the service window (not the ordering board) and extends backwards in the drive-through lane. Results of the queuing analysis indicate that the maximum queue is approximately 60 feet in length or approximately 3 vehicles assuming 20 feet per vehicle. The proposed site plan indicates that the Project drive-through can accommodate approximately 12 vehicles. As a result, the Project drive-through will not generate queuing that will impact adjacent parking areas and drive aisles. The Project will provide adequate vehicle storage which will accommodate patrons accessing the site and allow vehicles to maneuver throughout the parking lot without obstruction.

Table 3-2
Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		OPENING YEAR PLUS PROJECT (Alternative Driveway Layout)	
				DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Houston Avenue / Santa Fe Street / 3rd Avenue	Roundabout	D	AM	10.4	B	10.4	B	10.4	B
			PM	11.6	B	12.6	B	12.5	B
2. Houston Avenue / Project Driveway 1	One-Way Stop	D	AM			--	A	--	A
			PM			13.2	B	13.1	B
3. Santa Fe Street / Project Driveway 2	One-Way Stop	D	AM			--	A	--	A
			PM			10.7	B	10.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For roundabout controlled intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst movement.

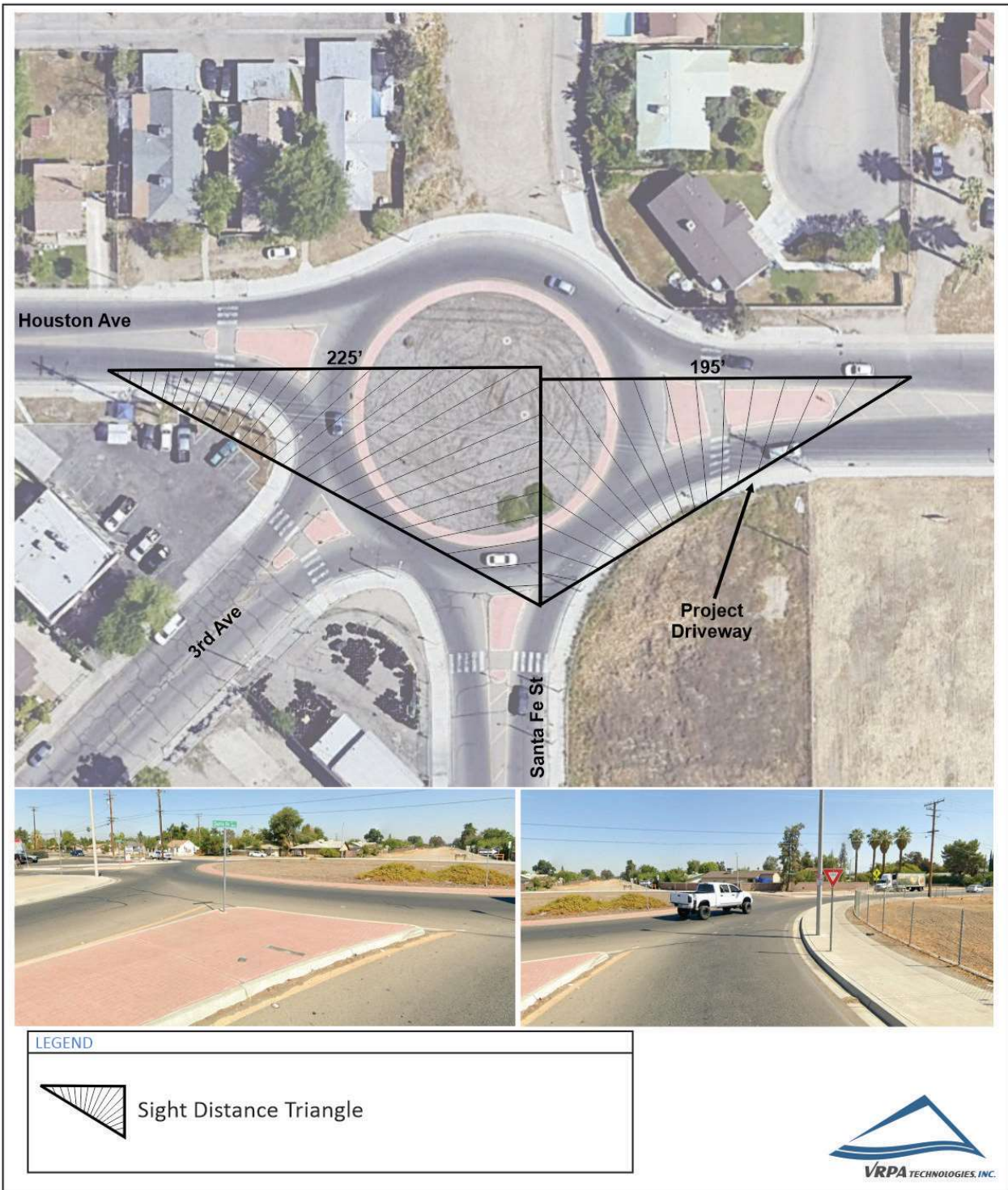
Table 3-3
Queuing Operations

INTERSECTION	INTERSECTION APPROACH	OPENING YEAR WITHOUT PROJECT		OPENING YEAR PLUS PROJECT		OPENING YEAR PLUS PROJECT (Alternative Driveway Layout)	
		AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue
Houston Avenue / Santa Fe Street / 3rd Avenue	NB Through	14	29	14	31	14	33
	EB Through	41	44	41	47	41	48
	WB Through	45	48	45	50	45	52
	NEB Through	5	11	5	11	5	12
Houston Avenue / Project Driveway 1	NB Right			0	10	0	10
Santa Fe Street / Project Driveway 2	WB Approach			0	15	0	15
	SB Left					0	19

Queue is measured in feet

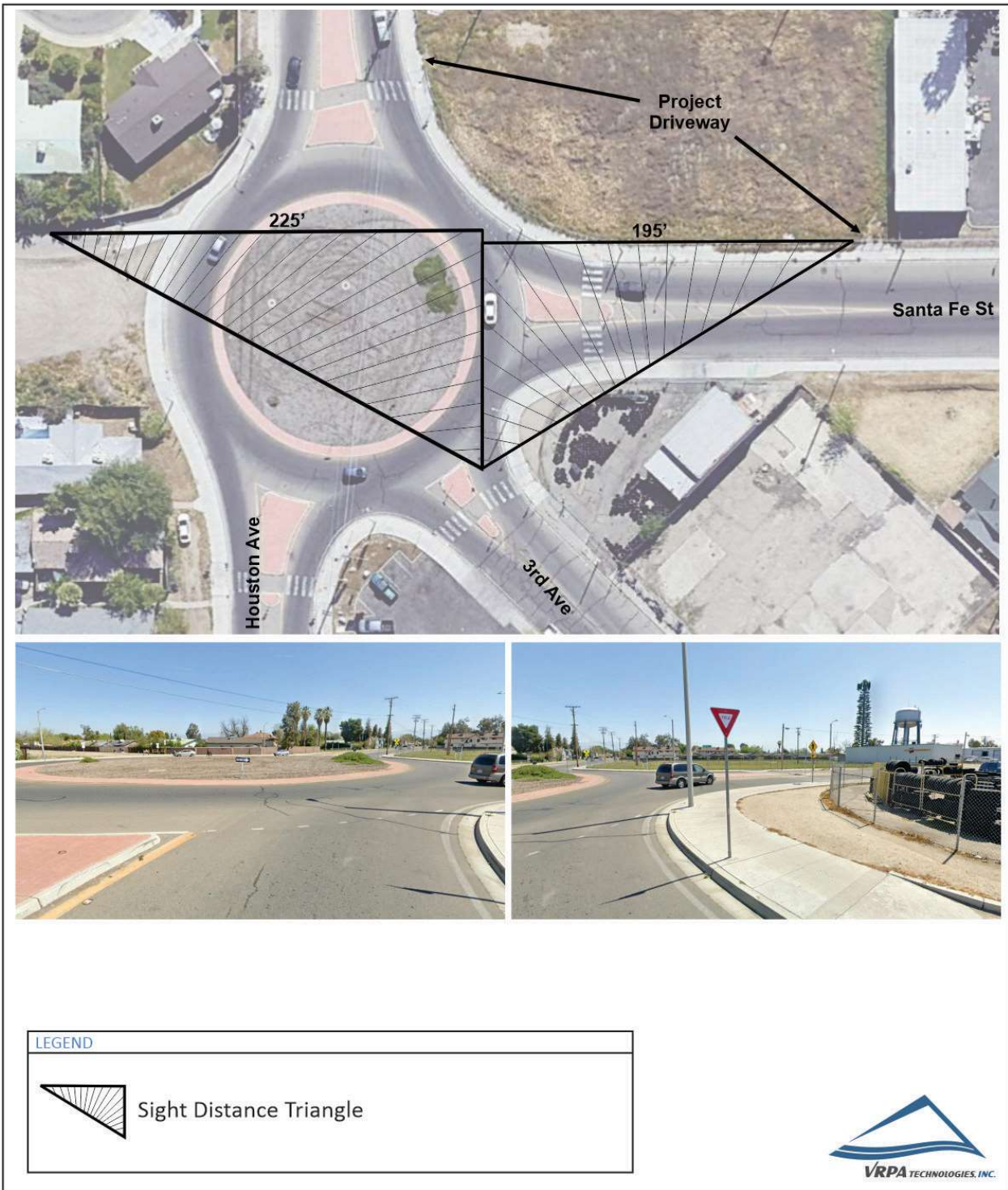
Lady's Chicken and Rice Development
Intersection Sight Distance Requirements

Figure
3-9a



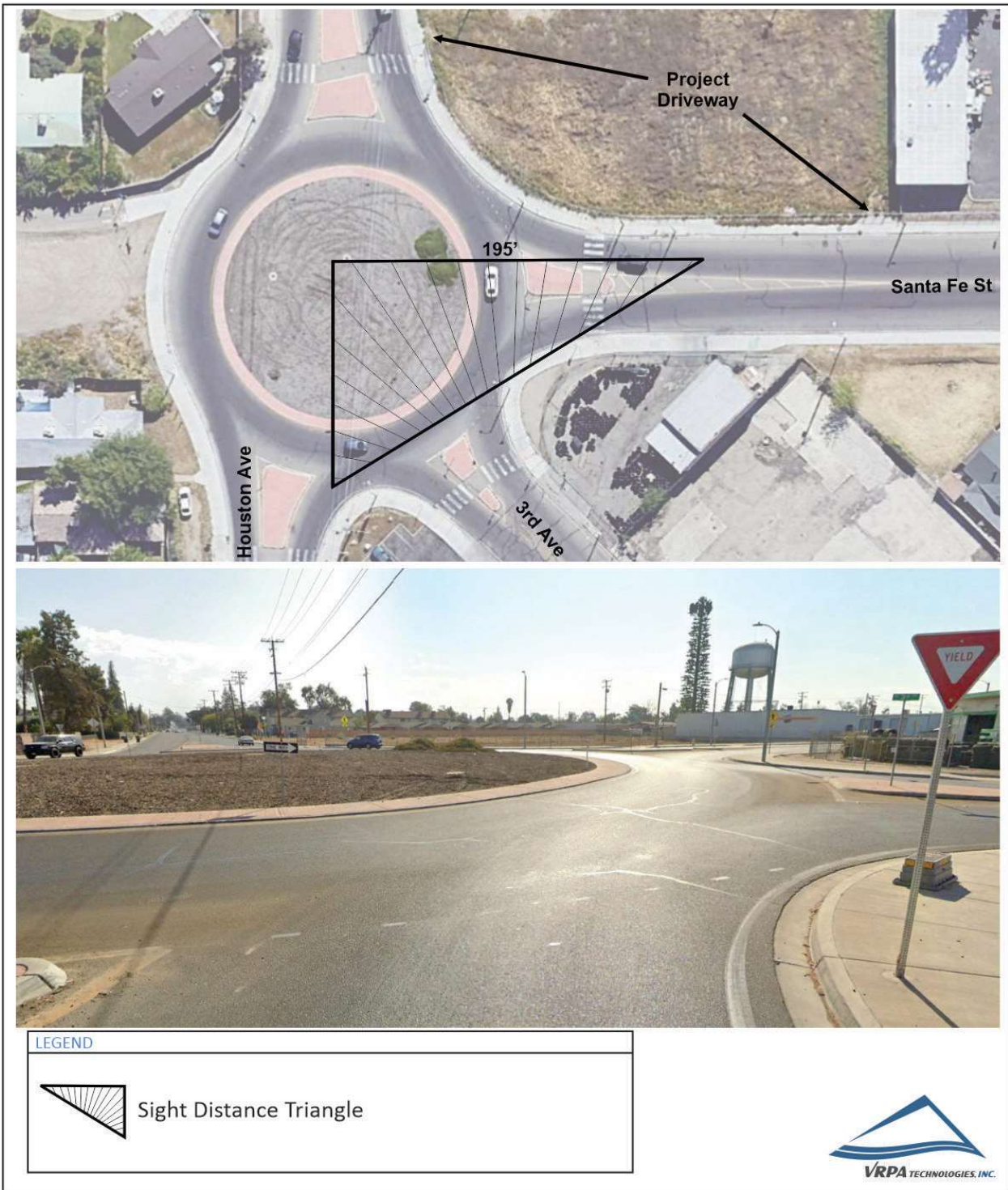
Lady's Chicken and Rice Development
Intersection Sight Distance Requirements

Figure
3-9b



Lady's Chicken and Rice Development
Intersection Sight Distance Requirements

Figure
3-9c



Lady's Chicken and Rice Development
Stopping Sight Distance

Figure
3-10

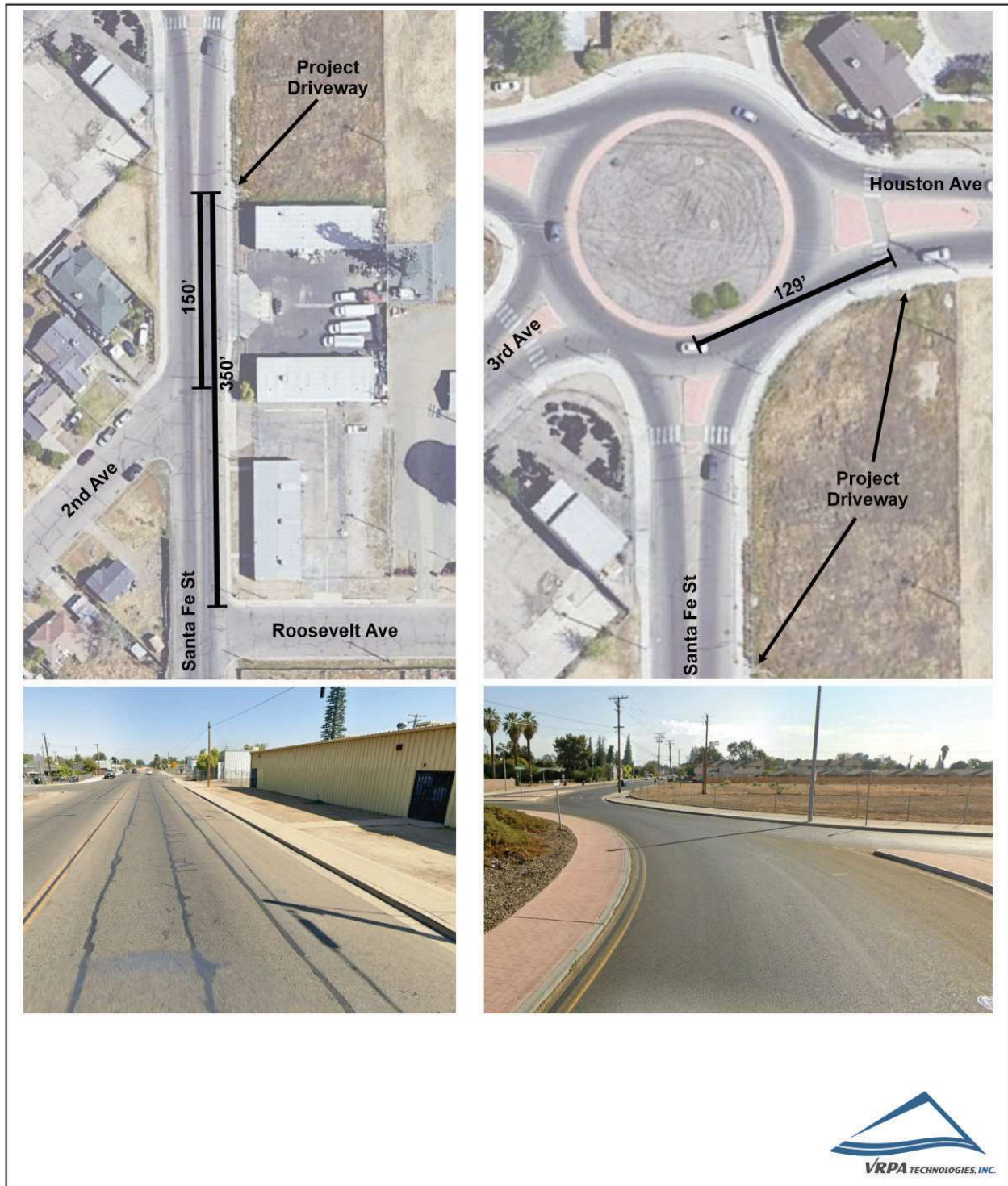


Table 3-4
Peak Hour Queuing at
Project Drive-Through

PEAK HOUR FACTOR	PM PEAK HOUR QUEUE
1.00	40 (2 veh.)
0.95	40 (2 veh.)
0.90	40 (2 veh.)
0.85	60 (3 veh.)

Queue is measured in feet

3.9 VMT Analysis

The VMT analysis was conducted according to the City of Visalia's VMT Thresholds and Implementation Guidelines (City of Visalia 2021). The first step in the process is to check whether the project would be screened out of requiring a VMT analysis. In this case, the proposed Lady's Chicken and Rice restaurant is a local-serving retail project which would be screened out of requiring a VMT analysis because local-serving retail projects tend to reduce VMT levels. Therefore, the project has a less than significant VMT impact and no VMT mitigation measures are needed.

DRAFT

Lady's Chicken and Rice Development

Traffic Impact Study - Appendix
January 27, 2023

Prepared by:

VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722



APPENDIX A

Traffic Count Data Worksheets

National Data & Surveying Services Intersection Turning Movement Count

Location: N Santa Fe St/NE 3rd Ave & E Houston Ave
 City: Visalia
 Control: 3-Way Yield(NB/EB/WB)

Project ID: 22-100035-001
 Date: 9/20/2022

Data - Totals

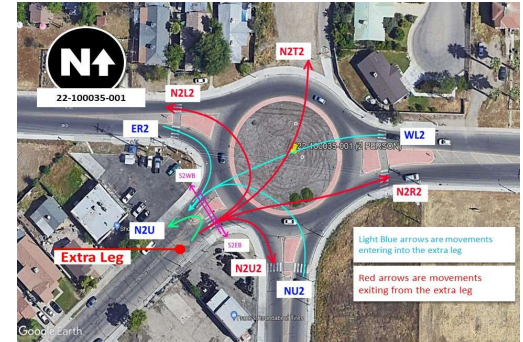
NS/EW Streets:	N Santa Fe St/NE 3rd Ave					N Santa Fe St/NE 3rd Ave					E Houston Ave					E Houston Ave					TOTAL					
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND										
AM	NL	NT	NR	NU	NU2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2U	N2L	N2T	N2R	N2U2	TOTAL
7:00 AM	18	0	7	0	0	0	0	0	0	0	0	39	24	0	3	11	39	0	0	15	0	0	0	6	0	162
7:15 AM	20	0	10	0	0	0	0	0	0	0	0	49	33	0	0	19	46	0	0	20	0	2	0	11	1	211
7:30 AM	19	0	15	0	0	0	0	0	0	0	0	65	41	0	1	16	72	0	0	24	0	1	0	5	2	261
7:45 AM	28	0	16	0	0	0	0	0	0	0	0	74	55	0	2	33	102	0	2	37	0	0	0	19	1	369
8:00 AM	26	0	17	1	0	0	0	0	0	0	0	92	50	1	5	27	97	0	1	34	0	2	0	16	1	370
8:15 AM	25	0	29	0	0	0	0	0	0	0	0	72	40	0	5	17	96	0	0	26	0	13	0	15	0	338
8:30 AM	30	0	16	0	1	0	0	0	0	0	0	40	38	0	0	17	66	0	0	17	0	14	0	10	2	251
8:45 AM	17	0	22	1	0	0	0	0	0	0	0	54	29	0	6	22	56	0	1	14	0	3	0	14	1	240
TOTAL VOLUMES :	NL	NT	NR	NU	NU2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2U	N2L	N2T	N2R	N2U2	TOTAL
APPROACH %s :	57.55%	0.00%	41.51%	0.63%	0.31%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	48.5	31.0	1.22	2.69%	17.48%	61.92%	0.00%	0.43%	20.17%	0.00%	25.18%	0.00%	69.06%	5.76%	2202
PEAK HR :	07:30 AM - 08:30 AM					0	0	0	0	0	0	303	186	1	13	93	367	0	3	121	0	16	0	55	4	1338
PEAK HR VOL :	98	0	77	1	0	0	0	0	0	0	0	0.823	0.845	0.250	0.650	0.705	0.900	0.000	0.375	0.818	0.000	0.308	0.000	0.724	0.500	1469
PEAK HR FACTOR :	0.875	0.000	0.664	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.850				0.839										0.885

NS/EW Streets:	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					TOTAL					
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2		N2U	N2L	N2T	N2R	N2U2
4:00 PM	50	0	19	0	0	0	0	0	0	0	0	71	37	0	7	25	94	0	2	25	0	9	0	24	2	365
4:15 PM	29	0	41	0	0	0	0	0	0	0	0	78	34	0	4	8	99	0	0	23	0	5	0	23	3	347
4:30 PM	50	0	31	0	1	0	0	0	0	0	0	75	34	0	3	9	106	0	0	12	1	9	0	15	2	348
4:45 PM	41	0	33	0	0	0	0	0	0	0	0	77	31	0	8	13	100	0	1	17	0	9	0	23	0	353
5:00 PM	49	0	31	0	0	0	0	0	0	0	0	105	42	0	4	14	106	0	1	15	0	5	0	39	2	415
5:15 PM	48	0	38	0	0	0	0	0	0	0	0	77	28	0	3	10	106	0	0	15	0	5	0	22	1	353
5:30 PM	31	0	35	1	0	0	0	0	0	0	0	90	33	1	3	19	83	0	1	19	0	5	0	24	3	347
5:45 PM	30	0	26	0	0	0	0	0	0	0	0	86	27	1	6	16	98	0	0	27	0	2	0	21	3	343
TOTAL VOLUMES :	NL	NT	NR	NU	NU2	SL	ST	SR	SU	SU2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2U	N2L	N2T	N2R	N2U2	TOTAL
APPROACH %s :	56.16%	0.00%	43.49%	0.17%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	68.36%	27.59%	0.10%	3.94%	10.69%	74.48%	0.00%	0.47%	14.35%	0.39%	19.07%	0.00%	74.32%	6.23%	2871
PEAK HR :	04:30 PM - 05:30 PM					0	0	0	0	0	0	334	135	0	18	46	420	0	2	59	1	28	0	99	5	1469
PEAK HR VOL :	0.940	0.000	0.875	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.795	0.804	0.000	0.563	0.821	0.972	0.000	0.500	0.868	0.250	0.778	0.000	0.635	0.625	0.885
PEAK HR FACTOR :			0.936										0.806					0.955								

Explanation for extra leg movements

Movements entering the extra leg
 WL2 Movements coming from WB on E Houston Ave entering into the Extra Leg (NE 3rd Ave)
 NU2 Movements coming from NB on N Santa Fe St entering into the Extra Leg (NE 3rd Ave)
 ER2 Movements coming from EB on E Houston Ave entering into the Extra Leg (NE 3rd Ave)

Movements exiting the extra leg
 N2T2 Movements exiting from Extra Leg (NE 3rd Ave) entering into N Santa Fe St heading NB
 N2R2 Movements exiting from Extra Leg (NE 3rd Ave) entering into E Houston Ave heading EB
 N2L2 Movements exiting from Extra Leg (NE 3rd Ave) entering into E Houston Ave heading WB
 N2U2 Movements exiting from Extra Leg (NE 3rd Ave) entering into N Santa Fe St heading SB



APPENDIX B

Synchro Worksheets

EXISTING CONDITIONS

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

10/22/2022

Intersection				
Intersection Delay, s/veh	9.2			
Intersection LOS	A			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	559	649	196	84
Demand Flow Rate, veh/h	576	668	202	87
Vehicles Circulating, veh/h	248	132	435	576
Vehicles Exiting, veh/h	552	505	228	248
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	9.6	6.6	6.1
Approach LOS	B	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	576	668	202	87
Cap Entry Lane, veh/h	1071	1206	885	767
Entry HV Adj Factor	0.970	0.971	0.970	0.966
Flow Entry, veh/h	559	649	196	84
Cap Entry, veh/h	1040	1171	859	740
V/C Ratio	0.538	0.554	0.228	0.113
Control Delay, s/veh	10.1	9.6	6.6	6.1
LOS	B	A	A	A
95th %tile Queue, veh	3	4	1	0

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

10/22/2022

Intersection				
Intersection Delay, s/veh	9.6			
Intersection LOS	A			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	547	592	361	150
Demand Flow Rate, veh/h	563	610	371	155
Vehicles Circulating, veh/h	124	252	541	563
Vehicles Exiting, veh/h	738	660	177	124
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.0	10.9	11.0	7.0
Approach LOS	A	B	B	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	563	610	371	155
Cap Entry Lane, veh/h	1216	1067	795	777
Entry HV Adj Factor	0.971	0.970	0.973	0.968
Flow Entry, veh/h	547	592	361	150
Cap Entry, veh/h	1181	1035	773	752
V/C Ratio	0.463	0.572	0.467	0.199
Control Delay, s/veh	8.0	10.9	11.0	7.0
LOS	A	B	B	A
95th %tile Queue, veh	3	4	3	1

OPENING YEAR CONDITIONS

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

10/23/2022

Intersection				
Intersection Delay, s/veh	10.4			
Intersection LOS	B			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	626	687	214	85
Demand Flow Rate, veh/h	644	707	221	88
Vehicles Circulating, veh/h	253	149	481	644
Vehicles Exiting, veh/h	603	553	251	253
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.7	10.6	7.3	6.6
Approach LOS	B	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	644	707	221	88
Cap Entry Lane, veh/h	1066	1185	845	715
Entry HV Adj Factor	0.971	0.971	0.968	0.966
Flow Entry, veh/h	626	687	214	85
Cap Entry, veh/h	1035	1151	818	691
V/C Ratio	0.604	0.596	0.262	0.123
Control Delay, s/veh	11.7	10.6	7.3	6.6
LOS	B	B	A	A
95th %tile Queue, veh	4	4	1	0

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

10/23/2022

Intersection				
Intersection Delay, s/veh	11.6			
Intersection LOS	B			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	614	665	401	153
Demand Flow Rate, veh/h	633	685	413	158
Vehicles Circulating, veh/h	127	290	591	633
Vehicles Exiting, veh/h	848	714	200	127
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.0	13.9	13.4	7.7
Approach LOS	A	B	B	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	633	685	413	158
Cap Entry Lane, veh/h	1212	1027	755	724
Entry HV Adj Factor	0.971	0.970	0.971	0.968
Flow Entry, veh/h	614	665	401	153
Cap Entry, veh/h	1177	996	733	701
V/C Ratio	0.522	0.667	0.547	0.218
Control Delay, s/veh	9.0	13.9	13.4	7.7
LOS	A	B	B	A
95th %tile Queue, veh	3	5	3	1

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

10/23/2022

Intersection				
Intersection Delay, s/veh	10.4			
Intersection LOS	B			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	626	687	214	85
Demand Flow Rate, veh/h	644	707	221	88
Vehicles Circulating, veh/h	253	149	481	644
Vehicles Exiting, veh/h	603	553	251	253
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.7	10.6	7.3	6.6
Approach LOS	B	B	A	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	644	707	221	88
Cap Entry Lane, veh/h	1066	1185	845	715
Entry HV Adj Factor	0.971	0.971	0.968	0.966
Flow Entry, veh/h	626	687	214	85
Cap Entry, veh/h	1035	1151	818	691
V/C Ratio	0.604	0.596	0.262	0.123
Control Delay, s/veh	11.7	10.6	7.3	6.6
LOS	B	B	A	A
95th %tile Queue, veh	4	4	1	0

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

01/14/2023

Intersection				
Intersection Delay, s/veh	12.6			
Intersection LOS	B			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	627	679	422	153
Demand Flow Rate, veh/h	646	699	435	158
Vehicles Circulating, veh/h	149	312	604	646
Vehicles Exiting, veh/h	862	727	200	149
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.5	15.2	14.6	7.8
Approach LOS	A	C	B	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	646	699	435	158
Cap Entry Lane, veh/h	1185	1004	745	714
Entry HV Adj Factor	0.971	0.971	0.970	0.968
Flow Entry, veh/h	627	679	422	153
Cap Entry, veh/h	1150	975	723	691
V/C Ratio	0.545	0.696	0.584	0.221
Control Delay, s/veh	9.5	15.2	14.6	7.8
LOS	A	C	B	A
95th %tile Queue, veh	3	6	4	1

HCM 6th TWSC
6: Santa Fe Street & Project Dwy 2

01/14/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↖			↗
Traffic Vol, veh/h	0	18	357	7	0	199
Future Vol, veh/h	0	18	357	7	0	199
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	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	20	388	8	0	216

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	392	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	-
Pot Cap-1 Maneuver	0	655	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	655	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	655
HCM Lane V/C Ratio	-	-	0.03
HCM Control Delay (s)	-	-	10.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

HCM 6th TWSC
8: Project Dwy 1 & Houston Avenue

01/14/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↑		↗
Traffic Vol, veh/h	611	23	0	604	0	12
Future Vol, veh/h	611	23	0	604	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	664	25	0	657	0	13

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	677
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.327
Pot Cap-1 Maneuver	-	-	0	-	451
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	451
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	451	-	-	-
HCM Lane V/C Ratio	0.029	-	-	-
HCM Control Delay (s)	13.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

HCM 6th Roundabout
 3: 3rd Avenue & Santa Fe Street & Houston Avenue

01/14/2023

Intersection				
Intersection Delay, s/veh	12.5			
Intersection LOS	B			
Approach	EB	WB	NB	NE
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	627	679	422	153
Demand Flow Rate, veh/h	646	699	435	158
Vehicles Circulating, veh/h	149	312	591	646
Vehicles Exiting, veh/h	862	714	213	149
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.5	15.2	14.3	7.8
Approach LOS	A	C	B	A
Lane	Left	Left	Left	Left
Designated Moves	TR	LT	LR	LR
Assumed Moves	TR	LT	LR	LR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	646	699	435	158
Cap Entry Lane, veh/h	1185	1004	755	714
Entry HV Adj Factor	0.971	0.971	0.970	0.968
Flow Entry, veh/h	627	679	422	153
Cap Entry, veh/h	1151	975	732	691
V/C Ratio	0.545	0.696	0.576	0.221
Control Delay, s/veh	9.5	15.2	14.3	7.8
LOS	A	C	B	A
95th %tile Queue, veh	3	6	4	1

HCM 6th TWSC
6: Santa Fe Street & Project Dwy 2

01/14/2023

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↖		↗	↖
Traffic Vol, veh/h	0	18	357	7	23	199
Future Vol, veh/h	0	18	357	7	23	199
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	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	20	388	8	25	216

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	392	0	0	396
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.23	-	-	4.13
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.327	-	-	2.227
Pot Cap-1 Maneuver	0	655	-	-	1157
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	655	-	-	1157
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	655	1157
HCM Lane V/C Ratio	-	-	0.03	0.022
HCM Control Delay (s)	-	-	10.7	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

HCM 6th TWSC
8: Project Dwy 1 & Houston Avenue

01/14/2023

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Vol, veh/h	611	0	0	604	0	12
Future Vol, veh/h	611	0	0	604	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	664	0	0	657	0	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	0	0
Stage 1	-	0	0
Stage 2	-	0	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	459	-	-
HCM Lane V/C Ratio	0.028	-	-
HCM Control Delay (s)	13.1	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

APPENDIX C

**U.S. Department of Transportation Federal Highway Administration's (FHWA)
Roundabouts: An Informational Guide (Section 4 – Operations), dated June 2000**

4

Operation

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Chapter 4 Operation

This chapter presents methods for analyzing the operation of an existing or planned roundabout. The methods allow a transportation analyst to assess the operational performance of a facility, given information about the usage of the facility and its geometric design elements. An operational analysis produces two kinds of estimates: (1) the capacity of a facility, i.e., the ability of the facility to accommodate various streams of users, and (2) the level of performance, often measured in terms of one or more measures of effectiveness, such as delay and queues.

The *Highway Capacity Manual* (1) (HCM) defines the *capacity* of a facility as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” While capacity is a specific measure that can be defined and estimated, *level of service* (LOS) is a qualitative measure that “characterizes operational conditions within a traffic stream and their perception by motorists and passengers.” To quantify level of service, the HCM defines specific *measures of effectiveness* for each highway facility type. *Control delay* is the measure of effectiveness that is used to define level of service at intersections, as perceived by users. In addition to control delay, all intersections cause some drivers to also incur *geometric delays* when making turns. A systems analysis of a roadway network may include geometric delay because of the slower vehicle paths required for turning through intersections. An example speed profile is shown in Chapter 6 to demonstrate the speed reduction that results from geometric delay at a roundabout.

Roundabouts produce both control delay and geometric delay.

While an operational analysis can be used to evaluate the performance of an existing roundabout during a base or future year, its more common function in the U.S. may be to evaluate new roundabout designs.

This chapter:

- Describes traffic operations at roundabouts;
- Lists the data required to evaluate the performance of a roundabout;
- Presents a method to estimate the capacity of five of the six basic roundabout configurations presented in this guide;
- Describes the measures of effectiveness used to determine the performance of a roundabout and a method to estimate these measures; and
- Briefly describes the computer software packages available to implement the capacity and performance analysis procedures.

Appendix A provides background information on the various capacity relationships.

4.1 Traffic Operation at Roundabouts

4.1.1 Driver behavior and geometric elements

A roundabout brings together conflicting traffic streams, allows the streams to safely merge and traverse the roundabout, and exit the streams to their desired directions. The geometric elements of the roundabout provide guidance to drivers approaching, entering, and traveling through a roundabout.

Drivers approaching a roundabout must slow to a speed that will allow them to safely interact with other users of the roundabout, and to negotiate the roundabout. The width of the approach roadway, the curvature of the roadway, and the volume of traffic present on the approach govern this speed. As drivers approach the yield line, they must check for conflicting vehicles already on the circulating roadway and determine when it is safe and prudent to enter the circulating stream. The widths of the approach roadway and entry determine the number of vehicle streams that may form side by side at the yield line and govern the rate at which vehicles may enter the circulating roadway. The size of the inscribed circle affects the radius of the driver's path, which in turn determines the speed at which drivers travel on the roundabout. The width of the circulatory roadway determines the number of vehicles that may travel side by side on the roundabout.

Approach speed is governed by:

- **Approach roadway width**
- **Roadway curvature**
- **Approach volume**

The British (2), French (3), and German (4) analytical procedures are based on empirical relationships that directly relate capacity to both traffic characteristics and roundabout geometry. The British empirical relationships reveal that small sublane changes in the geometric parameters produce significant changes in capacity.

For instance, if some approaches are flared or have additional short lanes, these provide considerably more capacity for two reasons. First, wider entries require wider circulatory roadway widths. This provides for more opportunities for the circulatory traffic to bunch together, thus increasing the number of acceptable opportunities to enter, thereby increasing capacity. Second, the typical size of groups of drivers entering into acceptable opportunities in the circulatory traffic is quite small, so short lanes can be very effective in increasing group sizes, because the short lane is frequently able to be filled.

The British (2) use the inscribed circle diameter, the entry width, the approach (road) half width, the entry radius, and the sharpness of the flare to define the performance of a roundabout. The sharpness of the flare, S , is a measure of the rate at which the extra width is developed in the entry flare. Large values of S correspond to short, severe flares, and small values of S correspond to long, gradual flares (5).

Geometric elements that affect entry capacity include:

- **Approach half width**
 - **Entry width**
 - **Entry angle**
- **Average effective flare length**

The results of the extensive empirical British research indicate that approach half width, entry width, average effective flare length and entry angle have the most significant effect on entry capacity. Roundabouts fit into two general classes: those with a small inscribed circle diameter of less than 50 m (165 ft.) and those with a diameter above 50 m. The British relationships provide a means of including both of these roundabout types. The inscribed circle diameter has a relatively small effect for inscribed diameters of 50 m (165 ft) or less. The entry radius has little effect on capacity provided that it is 20 m (65 ft) or more. The use of perpendicular entries (70

degrees or more) and small entry radii (less than 15 m [50 ft]) will reduce capacity. The presence of the geometric parameters in the British and French models allow designers to manipulate elements of their design to determine both their operational and safety effects. German research has not been able to find the same influence of geometry, although this may be due to the relatively narrow range of geometries in Germany (4).

Thus, the geometric elements of a roundabout, together with the volume of traffic desiring to use a roundabout at a given time, may determine the efficiency with which a roundabout operates.

4.1.2 Concept of roundabout capacity

The capacity of each entry to a roundabout is the maximum rate at which vehicles can reasonably be expected to enter the roundabout from an approach during a given time period under prevailing traffic and roadway (geometric) conditions. An operational analysis considers a precise set of geometric conditions and traffic flow rates defined for a 15-minute analysis period for each roundabout entry. While consideration of Average Annual Daily Traffic volumes (AADT) across all approaches is useful for planning purposes as provided in Exhibit 1-13 and Chapter 3, analysis of this shorter time period is critical to assessing the level of performance of the roundabout and its individual components.

The capacity of the entire roundabout is not considered, as it depends on many terms. However, Exhibit 1-13 provides threshold average daily traffic volumes for the various categories of roundabouts, assuming four legs. Below these thresholds, a four-legged roundabout with roadways intersecting perpendicularly should have adequate capacity (provided the traffic volumes are reasonably balanced and the geometry does not deviate substantially from those shown on the design templates in Exhibits 1-7 through 1-12). The focus in this chapter on the roundabout entry is similar to the operational analysis methods used for other forms of unsignalized intersections and for signalized intersections. In each case, the capacity of the entry or approach is computed as a function of traffic on the other (conflicting) approaches, the interaction of these traffic streams, and the intersection geometry.

For a properly designed roundabout, the yield line is the relevant point for capacity analysis. The approach capacity is the capacity provided at the yield line. This is determined by a number of geometric parameters in addition to the entry width. On multilane roundabouts it is important to balance the use of each lane, because otherwise some lanes may be overloaded while others are underused. Poorly designed exits may influence driver behavior and cause lane imbalance and congestion at the opposite leg.

4.2 Data Requirements

The analysis method described in this chapter requires the specification of traffic volumes for each approach to the roundabout, including the flow rate for each directional movement. Volumes are typically expressed in passenger car vehicles per hour (vph), for a specified 15-minute analysis period. To convert other vehicle types to *passenger car equivalents* (pce), use the conversion factors given in Exhibit 4-1.

Perpendicular entries and small entry radii reduce capacity; inscribed circle diameters of 50 m (165 ft) or less have little effect on capacity.

Roundabout capacity defined.

Operational analyses consider 15-minute volumes, as opposed to the daily volumes used in planning analyses.

The approach capacity is the capacity provided at the yield line.

Different size vehicles have different capacity impacts; passenger cars are used as the basis for comparison.

Exhibit 4-1. Conversion factors for passenger car equivalents (pce).

Vehicle Type	Passenger Car Equivalent (pce)
Car	1.0
Single-unit truck or bus	1.5
Truck with trailer	2.0
Bicycle or motorcycle	0.5

Source: (6), (7)

Traffic volume data for an urban roundabout should be collected for each directional movement for at least the morning and evening peak periods, since the various movements, and thus approach and circulating volumes, may peak at different times. At rural roundabouts, the analyst should check the requirements of the agency with the jurisdiction of the site. The reader is referred to the *Manual of Transportation Engineering Studies* (8) for a complete discussion of traffic volume data collection methods. Typically, intersection volume counts are made at the intersection stop bar, with an observer noting the number of cars that pass that point over a specified time period. However, particularly with respect to cases in which demand exceeds capacity (when queues do not dissipate within the analysis period), it is important to note that the stop bar counts reflect only the volume that is served, not the demand volume. In this case, care must be taken to collect data upstream of the end of a queue so that true demand volumes are available for analysis.

Entry flow and circulating flow for each approach are the volumes of interest for roundabout capacity analysis, rather than turning movement volumes.

The relationship between the standard origin-to-destination turning movements at an intersection and the circulating and entry flows at a roundabout is important, yet is often complicated to compute, particularly if an intersection has more than four approaches. For conventional intersections, traffic flow data are accumulated by directional turning movement, such as for the northbound left turn. For roundabouts, however, the data of interest for each approach are the entry flow and the circulating flow. Entry flow is simply the sum of the through, left, and right turn movements on an approach. Circulating flow is the sum of the vehicles from different movements passing in front of the adjacent upstream splitter island. At existing roundabouts, these flows can simply be measured in the field. Right turns are included in approach volumes and require capacity, but are not included in the circulating volumes downstream because they exit before the next entrance.

For proposed or planned four-legged roundabouts, Equations 4-1 through 4-4 can be applied to determine conflicting (circulating) flow rates, as shown graphically in Exhibit 4-2.

Determining circulating volumes as a function of turning movement volumes.

$$V_{EB,circ} = V_{WB,LT} + V_{SB,LT} + V_{SB,TH} + V_{NB,U-turn} + V_{WB,U-turn} + V_{SB,U-turn} \quad (4-1)$$

$$V_{WB,circ} = V_{EB,LT} + V_{NB,LT} + V_{NB,TH} + V_{SB,U-turn} + V_{EB,U-turn} + V_{NB,U-turn} \quad (4-2)$$

$$V_{NB,circ} = V_{EB,LT} + V_{EB,TH} + V_{SB,LT} + V_{WB,U-turn} + V_{SB,U-turn} + V_{EB,U-turn} \quad (4-3)$$

$$V_{SB,circ} = V_{WB,LT} + V_{WB,TH} + V_{NB,LT} + V_{EB,U-turn} + V_{NB,U-turn} + V_{WB,U-turn} \quad (4-4)$$

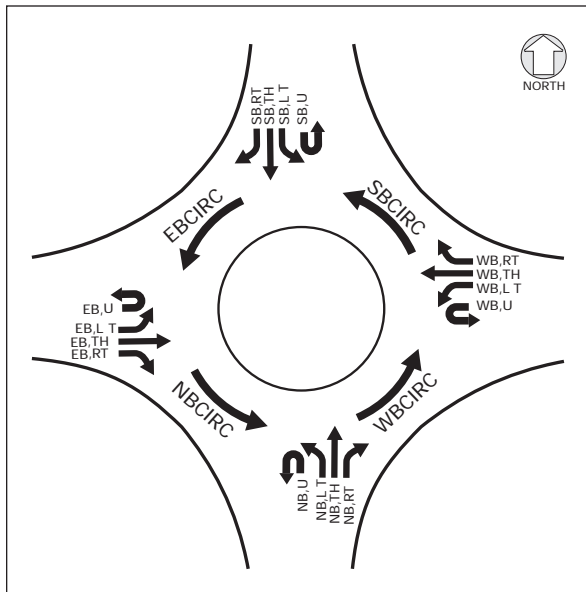


Exhibit 4-2. Traffic flow parameters.

For existing roundabouts, when approach, right-turn, circulating, and exit flows are counted, directional turning movements can be computed as shown in the following example. Equation 4-5 shows the through movement flow rate for the eastbound approach as a function of the entry flow rate for that approach, the exit flow rate for the opposing approach, the right turn flow rate for the subject approach, the right turn flow rate for the approach on the right, and the circulating flow rate for the approach on the right. Other through movement flow rates can be estimated using a similar relationship.

$$V_{EB,TH} = V_{EB,entry} + V_{WB,exit} - V_{EB,RT} - V_{NB,RT} - V_{NB,circ} \quad (4-5)$$

The left turn flow rate for an approach is a function of the entry flow rate, the through flow rate, and the right turn flow rate for that same approach, as shown in Equation 4-6. Again, other movements' flows are estimated using similar equations.

$$V_{EB,LT} = V_{EB,entry} - V_{EB,TH} - V_{EB,RT} \quad (4-6)$$

While this method is mathematically correct, it is somewhat sensitive to errors and inconsistencies in the input data. It is important that the counts at all of the locations in the roundabout be made simultaneously. Inconsistencies in the data from counts taken on different days can produce meaningless results, including negative volumes. At a minimum, the sum of the entering and exiting volumes should be checked and adjustments should be made if necessary to ensure that the same amount of traffic enters and leaves the roundabout.

Roundabout approach capacity is dependent on the conflicting circulating flow and the roundabout's geometric elements.

Roundabouts should be designed to operate at no more than 85 percent of their estimated capacity. Beyond this threshold, delays and queues vary significantly from their mean values.

4.3 Capacity

The maximum flow rate that can be accommodated at a roundabout entry depends on two factors: the circulating flow on the roundabout that conflicts with the entry flow, and the geometric elements of the roundabout.

When the circulating flow is low, drivers at the entry are able to enter the roundabout without significant delay. The larger gaps in the circulating flow are more useful to the entering drivers and more than one vehicle may enter each gap. As the circulating flow increases, the size of the gaps in the circulating flow decrease, and the rate at which vehicles can enter also decreases. Note that when computing the capacity of a particular leg, the actual circulating flow to use may be less than demand flows, if the entry capacity of one leg contributing to the circulating flow is less than demand on that leg.

The geometric elements of the roundabout also affect the rate of entry flow. The most important geometric element is the width of the entry and circulatory roadways, or the number of lanes at the entry and on the roundabout. Two entry lanes permit nearly twice the rate of entry flow as does one lane. Wider circulatory roadways allow vehicles to travel alongside, or follow, each other in tighter bunches and so provide longer gaps between bunches of vehicles. The flare length also affects the capacity. The inscribed circle diameter and the entry angle have minor effects on capacity.

As at other forms of unsignalized intersection, when traffic flows on an approach exceed approximately 85 percent of capacity, delays and queue lengths vary significantly about their mean values (with standard deviations of similar magnitude as the means). For this reason, the analysis procedures in some countries (Australia, Germany, and the United Kingdom), and this guide, recommend that roundabouts be designed to operate at no more than 85 percent of their estimated capacity.

As performance data become available for roundabouts designed according to the procedures in this guide in the United States, they will provide a basis for development of operational performance procedures specifically calibrated for U.S. conditions. Therefore, analysts should consult future editions of the *Highway Capacity Manual*.

4.3.1 Single-lane roundabout capacity

Exhibit 4-3 shows the expected capacity for a single-lane roundabout for both the urban compact and urban/rural single-lane designs. The exhibit shows the variation of maximum entry flow as a function of the circulating flow on the roundabout. The calculation of the circulating flow was described previously. The capacity forecast shown in the chart is valid for single-lane roundabouts with inscribed circle diameters of 25 m to 55 m (80 ft to 180 ft). The capacity forecast is based on simplified British regression relationships in Appendix A, which may also be derived with a gap-acceptance model by incorporating limited priority behavior.

Note that in any case, the flow rate downstream of the merge point (between the entry and the next exit) should not be allowed to exceed 1,800 veh/h. Exceeding this threshold may indicate the need for a double-lane entry.

The urban compact design is expected to have a reduced capacity, but has significant benefits of reduced vehicle speeds through the roundabout (per the German equations in Appendix A). This increases safety for pedestrians and bicyclists compared with the larger single lane roundabouts. Mini-roundabout capacities may be approximated using the daily maximum service volumes provided for them in Chapter 3, but in any case should not exceed the capacity of the urban compact design.

Circulating flow should not exceed 1,800 veh/h at any point in a single-lane roundabout. Exit flows exceeding 1,200 veh/h may indicate the need for a double-lane exit.

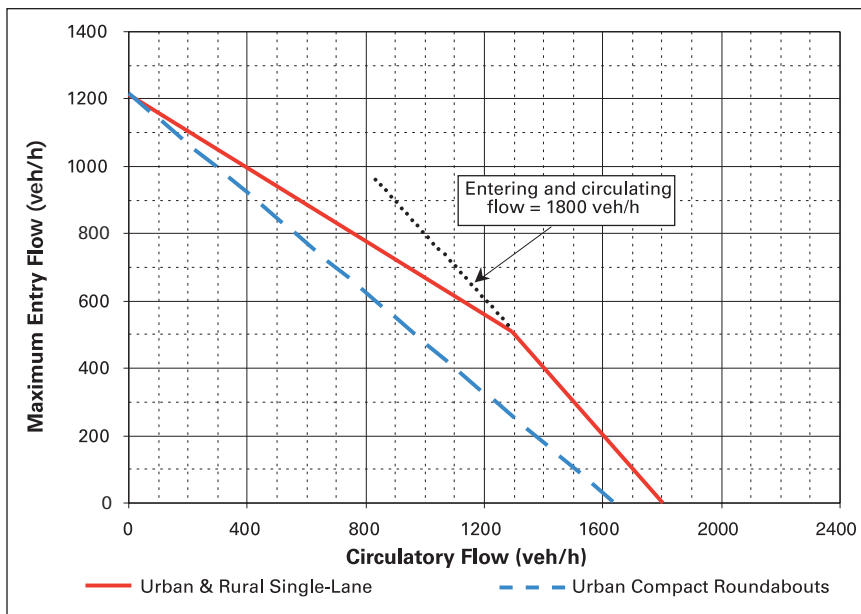


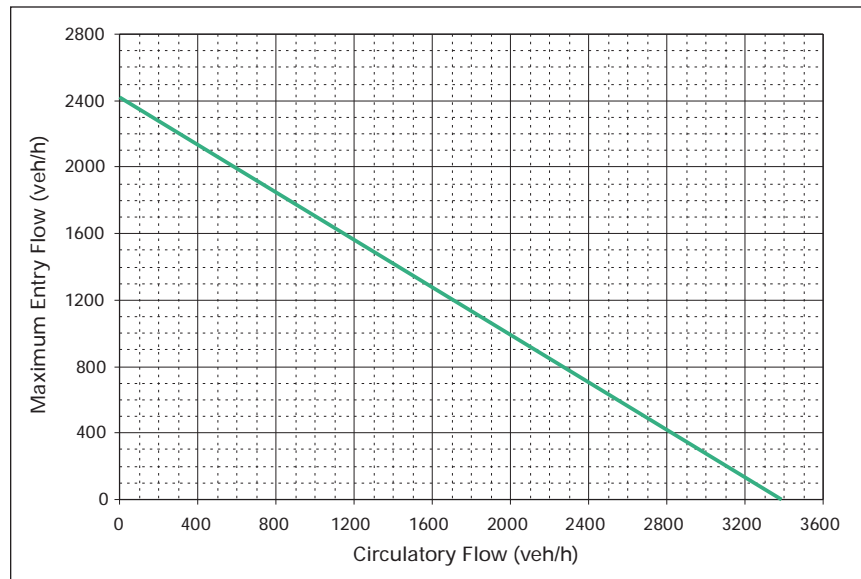
Exhibit 4-3. Approach capacity of a single-lane roundabout.

The slope of the upper line changes because circulating flow downstream from a roundabout entry should not exceed 1,800 veh/h.

4.3.2 Double-lane roundabout capacity

Exhibit 4-4 shows the expected capacity of a double-lane roundabout that is based on the design templates for the urban/rural double-lane roundabouts. The capacity forecast shown in the chart is valid for double-lane roundabouts with inscribed circle diameters of 40 m to 60 m (130 ft to 200 ft). The capacity forecast is based on simplified British regression relationships in Appendix A, which may also be derived with a gap-acceptance model by incorporating limited priority behavior. Larger inscribed diameter roundabouts are expected to have slightly higher capacities at moderate to high circulating flows.

Exhibit 4-4. Approach capacity of a double-lane roundabout.



When flared approaches are used, the circulatory road width must be widened.

See Appendix A for further information on the effects of short lanes at flared entries.

4.3.3 Capacity effect of short lanes at flared entries

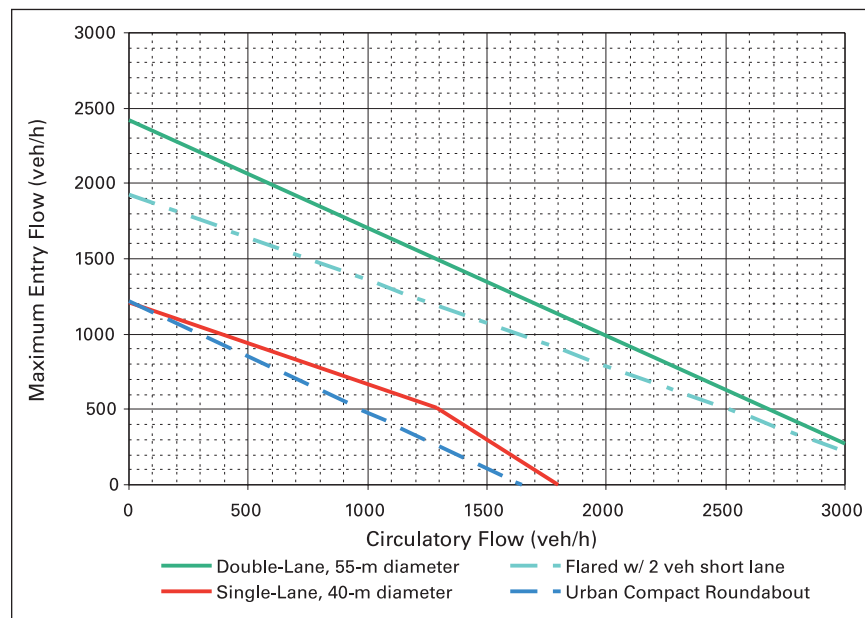
By flaring an approach, short lanes may be added at the entry to improve the performance. If an additional short lane is used, it is assumed that the circulatory road width is also increased accordingly. The capacity of the entry is based on the assumption that all entry lanes will be effectively used. The capacity is given by the product of the appropriate factor in Exhibit 4-5 and the capacity of a two-lane roundabout in Exhibit 4-4. Refer to Appendix A for a derivation of these factors (9).

Number of vehicle spaces in the short lane, n_s	Factor (applied to double-lane approach capacity)
0 *	0.500
1	0.707
2	0.794
4	0.871
6	0.906
8	0.926
10	0.939

*Used for the case of a single lane entry to a double-lane roundabout.

4.3.4 Comparison of single-lane and double-lane roundabouts

Exhibit 4-6 shows a comparison of the expected capacity for both the single-lane and double-lane roundabouts. Again, it is evident that the number of lanes, or the size of the entry and circulating roadways, has a significant effect on the entry capacity.



Source (10)

Exhibit 4-5. Capacity reduction factors for short lanes.

The use of short lanes can nearly double approach capacity, without requiring a two-lane roadway prior to the roundabout.

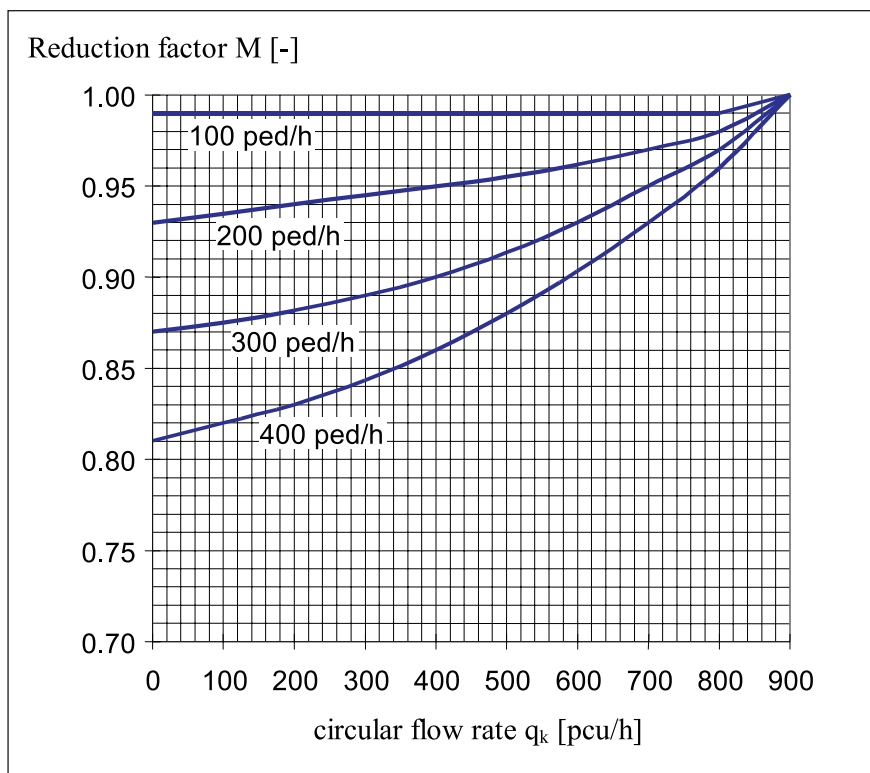
Exhibit 4-6. Capacity comparison of single-lane and double-lane roundabouts.

4.3.5 Pedestrian effects on entry capacity

Pedestrians crossing at a marked crosswalk that gives them priority over entering motor vehicles can have a significant effect on the entry capacity. In such cases, if the pedestrian crossing volume and circulating volume are known, the vehicular capacity should be factored (multiply by M) according to the relationship shown in Exhibit 4-7 or Exhibit 4-8 for single-lane and double-lane roundabouts, respectively. Note that the pedestrian impedance decreases as the conflicting vehicle flow increases. The *Highway Capacity Manual* (1) provides additional guidance on the capacity of pedestrian crossings and should be consulted if the capacity of the crosswalk itself is an issue.

Exhibit 4-7. Capacity reduction factor M for a single-lane roundabout assuming pedestrian priority.

The effects of conflicting pedestrians on approach capacity decrease as conflicting vehicular volumes increase, as entering vehicles become more likely to have to stop regardless of whether pedestrians are present.



Source: (10)

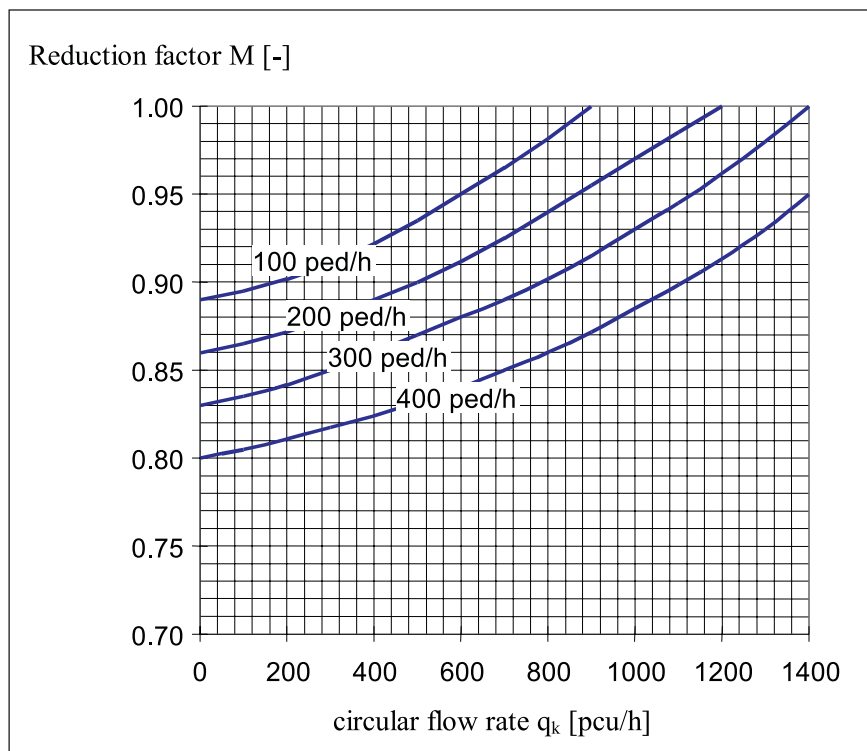


Exhibit 4-8. Capacity reduction factor M for a double-lane roundabout assuming pedestrian priority.

Source: (10)

4.3.6 Exit capacity

An exit flow on a single lane of more than 1,400 veh/h, even under good operating conditions for vehicles (i.e., tangential alignment, and no pedestrians and bicyclists) is difficult to achieve. Under normal urban conditions, the exit lane capacity is in the range of 1,200 to 1,300 veh/h. Therefore, exit flows exceeding 1,200 veh/h may indicate the need for a double-lane exit (11).

4.4 Performance Analysis

Three performance measures are typically used to estimate the performance of a given roundabout design: degree of saturation, delay, and queue length. Each measure provides a unique perspective on the quality of service at which a roundabout will perform under a given set of traffic and geometric conditions. Whenever possible, the analyst should estimate as many of these parameters as possible to obtain the broadest possible evaluation of the performance of a given roundabout design. In all cases, a capacity estimate must be obtained for an entry to the roundabout before a specific performance measure can be computed.

Key performance measures for roundabouts:

- Degree of saturation
- Delay
- Queue length

4.4.1 Degree of saturation

Degree of saturation is the ratio of the demand at the roundabout entry to the capacity of the entry. It provides a direct assessment of the sufficiency of a given design. While there are no absolute standards for degree of saturation, the Australian design procedure suggests that the degree of saturation for an entry lane should be less than 0.85 for satisfactory operation. When the degree of saturation exceeds this range, the operation of the roundabout will likely deteriorate rapidly, particularly over short periods of time. Queues may form and delay begins to increase exponentially.

4.4.2 Delay

Delay is a standard parameter used to measure the performance of an intersection. The *Highway Capacity Manual* (1) identifies delay as the primary measure of effectiveness for both signalized and unsignalized intersections, with level of service determined from the delay estimate. Currently, however, the *Highway Capacity Manual* only includes control delay, the delay attributable to the control device. Control delay is the time that a driver spends queuing and then waiting for an acceptable gap in the circulating flow while at the front of the queue. The formula for computing this delay is given in Equation 4-7 (12, based on 13; see also 14). Exhibit 4-9 shows how control delay at an entry varies with entry capacity and circulating flow. Each curve for control delay ends at a volume-to-capacity ratio of 1.0, with the curve projected beyond that point as a dashed line.

$$d = \frac{3600}{c_{m,x}} + 900T \times \left[\frac{v_x}{c_{m,x}} - 1 + \sqrt{\left(\frac{v_x}{c_{m,x}} - 1 \right)^2 + \frac{\left(\frac{3600}{c_{m,x}} \right) \left(\frac{v_x}{c_{m,x}} \right)}{450T}} \right] \quad (4-7)$$

where: d = average control delay, sec/veh;
 v_x = flow rate for movement x , veh/h;
 $c_{m,x}$ = capacity of movement x , veh/h; and
 T = analysis time period, h ($T = 0.25$ for a 15-minute period).

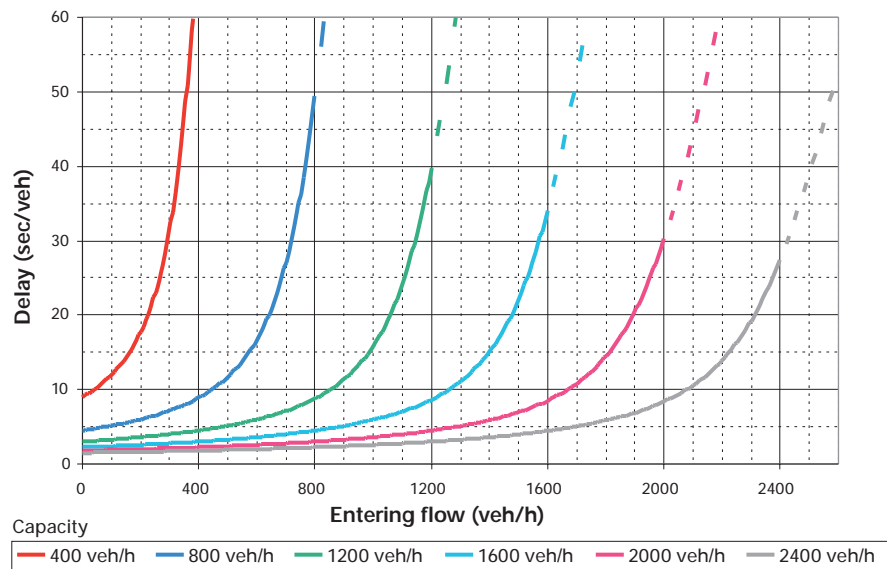


Exhibit 4-9. Control delay as a function of capacity and entering flow.

Note that as volumes approach capacity, control delay increases exponentially, with small changes in volume having large effects on delay. An accurate analysis of delay under conditions near or over saturation requires consideration of the following factors:

- *The effect of residual queues.* Roundabout entries operating near or over capacity can generate significant residual queues that must be accounted for between consecutive time periods. The method presented above does not account for these residual queues. These factors are accounted for in the delay formulae developed by Kimber and Hollis (15); however, these formulae are difficult to use manually.
- *The metering effect of upstream oversaturated entries.* When an upstream entry is operating over capacity, the circulating volume in front of a downstream entry is less than the true demand. As a result, the capacity of the downstream entry is higher than what would be predicted from analyzing actual demand.

For most design applications where target degrees of saturation are no more than 0.85, the procedures presented in this section are sufficient. In cases where it is desired to more accurately estimate performance in conditions near or over capacity, the use of software that accounts for the above factors is recommended.

Geometric delay is the additional time that a single vehicle with no conflicting flows spends slowing down to the negotiation speed, proceeding through the intersection, and accelerating back to normal operating speed. Geometric delay may

be an important consideration in network planning (possibly affecting route travel times and choices) or when comparing operations of alternative intersection types. While geometric delay is often negligible for through movements at a signalized or stop-controlled intersection, it can be more significant for turning movements such as those through a roundabout. Calculation of geometric delay requires an estimate of the proportion of vehicles that must stop at the yield line, as well as knowledge of the roundabout geometry as it affects vehicle speeds during entry, negotiation, and exit. Procedures for calculating the number of stops and geometric delay are given in the Australian design guide (16).

4.4.3 Queue length

Queue length is important when assessing the adequacy of the geometric design of the roundabout approaches.

The average queue length (L vehicles) can be calculated by Little's rule, as shown in Equation 4-8 (17):

$$L = v \cdot d / 3600 \quad (4-8)$$

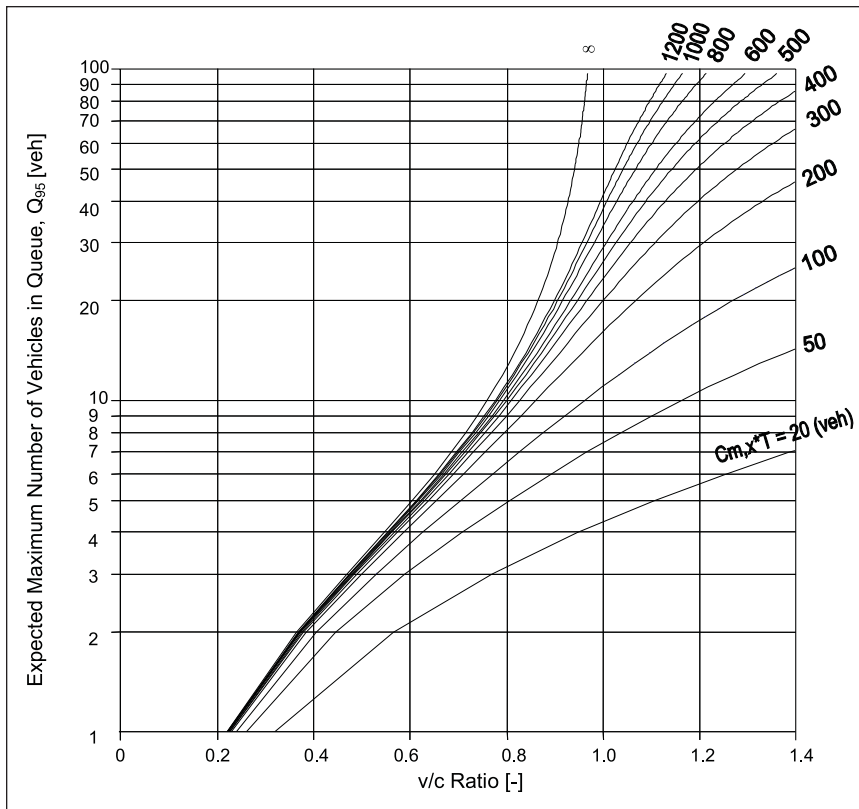
where: v = entry flow, veh/h
 d = average delay, seconds/veh

Average queue length is equivalent to the vehicle-hours of delay per hour on an approach. It is useful for comparing roundabout performance with other intersection forms, and other planning procedures that use intersection delay as an input.

For design purposes, Exhibit 4-10 shows how the 95th-percentile queue length varies with the degree of saturation of an approach (18, 19). The x-axis of the graph is the degree of saturation, or the ratio of the entry flow to the entry capacity. Individual lines are shown for the product of T and entry capacity. To determine the 95th-percentile queue length during time T , enter the graph at the computed degree of saturation. Move vertically until the computed curve line is reached. Then move horizontally to the left to determine the 95th-percentile queue length. Alternatively, Equation 4-8 can be used to approximate the 95th-percentile queue. Note that the graph and equation are only valid where the volume-to-capacity ratio immediately before and immediately after the study period is no greater than 0.85 (in other words, the residual queues are negligible).

$$Q_{95} \approx 900T \left[\frac{v_x}{c_{m,x}} - 1 + \sqrt{\left(1 - \frac{v_x}{c_{m,x}}\right)^2 + \frac{\left(\frac{3600}{c_{m,x}}\right)\left(\frac{v_x}{c_{m,x}}\right)}{150T}} \right] \left(\frac{c_{m,x}}{3600}\right) \quad (4-9)$$

where: Q_{95} = 95th percentile queue, veh,
 v_x = flow rate for movement x, veh/h,
 $c_{m,x}$ = capacity of movement x, veh/h, and
 T = analysis time period, h (0.25 for 15-minute period).



Source: (19)

Exhibit 4-10. 95th-percentile queue length estimation.

Points to consider for a qualitative assessment of roundabout performance.

4.4.4 Field observations

The analyst may evaluate an existing roundabout to determine its performance and whether changes to its design are needed. Measurements of vehicle delay and queuing can be made using standard traffic engineering techniques. In addition, the analyst can perform a qualitative assessment of the roundabout performance. The following list indicates conditions for which corrective design measures should be taken (20). If the answers to these questions are negative, no corrective actions need be taken.

- Do drivers stop unnecessarily at the yield point?
- Do drivers stop unnecessarily within the circulating roadway?
- Do any vehicles pass on the wrong side of the central island?
- Do queues from an external bottleneck back up into the roundabout from an exit road?
- Does the actual number of entry lanes differ from those intended by the design?
- Do smaller vehicles encroach on the truck apron?
- Is there evidence of damage to any of the signs in the roundabout?
- Is there any pedestrian activity on the central island?
- Do pedestrians and cyclists fail to use the roundabout as intended?
- Are there tire marks on any of the curb surfaces to indicate vehicle contact?
- Is there any evidence of minor accidents, such as broken glass, pieces of rim, etc., on the approaches or the circulating roadway?
- Is there any gravel or other debris collected in nontraveled areas that could be a hazard to bicycles or motorcyclists?
- Are the vehicle speeds appropriate?

4.5 Computer Software for Roundabouts

While the analytical procedures of different countries are not very complex, they are repetitive and time consuming, so most of these procedures have been implemented in software. A summary of current (as of 1999) software products and the analytical procedures that they implement is presented in Exhibit 4-11. The reader is also advised to consult the latest version of the U.S. *Highway Capacity Manual*. While the procedures provided in this chapter are recommended for most applications covered by this guide, models such as ARCADY, RODEL, SIDRA, KREISEL, or GIRABASE may be consulted to determine the effects of geometric parameters, particularly for multilane roundabouts outside the realm of this guide, or for fine-tuning designs to improve performance. Note that many of these models represent different underlying data or theories and will thus produce different results. Chapter 8 provides some information on microscopic simulation modeling which may be useful alternatives analysis in systems context.

Name	Scope	Application and Qualities (1999 versions)
ARCADY	All configurations	British method (50 percent confidence limits). Capacity, delay, and queuing. Includes projected number of crashes per year. Data were collected at extensive field studies and from experiments involving drivers at temporary roundabouts. Empirical relationships were developed from the data and incorporated into ARCADY. This model reflects British driving behavior and British roundabout designs. A prime attribute is that the capacities it predicts have been measured.
RODEL	All configurations including multiple roundabout interactions	British method (user-specified confidence limits). Capacity, delay, and queuing. Includes both an evaluation mode (geometric parameters specified) and a design mode (performance targets specified). Includes a crash prediction model. RODEL uses the British empirical equations. It also assists the user in developing an appropriate roundabout for the traffic conditions.
SIDRA	All configurations and other control types	Australian method, with analytical extensions. Capacity, delay, queue, fuel, and environmental measures. Also evaluates two-way stop-controlled, all-way stop controlled, and signalized intersections. It also gives roundabout capacities from U.S. HCM 1997 and German procedures. SIDRA is based on gap acceptance processes. It uses field data for the gap acceptance parameters to calibrate the model. There has been limited field evaluation of the results although experience has shown that the results fit Australian and U.S. single-lane (21) roundabout conditions satisfactorily. An important attribute is that the user can alter parameters to easily reflect local driving.
HCS-3	Single-lane roundabouts with a limited range of volumes	U.S. HCM 1997 method. Limited to capacity estimation based on entering and circulating volume. Optional gap acceptance parameter values provide both a liberal and conservative estimate of capacity. The data used to calibrate the models were recorded in the U.S. The two curves given reflect the uncertainty from the results. The upper-bound average capacities are anticipated at most roundabouts. The lower bound results reflect the operation that might be expected until roundabouts become more common.
KREISEL	All configurations	Developed in Germany. Offers many user-specified options to implement the full range of procedures found in the literature from U.S. (including this chapter), Europe, Britain, and Australia. KREISEL gives the average capacity from a number of different procedures. It provides a means to compare these procedures.
GIRABASE	All configurations	French method. Capacity, delay, and queuing projections based on regression. Sensitive to geometric parameters. Gives average values.

Exhibit 4-11.
Summary of
roundabout
software products
for operational
analysis.

4.6 References

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APPENDIX D

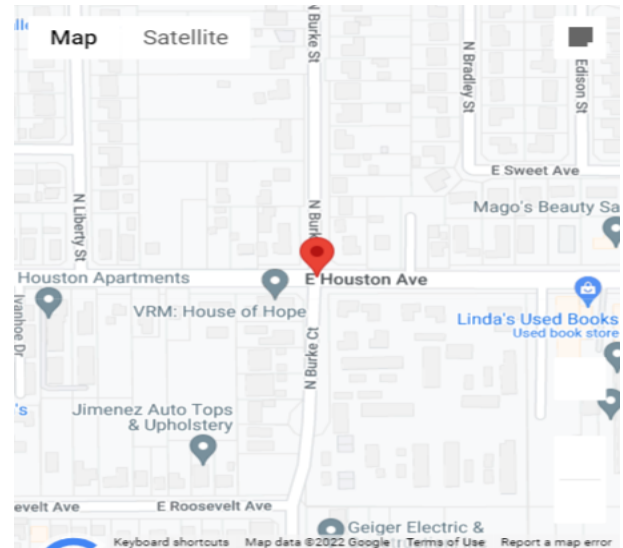
Collision Data Worksheets

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/07/2017 12:57		
Location (Intersection)	Houston St & Burke St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418501, -119.2831999		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	C - Raining		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	E - Making Left Turn

Victims: 4

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	51	7 - Possible Injury
2	2 - Passenger	M - Male	37	0 - No Injury
2	2 - Passenger	M - Male	998	0 - No Injury

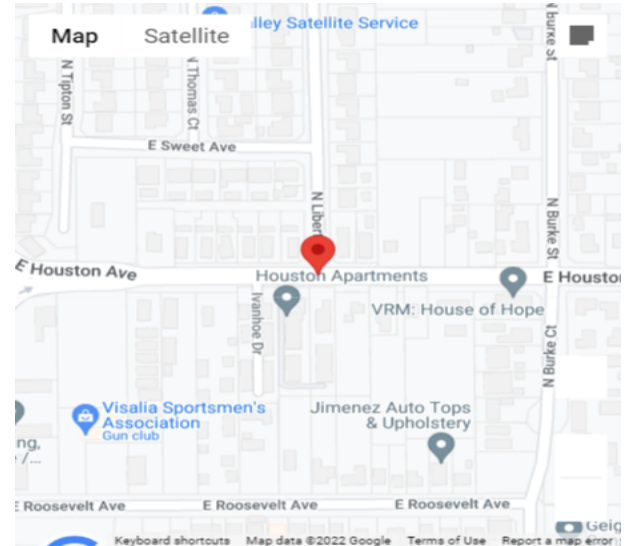
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	M - Male	998	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/27/2017 10:51		
Location (Intersection)	Houston & Liberty		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.34185, -119.28511		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	E - Making Left Turn

Victims: 2

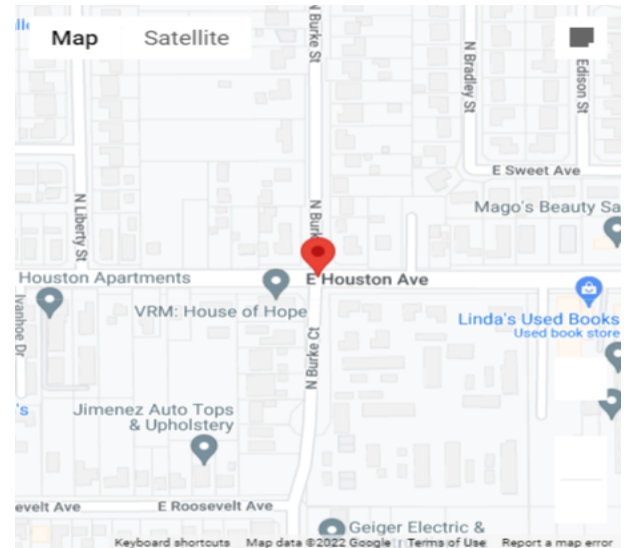
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	32	7 - Possible Injury
2	2 - Passenger	M - Male	32	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	03/18/2017 19:43		
Location (Intersection)	Houston Av & Burke St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418501, -119.2831999		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	E - Making Left Turn

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	10	7 - Possible Injury
1	2 - Passenger	M - Male	7	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	05/16/2017 12:48		
Location (Intersection)	East Houston Av & Santa Fe		
Dist. & Dir. from Intersection	116.00 ft West		
State Highway	No		
Geocoded Location	36.3417955, -119.2880507		
Type of Crash	E - Hit Object		
Motor Vehicle Involved With	I - Fixed Object		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 1

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	C - Ran Off Road

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	56	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	08/11/2017 14:05		
Location (Intersection)	Ne 3rd Av & Granite St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.33916, -119.29116		
Type of Crash	A - Head-On		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	B - Proceeding Straight

Victims: 3

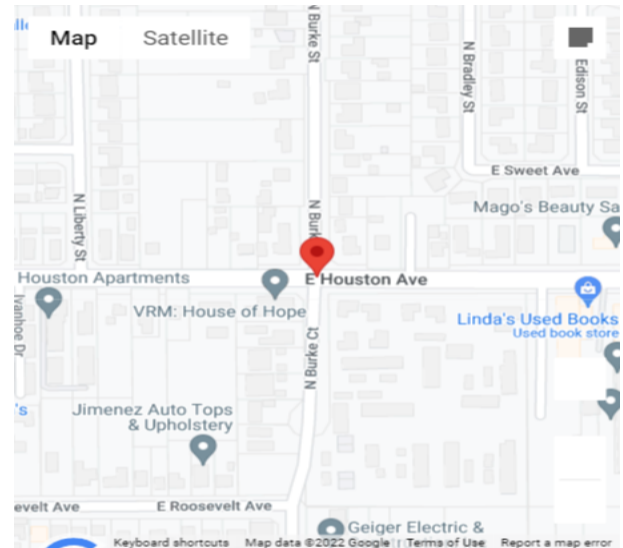
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	28	0 - No Injury
1	2 - Passenger	M - Male	20	0 - No Injury
2	1 - Driver	M - Male	37	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	09/22/2017 10:36		
Location (Intersection)	E Houston Av & Burke		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418501, -119.2831999		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	B - Proceeding Straight

Victims: 2

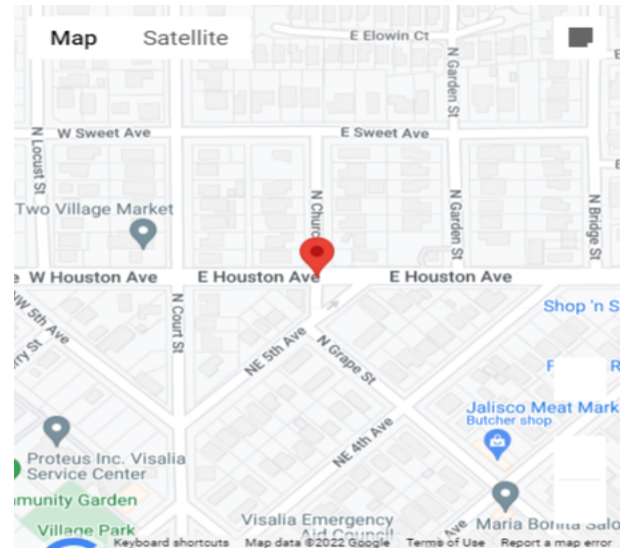
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	21	6 - Suspected Minor Injury
2	2 - Passenger	F - Female	42	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	09/29/2017 17:08		
Location (Intersection)	East Houston Av & North Church St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.34192, -119.2913199		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	E - Making Left Turn
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	E - Making Left Turn

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
3	1 - Driver	F - Female	76	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	10/23/2017 17:04		
Location (Intersection)	N Burke St & E Houston Av		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418501, -119.2831999		
Type of Crash	A - Head-On		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	17 - Other Hazardous Violation		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	B - Proceeding Straight
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	E - Making Left Turn

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	32	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/23/2018 08:17		
Location (Intersection)	Burke & Houston		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418503, -119.2832031		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	10 - Pedestrian Right of Way		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	E - Making Left Turn
2	2 - Pedestrian	N - Pedestrian	No	South	B - Proceeding Straight

Victims: 1

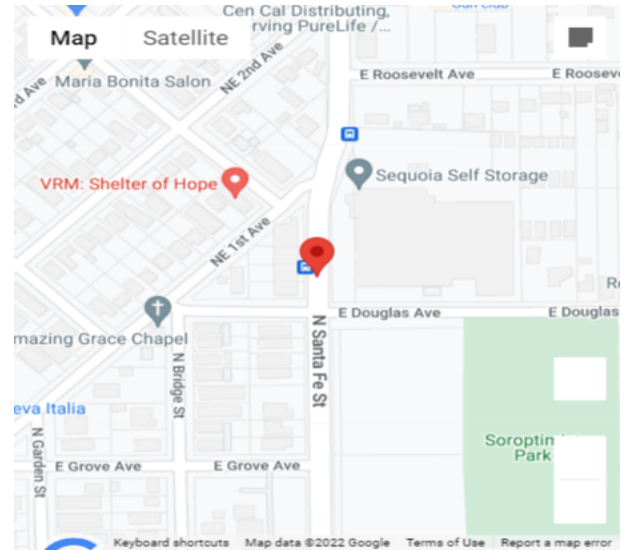
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	3 - Pedestrian	F - Female	41	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	03/24/2018 17:53		
Location (Intersection)	N Santa Fe St & Douglas Av		
Dist. & Dir. from Intersection	103.00 ft North		
State Highway	No		
Geocoded Location	36.3384132, -119.2879333		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	2 - Injury (Severe)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	- - Not Stated	Yes	South	B - Proceeding Straight
2	2 - Pedestrian	N - Pedestrian	No	North	L - Entering Traffic

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	3 - Pedestrian	M - Male	29	5 - Suspected Serious Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	04/04/2018 11:25		
Location (Intersection)	Ne 2nd Av & E Granite		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3384819, -119.2903366		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	B - Proceeding Straight
3	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	No	West	A - Stopped

Victims: 1

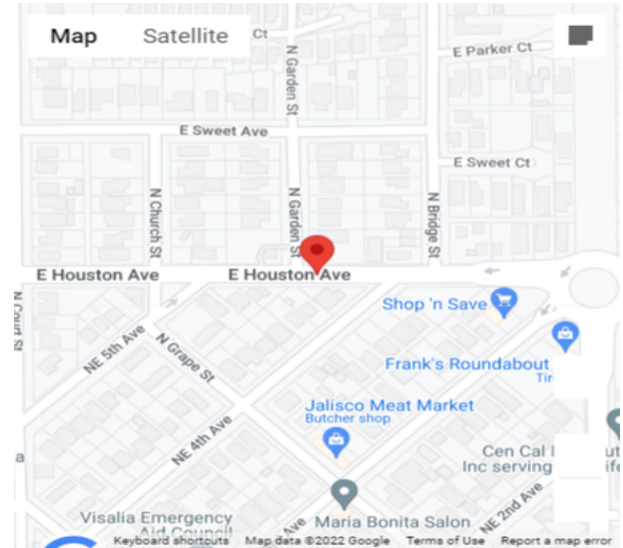
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
3	2 - Passenger	M - Male	67	7 - Possible Injury

Transportation

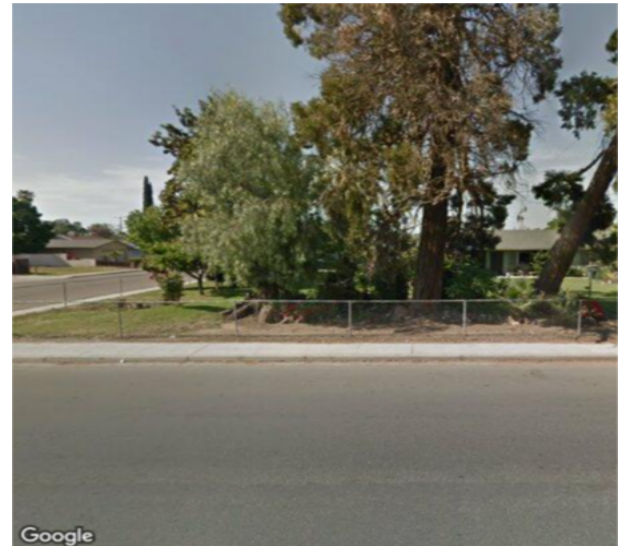
Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	05/17/2018 13:52		
Location (Intersection)	E Houston Av & N Garden St		
Dist. & Dir. from Intersection	52.00 ft East		
State Highway	No		
Geocoded Location	36.3419189, -119.2900238		
Type of Crash	B - Sideswipe		
Motor Vehicle Involved With	G - Bicycle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	05 - Wrong Side of Road		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	Yes
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	4 - Bicyclist	L - Bicycle	Yes	West	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	4 - Bicyclist	F - Female	49	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	03/25/2018 18:44		
Location (Intersection)	N 1st & Grape		
Dist. & Dir. from Intersection	151.00 ft South		
State Highway	No		
Geocoded Location	36.3386879, -119.2885666		
Type of Crash	E - Hit Object		
Motor Vehicle Involved With	J - Other Object		
Crash Severity	2 - Injury (Severe)		
PCF Violation Category	03 - Unsafe Speed		
Weather	C - Raining		
Alcohol Involved	Yes		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	Yes	Truck Accident	No

Map View



Street View



Parties: 1

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	C - Motorcycle/Scooter	Yes	West	M - Other Unsafe Turning

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	45	5 - Suspected Serious Injury

Transportation

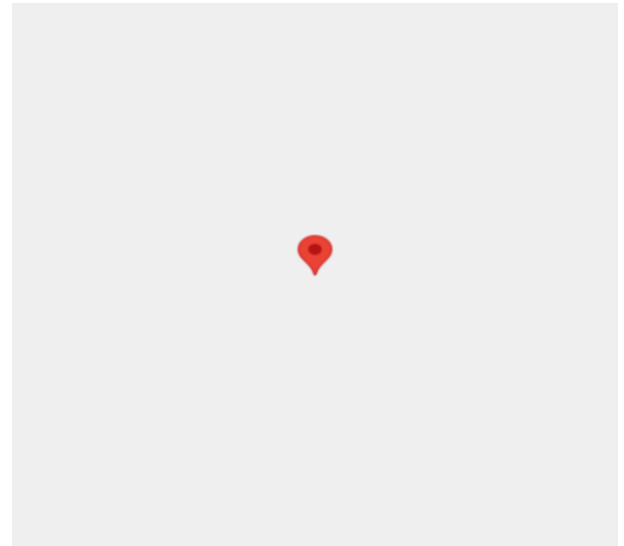
Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	06/30/2018 20:19
Location (Intersection)	3rd Av & Grape Av
Dist. & Dir. from Intersection	195.00 ft North
State Highway	No
Geocoded Location	36.3406754, -119.2893066

Type of Crash	C - Rear End
Motor Vehicle Involved With	E - Parked Motor Vehicle
Crash Severity	3 - Injury (Other Visible)
PCF Violation Category	01 - Driving or Bicycling Under the Influence of Alcohol or Drug
Weather	A - Clear
Alcohol Involved	Yes

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 4

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	-	B - Proceeding Straight
2	3 - Parked Vehicle	A - Passenger Car/Station Wagon	No	North	O - Parked
3	3 - Parked Vehicle	D - Pickup or Panel Truck	No	North	O - Parked
4	3 - Parked Vehicle	A - Passenger Car/Station Wagon	No	North	-- Not Stated

Victims: 1

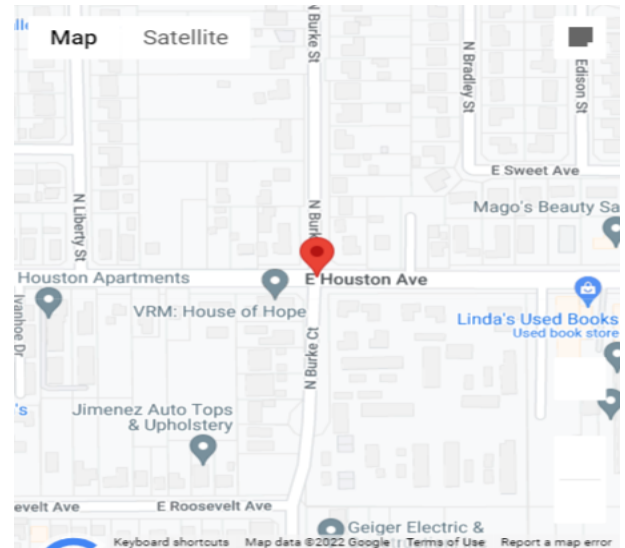
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	22	6 - Suspected Minor Injury

Transportation

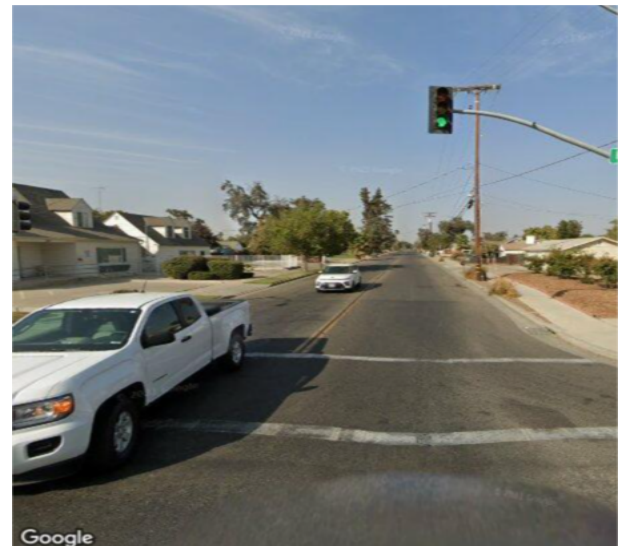
Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	12/05/2018 10:49		
Location (Intersection)	Houston & Burke		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418503, -119.2832031		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	Yes

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	E - Pickup or Panel Truck with Trailer	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	F - Truck or Truck Tractor	No	West	E - Making Left Turn

Victims: 4

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	61	7 - Possible Injury
1	2 - Passenger	M - Male	53	0 - No Injury
1	2 - Passenger	M - Male	57	0 - No Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	M - Male	32	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	12/02/2018 12:49		
Location (Intersection)	2nd Av & S Granite St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3384819, -119.2903366		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight
3	3 - Parked Vehicle	D - Pickup or Panel Truck	No	South	O - Parked

Victims: 6

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	44	0 - No Injury
1	2 - Passenger	F - Female	2	0 - No Injury

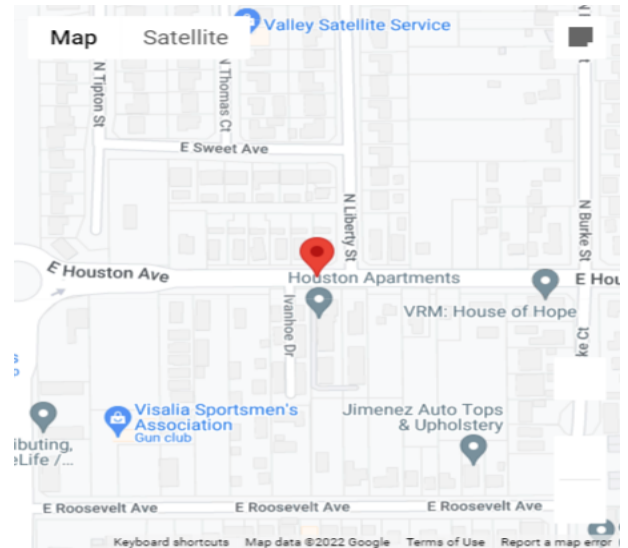
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	0	0 - No Injury
2	1 - Driver	F - Female	28	7 - Possible Injury
2	2 - Passenger	F - Female	18	0 - No Injury
2	2 - Passenger	M - Male	2	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/19/2019 16:11		
Location (Intersection)	E Houston Av & N Liberty St		
Dist. & Dir. from Intersection	78.00 ft West		
State Highway	No		
Geocoded Location	36.3418503, -119.2853775		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	M - Other Unsafe Turning
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	A - Stopped

Victims: 3

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	20	6 - Suspected Minor Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	73	7 - Possible Injury
3	1 - Driver	F - Female	47	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	12/18/2018 16:48		
Location (Intersection)	Ne 3rd Av & Granite St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3391609, -119.2911606		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	09 - Automobile Right of Way		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	A - Stopped
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	B - Proceeding Straight

Victims: 2

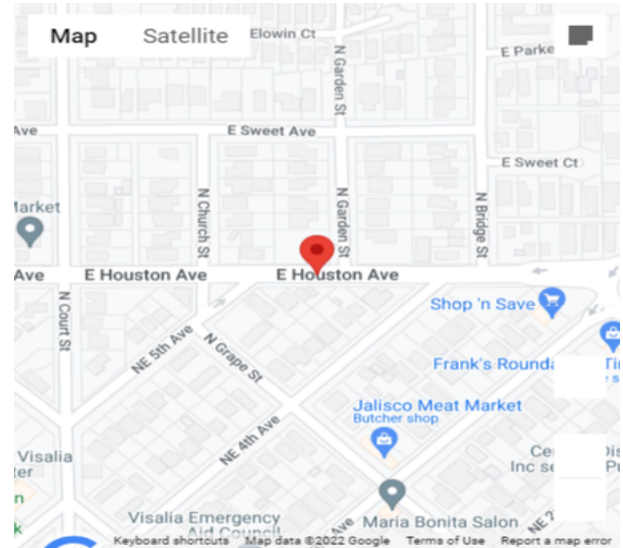
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	22	7 - Possible Injury
1	2 - Passenger	M - Male	1	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	02/08/2019 19:15		
Location (Intersection)	E Houston Av & Garden St		
Dist. & Dir. from Intersection	60.00 ft West		
State Highway	No		
Geocoded Location	36.3419189, -119.2904053		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	11 - Pedestrian Violation		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	2 - Pedestrian	N - Pedestrian	Yes	South	L - Entering Traffic
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	3 - Pedestrian	M - Male	57	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	03/16/2019 18:25		
Location (Intersection)	E Houston Av & N Burke St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418503, -119.2832031		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	-	E - Making Left Turn

Victims: 4

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	52	6 - Suspected Minor Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	19	0 - No Injury
2	2 - Passenger	M - Male	17	0 - No Injury
2	2 - Passenger	M - Male	6	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	02/23/2019 13:32		
Location (Intersection)	Granite St & E 2nd St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3384819, -119.2903366		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 4

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	14	7 - Possible Injury
2	2 - Passenger	M - Male	12	0 - No Injury
2	2 - Passenger	F - Female	19	0 - No Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	1	0 - No Injury

Transportation

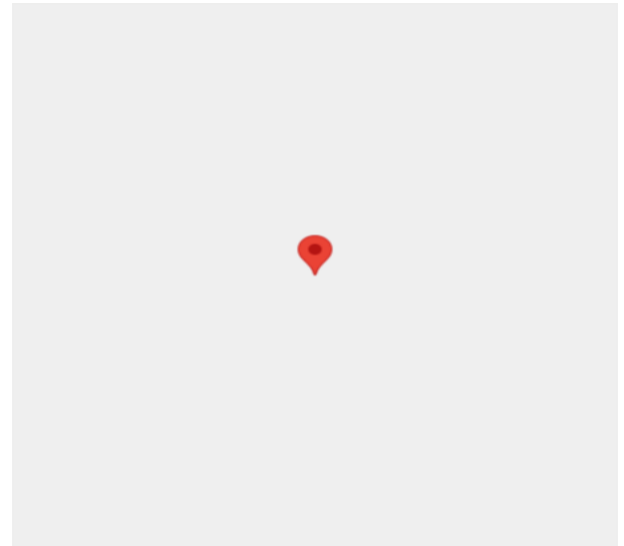
Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	04/30/2019 07:03
Location (Intersection)	N Burke St & Douglas Av
Dist. & Dir. from Intersection	At Intersection
State Highway	No
Geocoded Location	36.3381805, -119.2833786

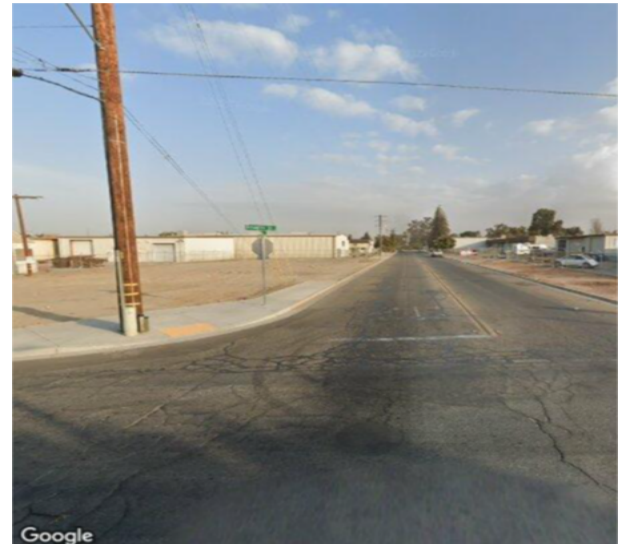
Type of Crash	D - Broadside
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	09 - Automobile Right of Way
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	F - Making U-Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	18	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	02/17/2019 19:56		
Location (Intersection)	Ne 3rd & Granite		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3391609, -119.2911606		
Type of Crash	A - Head-On		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	09 - Automobile Right of Way		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	North	E - Making Left Turn

Victims: 2

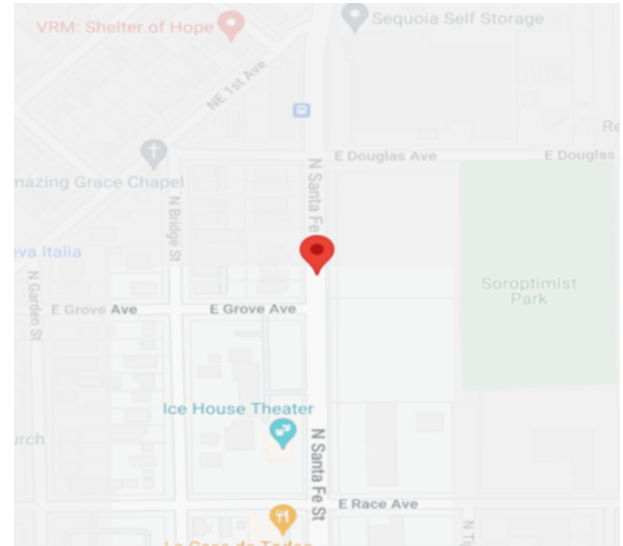
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	34	7 - Possible Injury
1	2 - Passenger	F - Female	17	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	06/09/2019 19:59		
Location (Intersection)	Santa Fe St & Grove Av		
Dist. & Dir. from Intersection	84.00 ft North		
State Highway	No		
Geocoded Location	36.3371811, -119.2878952		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	11 - Pedestrian Violation		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	2 - Pedestrian	N - Pedestrian	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 1

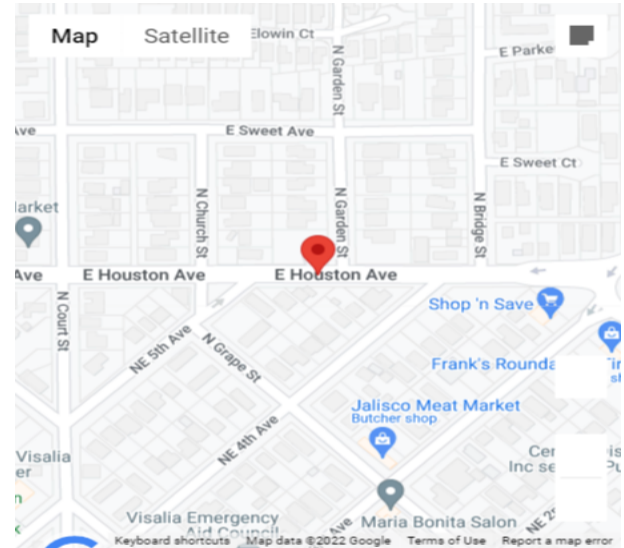
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	3 - Pedestrian	M - Male	15	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/27/2020 17:44		
Location (Intersection)	E Houston & N Garden		
Dist. & Dir. from Intersection	57.00 ft West		
State Highway	No		
Geocoded Location	36.3419189, -119.29039		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	1 - Fatal		
PCF Violation Category	11 - Pedestrian Violation		
Weather	A - Clear		
Alcohol Involved	Yes		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	2 - Pedestrian	N - Pedestrian	Yes	South	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	No	East	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	3 - Pedestrian	M - Male	77	1 - Killed

[Transportation](/)

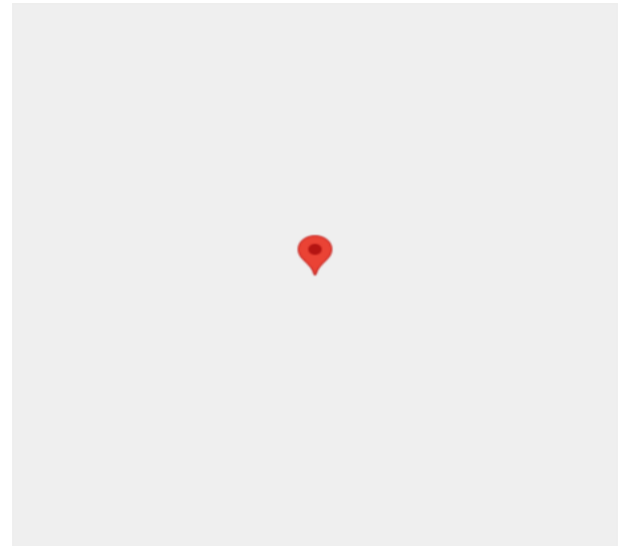
Crash Information

County	Tulare
City	Visalia
Date & Time (M/D/Y)	11/12/2019 08:16
Location (Intersection)	E Houston Av & Liberty St
Dist. & Dir. from Intersection	411.00 ft West
State Highway	No
Geocoded Location	36.3418427, -119.2865067

Type of Crash	C - Rear End
Motor Vehicle Involved With	C - Other Motor Vehicle
Crash Severity	4 - Injury (Complaint of Pain)
PCF Violation Category	03 - Unsafe Speed
Weather	A - Clear
Alcohol Involved	No

Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 3

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	A - Stopped
3	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	A - Stopped

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	27	7 - Possible Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
3	2 - Passenger	F - Female	32	0 - No Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	01/11/2020 12:17		
Location (Intersection)	Ne 4th Av & Grape St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.340889, -119.2906113		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 3

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	15	0 - No Injury
1	2 - Passenger	F - Female	9	0 - No Injury
2	1 - Driver	M - Male	45	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	02/29/2020 01:12		
Location (Intersection)	Grove & Santa Fe St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3369484, -119.2878876		
Type of Crash	E - Hit Object		
Motor Vehicle Involved With	I - Fixed Object		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	01 - Driving or Bicycling Under the Influence of Alcohol or Drug		
Weather	A - Clear		
Alcohol Involved	Yes		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 1

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	C - Ran Off Road

Victims: 1

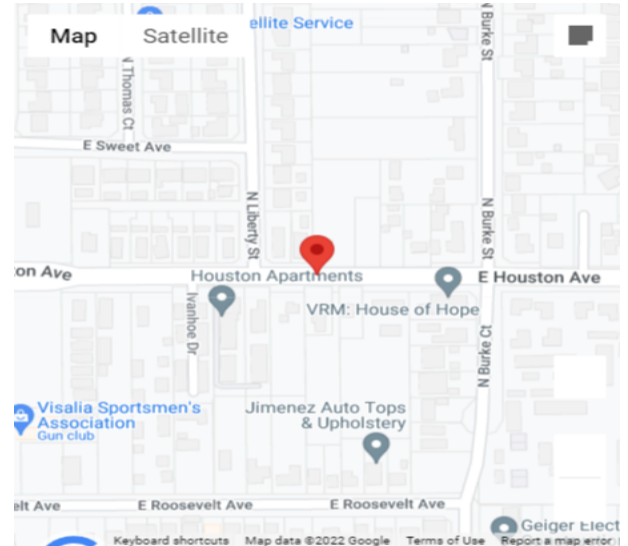
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	22	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	06/07/2020 17:53		
Location (Intersection)	E Houston Av & Liberty St		
Dist. & Dir. from Intersection	150.00 ft East		
State Highway	No		
Geocoded Location	36.3418503, -119.2845993		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	G - Bicycle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	05 - Wrong Side of Road		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	Yes
Motorcycle Accident	Yes	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	4 - Bicyclist	L - Bicycle	Yes	South	L - Entering Traffic
2	1 - Driver (including Hit and Run)	C - Motorcycle/Scooter	No	West	B - Proceeding Straight

Victims: 1

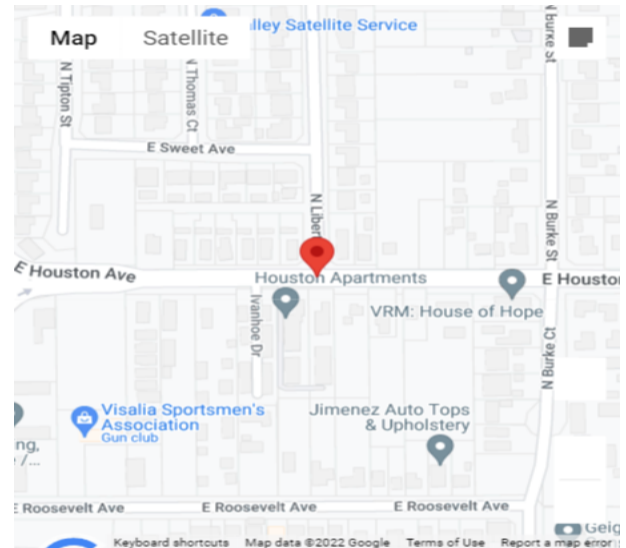
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	4 - Bicyclist	M - Male	12	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	05/23/2020 14:06		
Location (Intersection)	Houston & Liberty		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418503, -119.2851105		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	09 - Automobile Right of Way		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	West	B - Proceeding Straight

Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	24	7 - Possible Injury
2	1 - Driver	F - Female	43	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	10/12/2020 19:33		
Location (Intersection)	Granite St & Ne 2nd Av		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3384819, -119.2903366		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	09 - Automobile Right of Way		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	North	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	F - Female	17	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	12/03/2020 00:49		
Location (Intersection)	Houston & Santa Fe		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.34161, -119.2877731		
Type of Crash	E - Hit Object		
Motor Vehicle Involved With	I - Fixed Object		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	Yes		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 1

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	L - Entering Traffic

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	F - Female	21	6 - Suspected Minor Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	04/29/2021 15:23		
Location (Intersection)	E Houston Av & N Burke St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418503, -119.2832031		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	West	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	21	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	03/30/2021 10:09		
Location (Intersection)	Santa Fe St & Ne 1st Av		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3392296, -119.2878571		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	G - Bicycle		
Crash Severity	2 - Injury (Severe)		
PCF Violation Category	08 - Improper Turning		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	Yes
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	4 - Bicyclist	L - Bicycle	Yes	East	M - Other Unsafe Turning
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	B - Proceeding Straight

Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	4 - Bicyclist	M - Male	29	5 - Suspected Serious Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	09/05/2021 16:52		
Location (Intersection)	Burke St & Houston Av		
Dist. & Dir. from Intersection	270.00 ft South		
State Highway	No		
Geocoded Location	36.3418503, -119.2832031		
Type of Crash	G - Vehicle/Pedestrian		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	10 - Pedestrian Right of Way		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	West	B - Proceeding Straight
2	2 - Pedestrian	N - Pedestrian	No	-	-- Not Stated

Victims: 1

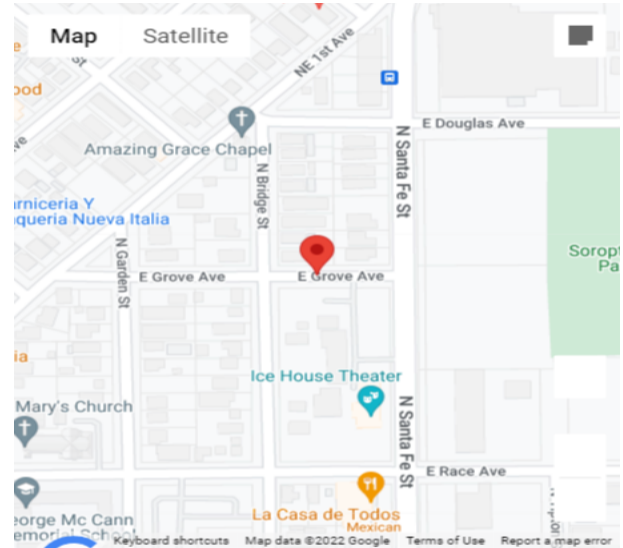
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	3 - Pedestrian	M - Male	39	7 - Possible Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	07/17/2021 14:53		
Location (Intersection)	E Grove Av & N Bridge St		
Dist. & Dir. from Intersection	120.00 ft East		
State Highway	No		
Geocoded Location	36.3369217, -119.2886047		
Type of Crash	A - Head-On		
Motor Vehicle Involved With	B - Pedestrian		
Crash Severity	2 - Injury (Severe)		
PCF Violation Category	00 - Unknown		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	Yes	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	- - Not Stated	Yes	West	B - Proceeding Straight
2	2 - Pedestrian	N - Pedestrian	No	South	B - Proceeding Straight

Victims: 1

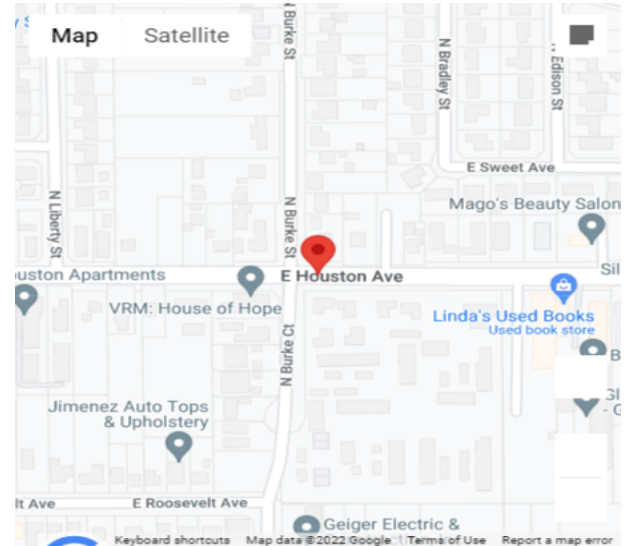
Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	3 - Pedestrian	M - Male	52	5 - Suspected Serious Injury

Transportation

Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	11/26/2021 19:38		
Location (Intersection)	E Houston Av & N Burke St		
Dist. & Dir. from Intersection	60.00 ft East		
State Highway	No		
Geocoded Location	36.3418465, -119.2829971		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	2 - Injury (Severe)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

Map View



Street View



Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	A - Stopped

Victims: 4

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	24	5 - Suspected Serious Injury
2	2 - Passenger	M - Male	13	0 - No Injury
2	2 - Passenger	F - Female	12	0 - No Injury

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	7	0 - No Injury



March 30, 2023

Site Plan Review No. 2023-124

Pursuant to Zoning Ordinance Chapter 17.28 the Site Plan Review process has found that your application complies with the general plan, municipal code, policies, and improvement standards of the city.

Based upon Zoning Ordinance Section 17.28.070, this is your Site Plan Review determination that your project may proceed with filing the necessary entitlement applications to the Planning Department.

This is your Site Plan Review Permit; your Site Plan Review became effective **March 15, 2023**. A site plan review permit shall lapse and become null and void one year following the date of approval unless, prior to the expiration of one year, a building permit is issued by the building official and construction is commenced and diligently pursued toward completion.

If you have any questions regarding this action, please call the Community Development Department at (559) 713-4359.

Respectfully,

A handwritten signature in blue ink, appearing to read "Paul Bove", is written over a light blue horizontal line.

Community Development Director
315 E. Acequia Ave.
Visalia, CA 93291

Attachment(s):

- Site Plan Review Comments



MEETING DATE March 15, 2023
SITE PLAN NO. 2023-124 - B
PARCEL MAP NO.
SUBDIVISION
LOT LINE ADJUSTMENT NO.

Enclosed for your review are the comments and decisions of the Site Plan Review committee. Please review all comments since they may impact your project.

RESUBMIT Major changes to your plans are required. Prior to accepting construction drawings for building permit, your project must return to the Site Plan Review Committee for review of the revised plans.

During site plan design/policy concerns were identified, schedule a meeting with

Planning Engineering prior to resubmittal plans for Site Plan Review.

Solid Waste Parks and Recreation Fire Dept.

REVISE AND PROCEED (see below)

A revised plan addressing the Committee comments and revisions must be submitted for Off-Agenda Review and approval prior to submitting for building permits or discretionary actions.

Submit plans for a building permit between the hours of 9:00 a.m. and 4:00 p.m., Monday through Friday.

Your plans must be reviewed by:

CITY COUNCIL REDEVELOPMENT

PLANNING COMMISSION PARK/RECREATION

CUP

HISTORIC PRESERVATION OTHER – Lot Line Adjustment

ADDITIONAL COMMNTS:

If you have any questions or comments, please call the Site Plan Review Hotline at (559) 713-4440
Site Plan Review Committee

SITE PLAN REVIEW COMMENTS

Cristobal Carrillo, Planning Division, 559-713-4443

Date: March 15, 2023

SITE PLAN NO: 2022-124 – B
PROJECT: Lady's Chicken and Rice
DESCRIPTION: NEW 1,597 SF DRIVE-THRU AND WALK-UP RESTAURANT WITH NEW PARKING LOT/LAYOUT (C-MU)
APPLICANT: BOUNLEUK AND JIMMY THONGSENG
PROP. OWNER: THONGSENG JIMMY & BOUNLEUK Y
LOCATION TITLE: SE CORNER OF E. HOUSTON AND N. SANTA FE STREET
APN TITLE: 094-130-049
GENERAL PLAN: Commercial Mixed Use
ZONING: C-MU (MIXED USE COMMERCIAL)

Planning Division Recommendation:

- Revise and Proceed
 Resubmit

Project Requirements

- Conditional Use Permit
- Queuing Analysis
- Building Permit

PROJECT SPECIFIC INFORMATION: March 15, 2023

1. A Conditional Use Permit shall be required.
2. An Operational Statement shall be required. A Floor Plan shall be required.
3. Building Elevations shall be required.
4. A Site Plan shall be required.
5. A Landscape Plan shall be required. The Landscape Plan shall verify that a minimum 6% of the parking lot is landscaped.
6. A Photometric Plan shall be required. The Photometric Plan shall verify that onsite lighting does not exceed 0.5 lumens at property line.
7. A Queuing Analysis/Traffic Action Plan shall be required.
8. The front yard building/landscape setback shall be 15 feet from the property line.
9. Comply with the requirements of the Solid Waste Division.
10. A Building Permit shall be required.
11. All signage shall be submitted through a separate Building Permit submittal.

PROJECT SPECIFIC INFORMATION: July 27, 2022

1. CUP required for not meeting performance standards (250-ft separation from residences).
2. A 15 ft. landscape setback shall be provided along the northern property boundary.
3. Provide a queuing analysis demonstrating the use will not have vehicles queuing offsite.
4. A landscape and irrigation plan shall be provided with the CUP submittal.
5. A Lighting/Photometric Plan shall be provided with the Building Permit submittal.
6. All signage shall require a separate Building Permit submittal.
7. Comply with other reviewer's requirements.

Notes:

1. **The applicant shall contact the San Joaquin Valley Air Pollution Control District to verify whether additional permits are required to conduct the proposed use.**

2. Prior to completion of a final building inspection for a project, a signed **MWELO Certificate of Compliance** shall be submitted indicating that all landscaping has been installed to MWELO standards.

Applicable sections of the Visalia Municipal Code, Title 17 (Zoning):

17.19 Mixed Use Zones

17.30 Development Standards

17.32.080 Maintenance of landscaped areas

17.32.162 Drive-thru lanes performance standards

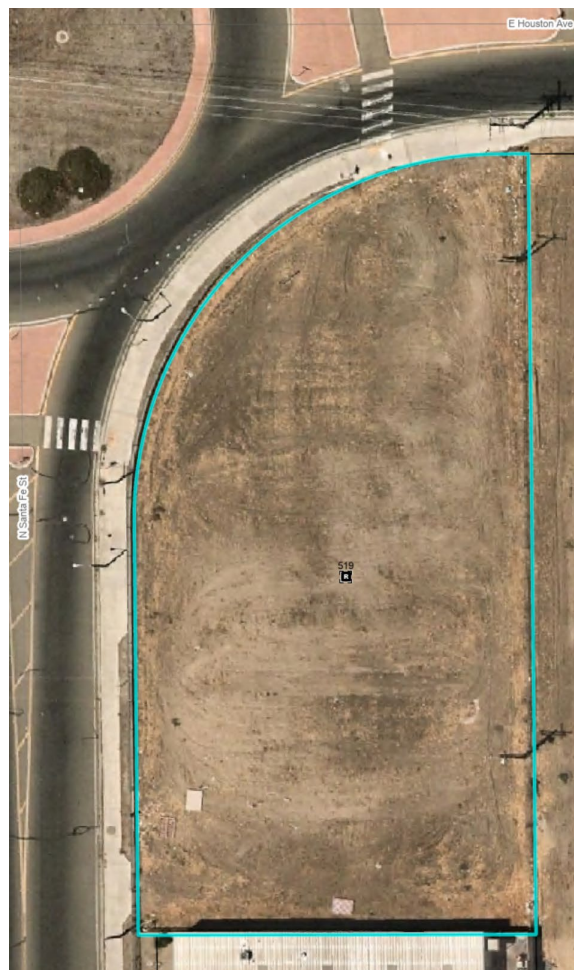
17.34 Off-street parking and loading facilities

17.36 Fences Walls and Hedges

NOTE: Staff recommendations contained in this document are not to be considered support for a particular action or project unless otherwise stated in the comments. The comments found on this document pertain to the site plan submitted for review on the above referenced date. Any changes made to the plan submitted must be submitted for additional review.



Signature: _____



BUILDING/DEVELOPMENT PLAN REQUIREMENTS
ENGINEERING DIVISION

- Adrian Rubalcaba 713-4271
- 713-
- Luqman Ragabi 713-4362

ITEM NO: 2 DATE: MARCH 15, 2023

SITE PLAN NO.: 22-124 RESUBMITTAL
PROJECT TITLE: LADY'S CHICKEN AND RICE
DESCRIPTION: NEW 1597 SF DRIVE-THRU AND WALK-UP RESTAURANT WITH NEW PARKING LOT LAYOUT (CMU)
APPLICANT: BOUNLEUK AND JIMMY THONGSENG
PROP OWNER: THONGSENG JIMMY & BOUNLEUK Y
LOCATION: SE CORNER OF HOUSTON AND SANTA FE
APN: 094-130-049

SITE PLAN REVIEW COMMENTS

- REQUIREMENTS (indicated by checked boxes)
- Install curb return with ramp, with _____ radius;
- Install curb; gutter **REPLACE IN-KIND W/ DEMO WORK. INSTALL ONSITE AS NECESSARY**
- Drive approach size: **34' MIN** Use radius return; **REFER TO COMMERCIAL STDS C-24**
- Sidewalk: _____ width; _____ parkway width at _____
- Repair and/or replace any sidewalk across the public street frontage(s) of the subject site that has become uneven, cracked or damaged and may constitute a tripping hazard.
- Replace any curb and gutter across the public street frontage(s) of the subject site that has become uneven and has created areas where water can stand.
- Right-of-way dedication required. A title report is required for verification of ownership.
- Deed required prior to issuing building permit; **ADDL EASEMENTS MAY BE REQUIRED, SEE COMMENTS**
- City Encroachment Permit Required. **FOR ALL WORK IN THE PUBLIC RIGHT-OF-WAY**
Insurance certificate with general & auto liability (\$1 million each) and workers compensation (\$1 million), valid business license, and appropriate contractor's license must be on file with the City, and valid Underground Service Alert # provided prior to issuing the permit. Contact Encroachment Tech. at 713-4414.
- CalTrans Encroachment Permit required. CalTrans comments required prior to issuing building permit. Contacts: David Deel (Planning) 488-4088;
- Landscape & Lighting District/Home Owners Association required prior to approval of Final Map. Landscape & Lighting District will maintain common area landscaping, street lights, street trees and local streets as applicable. Submit completed Landscape and Lighting District application and filing fee a min. of 75 days before approval of Final Map.
- Landscape & irrigation improvement plans to be submitted for each phase. Landscape plans will need to comply with the City's street tree ordinance. The locations of street trees near intersections will need to comply with Plate SD-1 of the City improvement standards. A street tree and landscape master plan for all phases of the subdivision will need to be submitted with the initial phase to assist City staff in the formation of the landscape and lighting assessment district.
- Grading & Drainage plan required. If the project is phased, then a master plan is required for the entire project area that shall include pipe network sizing and grades and street grades. Prepared by registered civil engineer or project architect. All elevations shall be based on the City's benchmark network. Storm run-off from the project shall be handled as follows: a) directed to the City's existing storm drainage system; b) directed to a permanent on-site basin; or c) directed to a temporary on-site basin is required until a connection with adequate capacity is available to the City's storm drainage system. On-site basin: _____ : _____ maximum side slopes, perimeter fencing required, provide access ramp to bottom for maintenance.
- Grading permit is required for clearing and earthwork performed prior to issuance of the building permit.
- Show finish elevations. (Minimum slopes: A.C. pavement = 1%, Concrete pavement = 0.25%. Curb & Gutter = 0.20%, V-gutter = 0.25%)
- Show adjacent property grade elevations. A retaining wall will be required for grade differences greater than 0.5 feet at the property line.
- All public streets within the project limits and across the project frontage shall be improved to their full width, subject to available right of way, in accordance with City policies, standards and specifications.
- Traffic indexes per city standards:

- Install street striping as required by the City Engineer.
- Install landscape curbing (typical at parking lot planters).
- Minimum paving section for parking: 2" asphalt concrete paving over 4" Class 2 Agg. Base, or 4" concrete pavement over 2" sand.
- Design Paving section to traffic index of 5.0 min. for solid waste truck travel path.
- Provide "R" value tests: each at
- Written comments required from ditch company Contacts: James Silva 747-1177 for Modoc, Persian, Watson, Oakes, Flemming, Evans Ditch and Peoples Ditch; Jerry Hill 686-3425 for Tulare Irrigation Canal, Packwood and Cameron Creeks; Bruce George 747-5601 for Mill Creek and St. John's River.
- Access required on ditch bank, 15' minimum Provide wide riparian dedication from top of bank.
- Show Valley Oak trees with drip lines and adjacent grade elevations. Protect Valley Oak trees during construction in accordance with City requirements.
- A permit is required to remove Valley Oak trees. Contact Public Works Admin at 713-4428 for a Valley Oak tree evaluation or permit to remove. A pre-construction conference is required.
- Relocate existing utility poles and/or facilities.
- Underground all existing overhead utilities within the project limits. Existing overhead electrical lines over 50kV shall be exempt from undergrounding. **EXISTING ALONG STREET FRONTAGE TO BE REMOVED**
- Subject to existing Reimbursement Agreement to reimburse prior developer:
- Fugitive dust will be controlled in accordance with the applicable rules of San Joaquin Valley Air District's Regulation VIII. Copies of any required permits will be provided to the City.
- If the project requires discretionary approval from the City, it may be subject to the San Joaquin Valley Air District's Rule 9510 Indirect Source Review per the rule's applicability criteria. A copy of the approved AIA application will be provided to the City.
- If the project meets the one acre of disturbance criteria of the State's Storm Water Program, then coverage under General Permit Order 2009-0009-DWQ is required and a Storm Water Pollution Prevention Plan (SWPPP) is needed. A copy of the approved permit and the SWPPP will be provided to the City.
- Comply with prior comments. Resubmit with additional information. Redesign required.

Additional Comments:

1. ***Drive approach shown to be modified on Santa Fe. Refer to City std C-24 and construct accordingly. Maintain sidewalk path within City right-of-way or provide easements for sidewalk that encroaches onto private property.***
2. ***Remove/demo existing drive approach on Santa Fe.***
3. ***Proposed new drive-thru restaurant will incur impact fees. Credit will apply for previous demo of existing buildings. Proposed outdoor seating area with open canopy will not require additional fees. Refer to page 3 for summary.***
4. ***Project to connect to sewer. There is an existing SS main Houston. City may have installed a lateral to serve this parcel with the roundabout project. Further coordinate with City Engineer for location.***
5. ***All required water/fire backflow apparatus shall be installed on private property; not within public right-of-way.***
6. ***Parking shall meet City standards. Layout appears to comply.***
7. ***All landscape and irrigation shall comply with MWELo standards. Landscape plans shall be submitted with building permits.***
8. ***Note this project is in an "AE" flood zone. Proposed project will trigger compliance to current floodplain regulations and City requirements. Additionally, due to the final finished floor grade that may be elevated due to construction within the flood plain, ensure compliance with accessible path of travel slope grades.***
9. ***Refer to Traffic Safety Dept. comments and requirements regarding access restrictions and additional analysis. It is possible the existing approach onto Houston may need to be removed.***
10. ***Existing overhead utilities located in the public right-of-way will need to be removed and undergrounded as part of project.***
11. ***A building permit is required, standard plan check and inspection fees will apply.***

SUMMARY OF APPLICABLE DEVELOPMENT IMPACT FEES

Site Plan No: **22-124 RESUBMITTAL**

Date: **03/15/2023**

Summary of applicable Development Impact Fees to be collected at the time of building permit:
(Preliminary estimate only! Final fees will be based on the development fee schedule in effect at the time of building permit issuance.)

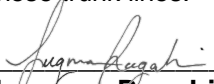
(Fee Schedule Date:**08/20 /2022**)
(Project type for fee rates:**RETAIL/FAST FOOD**)

Existing uses may qualify for credits on Development Impact Fees. **1 SFD + LOW DENSITY**

FEE ITEM	FEE RATE
<input checked="" type="checkbox"/> Groundwater Overdraft Mitigation Fee	\$1,555/AC X 0.87
<input checked="" type="checkbox"/> Transportation Impact Fee	\$17,518/1KSF X 1.6 - (\$7,097CR)
<input checked="" type="checkbox"/> Trunk Line Capacity Fee	\$5,450/EACH - (\$952CR) TREATMENT PLANT FEE: \$23,898/EACH - (\$945CR)
<input type="checkbox"/> Sewer Front Foot Fee	
<input checked="" type="checkbox"/> Storm Drain Acq/Dev Fee	\$7,814/AC - (\$4,200/AC) X 0.87
<input type="checkbox"/> Park Acq/Dev Fee	
<input type="checkbox"/> Northeast Specific Plan Fees	
<input checked="" type="checkbox"/> Waterways Acquisition Fee	\$5,739/AC - (\$3,086/AC) X 0.87
<input checked="" type="checkbox"/> Public Safety Impact Fee: Police	\$10,419/AC - (\$2,085/AC) X 0.87
<input checked="" type="checkbox"/> Public Safety Impact Fee: Fire	\$2,279/AC X 0.87
<input checked="" type="checkbox"/> Public Facility Impact Fee	\$667/1KSF X 1.6 - (\$691CR)
<input type="checkbox"/> Parking In-Lieu	

Reimbursement:

- 1.) No reimbursement shall be made except as provided in a written reimbursement agreement between the City and the developer entered into prior to commencement of construction of the subject facilities.
- 2.) Reimbursement is available for the development of arterial/collector streets as shown in the City's Circulation Element and funded in the City's transportation impact fee program. The developer will be reimbursed for construction costs and right of way dedications as outlined in Municipal Code Section 16.44. Reimbursement unit costs will be subject to those unit costs utilized as the basis for the transportation impact fee.
- 3.) Reimbursement is available for the construction of storm drain trunk lines and sanitary sewer trunk lines shown in the City's Storm Water Master Plan and Sanitary Sewer System Master Plan. The developer will be reimbursed for construction costs associated with the installation of these trunk lines.



Luqman Ragabi

SITE PLAN REVIEW COMMENTS

CITY OF VISALIA TRAFFIC SAFETY DIVISION

March 15, 2023

ITEM NO: 2 **Resubmit**
SITE PLAN NO: [SPR22124](#)
PROJECT TITLE: Lady's Chicken and Rice
DESCRIPTION: New 1597 sf Drive-thru and Walk-up Restaurant with New Parking Lot/Layout. (C-MU)
APPLICANT: Bounleuk and Jimmy Thongseng
OWNER: THONGSENG JIMMY & BOUNLEUK Y
APN: 094130049
LOCATION: Corner of E. Houston Ave & N. Santa Fe St

THE TRAFFIC DIVISION WILL PROHIBIT ON-STREET PARKING AS DEEMED NECESSARY

- No Comments
- See Previous Site Plan Comments
- Install Street Light(s) per City Standards at time of development.
- Install Street Name Blades at Locations at time of development.
- Install Stop Signs at **local road intersection with collector/arterial** Locations.
- Construct parking per City Standards PK-1 through PK-4 at time of development.
- Construct drive approach per City Standards at time of development.
- Traffic Impact Analysis required (CUP)
 - Provide more traffic information such as (see comments below). Depending on development size, characteristics, etc., a TIA may be required.
- Additional traffic information required (Non Discretionary)
 - Trip Generation - Provide documentation as to concurrence with General Plan.
 - Site Specific - Evaluate access points and provide documentation of conformance with COV standards. If noncomplying, provide explanation.
 - Traffic Impact Fee (TIF) Program - Identify improvements needed in concurrence with TIF.

Additional Comments:

- Applicant to ensure no spillover of drive thru queue onto public right-of-way. In case of spillover, applicant required to mitigate and provide plan of action.
- Noted applicant provided trip generation - A Category 1 analysis was performed.

Leslie Blair

- Applicant provided traffic analysis for left turns in on Santa Fe to support their request - Driveway access into Santa Fe driveway will be restricted to right in/out and left in only. No left turns out will be permitted.
- Applicant provided right turn out sight visibility analysis for proposed driveway on Houston. Applicant provided sight visibility triangle for right turn only exiting in accordance with AASHTO standards. Geometric design of driveway required to force right out turns only.
- Applicant analyzed driveways and functionality of roundabout.
- Traffic questions, contact 559-713-4633.

Leslie Blair

Leslie Blair

City of Visalia
Building: Site Plan
Review Comments

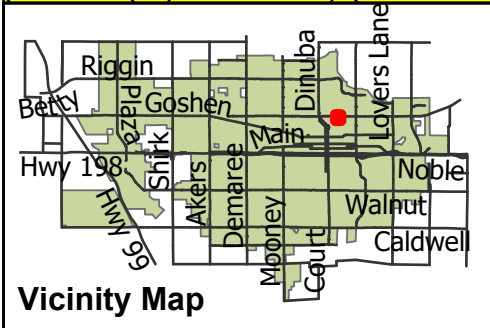
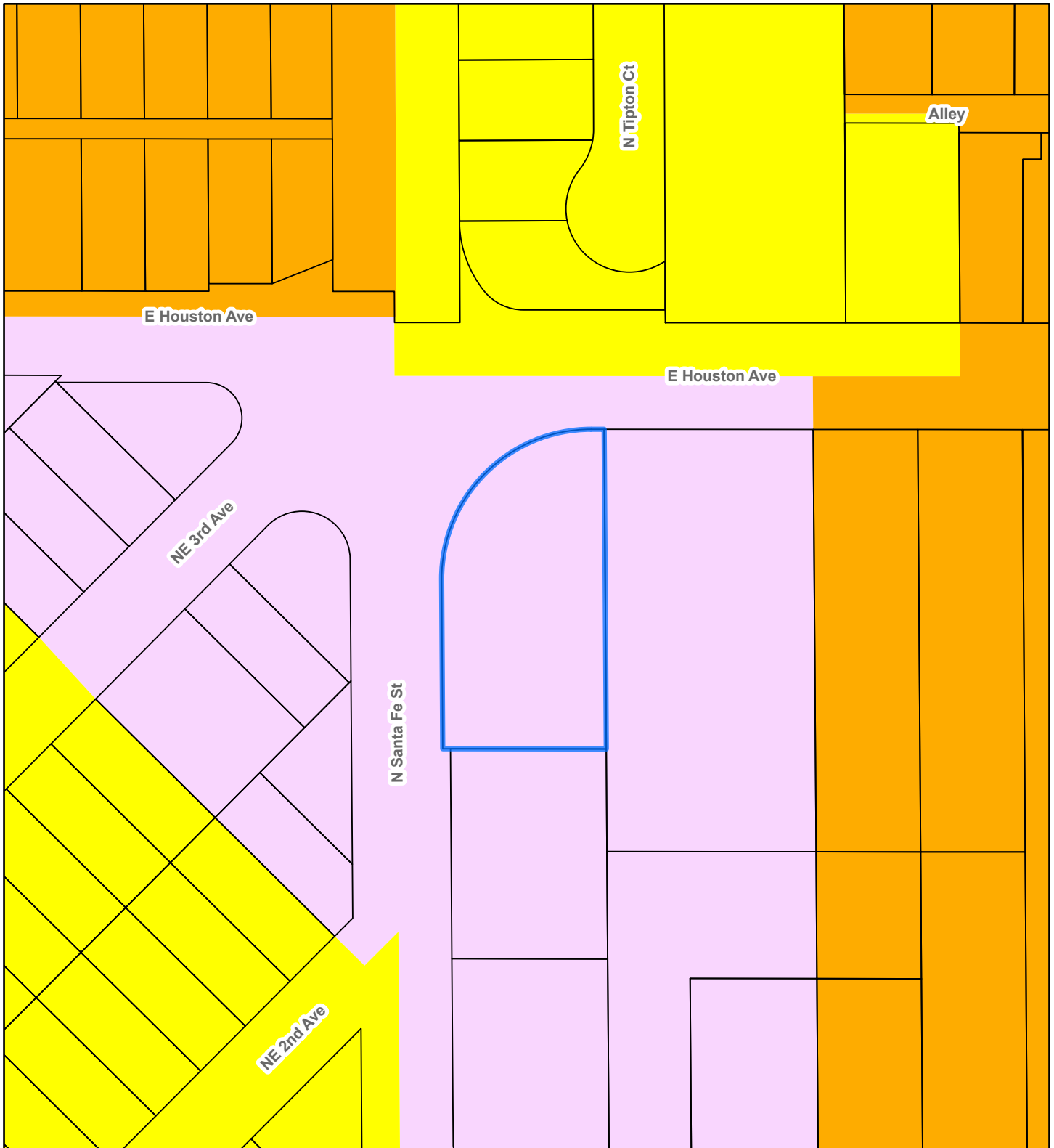
SFR 22-124
LADY'S CHICKEN AND RICE
094-130-049

NOTE: These are general comments and DO NOT constitute a complete plan check for your specific project
Please refer to the applicable California Code & local ordinance for additional requirements.

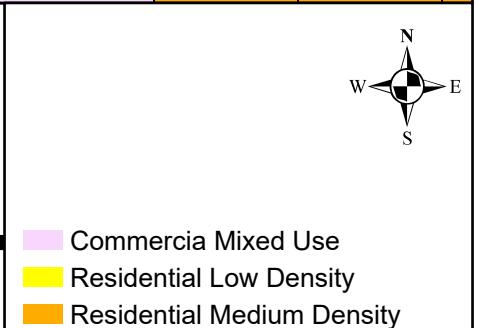
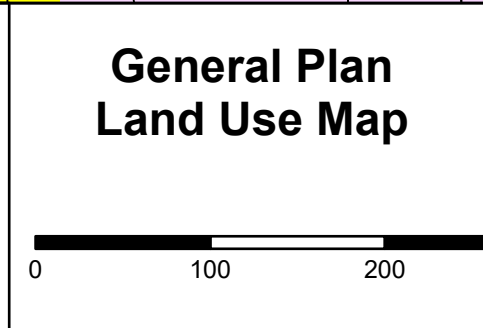
- A building permit will be required. For information call (559) 713-4444
- Submit 1 digital set of professionally prepared plans and 1 set of calculations. (Small Tenant Improvements)
- Submit 1 digital set of plans prepared by an architect or engineer. Must comply with 2016 California Building Cod Sec. 2308 for conventional light-frame construction or submit 1 digital set of engineered calculations.
- Indicate abandoned wells, septic systems and excavations on construction plans.
- You are responsible to ensure compliance with the following checked items:**
- Meet State and Federal requirements for accessibility for persons with disabilities.
- A path of travel, parking and common area must comply with requirements for access for persons with disabilities.
- All accessible units required to be adaptable for persons with disabilities.
- Maintain sound transmission control between units minimum of 50 STC.
- Maintain fire-resistive requirements at property lines.
- A demolition permit & deposit is required. For information call (559) 713-4444
- Obtain required permits from San Joaquin Valley Air Pollution Board. For information call (661) 392-5500
- Plans must be approved by the Tulare County Health Department. For information call (559) 624-8011
- Project is located in flood zone AE * Hazardous materials report. **MEET FEMA FLOOD REQUIREMENTS**
- Arrange for an on-site inspection. (Fee for inspection \$157.00) For information call (559) 713-4444
- School Development fees. COMMERCIAL: \$0.78 PER SF
- Park Development fee \$ _____, per unit collected with building permits.
- Additional address may be required for each structure located on the site. For information call (559) 713-4320
- Acceptable as submitted
- No comments at this time

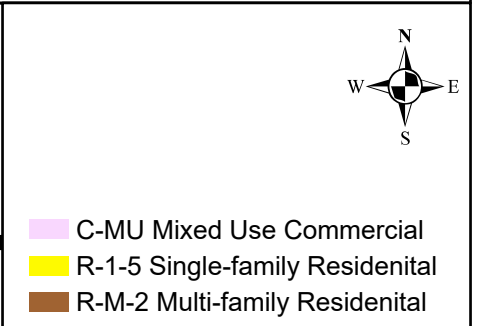
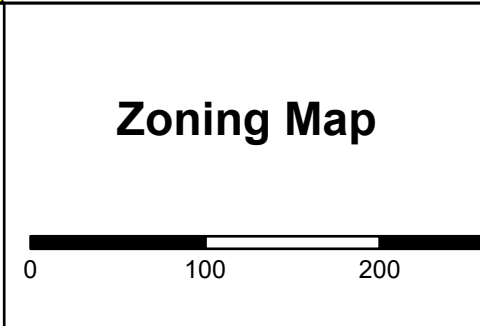
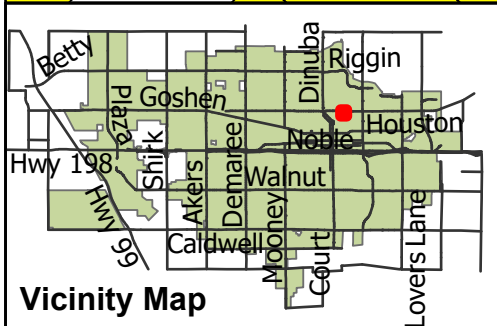
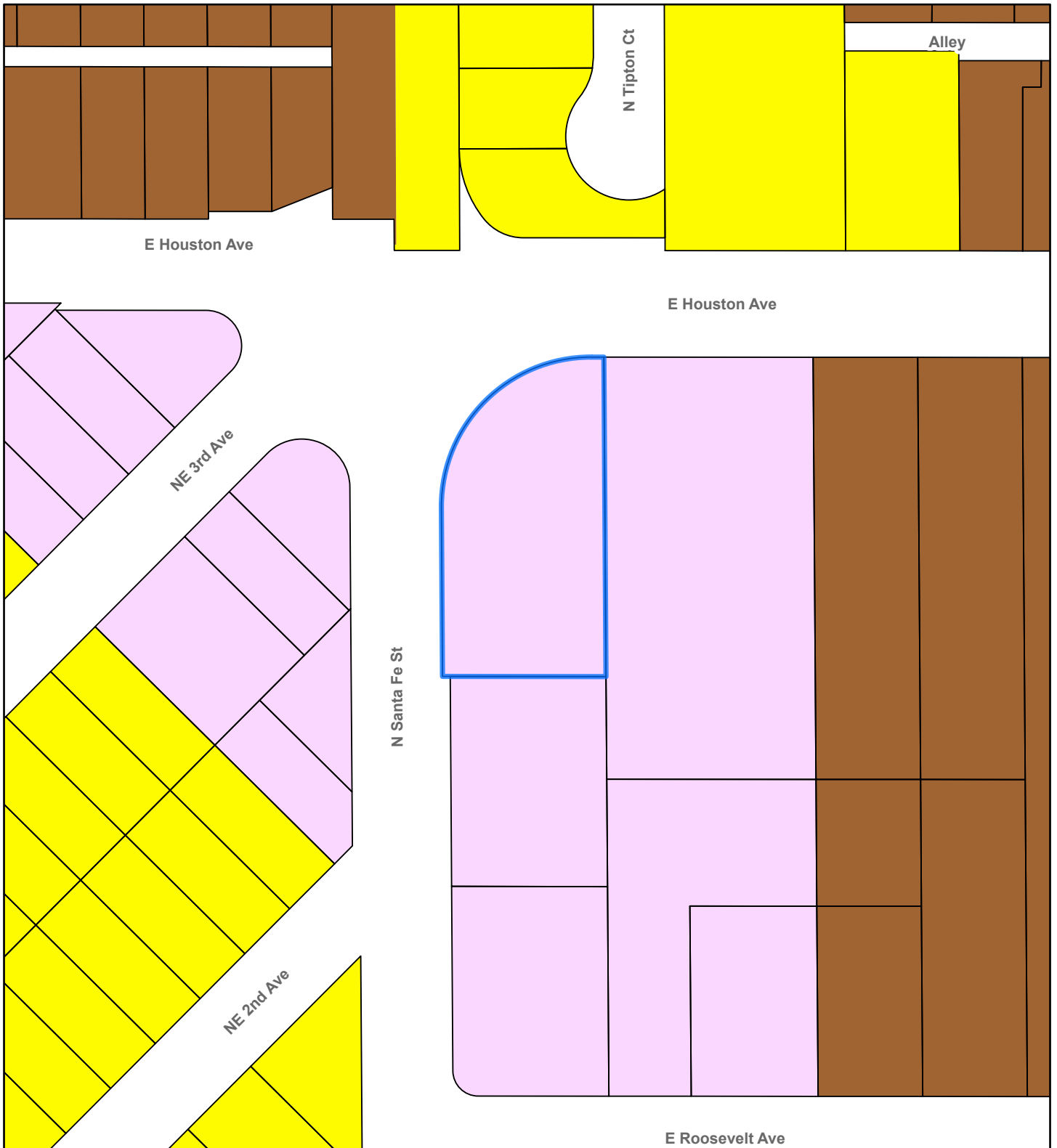
Additional comments: PROVIDE TYPE I HOOD WITH FIRE SUPPRESSION AND INGROUND GREASE INTERCEPTOR. PROVIDE 5% ACCESSIBLE SEATING, FUTURE (EV) CHARGING PARKING, (PV) SOLAR SYSTEM WITH BATTERY STORAGE. LANDSCAPING SHALL MEET THE MVELO REQUIREMENTS.

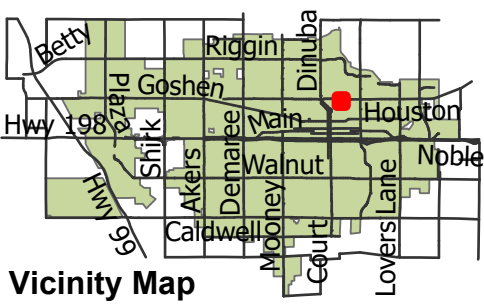
VAL GARCIA 6/22/23



Vicinity Map







Aerial Photo

