

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-31**

**RESOLUTION AMENDING THE FISCAL YEAR 2025-26 ANNUAL
OPERATING AND CAPITAL IMPROVEMENT FUND BUDGETS AND
AUTHORIZING THE CITY MANAGER, TO TAKE THE NECESSARY STEPS
TO IMPLEMENT THE PROVISIONS OF THIS RESOLUTION**

WHEREAS, a financial analysis has been completed and it has been determined that a budget adjustment is required to the Annual and Capital Improvement Budgets of the City of Modesto for Fiscal Year 2025-26.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Modesto that it hereby approves amending the Fiscal Year 2025-26 Annual Operating and Capital Improvement budget as shown in **Exhibit A**, which is **attached** hereto and incorporated by reference herein.

BE IT FURTHER RESOLVED that the City Manager, or his designee, is hereby authorized to take the necessary steps to implement the provisions of this resolution.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST:



DIANE NAVARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY:



JOSE M. SANCHEZ, City Attorney

EXHIBIT A

FISCAL YEAR 2025-26

ENGINEERING SERVICES DEPARTMENT

- A budget adjustment is necessary to allocate funds to various Measure L projects. The total amount of adjustment is \$2,625,000. Each project will have an increase in the transfer out from Fund 1410 – Measure L Local Road Tax to the project and an increase to the projects discretionary expense accounts. This was approved by the Citizen’s Transportation Sales Tax Commission at the meetings held on December 4, 2025. Below is the adjustment to each project.

Project		
Local Streets and Roads Category		
101157	Tuolumne Blvd. Pavement Rehabilitation	\$1,000,000
101578	Claus Road Corridor Improvements	\$1,000,000
Traffic Management Category		
101361	Install Rectangular Rapid Flashing Beacons (RRFB)	\$210,000
101362	Install Signal Heads at 70 Intersections	\$415,000
Total Increase to Projects		\$2,625,000
Total Transfer Out from Fund 1410		\$2,625,000

- A budget adjustment in the amount of \$833,863 is necessary in the Tuolumne River Regional Park (TRRP) CIP Fund 6710 to allocation Fund Balance and unused funds on completed projects to various projects in need of funding. This allocation was approved by the TRRP JPA Commission on December 10, 2025. The allocation is as follows:

TRRP CIP Funding Currently Available

Account	Improvement	Cost
TRRP CIP Fund Balance	Unallocated Fund Balance	\$710,546
101061	Unused Funding for Carpenter Road Area Soccer	\$41,000
101071	Unused Funding for TRRP Neece Drive Boat Launch	\$39,920
101425	Unused Funding for American Legion Hall Fire Remediations	\$12,397
101135	Unused Funding for TRRP River Pavilion & Learning Theater	\$30,000
Total Project Funding Currently Available		\$833,863

TRRP CIP Projects In Need of Funding

Account	Improvement	Cost
101478	TRRP B Restroom Installation	\$350,000
101477	New Playground and Pathway at Mancini Park	\$300,000
101232	TRRP Riverwalk Trail - Gateway to Mary Grogan Grove (Design) (GRANT MATCH POTENTIAL)	\$75,000
101109	TRRP River Overlook (GRANT MATCH POTENTIAL)	\$108,863
Total Project Funding Needed		\$833,863

FINANCE

- A budget adjustment in the amount of \$843,027 is necessary in the Inventory Purchase Fund (5110). This request is derived from the trend we are seeing along with what we have calculated averaging for the remainder of the Fiscal Year. In addition, the Stores Division is assisting in the inventory management for PC replacement for the IT department.

MODESTO POLICE DEPARTMENT

- A budget adjustment in the amount of \$178,369 is needed in the MPD Supplemental Law Enforcement Services Fund (SLESF) Project (101681) in the Police Grants Fund (1342) to increase the expense and revenue budget to account for State revenues and offsetting expenditures.

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-32**

RESOLUTION ACCEPTING SONOMA TRUNK EXTENSION AND LIFT STATION AND SYLVAN WATER MAIN UPGRADE PROJECT AS COMPLETE, RELEASING SECURITIES, RELEASING PAYMENTS TOTALING \$8,253,657 TO MOZINGO CONSTRUCTION INC, OF OAKDALE, CA, AND AUTHORIZING THE CITY CLERK TO FILE A NOTICE OF COMPLETION

WHEREAS, the 2007 Wastewater Master Plan identified the need to extend the Sonoma Trunk along Sylvan Avenue to facilitate land development in the area referred to as the Tivoli Area; and

WHEREAS, this project was the second phase of the sewer infrastructure improvement. It installed new 8-inch and 10-inch gravity sewer mains, as well as a new filtration and infiltration system to eliminate storm water ponding in the area. This project also upgraded an existing 8-inch water main to a 12-inch water main to better serve the Tivoli Area; and

WHEREAS, the project was advertised for bids on June 28, 2022; and

WHEREAS, bids were publicly opened on August 9, 2022, and Mozingo Construction, Inc, of Oakdale, CA, was the lowest responsible bidder at 15.19% above the engineers estimate; and

WHEREAS, on September 13, 2022, by Resolution 2022-382, Council awarded a contract to Mozingo Construction, Inc, in the amount of \$7,981,830; and

WHEREAS,. the Contractor received the Notice to Proceed with a start date of October 31, 2023. All contract work was completed on May 23, 2025; and

WHEREAS, the total project costs \$9,337,392, which included design, City forces, construction, construction administration, and design consultant (Arrow and HRD) costs.

The total project amount originally budgeted was \$9,828,198 which included \$8,939,651 for the construction contract and contingency with Mozingo Construction, Inc.; and

WHEREAS, the City's "Change Order Approval Policy" enacted by Council Resolution No. 94-443 on July 19, 1994, updated by Resolution No. 2019-326 on July 9, 2019, established a contract change order authority of up to and not to exceed 10% (\$798,183). However, due to the complexity and duration of this project, on September 13, 2022 by Council Resolution 2022-383, City Council approved the director's authority to increase to 12% (\$957,821); and

WHEREAS, there were twenty-seven (27) change orders resulting in an overall increase of \$271,827 for change order work as listed on the attached change order log; and

WHEREAS, by accepting this project as complete, the City officially accepts the improvements made and authorizes the Notice of Completion to be filed.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Modesto that the Sonoma Trunk Extension, Lift Station and Sylvan Water Main Upgrade Project as complete, releasing securities, releasing payments totaling \$8,253,657 to Mozingo Construction Inc, of Oakdale, CA, and authorizing the City Clerk to file a Notice of Completion.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST:


DIANE NAYARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY: 
JOSE M. SANCHEZ, City Attorney

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-33**

RESOLUTION APPROVING A FIRST AMENDMENT TO THE EXISTING ON-CALL AGREEMENTS FOR CONSTRUCTION INSPECTION SERVICES, TO EXTEND THE TERM OF THE AGREEMENTS THROUGH JUNE 30, 2027, AND INCREASE THE EXISTING TOTAL AMOUNT OF \$149,000 TO A NOT TO EXCEED \$300,000 FOR EACH OF THE THREE (3) CONSULTANTS; AND AUTHORIZING THE CITY MANAGER, OR HIS DESIGNEE TO EXECUTE THE AMENDMENTS

WHEREAS, the Construction Administration Division for the City of Modesto in the Engineering Services Department is responsible for Construction Management and Inspection Services for most of the capital projects within the City in addition to the inspection of all encroachment permits issued by the City; and

WHEREAS, from time to time, project workload and permit workload require more resources than the City has available internally. For those reasons, the City utilizes the On-Call Inspection Services list; and

WHEREAS, on June 11, 2024, by Resolution 2024-201, Council approved the On-Call Agreement for Construction Inspection with Dillon and Murphy Engineering, TRC Engineering, and West Yost & Associates for an amount of \$74,500 per consultant, per year. That agreement is for one (1) year with an additional two (2) one-year extensions, ending June 11, 2027; and

WHEREAS, the Construction Administration Division in the Engineering Services Department is facing a Construction Inspector staff shortage in the 2025-2026 fiscal year with multiple retirements and a long-term absence, due to injury; and

WHEREAS, the City is currently experiencing a higher-than-normal volume of Capital Improvement Program (CIP) construction projects; and

WHEREAS, this volume and the lack of available staff have resulted in an increased utilization of the On-Call Inspection Services list to meet the demands of inspection requirements; and

WHEREAS, the available funds for these services are expected to be depleted in the next three (3) months; and

WHEREAS, Modesto Municipal Code Section 8-3.203 generally requires all purchases, which meet or exceed \$100,000 for material, equipment, or contractual services to be formally bid. However, exceptions to the formal bidding process are granted in MMC 8-3.204(f) where the Purchasing Manager, in his or her discretion, determines that it is appropriate to amend the services or goods provided under an existing agreement to include additional similar goods or services, of limited quantity or scope, in order to increase efficiency and avoid delays or disruptions to City projects or services”; and

WHEREAS, each of the three (3) agreements would typically be considered for extension in June of 2026 for an additional year to the end of June 2027; and

WHEREAS, staff recommend an early extension of each of the agreements and the allocation of additional funding to ensure coverage for inspection services through June 2027; and

WHEREAS, the current allocation is \$149,000 for each consultant through June 2026. The extension until June 2027 would allocate an additional \$74,500 for a total not to exceed \$223,500; and

WHEREAS, on January 26, 2026, this project was presented to the Finance Committee for consideration. The Committee recommended forwarding to Council for approval.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Modesto that accepts the Amendments to the existing On-Call Agreements for Construction Inspection Services, to extend the term of the agreements through June 30, 2027, increase the existing total amount of \$149,000 to a not to exceed \$300,000 for each of the three (3) consultants.

BE IT FURTHER RESOLVED, that the City Manager, or his designee, is authorized to execute the Amendments, in a form approved by the City Attorney.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST:


DIANE NAYARÉS-PÉREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY:


JOSE M. SANCHEZ, City Attorney

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-34**

RESOLUTION ACCEPTING THE AUDITED FINANCIAL STATEMENTS AND VARIOUS AUDIT REPORTS FOR FISCAL YEAR 2024-2025 AUDITED BY EXTERNAL AUDITORS VASQUEZ & COMPANY, LLP. FOR THE CITY'S ANNUAL COMPREHENSIVE FINANCIAL REPORT (ACFR), THIRTEEN (13) COMMUNITY FACILITIES DISTRICTS (CFDS), MEASURE H, AND VARIOUS JOINT POWERS AGENCIES (JPAS)

WHEREAS, pursuant to Section 1306 of the Charter of the City of Modesto, the City Council shall employ an independent certified public accountant who, at least annually, shall audit the books and records of the City of Modesto, and submit a final audit and report to the City Council as soon as practicable after the end of the fiscal year, and

WHEREAS, the accounting firm Vasquez & Company, LLP., has completed their audit of the City's financial statements for the fiscal year ended June 30, 2025, and has provided its opinion on these financial statements based on that audit, and

WHEREAS, the independent auditors also audited financial statements of twelve Community Facilities Districts and various Joint Powers Agencies, as required by their respective enabling legislations, and for which the City of Modesto serves as the financial administrator, and

WHEREAS, by the Council of the City of Modesto it hereby accepts the Fiscal Year 2024-2025 annual audit reports for the City of Modesto, Community Facilities Districts, Measure H, and various Joint Powers Agencies, as listed in **Exhibit A**, which is incorporated by reference herein.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Modesto that it hereby accepts the Fiscal Year 2024-2025 annual audit reports for the City of

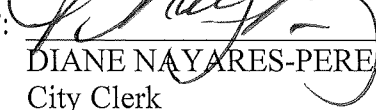
Modesto and other Joint Power Agencies, as listed in **Exhibit A**, which is incorporated by reference herein.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST: 
DIANE NAYARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY: 
JOSE M. SANCHEZ, City Attorney

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-34**

**RESOLUTION ACCEPTING THE FISCAL YEAR 2024-2025 ANNUAL AUDIT
REPORTS**

EXHIBIT A

City of Modesto:

1. Annual Comprehensive Financial Report FY 2024-2025
2. GANN Limit Report FY 2024-2025
3. Community Facilities District Number 1998-2 (Carver-Bangs/Pelandale-Snyder)
4. Community Facilities District Number 2000-2 (Coffee-Claratina)
5. Community Facilities District Number 1998-1 (Enterprise Business Park)
6. Community Facilities District Number 2003-1 (Fairview Village)
7. Community Facilities District Number 2007-2 (Kiernan Business Park West)
8. Community Facilities District Number 1997-1 (North Beyer Park)
9. Community Facilities District Number 2002-1 (Northpointe)
10. Community Facilities District Number 2004-1 (Village One #2)
11. Community Facilities District Number 1996-1 (Village One)
12. Community Facilities District Number 2016-2 (Kiernan Business Park East #2)
13. Community Facilities District Number 2007-1 (North Beyer #2)
14. Community Facilities District Number 2016-2 (The Vintage)
15. Community Facilities District Number 2021-1 (Woodglen)
16. Measure H 2024-2025

Other Agencies:

17. Abandoned Vehicle Abatement (AVA)
18. Modesto-Ceres Fire Protection Agency Financial Statements
19. Tuolumne River Regional Park (TRRP)
20. Transportation Development Agency (TDA)

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-35**

**RESOLUTION ACCEPTING THE AUDITED FISCAL YEAR 2024-2025
FEDERAL SINGLE AUDIT REPORT FOR THE CITY OF MODESTO FROM
EXTERNAL AUDITORS VASQUEZ & COMPANY, LLP**

WHEREAS, the City of Modesto Single Audit reports are federally mandated by the provisions of the Federal Single Audit Act Amendments of 1996 and Title 2 U.S. Code of Federal Regulations (CFR) Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), which requires an audit to be conducted for any non-Federal entity that expends \$750,000 or more a year in Federal awards, and

WHEREAS, this audit was conducted by the City's external auditors, Vasquez & Company, LLP, and the main objectives were to ensure a fair presentation of the basic financial statements and the schedule of expenditures of Federal awards, and to also audit the City's internal controls and compliance with legal requirements, with special emphasis on internal controls and legal requirements involving the administration of federal awards expended during the fiscal year, and

WHEREAS, as part of the City's Fiscal Year 2024-2025 Single Audit report, no findings were reported.

NOW, THEREFORE, BE IT RESOLVED, by the Council of the City of Modesto that it hereby accepts the Fiscal Year 2024-2025 Single Audit report for the City of Modesto.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST: 
DIANE NAYARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY: 
JOSE M. SANCHEZ, City Attorney

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-36**

RESOLUTION APPROVING A MEMORANDUM OF UNDERSTANDING (MOU) WITH YOSEMITE COMMUNITY COLLEGE DISTRICT (YCCD) FOR DEVELOPMENT AND USE OF THE CLASSROOM (PORTABLE 101) LOCATED AT 1220 FIRE SCIENCE LANE., AND AUTHORIZING THE CITY MANAGER, OR HIS DESIGNEE, TO EXECUTE THE AGREEMENT

WHEREAS, on October 10, 2023, by Resolution 2023-454, the Modesto Fire Department (MFD) and Yosemite Community College District (YCCD) created a partnership through an Instructional Services Agreement (ISA). This partnership agreement provides for educational program oversight and enables shared use of personnel, equipment, and facilities; and

WHEREAS, the purpose of this Memorandum of Understanding (MOU) is to establish an agreement between YCCD and the City for the use of the Congressionally Funded Community Projects (CFCP) grant fund, award #P116Z230339, in the joint effort to modernize and expand the Portable 101 classroom training facility (“Portable 101”), located at 1220 Fire Science Lane, Modesto, CA, for students and public safety professionals associated with YCCD, per the agreement for the Oversight of the Fire and EMS Public Safety Programs between the City of Modesto (COM) and Yosemite Community College District (YCCD); and

WHEREAS, Modesto Junior College (MJC), one of two (2) colleges in the YCCD, and City of Modesto have established a partnership to facilitate the development, instruction, and accreditation of the Fire Science Academy, fire technology courses, emergency medical services courses, and paramedic courses at MJC, and to provide continuous professional training and certifications for public safety professionals; and

WHEREAS, Portable 101 meets various firefighter and paramedic training objectives at the MJC Regional Fire Training Center (RFTC). Portable 101, along with other components of the facility build out, complements the RFTC and expands student/fire/EMS-paramedic service instructional and professional training capability; and

WHEREAS, upon approval of this Memorandum of Understanding by the City Modesto and YCCD, YCCD shall reimburse the City up to \$150,000, from the Congressionally Funded Community Projects (CFCP) grant award #P116Z230339, billable from July 1, 2025 to May 31, 2026, for expenses incurred by the modernization and expansion of Portable 101 classroom training facility; and

WHEREAS, costs for this project are budgeted for and available within the General Fund and may be fully reimbursed once fully executed. The City of Modesto will submit to YCCD a quarterly invoice for the amount with the itemized record or receipts of goods and services for reimbursement.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Modesto that it hereby approves a Memorandum of Understanding (MOU) with Yosemite Community College District (YCCD) for development and use of the Classroom (Portable 101) located at 1220 Fire Science Lane.

BE IT FURTHER RESOLVED, that the City Manager is authorized to execute all documents and agreements, in a form approved by the City Attorney.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Bavaro, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST:


DIANE NAYARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY:


JOSE M. SANCHEZ, City Attorney

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-37**

RESOLUTION APPROVING AN AMENDMENT TO THE CIRCULATION ELEMENT OF THE MODESTO URBAN AREA GENERAL PLAN TO CHANGE THE DESIGNATION OF OAKDALE ROAD BETWEEN SCENIC DRIVE AND CLARIBEL ROAD FROM SIX-LANE PRINCIPAL ARTERIAL STREET TO FOUR-LANE ARTERIAL STREET, AND TO CHANGE THE DESIGNATION OF CLARATINA AVENUE BETWEEN MCHENRY AVENUE AND CLAUS ROAD FROM SIX-LANE PRINCIPAL ARTERIAL STREET TO FOUR-LANE ARTERIAL STREET (CITY OF MODESTO)

WHEREAS, on March 5, 2019, the City Council of the City of Modesto certified the Final Master Environmental Impact Report (“Master EIR”) (SCH No. 2014042081) for the Modesto Urban Area General Plan, and

WHEREAS, a new General Plan for the City of Modesto entitled “City of Modesto Urban Area General Plan”, as recommended by the Modesto City Planning Commission, was adopted by the Council of the City of Modesto by Resolution No. 95-409 on August 15, 1995, and

WHEREAS, said General Plan has been amended by Modesto City Council Resolution Nos. 95-584, 96-20, 96-338, 96-639, 97-3, 97-137, 97-158, 98-293, 99-162, 99-564, 2000-303, 2000-633, 2001-47, 2001-476, 2002-154, 2002-526, 2003-101, 2003-122, 2004-233, 2005-70, 2007-066, 2007-599, 2008-142, 2008-583, 2009-419, 2011-253, 2011-254, 2011-435, 2012-430, 2014-17, 2014-422, 2015-262, 2016-34, 2017-21, 2019-109, 2022-101, 2022-193, 2022-449, 2024-022, 2025-164 and 2025-247, copies of which are on file in the office of the City Clerk, and

WHEREAS, Government Code Section 65358 permits the amendment of General Plans by the legislative body, and

WHEREAS, the City of Modesto conducted a Traffic Analysis Study (“Oakdale Claratina Traffic Analysis Study”, Kittleson & Associates, July 2, 2025), as described in **Exhibit “B”, attached** hereto and incorporated herein by reference, by which the roadways of Oakdale Road and Claratina Avenue were studied for capacity and operational performance in the context of the North County Corridor project, of which Phase I of construction is currently underway, and

WHEREAS, the Traffic Analysis Study confirms that Oakdale Road between Scenic Drive and Claribel Road can be reclassified from planned six-lane configurations to four lanes, and that Claratina Avenue between McHenry Avenue and Claus Road can be reclassified from planned six-lane configurations to four lanes, both while still accommodating the area’s anticipated growth to the year of 2046, and

WHEREAS, as a result of the conclusions of the Traffic Analysis Study, the City of Modesto proposes to amend the Circulation Element of the General Plan to change the designation of Oakdale Road between Scenic Drive and Claribel Road from six-lane Principal Arterial Street to four-lane Arterial Street, and Claratina Avenue between McHenry Avenue and Claus Road from six-lane Principal Arterial Street to four-lane Arterial Street, together with associated textual amendments to the General Plan; and

WHEREAS, said application was made concurrently with a proposed amendment to the Tivoli Specific Plan to amend the Street Hierarchy Diagram of the Specific Plan, with associated text amendments (File No. SPA-25-004), and

WHEREAS, the amendment is exempt from CEQA pursuant to Section 15061(b)(3) of the CEQA Guidelines, which exempts projects where it can be seen with certainty that there is no possibility of a significant effect on the environment. The

proposed General Plan amendment meets the criteria by being an administrative and regulatory action, and the basis of the Traffic Analysis Study which concludes that the reclassification of the two roadways to four-lane Arterial Streets would still accommodate the area's future anticipated growth to the year 2046, and

WHEREAS, on January 5, 2026, the Planning Commission held a duly noticed public hearing in the Tenth Street Place Chambers located at 1010 Tenth Street, Modesto, California, relating to this proposed amendment to the Modesto Urban Area General Plan, and

WHEREAS, after said public hearing, the Planning Commission adopted Resolution No. 2026-02, recommending to the City Council an amendment to the Circulation Element of the Modesto Urban Area General Plan, and

WHEREAS, said matter was set for a public hearing of the City Council to be held on February 10, 2026, in the Tenth Street Place Chambers located at 1010 Tenth Street, Modesto, California, at which date and time said duly noticed public hearing of the Council was held for the purpose of receiving public comment on the proposed amendment to the Modesto Urban Area General Plan.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Modesto that it hereby finds and determines that the proposed amendment to the Circulation Element of the Modesto Urban General Plan to as described in **Exhibit "A.1" and A.2, attached** hereto and incorporated herein by reference, is required for the public health, safety, and welfare of the citizens of Modesto.

BE IT FURTHER RESOLVED by the Council of the City of Modesto that it hereby adopts the proposed amendment to the Circulation Element of the Urban Area

General Plan as described in **Exhibit “A.1” and “A.2”, attached** hereto and incorporated herein by reference, is required for the public health, safety, and welfare of the citizens of Modesto, subject to the following conditions:

1. Prior to the commencement of improvements to the Right of Way at the intersection of Oakdale and Claratina Avenue, or any road modifications where they intersect with SFPUC ROW, applicant must submit to Hetch Hetchy Water and Power (HHWP), a HHWP Project Review and Land Use Application and obtain written authorization from SFPUC for any proposed crossing, use of, reclassification, rezoning or work on CCSF-owned land. Contact hhwp_row@sfgwater.org.
2. All existing underground and aboveground utilities, irrigation, and electrical lines shall be protected, relocated or removed as required by the utility companies and the City Engineer or designee. Easements for utilities, irrigation and electrical lines to remain shall be reserved as required.

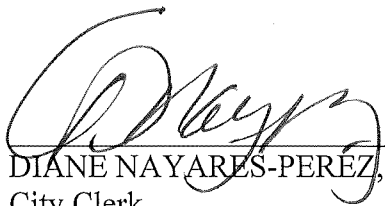
BE IT FURTHER RESOLVED by the Council of the City of Modesto that the Community and Economic Development Department Director is hereby authorized and directed to forward certified copies of this resolution and said amendment to the Circulation Element of the Urban Area General Plan to the Board of Supervisors, and file a Notice of Exemption within five (5) business days with the Stanislaus County Clerk pursuant to Section 21152 of the Public Resources Code.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Vice-Mayor Williams, who moved its adoption, which motion being duly seconded by Councilmember Wright, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST: 
DIANE NAYARES-PEREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

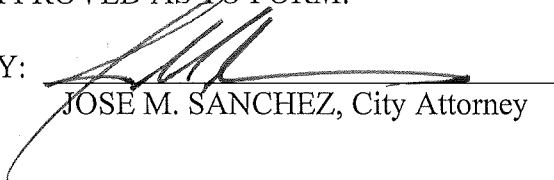
BY: 
JOSE M. SANCHEZ, City Attorney

EXHIBIT A.1
GENERAL PLAN CIRCULATION ELEMENT (FIGURE V-1, AS AMENDED)

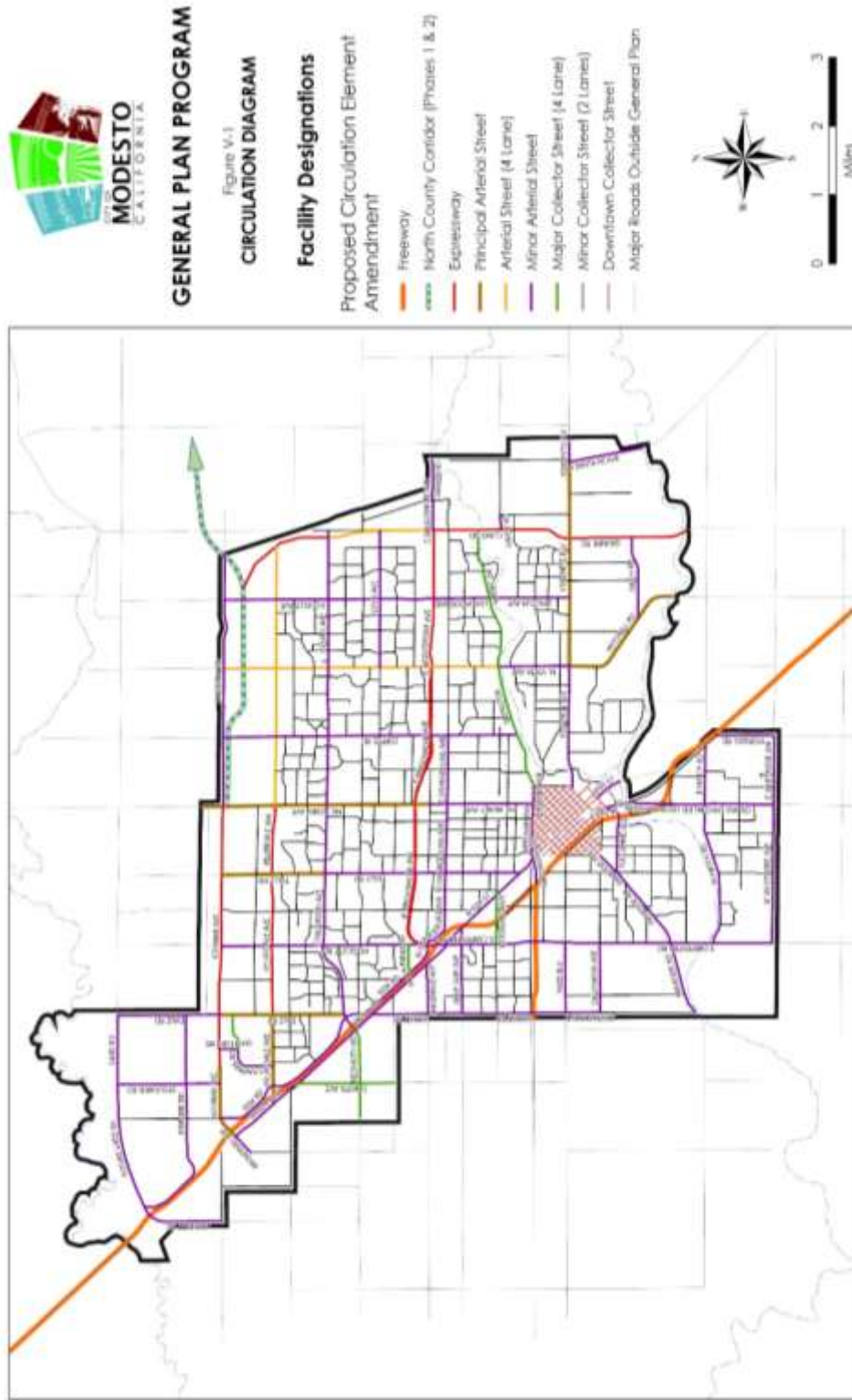
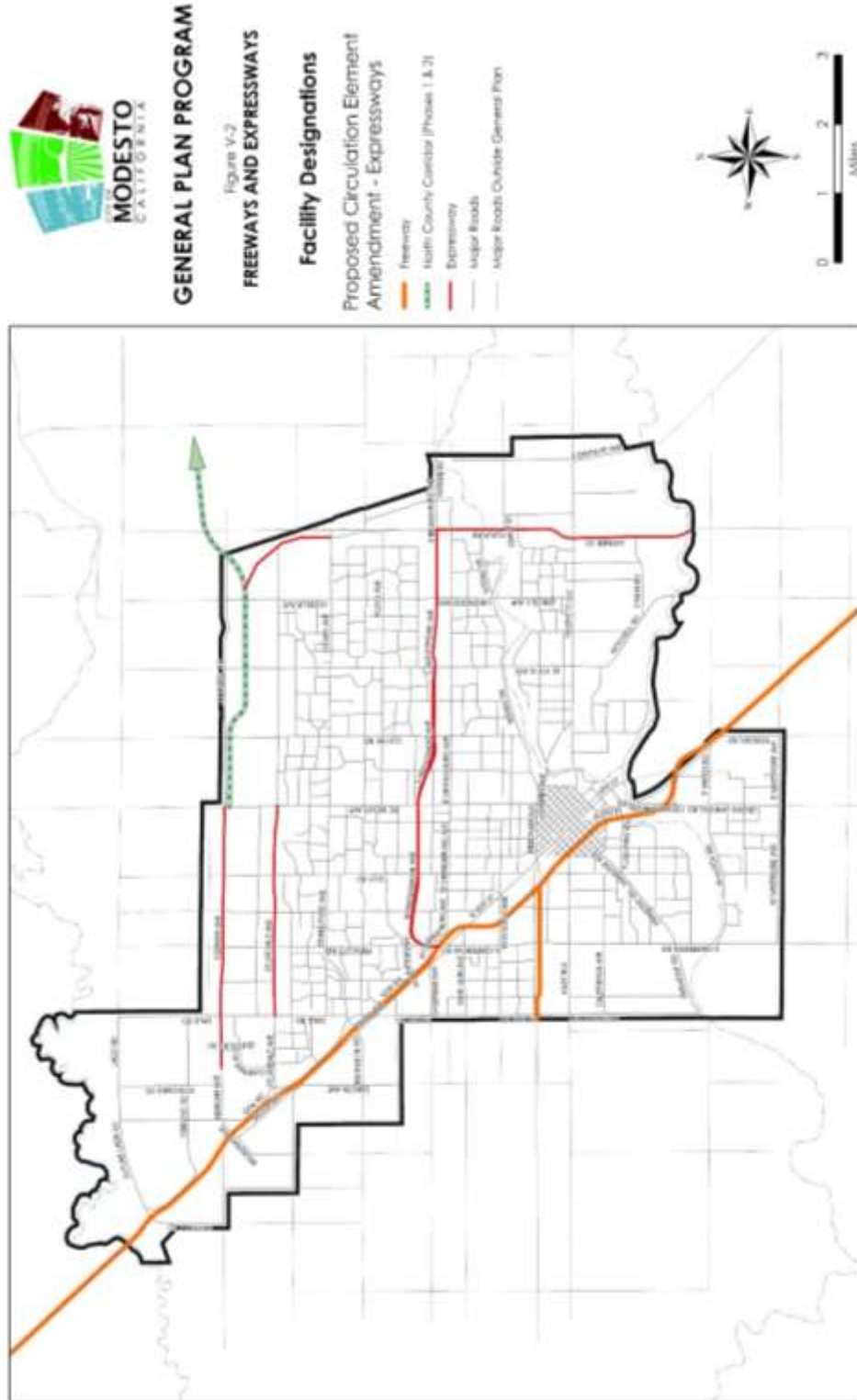


EXHIBIT A.2
GENERAL PLAN CIRCULATION ELEMENT—FREEWAYS AND EXPRESSWAYS
(FIGURE V-2, AS AMENDED)



OAKDALE CLARATINA TRAFFIC ANALYSIS STUDY

Modesto, CA

July 2, 2025



Inside front cover

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Oakdale Claratina Traffic Analysis Study Modesto, CA

Prepared for:

Tamora Bryant
Harris & Associates

Michael Sacuskie
City of Modesto

Prepared by:

Kittelson & Associates, Inc.
155 Grand Avenue, Suite 505
Oakland, CA 94612
510.839.1742

Project Team:

Dhawal Kataria, AICP, RSP₁
Mychal Loomis, PE, TE, PTOE, RSP₁
TJ Hribar
Mike Aronson, PE
Mike Alston TE, RSP₁

Project Number 30299

July 2, 2025



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- Appendix B: Existing Conditions LOS Worksheets
- Appendix C: Future (2046) Planned Conditions LOS Worksheets
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Section 1

Introduction

Introduction

The Oakdale Claratina Traffic Analysis Study (Study) aims to assess the following:

- Whether the planned classifications of Oakdale Road (from Claribel Avenue to Scenic Drive) and Claratina Avenue (from Oakdale Road to McHenry Avenue) could be reduced from six lanes to four lanes and accommodate anticipated future growth in the study area. This is primarily assessed based on the intersection and roadway segment operations, changes in travel time, and other relevant indicators.
- The feasibility and anticipated operations of using roundabout control at the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue.

BACKGROUND

The City of Modesto General Plan and Tivoli Specific Plan designate Oakdale Road (from Claribel Road to Scenic Drive) as a six-lane Principal Arterial but note that it is constrained between Sylvan Avenue and Scenic Drive. Claratina Avenue is classified as an Expressway west of Oakdale Road and as a six-lane Principal Arterial east of Oakdale.¹

Since the General Plan's adoption, changes to the planned roadway network have occurred, including the reduction of the reclassification of a road parallel to Oakdale Road, Claus Road, from six lanes to four lanes, and the programming of the North County Corridor Phase 1 east of Oakdale Road.²

The City of Modesto (city) seeks an analysis of Oakdale Road and Claratina Avenue to determine whether a six-lane facility remains necessary to meet the area's transportation needs. The city is considering reclassifying these roads as four lanes. This study provides a data-driven evaluation to guide stakeholders—including the city, Stanislaus County, the development community, the Stanislaus Council of Governments (StanCOG), and nearby landowners—on whether the proposed reclassification can effectively accommodate the movement of people.

STUDY SCENARIOS

The study evaluated the following scenarios under existing and future (2046) conditions:

- **Existing Conditions:** Represents the current roadway network, assessed using observed traffic counts.
- **Future (2046) Planned Conditions:** Represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes, assessed using 2046 volumes estimated by the Stanislaus County travel demand model as modified for the

¹ City of Modesto General Plan (March 2019). *Chapter V. Transportation*. Retrieved from <https://www.modestogov.com/DocumentCenter/View/15012/GPA-10-001-DOC-Chapter-V-3-6-19-PDF>

² Stanislaus County. North County Corridor Phase 1 Project. Retrieved from <https://northcountycorridorphase1.com/>

Modesto General Plan and current plans for the North County Expressway Phase 1 and the planned road network for the Tivoli Specific Plan.

- **Future (2046) Adjusted Conditions:** Evaluates an alternative future roadway network scenario where the study corridors are reduced to four lanes and assessed using volumes estimated by a projected 2046 traffic volumes from the travel demand model as modified to include the four lane segments.

STUDY AREA

Figure 2 illustrates the study intersections and roadway segments analyzed in this study. **Table 1** presents the roadway segments analyzed, along Oakdale Avenue and Claratina Avenue, which are being considered for reclassification from six lanes to four. **Table 2** lists the seven intersections identified through discussions with city staff.

Table 1: Roadway Segments

#	Roadway Segment	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	Oakdale Rd between Claribel Rd & Claratina Ave	2 lanes	6 lanes	4 lanes
2	Oakdale Rd between Claratina Ave & Mable Ave	2 lanes	6 lanes	4 lanes
3	Oakdale Rd between Mable Ave & Bridgewood Way	3 lanes	6 lanes	4 lanes
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	2 lanes	6 lanes	4 lanes
5	Claratina Ave between McHenry Ave & Coffee Rd	2 lanes	6 lanes	4 lanes
6	Claratina Ave between Coffee Rd & Oakdale Rd	2 lanes	6 lanes	4 lanes

Source: Kittelson & Associates, Inc. 2025

Table 2: Study Intersections and Intersection Control

No	Intersection Name	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	Signal	Signal
2	Coffee Rd & Claratina Ave	Roundabout ¹³	Roundabout ²³	Roundabout ²³
3	Oakdale Rd & Claratina Ave	Signal	Signal	Roundabout ²³
4	Oakdale Rd & Claribel Ave	Signal	Signal	Signal
5	Oakdale Rd & Mable Ave	Signal	Signal	Roundabout ²
6	Oakdale Rd & Bridgewood Way	Two-way Stop	Signal	Roundabout ¹
7	Oakdale Rd & Sylvan Ave	Signal	Signal	Roundabout ²³

Source: Kittelson & Associates, Inc. 2025

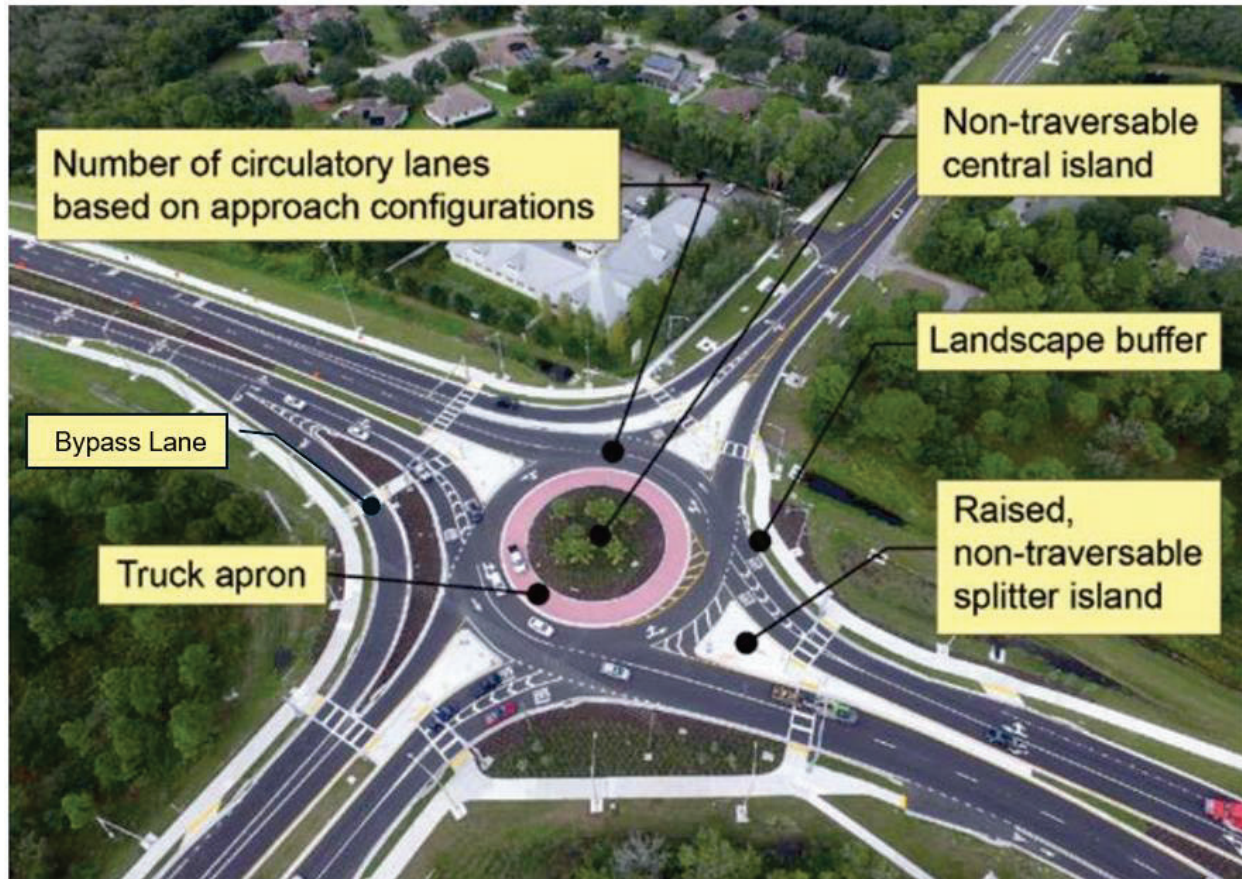
Note: ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Kittelson conducted turning movement and tube counts at these locations in June 2024. A summary of the traffic count data is provided in **Appendix A**.

Understanding Roundabouts

A roundabout is a circular intersection form in which traffic travels counterclockwise around a central island and entering traffic must yield to circulating traffic. Figure 1 shows a roundabout annotated with common features including a bypass lane and circulatory lane.

Figure 1: Common Roundabout Features



Source: NCHRP 1043; Edited by Kittelson & Associates, Inc.

The circulatory roadway is the portion of a roundabout where vehicles travel counterclockwise around the central island. In multilane roundabouts, this roadway may include two or more circulating lanes, which should not be confused with bypass lanes.

Bypass lanes, also known as channelized turn lanes or slip lanes can be added to roundabouts to improve capacity for specific turning movements. However, their implementation requires careful consideration of potential conflicts with pedestrians and bicyclists, as well as operational impacts such as reverse traffic patterns during opposing peak periods.³

Currently, Modesto has multilane roundabouts along Sylvan Avenue at Roselle Avenue and Millbrook Avenue but none of them feature a bypass lane.

³ National Academies of Sciences, Engineering, and Medicine. 2023. *Guide for Roundabouts*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27069>.

Figure 2: Study Area



Figure 1: Study Area

- Study Intersections
- Study Segments





Section 2

Existing Conditions

Roadway Network

The following section outlines the existing and planned roadway conditions in the study area, covering pedestrian network, bicycle facilities, transit system, and roadway network.

PEDESTRIAN NETWORK

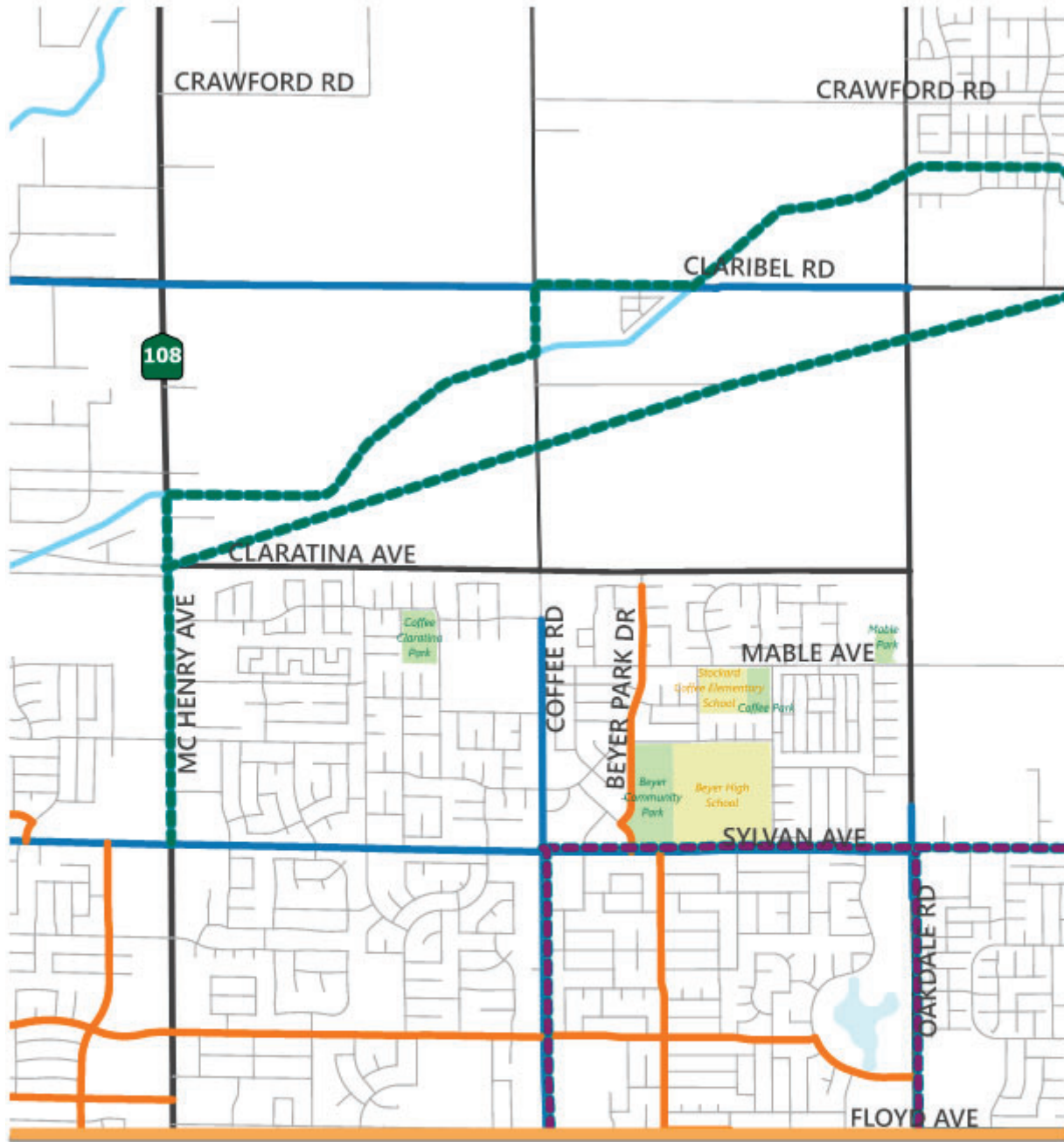
There are parks, schools, and retail stores located near the study intersections and segments that contribute to pedestrian activity in the area. Marked crosswalks are provided at all study intersections except for Oakdale Road and Bridgewood Way. Due to the predominantly undeveloped nature of the area, sidewalks are limited and are present only along the west side of Oakdale Road between Claratina Avenue and Sylvan Avenue.

BICYCLE FACILITIES

Figure 3 illustrates the existing bicycle network within the study area. Class II bike lanes are present on Claribel Road (between McHenry Avenue and Oakdale Road), Sylvan Avenue (between McHenry Avenue and Oakdale Road), and Coffee Road (south of Montana Drive). Beyer Park Drive and Keller Street are designated as Class III shared bicycle routes.

According to the City of Modesto Non-Motorized Transportation Plan, Class IV separated bikeways are proposed for Sylvan Avenue, Oakdale Road, Mable Avenue, and Coffee Road. Additionally, Sylvan Meadows Drive, Beyer Park Drive, and Keller Street are planned to be upgraded to Class IIIB Bicycle Boulevards.

Figure 3: Bicycle Network



- | Planned | Existing Bikeways |
|---------|------------------------------|
| | Class I Shared Use Path |
| | Class II Bike Lane |
| | Class II Buffered Bike Lane |
| | Class III Bike Route |
| | Class IV Protected Bike Lane |

Figure 2: Bicycle Network

0 1 Miles
 Date: 01/27/2025



TRANSIT SYSTEM

The study area is served by several StanRTA routes which serve Oakdale Road, Sylvan Avenue, Mable Avenue and McHenry Avenue. **Figure 4** and **Table 3** describe the routes that directly serve the study area.

Table 3: StanRTA Bus Routes

Route Number	Description	Frequency	Days and Times
23	Travels between the Modesto Transit Center and Kiernan along McHenry. <i>Stops of interest include McHenry Village and Walmart.</i>	Every 30 Minutes (Weekdays and Saturdays) and Every 1 Hour on Sundays	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
32	Travels between the Modesto Transit Center and Beyer High School neighborhoods via I St., Scenic, Coffee, Mable, Oakdale, and Sylvan. <i>Stops of interest include the Health Department, Downey High School, Memorial Medical Center, Beyer High School, and Beyer Park.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
60	Travels between the Modesto Transit Center and Oakdale through Riverbank via Sunrise, Floyd, Oakdale Rd, Patterson, and Hwy 108. <i>Stops of interest include Gladys Lemon Senior Center, daycare centers, schools, local government buildings, the post office, and grocery stores.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (5 AM – 10 PM) and Weekends (reduced times)

Source: StanRTA, 2025

Figure 4: Transit Network



Figure 3: Transit Network

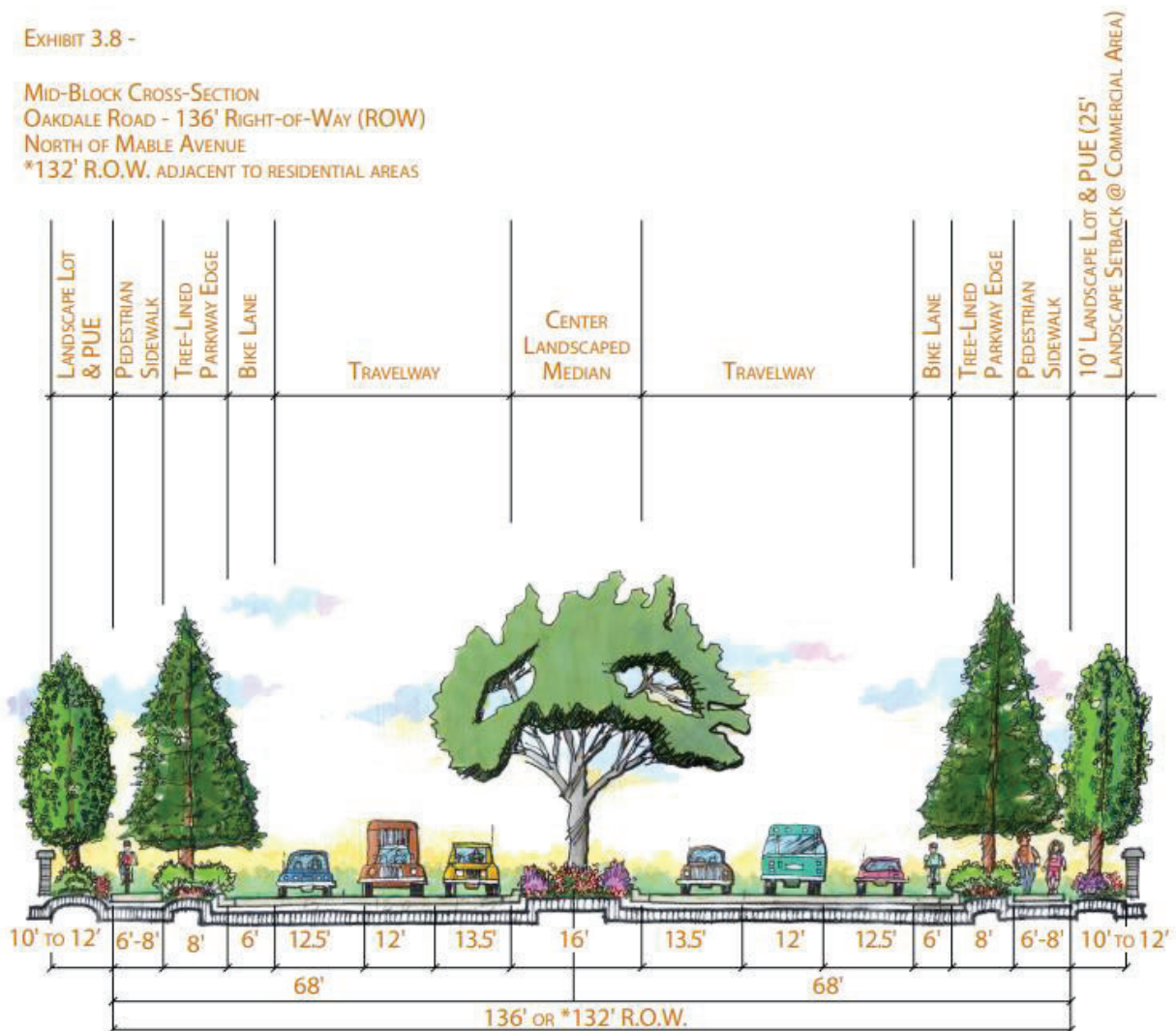


ROADWAY CONFIGURATION

Oakdale Road is a north-south arterial that connects SR 132 (Yosemite Boulevard) in the south to SR 108 (Patterson Road) in the north. The segment between Claribel Road and Claratina Avenue is a two-lane undivided roadway, primarily surrounded by undeveloped agricultural land. Between Claratina Avenue and Sylvan Avenue, residential developments line the west side of the roadway. The southbound direction of this segment provides two travel lanes with left-turn pockets at major intersections. The posted speed limit for the segment is 45 mph.

Figure 5 shows the proposed Oakdale Road cross section from the Tivoli Specific Plan, which proposes widening the road to three lanes in each direction. The proposed cross section includes 6 feet wide bike lanes and 8 feet wide sidewalks in each direction. Additionally, it includes a landscaped strip acting as a buffer between the paved road and sidewalk and another landscaped lot and public utility easement. The total right-of-way (ROW) is approximately 136 feet.

Figure 5: Proposed Oakdale Road Cross Section

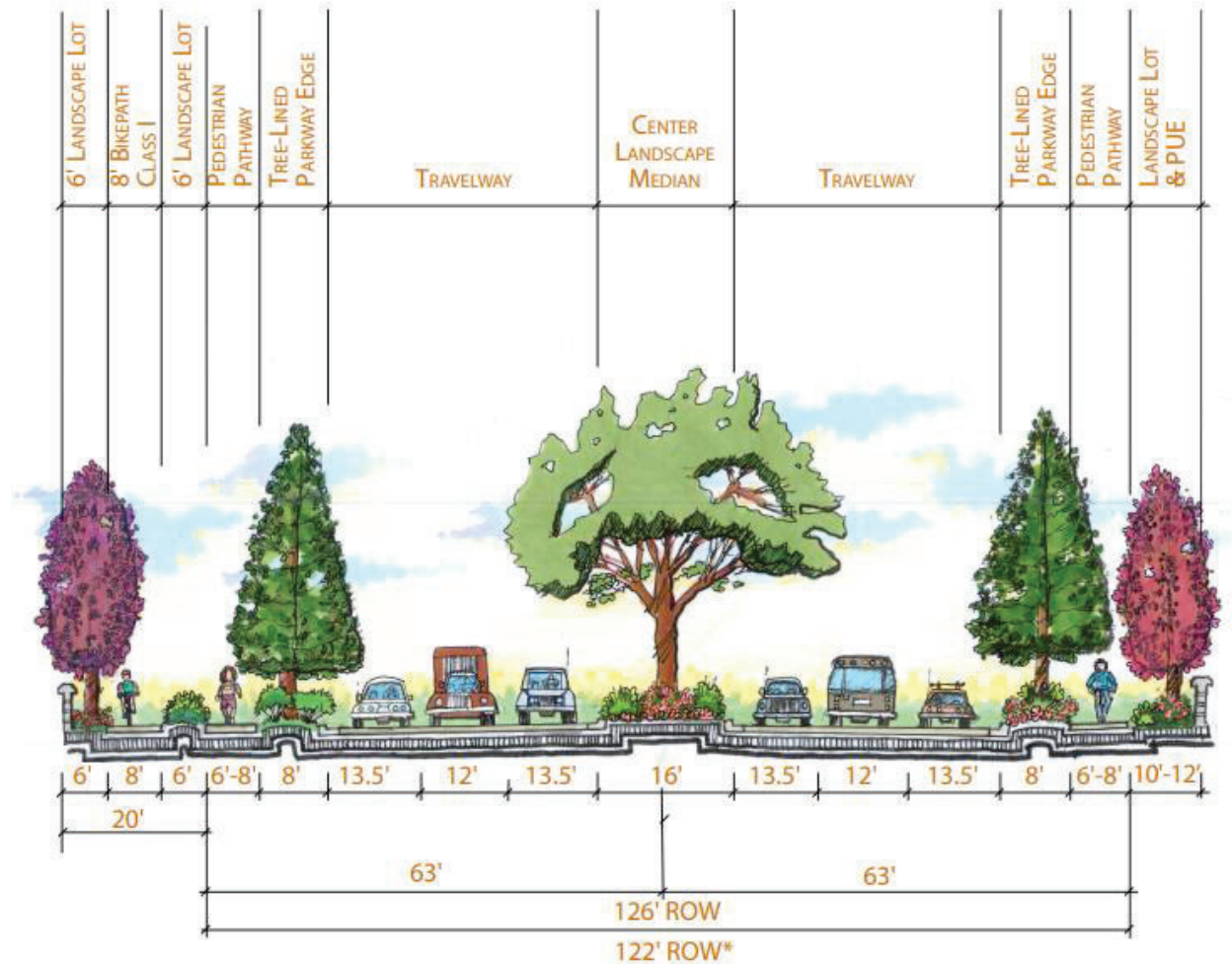


Source: Tivoli Specific Plan, 2008

Claratina Avenue within the study area is an east-west, two-lane undivided roadway connecting SR 108 (McHenry Avenue) to Oakdale Road. The north side of the segment is primarily agricultural, except near the intersection with McHenry Avenue, where a used car dealership and a church are located. The south side is predominantly residential. The posted speed limit for this segment is 45 mph.

Figure 6 shows the proposed Claratina Avenue cross section east of Oakdale Road included in the Tivoli Specific Plan, which proposes widening of the roadway to six lanes. Pedestrian pathways are included in both directions and a Class I Bike path is proposed on the north side. The total right-of-way is approximately 126 feet.

Figure 6: Claratina Avenue Cross Section



Source: Tivoli Specific Plan, 2008

Besides the two study segments, the other major cross streets include Claribel Road, Sylvan Avenue, and Mable Avenue. For the purpose of this study, it is anticipated that there will be no changes in numbers of travel lanes on the cross streets.

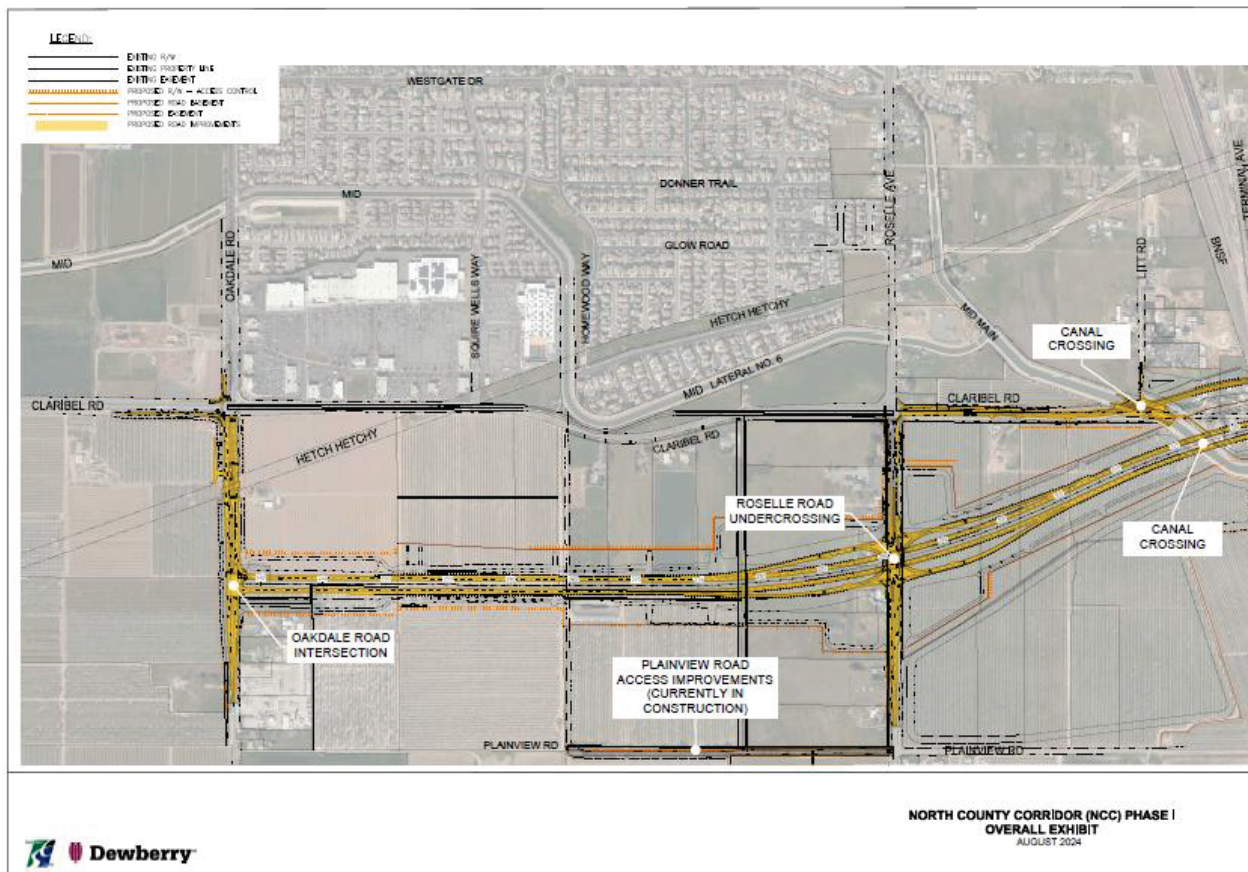
INTERSECTION CONFIGURATIONS

Oakdale and Claribel Road

The planned intersection geometry for Oakdale Road and Claribel Road was obtained from the North County Corridor Phase 1 project, as shown in **Figure 7**. An additional southbound through lane and northbound left-turn pockets will be added to the existing intersection. Additionally, the westbound through lane will be converted into a left-turn trap lane, and a new westbound right-turn pocket will be added.

The Oakdale Road intersection at the North County Corridor identified in the exhibit was included in the future road network for traffic forecasts, but its operations were not evaluated in this study.

Figure 7: North County Corridor Phase 1 Project - Conceptual Exhibit



Source: North County Corridor Phase 1 Project, 2024

Coffee Road and Claratina Avenue

Figure 8 illustrates the planned roundabout at Coffee Road and Claratina Avenue, which will convert the existing single-lane roundabout into a multilane roundabout, with two circulating lanes on all approaches, and with yield-controlled right-turn bypass lanes on the eastbound (west leg) and southbound (north leg) approaches.

Figure 8: Coffee Road and Claratina Avenue Planned Roundabout



Source: City of Modesto, 2024



Section 3

Traffic Operations

Traffic Operations

The following section evaluates the traffic operations at the study intersections and roadway segments.

INTERSECTION ANALYSIS

The study intersections were evaluated using the methodologies of the Transportation Research Board's (TRB) *Highway Capacity Manual (HCM) 7th Edition*. Traffic signal timing data was obtained from the City of Modesto, City of Riverbank, and Stanislaus County. Roundabout configuration was based on feasible implementation and coordination with City staff. The analysis was implemented using the PTV VISTRO traffic analysis software package.

Intersection operations results are based on intersection control delay (in seconds) and correspond to a Level of Service (LOS). LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. The operational LOS are given letter designations from A to F, with A representing free-flow (underutilized) operating conditions and F representing severely congested flow (over-capacity) with high delays

Table 4 presents the relationship between the average delay to LOS for both signalized, roundabout and unsignalized intersections from the HCM 7th edition. Although the HCM recommends evaluating roundabouts using unsignalized delay thresholds, this study, in consultation with City staff, has applied the signalized criteria to roundabouts to enable a more equitable comparison.

Table 4: Level of Service Definition for Intersections

Signalized Intersection and Roundabout Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Unsignalized Intersection Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
		into "up-stream" intersections.	

Source: Transportation Research Board, Highway Capacity Manual 7th Edition

As per the City of Modesto General Plan, LOS standard is LOS "D" or better for all intersections. Under Policy V.A.6, on roadways where the LOS is expected to be level F, mitigation measures other than road widening, such as the addition of bicycle lanes, improved pedestrian access, improved transit service, and the establishment of walkable development patterns to improve the quality of service for all travel modes are to be considered.

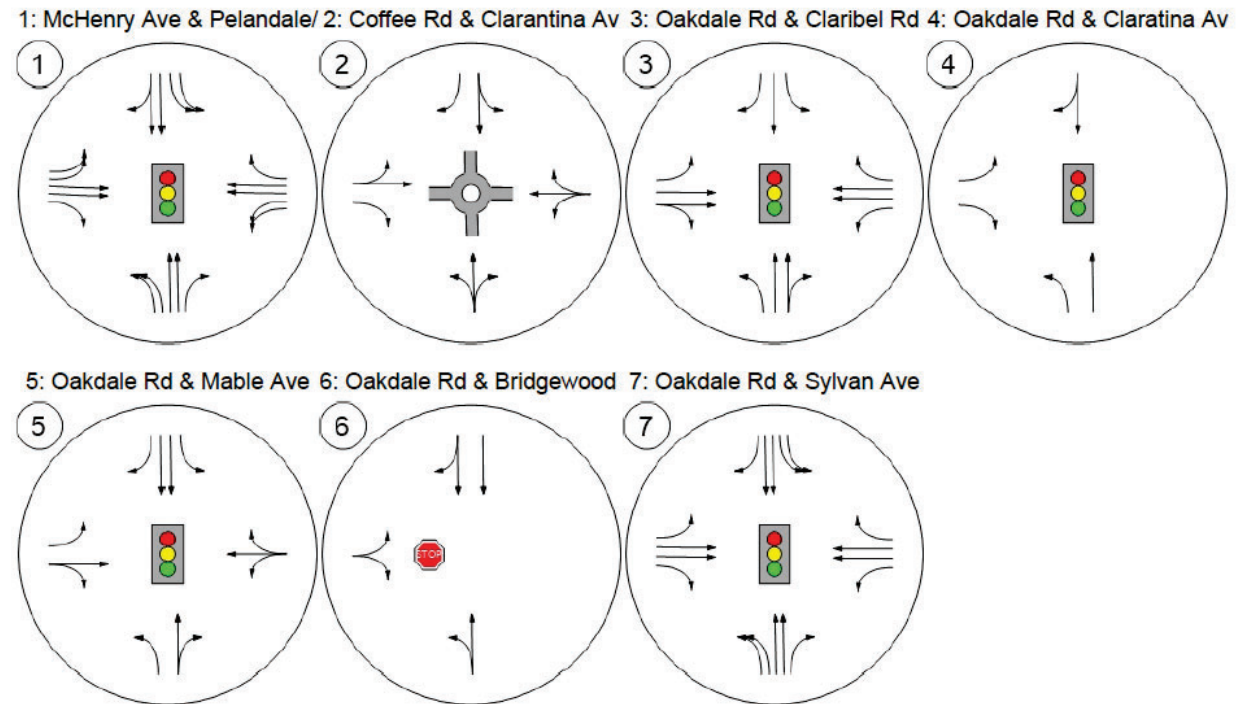
The study intersections LOS analysis results are presented below under each study scenario.

Existing Conditions

Figure 9 shows the existing lane configuration and traffic control for each study intersection. Kittelson conducted weekday morning (7:00 AM to 9:00 AM) and weekday evening (4:00 AM to 6:00 PM) peak periods turning movement counts at the study intersections in June 2024. A summary of the traffic count data is provided in **Appendix A**.

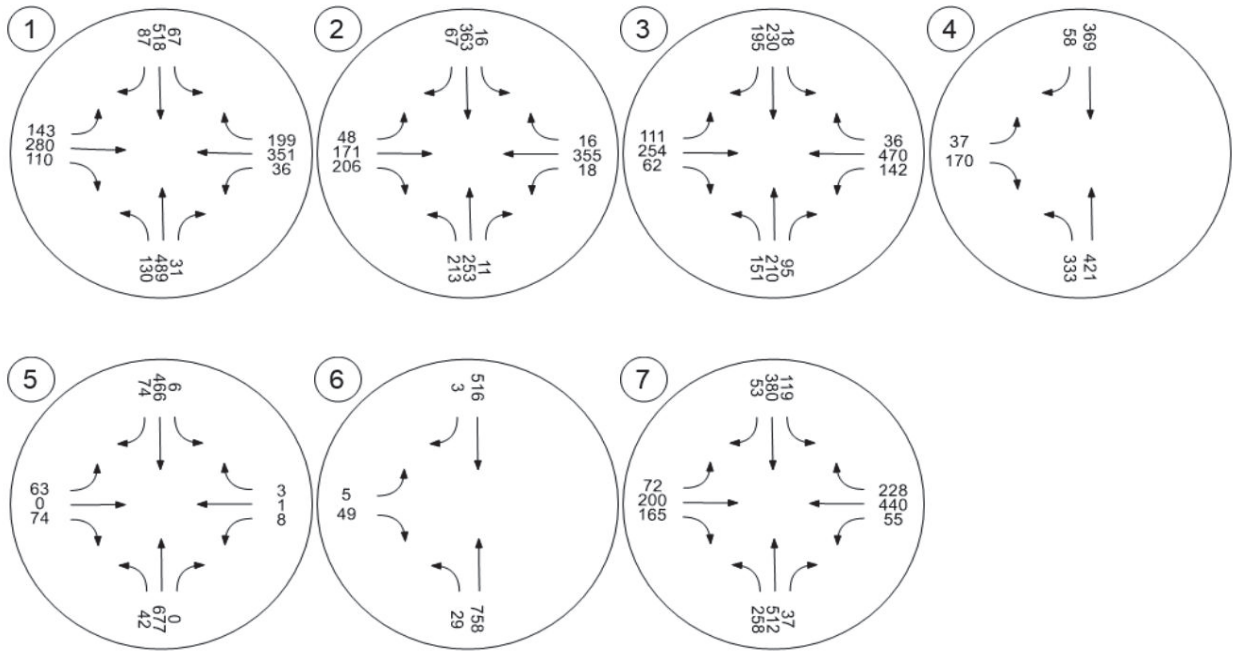
Figure 10 and **Figure 11** summarizes the AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the AM and PM peak hours are shown in **Table 5**. Detailed LOS worksheets are available in **Appendix B**.

Figure 9: Existing Lane Configuration and Traffic Control



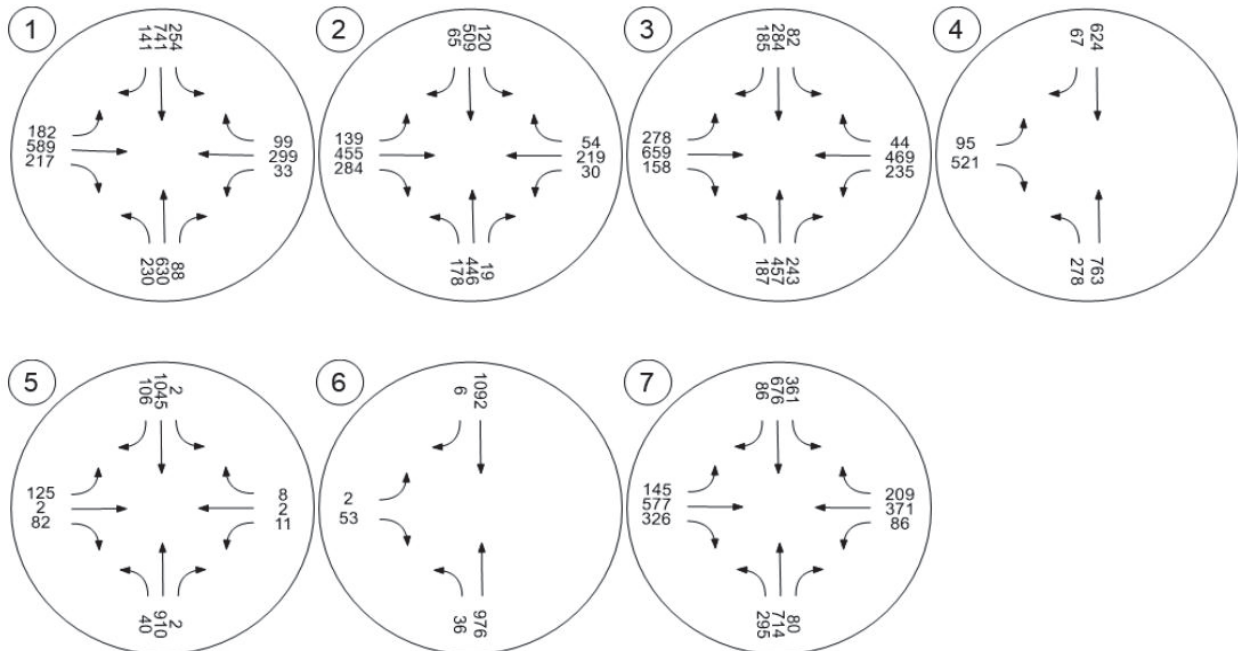
Source: Kittelson & Associates, Inc. 2025

Figure 10: Existing Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 11: Existing Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 5: Existing Conditions LOS Results

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	AM	0.610	25.8	C
			PM	0.672	50.3	D
2	Coffee Rd & Claratina Ave	Roundabout ¹³	AM	NA	8.8	A
			PM	NA	27.6	D
3	Oakdale Rd & Claratina Ave	Signalized	AM	0.645	12	B
			PM	0.828	35.3	D
4	Oakdale Rd & Claribel Ave	Signalized	AM	0.399	24.7	C
			PM	0.638	131.4	F
5	Oakdale Rd & Mable Ave	Signalized	AM	0.421	18.4	B
			PM	0.565	64.5	E
6	Oakdale Rd & Bridgewood Way	Two-way Stop	AM	0.020	20.3	C
			PM	0.026	52.6	F
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.402	62.2	E
			PM	0.587	52	D

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

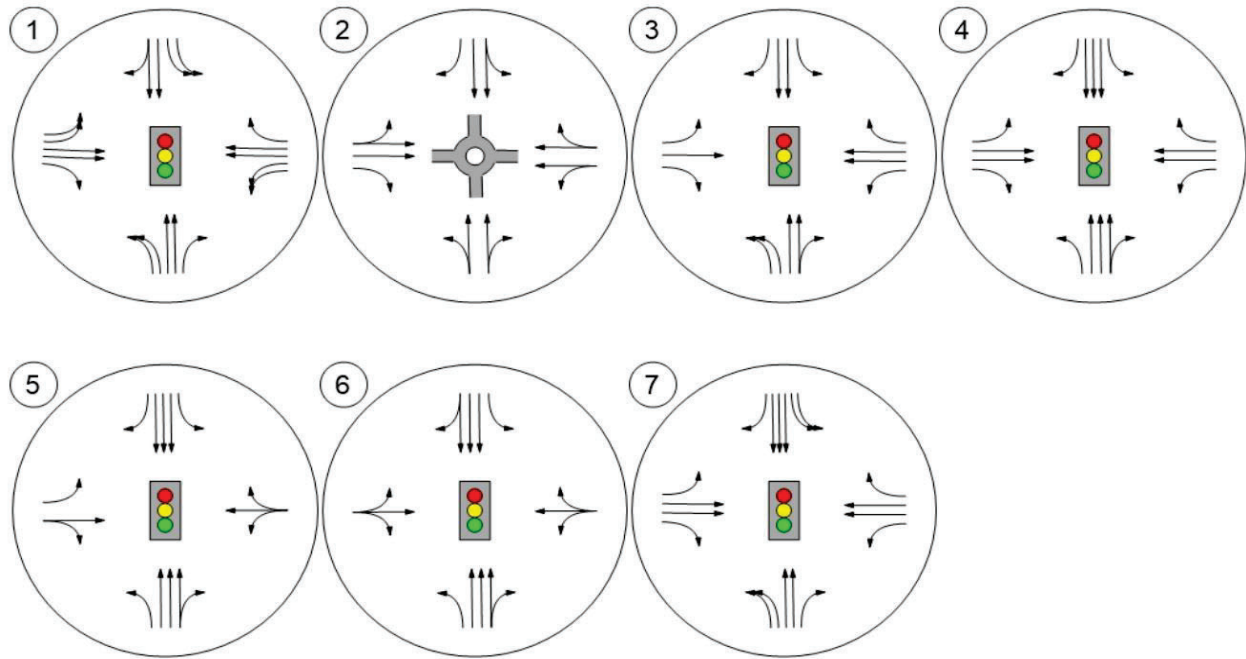
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Under existing conditions, four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity (V/C greater than 1.00).

Future (2046) Planned Conditions

The Future (2046) Planned Conditions represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes. **Figure 12** shows the lane configuration and traffic control for each study intersection under planned conditions. The Oakdale Road and Bridgewood Way intersection was evaluated as a signalized intersection.

Figure 12: Future (2046) Planned Conditions Intersection Lane Configuration



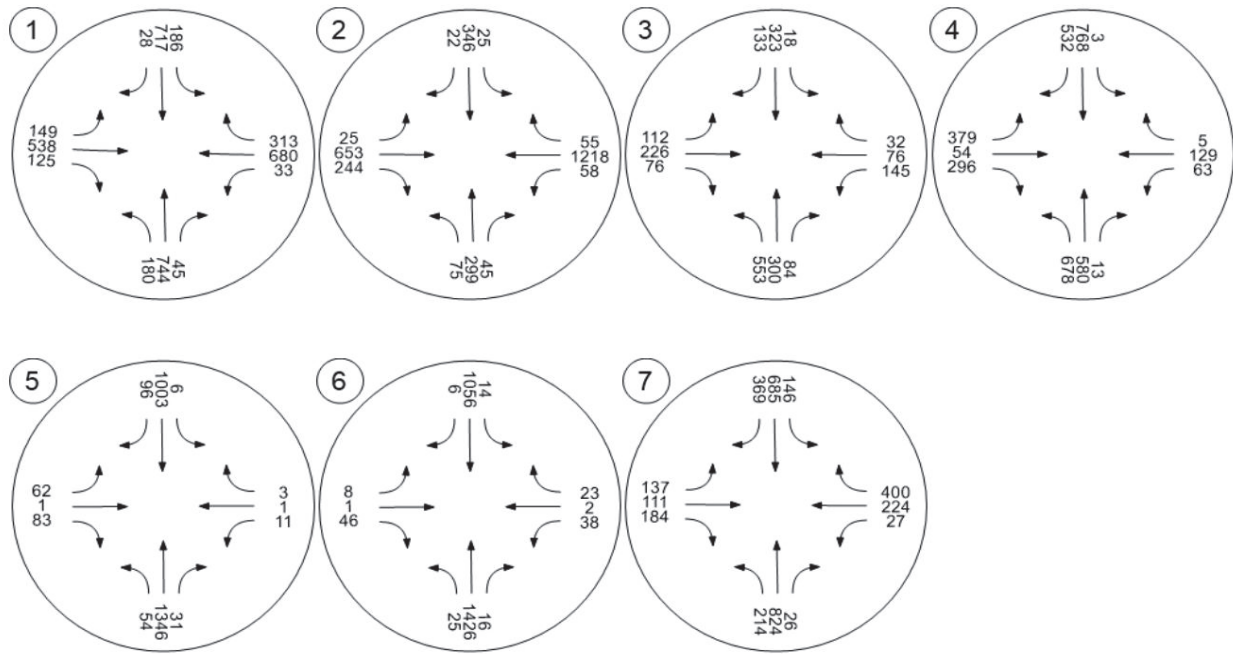
Source: Kittelson & Associates, Inc. 2025

Traffic volumes were extracted using the Stanislaus Council of Governments (StanCOG) 2022 Regional Transportation Plan (RTP) Travel Demand Model. The StanCOG travel demand model forecasts traffic volumes considering inputs such as land uses, population characteristics, and roadway capacities. The model was updated to include the most recent plans for the North County Corridor and the roads within the Tivoli Specific Plan.

The model provides traffic estimates for a pre-COVID base year (2019) and a future horizon year (2046). The base year model reasonably reflects transportation demand conditions for the Existing Conditions scenario, and the Year 2046 horizon year model generally reflects transportation conditions with expected regional growth consistent with the city's General Plan land use pattern and transportation system.

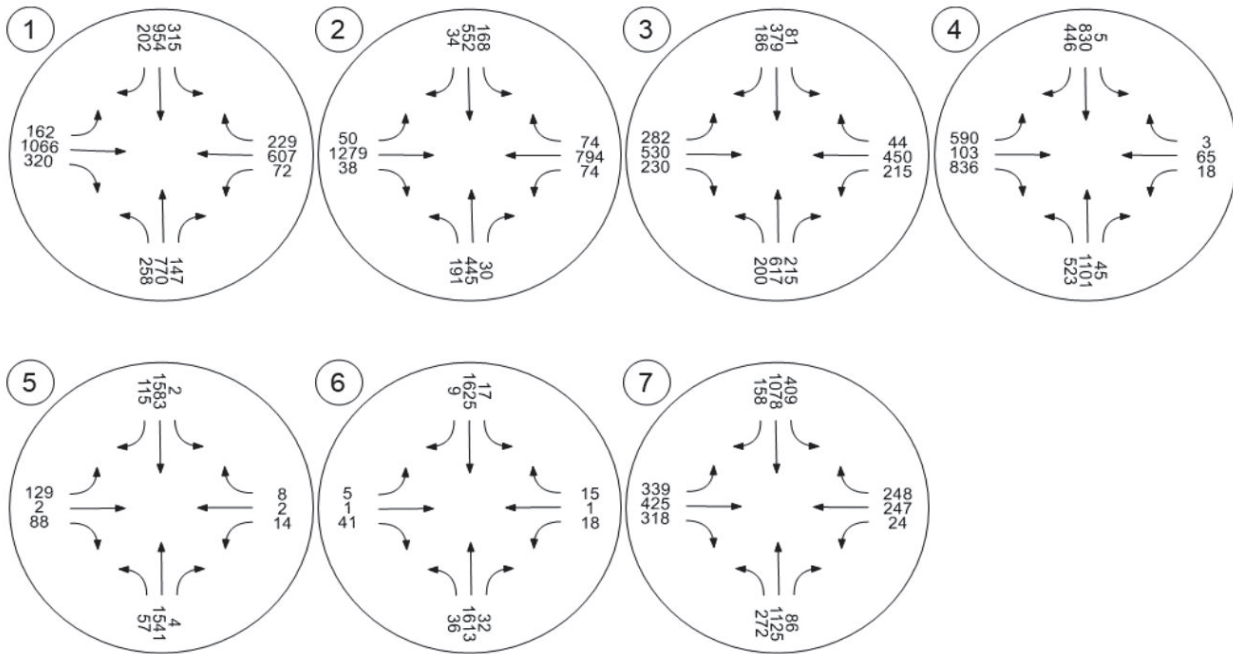
Figure 13 and **Figure 14** summarizes the 2046 AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the 2046 AM and PM peak hours are shown in **Table 6**. Detailed LOS worksheets are available in **Appendix C**.

Figure 13: Future (2046) Planned Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 14: Future (2046) Planned Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 6: Future (2046) Planned Conditions LOS Summary

No.	Intersection Name	Control Type	Peak Hour	2046 Planned (6 Lane)		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	AM	0.572	32.86	C
			PM	0.890	167.00	F
2	Coffee Rd & Claratina Ave	Roundabout ²³	AM	NA	14.36	B
			PM	NA	61.43	E
3	Oakdale Rd & Claribel Ave	Signal	AM	0.298	25.91	C
			PM	0.660	70.76	E
4	Oakdale Rd & Claratina Ave	Signal	AM	1.138	125.34	F
			PM	0.970	137.22	F
5	Oakdale Rd & Mable Ave	Signal	AM	0.463	17.57	B
			PM	0.470	17.20	B
6	Oakdale Rd & Bridgewood Way	Signal	AM	0.380	14.48	B
			PM	0.440	14.57	B
7	Oakdale Rd & Sylvan Ave	Signal	AM	0.702	45.73	D
			PM	0.780	95.40	F

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each of the signalized intersection. Under Future (2046) Planned Conditions, five intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection is operating over capacity.

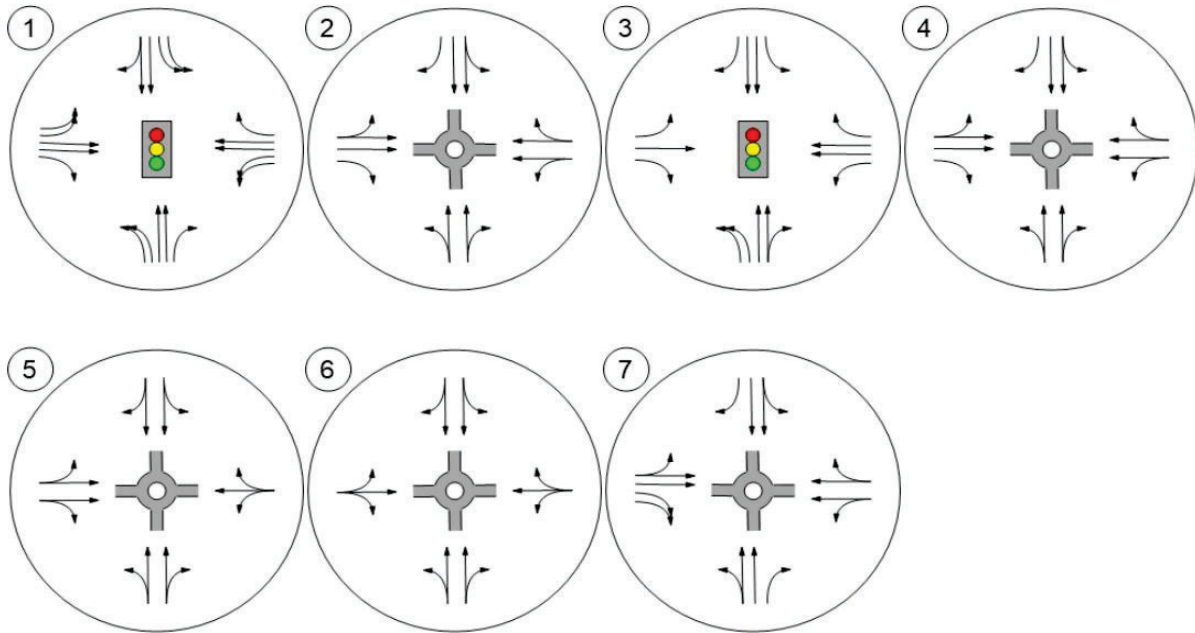
Future (2046) Adjusted (Reduced Classification) Conditions

The Future (2046) Adjusted Conditions represents the future roadway network which evaluates an alternative scenario where the study corridors are classified as four lanes instead of six lanes. Additionally, the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue were evaluated as roundabouts as shown in **Figure 15**.

The traffic volumes were projected using the StanCOG travel demand model by updating the number of lanes to represent the reclassified four-lane segments, which resulted in a slight decrease in volumes as presented in **Figure 16** and **Figure 17**.

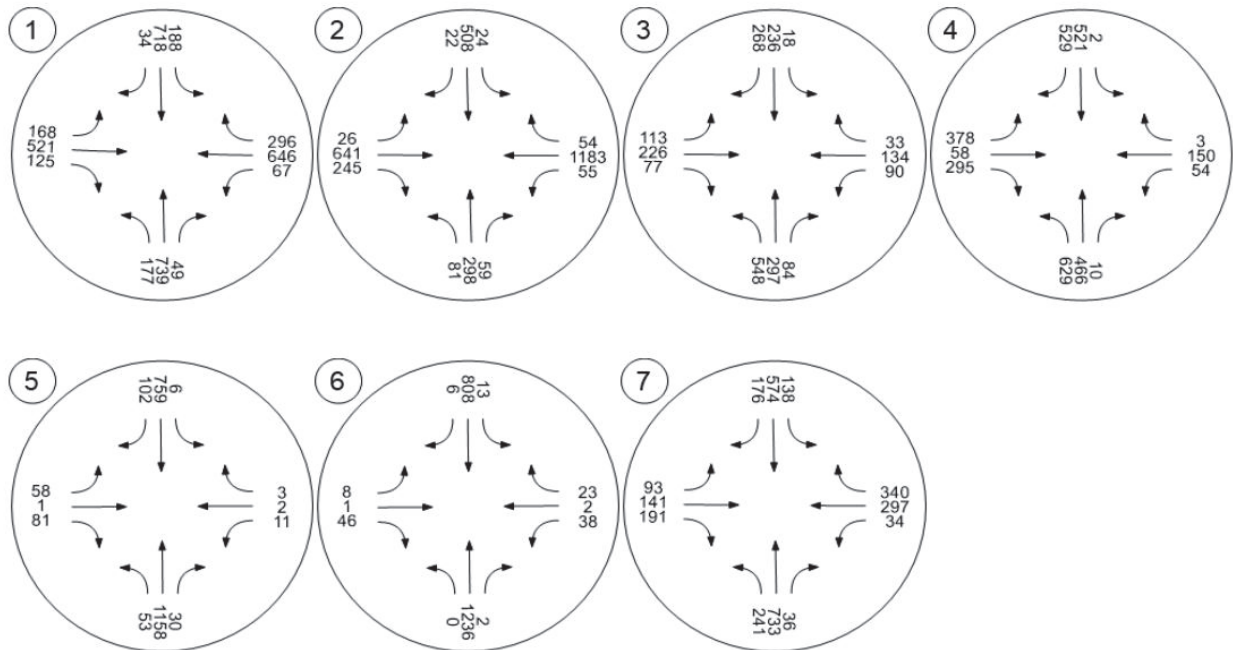
The intersection operation results for the AM and PM peak hours are shown in **Table 7**. Detailed LOS worksheets are available in **Appendix D**.

Figure 15: Future (2046) Adjusted Conditions Lane Configuration and Traffic Controls



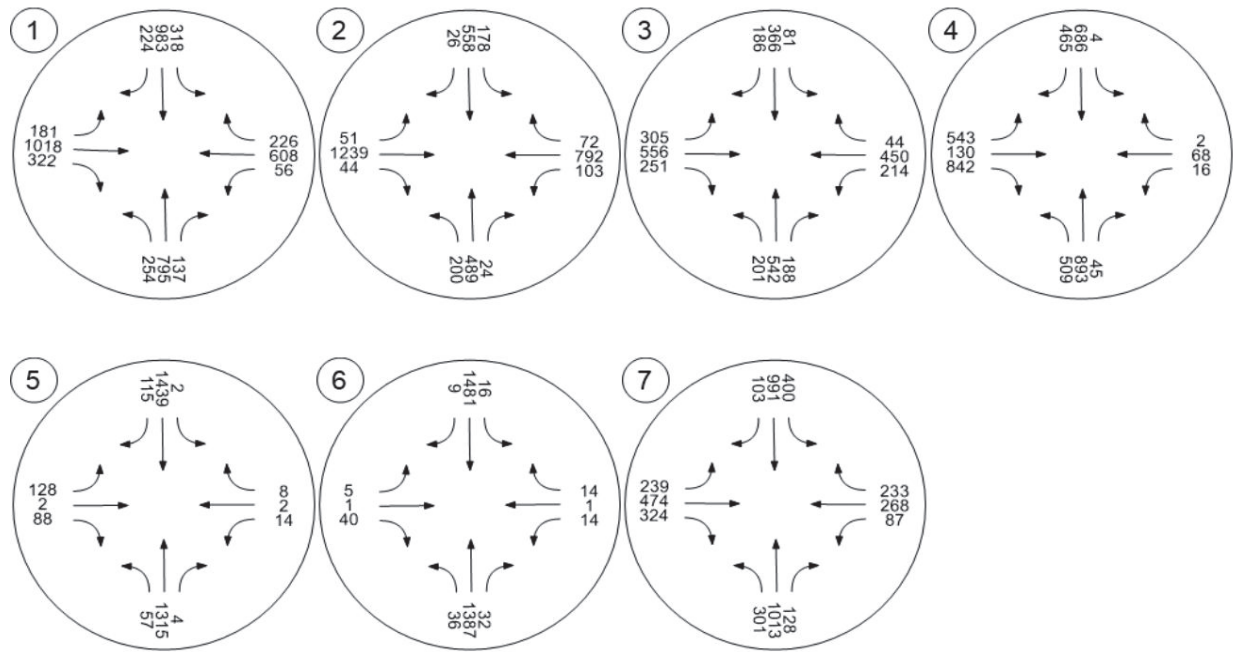
Source: Kittelson & Associates, Inc. 2025

Figure 16: Future (2046) Adjusted Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 17: Future (2046) Adjusted Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 7: Future (2046) Adjusted Conditions LOS Summary

No.	Intersection Name	Control Type	2046 Adjusted (4 Lane)			Change From Planned
			V/C	Delay	LOS	
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	0.565	46.7	D	13.84
			0.857	76.4	E	-90.6
2	Coffee Rd & Claratina Ave	Roundabout ²³	NA	16.8	C	2.44
			NA	67.8	E	6.37
3	Oakdale Rd & Claribel Ave	Signalized	0.382	34.46	C	8.55
			0.78	69.2	E	-1.56
4	Oakdale Rd & Claratina Ave	Roundabout ²³	NA	15.7	B	-109.64
			NA	34.8	C	-102.42
5	Oakdale Rd & Mable Ave	Roundabout ²	NA	7.3	A	-10.27
			NA	11.2	B	-6
6	Oakdale Rd & Bridgewood Way	Roundabout ¹	NA	6.8	A	-7.68
			NA	9.4	A	-5.17
7	Oakdale Rd & Sylvan Ave	Signalized	0.599	42.3	D	-3.43
			0.787	94.5	F	-0.9

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

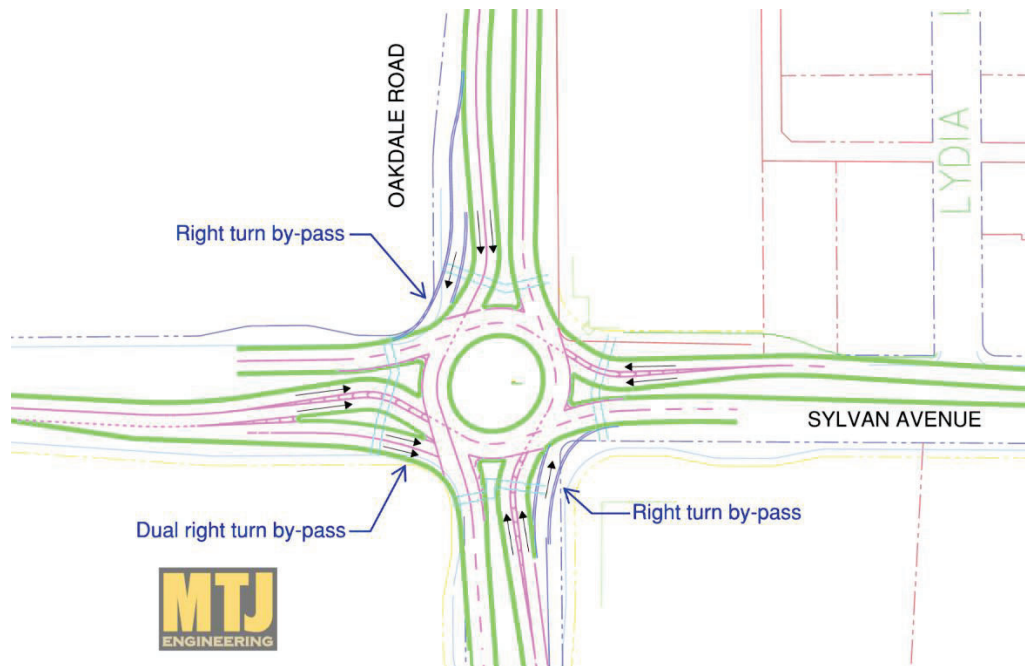
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each approach of the signalized intersections. Under future (2046) adjusted conditions, four intersections would operate below acceptable LOS thresholds during at least one peak hour. However, none of the intersections would operate over capacity. In most locations, the delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth is expected to continue to operate at LOS E.

Oakdale Road / Sylvan Avenue

Figure 18 shows the conceptual roundabout at Oakdale Road and Sylvan Avenue, which includes two circulating lanes at every approach, dual right-turn bypass lanes on the westbound approach, and single right turn bypass lanes on the northbound and southbound approach. Kittelson evaluated this roundabout using both VISTRO and SIDRA software. The HCM does not provide a methodology for analyzing a dual bypass lane, but both Vistro and SIDRA use proprietary methodologies to produce results. The Kittelson team compared the results of each analysis from both models to what supported by research and documented in HCM7 about one- versus two-lane roundabout approaches. Kittelson then selected the most appropriate results for inclusion in this study.

Figure 18: Oakdale Road and Sylvan Avenue - Conceptual Roundabout



Source: City of Modesto, 2024

Table 8 summarizes the LOS and delay at the Oakdale Road and Sylvan Avenue intersection under both signalized and roundabout scenarios for the Future (2046) Adjusted Conditions. During the AM peak hour, the roundabout would perform better than the signal. In the PM peak hour, the VISTRO analysis shows higher delay for the roundabout compared to the signal. However, Kittelson conducted a supplemental analysis using SIDRA, and found that the roundabout would result in lower average delays than the signal.

Kittelson also evaluated the intersection with a single bypass right-turn lane and found minimal change in delay, indicating that the additional bypass lane may not provide any additional capacity benefit

Table 8: Oakdale Road and Sylvan Avenue Intersection LOS Summary

No.	Intersection Name	Control Type	Software	Peak Hour	2046 Buildout (4 Lane)		
					V/C	Delay	LOS
7	Oakdale Rd & Sylvan Ave	Signal	VISTRO	AM	0.599	42.3	D
				PM	0.787	94.5	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	VISTRO	AM	NA	13.55	B
				PM	NA	127.48	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	SIDRA	AM	0.796	16	B
				PM	1.154	59.9	E
7	Oakdale Rd & Sylvan Ave	Roundabout – Single Right Turn Bypass Lanes	SIDRA	PM	1.154	60.2	E

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Other Considerations for Roundabouts

The Future (2046) Adjusted scenario changes four intersections along Oakdale Road from signalized to roundabout control. The Future (2046) Planned scenario showed signal operations not being able to efficiently handle the volumes resulting in high delays at some intersections, even with six through lanes on the study corridors. Reducing the through lanes from three to two in each direction would only worsen the delays if remaining under signalized control. However, the proposed roundabouts can provide similar or lower delays with two lanes in each direction. Further, there are other considerations where roundabouts may provide benefits at these locations.

Safety Benefits

Roundabouts are an FHWA Proven Safety Countermeasure because they can substantially reduce crashes that result in serious injury or death. In comparison to signalized intersections, roundabouts have been shown to result in reductions of up to 78% of fatal and injury crashes.⁴

Right-of-Way Constraints

Kittelson's comparison between roundabouts and traffic signals is based solely on operational analysis. However, it is important to also consider right-of-way (ROW) constraints and potential acquisition costs

⁴ FHWA Highway Safety Programs. Retrieved from <https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>

associated with implementing roundabouts. The City of Modesto has developed conceptual exhibits overlaying roundabout layouts with property lines to assess whether they can be constructed within existing city ROW. The proposed roundabout configurations fit within the existing right-of-way, as the number of approach lanes is able to be reduced using a roundabout compared to a signal. As explained in Section 2.4.3 of NCHRP Research Report 1043: Guide for Roundabouts, the following spatial considerations apply to roundabouts in comparison to other intersection control types:

- Roundabouts may be larger *at the intersection* than other control types because of their size and shape.
- Roundabouts may be able to be spaced more closely to one another than traffic signals because of shorter queue lengths (less chance of queue spillback).
- Roundabouts may serve similar or more capacity with fewer total lanes (e.g., no dedicated left- or right-turn lanes) than signals—meaning the roadway between intersections can be narrower.

Additional detailed design work will be necessary to confirm the constructability of the roundabouts.

Site Access

As with any intersection form and control type, site access in the immediate vicinity of an intersection creates challenges. A few considerations for roundabouts include:

- Roundabouts provide safe and efficient U-turn opportunities which allows for full access points to be converted to right-in, right-out or left-in, right-out. This allowance removes the most difficult and riskiest movements at an access point (left-out movements) by converting them to U-turns.
- Because roundabouts may allow for fewer lanes on the approach compared to signalized intersection, they are conducive to access management (with a median taking the place of what could have been a turn lane in a signalized alternative).
- Access is strongly discouraged within 50 feet of the circulatory roadway (between the entry and pedestrian crosswalk). This location complicates the pedestrian ramp and creates wayfinding challenges for people with vision disabilities, and also introduces new conflicts in a challenging location for drivers.
- Access is best avoided along the splitter island of a roundabout approach; however, if it is unavoidable, then right-in, right-out access can be provided with a U-turn at the intersection as previously described.⁵ Additionally, access could be accommodated by shortening a splitter island to allow for left turns to and from a driveway, although doing so introduces more conflict points.⁶

Roundabouts may offer the ability to provide access to adjacent properties closer to the intersection than signalized intersections without the associated degradation in operations and safety associated with nearby access at signals.

⁵ MassDOT and Kittelson & Associates. Guidelines for the Planning and Design of Roundabouts. 5.9.6 Access Management. Retrieved from <https://www.mass.gov/doc/massdot-guidelines-for-the-planning-and-design-of-roundabouts/download>

⁶ Modern Roundabout Intersections: When To Use Them? A Comparison with Signalized Intersections. Retrieved from https://www.mvcommission.org/sites/default/files/docs/Roundabout_comparison_with_signals.pdf

Corridor Operations

Roundabouts located along a corridor provide advantages over signalized corridors or corridors with a mix of control types. Because roundabouts serve similar or greater capacity than comparable signals with shorter queue lengths than comparable signalized intersections and without producing platoons. Roundabout operations result in randomized flow rather than platoons. Roundabout operations are typically better with a random arrival pattern than with a platooned flow; mixing signals and roundabouts may result in platoons arriving at a roundabout from a nearby signal and creating queueing.

As a result, when considering roundabouts, consistency along the corridor is beneficial for driver expectations and for operational performance should be considered to allow drivers to develop a sense of predictability and help optimize the traffic flow.⁷ Consistency along Oakdale Road is recommended for operational efficiency.

ROADWAY SEGMENT ANALYSIS

Traffic volumes on roadway segments are used to determine the overall usage and congestion. Under existing conditions, the roadway segment analysis is based on traffic counts taken at a single location or link, which is intended to be representative of the entire segment.

LOS for roadway segments is assessed based on the volume in relationship to the capacity threshold as presented in the HCM 2010 edition and adopted by the City of Modesto as shown in **Table 9**.

⁷ TDOT Roundabout Design Reference Guide. Retrieved from <https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/training/Roundabout%20Design%20Reference%20Guide.pdf#:~:text=Roundabouts%20result%20in%20randomized%2C%20un%2Dplatooned%20flow%20along,in%20a%20corridor%20with%20coordinated%20signal%20progression.&text=Roundabout%20corridors%20can%20also%20provide%20for%20design,adjust%20where%20right%2Dof%2Dway%20impacts%20occur%20at%20intersections>.

Table 9: Roadway Segment Threshold and LOS Relationship

Type of Roadway Segment	Hourly Capacity ^{a,c}	Daily Volume Threshold ^{b,c}				
		LOS A	LOS B	LOS C	LOS D	LOS E
Freeway Mainline	2,000	8,000	12,750	18,750	23,130	25,000
Expressway – Class A	1,500	5,630	9,380	13,120	15,750	18,750
Expressway – Class B	1,250	4,690	7,820	10,940	13,130	15,630
Expressway – Class C	1,000	3,750	6,250	8,750	10,500	12,500
Principal Arterial (6 lanes)	850	3,190	5,320	7,440	8,930	10,630
Minor Arterial (4 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Arterial (4 lanes)	750	660	1,780	3,190	5,530	9,380
Minor Arterial (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Major Collector (4 lane facility)	700	2,450	4,110	5,780	6,910	8,750
Downtown Collector	700	2,450	4,110	5,780	6,910	8,750
Minor Collector (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Collector (2 lanes)	650	570	1,540	2,760	4,800	8,130
Local Roadway	500	440	1,190	2,130	3,690	6,250
Rural Road	900	790	2,140	3,830	6,640	11,250

^a Vehicles per through lane per hour.

^b Vehicles per lane per day. Peak hour capacity eight percent (8%) of daily capacity based on a review of peak hour to daily counts on over 200 roadway segments in the City.

^c Hourly and daily calculated based on the method presented in the *Highway Capacity Manual (HCM)* (Transportation Research Board 2010). LOS is assessed based on the volume in relationship to the capacity threshold. For example, a freeway lane carrying 18,700 vehicles on a daily basis would be classified as LOS C as it is between the LOS B and LOS C threshold; if the volume was 19,000 vehicles a day, it would be classified as LOS D.

Note: These are generalized capacities that can be adjusted based on local roadway conditions, including the percentage of turning traffic, intersection spacing, driveway spacing, levels of pedestrian activity, provision of on-street parking, adjacent land use types and other factors.

Source: City of Modesto, 2016.

Table 10 includes roadway segment analysis summary under each study scenario. Under existing conditions with two lanes, Oakdale Rd between Claribel Rd & Claratina Ave operates at LOS D with a volume-to-capacity (V/C) ratio at 0.90. Traffic volumes for future conditions are based on the StanCOG travel demand model as explained in the earlier sections. Under both Future (2046) Planned Conditions

and Future (2046) Adjusted Conditions, all roadway segments would operate at LOS A. Given that a V/C ratio near 1.0 indicates optimal capacity utilization, the low ratios in the Future (2046) Planned Conditions represents overbuilt conditions.

Table 10: Roadway Segment Analysis Summary

#	Roadway Segment	Existing Conditions			Future (2046) – Planned Conditions			Future (2046) – Adjusted Conditions		
		Volume	Daily V/C	LOS	Volume	Daily V/C	LOS	Volume	Daily V/C	LOS
1	Oakdale Rd between Claribel Rd & Claratina Ave	19,100	0.90	D	20,100	0.32	A	17,600	0.41	A
2	Oakdale Rd between Claratina Ave & Mable Ave	24,000	0.75	C	29,500	0.46	A	25,400	0.60	A
3	Oakdale Rd between Mable Ave & Bridgewood Way	24,900	0.78	C	29,360	0.46	A	25,300	0.60	A
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	25,400	0.79	C	29,500	0.46	A	25,400	0.60	A
5	Claratina Ave between McHenry Ave & Coffee Rd	14,100	0.75	C	23,150	0.41	A	22,700	0.60	A
6	Claratina Ave between Coffee Rd & Oakdale Rd	9,670	0.52	A	19,000	0.34	A	19,800	0.53	A

Source: Kittelson & Associates, Inc. 2025

TRAVEL TIME

Table 11 represents the travel time analysis summary for the study corridor under existing conditions and **Table 12** represents projected travel time for the study corridor under both the Planned and Adjusted conditions. Under the Adjusted conditions, travel times are expected to decrease by 0.6 – 2.6 minutes compared to Planned conditions. There are two cases in which travel times are projected to increase under Adjusted conditions, both by 0.1 minutes. The existing conditions travel times were determined through Ggoogle Maps data, while the planned and adjusted were determined by adding the delays at intersections along the corridor to the travel time between each intersection.

Table 11: Travel Time Summary - Existing Conditions

Roadway	Route	Movement	Weekday (min)		Weekday Peak (min)		Monday - Friday (min)		Monday - Friday Peak (min)	
			Avg	StD	Avg	StD	Avg	StD	Avg	StD
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.3	0.3	29.7	2.9	3.3	0.3	3.9	0.1
Claratina Avenue	Oakdale Road to CA 108	Westbound	3.1	0.2	34.7	1.0	3.1	0.2	3.5	0.0
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	3.2	0.6	23.6	2.0	3.3	0.8	4.7	0.7
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	3.2	0.7	21.7	2.0	3.4	1.0	5.5	1.1

Note: StD – Standard Deviation
Source: Kittelson & Associates, Inc. 2025

Table 12: Travel Time Summary - Future Conditions

Roadway	Route	Movement	2046 Planned (min)		2046 Adjusted (min)	
			AM	PM	AM	PM
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.8	8.1	3.3	5.5
Claratina Avenue	Oakdale Road to CA 108	Westbound	4.4	5.0	3.4	4.4
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	4.0	6.9	4.1	6.4
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	4.4	5.6	3.8	5.7

Source: Kittelson & Associates, Inc. 2025

VEHICLE MILES TRAVELED ASSESSMENT

Table 13 summarizes the Vehicle Miles Traveled (VMT) assessment for the three study scenarios. The total VMT in Stanislaus County was calculated using the StanCOG travel demand model. Under the Future (2046) Adjusted Conditions, the total VMT is expected to decrease slightly compared to Future (2046) Planned Conditions. This is likely due to less induced demand because of the reduction in travel lanes.

Table 13: VMT Summary

Scenario	Stanislaus County Total VMT
Existing Conditions	11,056,945
Future (2046) Planned Conditions	13,395,154
Future (2046) Adjusted Conditions	13,395,008
Change with Adjusted Conditions	-147

Source: Kittelson & Associates, Inc. 2025

Summary

The Study findings and conclusions are provided below by corridor.

Oakdale Road

The Study confirms that Oakdale Road (from Claribel Avenue to Scenic Drive) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

Further, the operational analysis confirms that the following intersections would perform more efficiently as roundabouts rather than signalized intersections.

- Oakdale Rd & Claratina Ave
- Oakdale Rd & Mable Ave
- Oakdale Rd & Bridgewood Way
- Oakdale Rd & Sylvan Ave

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - Oakdale Rd & Claribel Ave – PM Peak Hour
 - Oakdale Rd & Claratina Ave – PM Peak Hour
 - Oakdale Rd & Mable Ave – PM Peak Hour
 - Oakdale Rd & Bridgewood Way – PM Peak Hour
 - Oakdale Rd & Sylvan Ave – AM Peak Hour
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Claratina Ave
 - Oakdale Rd & Sylvan Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Sylvan Ave

For all locations the average delay would decrease from the Future (2046) Planned Conditions, as shown in **Table 14**.

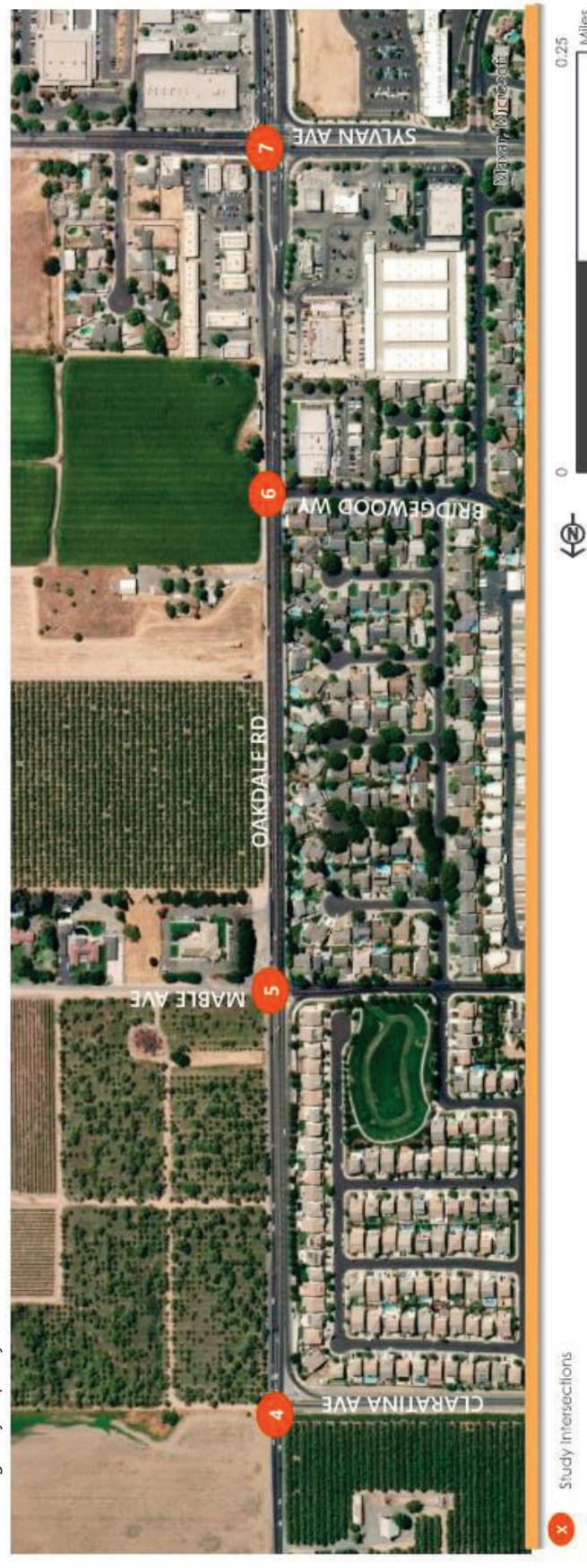
Table 14: Oakdale Road LOS Summary

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions			2046 No Build			2046 Buildout (6 Lane)			2046 Buildout (4 Lane)			Change			
				V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS				
4	Oakdale Rd & Claratina Ave	Signalized	AM	0.548	53.3	D	1.234	284.47	F	1.138	125.3 ⁴	F	NA	15.7	B	-109.64			
			PM	0.86	76.9	E	10.04	1,351.5	F	0.97	137.2 ²	F	NA	34.8	C	-102.42			
5	Oakdale Rd & Mable Ave	Signalized	AM	0.44	30.5	C	0.75	71.55	E	0.463	17.57	B	NA	7.3	A	-10.27			
			PM	0.813	70.8	E	0.90	341.03	F	0.47	17.20	B	NA	11.2	B	-6			
6	Oakdale Rd & Bridgewood Way	Signalized	AM	Currently No Signal			Currently No Signal			0.386			14.48			B		Roundabout ¹	-7.68
			PM	Currently No Signal			Currently No Signal			0.44			14.57			B		Roundabout ¹	-5.17
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.45	102.4	F	0.599	42.54	D	0.702	45.73	D	0.796	16	B	-29.73			
			PM	0.606	87.7	F	0.79	106.17	F	0.78	95.40	F	1.154	59.9	E	-35.5			

Notes: AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number. ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025



Claratina Avenue

The Study confirms that Claratina Avenue (from Oakdale Road to McHenry Avenue) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave

In most locations, average delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth in expected to continue to operate at LOS E.

**MODESTO CITY COUNCIL
RESOLUTION NO. 2026-38**

RESOLUTION FINDING THAT THE FOLLOWING SUBSEQUENT PROJECT IS EXEMPT FROM REVIEW UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) PURSUANT TO SECTION 15061(b)(3) OF THE CEQA GUIDELINES: AMENDMENT TO THE CIRCULATION ELEMENT OF THE MODESTO URBAN AREA GENERAL PLAN TO CHANGE THE DESIGNATION OF OAKDALE ROAD BETWEEN SCENIC DRIVE AND CLARIBEL ROAD FROM SIX-LANE PRINCIPAL ARTERIAL STREET TO FOUR-LANE ARTERIAL STREET, AND TO CHANGE THE DESIGNATION OF CLARATINA AVENUE AND BETWEEN MCHENRY AVENUE AND CLAUS ROAD FROM SIX-LANE PRINCIPAL ARTERIAL STREET TO FOUR-LANE ARTERIAL STREET, TOGETHER WITH SPECIFIC PLAN AMENDMENT NO. 6 TO THE TIVOLI SPECIFIC PLAN TO AMEND THE CHAPTER 3 STREET HIERARCHY DIAGRAM TO CHANGE THE CLASSIFICATION OF OAKDALE ROAD AND CLARATINA AVENUE FROM SIX-LANE ARTERIAL STREETS TO FOUR-LANE ARTERIAL STREETS, AND TO AMEND TEXT IN CHAPTER 9 RELATIVE TO SPECIFIC PLAN ADMINISTRATION, AND TO REAFFIRM PRIOR MAJOR AMENDMENTS TO THE SPECIFIC PLAN ADOPTED BY CITY COUNCIL RESOLUTION

WHEREAS, on June 10, 2025, by Resolution 2025-211, City Council of the City of Modesto certified the Final Programmatic Environmental Impact Report (“Program EIR”) (SCH No. 2024091127) for the Modesto Urban Area General Plan, and

WHEREAS, the City of Modesto conducted a Traffic Analysis Study (“Oakdale Claratina Traffic Analysis Study”, Kittleson & Associates, July 2, 2025), as described in **Exhibit “B”, attached** hereto and incorporated herein by reference, by which the roadways of Oakdale Road and Claratina Avenue were studied for capacity and operational performance in the context of the North County Corridor project, of which Phase I of construction is currently underway, and

WHEREAS, the Traffic Analysis Study confirms that Oakdale Road between Scenic Drive and Claribel Road can be reclassified from planned six-lane configurations to four lanes, and that Claratina Avenue between McHenry Avenue and Claus Road can

be reclassified from planned six-lane configurations to four lanes, both while still accommodating the area's anticipated growth to the year of 2046, and

WHEREAS, as a result of the conclusions of the Traffic Analysis Study, the City of Modesto proposes to amend the Circulation Element of the General Plan to change the designation of Oakdale Road between Scenic Drive and Claribel Road from six-lane Principal Arterial Street to four-lane Arterial Street, and Claratina Avenue between McHenry Avenue and Claus Road from six-lane Principal Arterial Street to four-lane Arterial Street, together with associated textual amendments to the General Plan; and

WHEREAS, said application was made concurrently with a proposed amendment to the Tivoli Specific Plan to amend the Street Hierarchy Diagram of the Specific Plan, with associated text amendments (File No. SPA-25-004), and

WHEREAS, the amendment is exempt from CEQA pursuant to Section 15061(b)(3) of the CEQA Guidelines, which exempts projects where it can be seen with certainty that there is no possibility of a significant effect on the environment. The proposed General Plan amendment meets the criteria by being an administrative and regulatory action, and the basis of the Traffic Analysis Study which concludes that the reclassification of the two roadways to four-lane Arterial Streets would still accommodate the area's future anticipated growth to the year 2046, and

WHEREAS, in accordance with CEQA guidelines beginning on January 21, 2026, the City caused to be published a 20-day notice of the City's intent to make a finding that the subsequent project is categorically exempt from CEQA under the Guidelines cited above, and

WHEREAS, said matter was considered by the City Council at a duly noticed public hearing which was held on February 10, 2026, at 5:30 p.m., in the Tenth Street Place Chambers located at 1010 Tenth Street, Modesto, California.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Modesto that the Council has reviewed and considered the Notice of Exemption prepared for the proposed amendments, a copy of which is **attached** hereto as **Exhibit “A”**, and incorporated herein by reference, and based on substantial evidence in the Notice of Exemption makes the following findings:

1. The amendment is exempt from CEQA pursuant to Section 15061(b)(3) of the CEQA Guidelines, which exempts projects where it can be seen with certainty that there is no possibility of a significant effect on the environment.
2. The proposed General Plan amendment meets the criteria by being an administrative and regulatory action, and the basis of the Traffic Analysis Study which concludes that the reclassification of the two roadways to four-lane Arterial Streets would still accommodate the area’s future anticipated growth to the year 2046.
3. A Notice of Exemption, Environmental Assessment No. EA/C&ED 2025-25 has been prepared by staff which provides substantial evidence to support findings 1-2 noted above.


BE IT FURTHER RESOLVED by the Council of the City of Modesto that the Community & Economic Development Director is hereby authorized and directed to file a notice of approval or determination within five (5) business days with the Stanislaus County Clerk pursuant to Section 21152 of the Public Resources Code.

The foregoing resolution was introduced at a regular meeting of the Council of the City of Modesto held on the 10th day of February, 2026, by Councilmember Wright, who moved its adoption, which motion being duly seconded by Councilmember Escutia-Braaton, was upon roll call carried and the resolution adopted by the following vote:

AYES: Councilmembers: Alvarez, Bavaro, Escutia-Braaton, Ricci, Williams, Wright, Mayor Zwahlen

NOES: Councilmembers: None

ABSENT: Councilmembers: None

ATTEST: 
DIANE NAYARÉS-PÉREZ, CMC,
City Clerk

(SEAL)

APPROVED AS TO FORM:

BY: 
JOSE M. SANCHEZ, City Attorney

EXHIBIT A

Notice of Exemption

EA/C&ED 2025-25

Notice of Exemption**Appendix E****To: Office of Planning and Research****From: (Public Agency):** City of ModestoP.O. Box 3044, Room 113
Sacramento, CA 95812-30441010 Tenth Street, Suite 3400

County Clerk

Modesto, CA 95354County of: Stanislaus1021 I Street, Suite 101
Modesto, CA 95354**Project Title:** GPA-25-002/SPA-25-004: Amendment to General Plan Circulation Element and Tivoli Specific Plan Street Hierarchy Diagram, to reclassify Oakdale Road and Claratina Avenue to four-lane arterial streets.**Project Applicant:** City of Modesto**Project Location - Specific:** Oakdale Road between Scenic Drive and Claribel Road, and Claratina Avenue between McHenry Avenue and Claus Road; Modesto, CA**Project Location - City:** Modesto **Project Location - County:** Stanislaus**Description of Nature, Purpose and Beneficiaries of Project:**

Amendment to Circulation Element of General Plan to reclassify Oakdale Road between Scenic Drive and Claribel Road from a six-lane Principal Arterial Street to a four-lane Minor Arterial Street, and to reclassify Claratina Avenue between McHenry Avenue and Claus Road from a six-lane expressway to a four-lane arterial street.

Amendment to Street Hierarchy Diagram of Tivoli Specific Plan to reclassify Oakdale Road and Claratina Avenue from a six-lane Principal Arterial Streets to four-lane Principal Arterial Streets.

Name of Public Agency Approving Project: City of Modesto**Name of Person or Agency Carrying Out Project:** City of Modesto Planning Division**Exempt Status: (check one):**

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: Section 15061(b)(3)
- Statutory Exemptions. State code number: _____

Reasons why project is exempt: Exemption pursuant to Section 15061(b)(3) of the CEQA Guidelines which exempts projects where it can be seen with certainty that there is no possibility of a significant effect on the environment. The City of Modesto prepared a traffic analysis study (Kittelson & Associates Oakdale Claratina Traffic Analysis Study, July 2, 2025) which examined the roadway network and concluded that the roadways could be reclassified from six-lane facilities to four-lane facilities while still accommodating the area's anticipated growth up to the year 2046. The study shows no adverse operation impact, and therefore the City's Traffic Engineering Division has confirmed that the reclassification would maintain acceptable traffic flow and avoid the creation of new, unmitigated capacity failures or significant adverse effects related to traffic congestion in the area within the 2046 horizon.

Lead AgencyContact Person: Katharine Martin, Senior Planner Area Code/Telephone/Extension: 209-577-5267**If filed by applicant:**

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: _____ Title: _____

Signed by Lead Agency

Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.

Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

Revised 2011

DRAFT

OAKDALE CLARATINA TRAFFIC ANALYSIS STUDY

Modesto, CA

July 2, 2025



Inside front cover

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Oakdale Claratina Traffic Analysis Study Modesto, CA

Prepared for:

Tamora Bryant
Harris & Associates

Michael Sacuskie
City of Modesto

Prepared by:

Kittelson & Associates, Inc.
155 Grand Avenue, Suite 505
Oakland, CA 94612
510.839.1742

Project Team:

Dhawal Kataria, AICP, RSP₁
Mychal Loomis, PE, TE, PTOE, RSP₁
TJ Hribar
Mike Aronson, PE
Mike Alston TE, RSP₁

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- Appendix C: Future (2046) Planned Conditions LOS Worksheets
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Section 1

Introduction

Introduction

The Oakdale Claratina Traffic Analysis Study (Study) aims to assess the following:

- Whether the planned classifications of Oakdale Road (from Claribel Avenue to Scenic Drive) and Claratina Avenue (from Oakdale Road to McHenry Avenue) could be reduced from six lanes to four lanes and accommodate anticipated future growth in the study area. This is primarily assessed based on the intersection and roadway segment operations, changes in travel time, and other relevant indicators.
- The feasibility and anticipated operations of using roundabout control at the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue.

BACKGROUND

The City of Modesto General Plan and Tivoli Specific Plan designate Oakdale Road (from Claribel Road to Scenic Drive) as a six-lane Principal Arterial but note that it is constrained between Sylvan Avenue and Scenic Drive. Claratina Avenue is classified as an Expressway west of Oakdale Road and as a six-lane Principal Arterial east of Oakdale.¹

Since the General Plan's adoption, changes to the planned roadway network have occurred, including the reduction of the reclassification of a road parallel to Oakdale Road, Claus Road, from six lanes to four lanes, and the programming of the North County Corridor Phase 1 east of Oakdale Road.²

The City of Modesto (city) seeks an analysis of Oakdale Road and Claratina Avenue to determine whether a six-lane facility remains necessary to meet the area's transportation needs. The city is considering reclassifying these roads as four lanes. This study provides a data-driven evaluation to guide stakeholders—including the city, Stanislaus County, the development community, the Stanislaus Council of Governments (StanCOG), and nearby landowners—on whether the proposed reclassification can effectively accommodate the movement of people.

STUDY SCENARIOS

The study evaluated the following scenarios under existing and future (2046) conditions:

- **Existing Conditions:** Represents the current roadway network, assessed using observed traffic counts.
- **Future (2046) Planned Conditions:** Represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes, assessed using 2046 volumes estimated by the Stanislaus County travel demand model as modified for the

¹ City of Modesto General Plan (March 2019). *Chapter V. Transportation*. Retrieved from <https://www.modestogov.com/DocumentCenter/View/15012/GPA-10-001-DOC-Chapter-V-3-6-19-PDF>

² Stanislaus County. North County Corridor Phase 1 Project. Retrieved from <https://northcountycorridorphase1.com/>

Modesto General Plan and current plans for the North County Expressway Phase 1 and the planned road network for the Tivoli Specific Plan.

- **Future (2046) Adjusted Conditions:** Evaluates an alternative future roadway network scenario where the study corridors are reduced to four lanes and assessed using volumes estimated by a projected 2046 traffic volumes from the travel demand model as modified to include the four lane segments.

STUDY AREA

Figure 2 illustrates the study intersections and roadway segments analyzed in this study. **Table 1** presents the roadway segments analyzed, along Oakdale Avenue and Claratina Avenue, which are being considered for reclassification from six lanes to four. **Table 2** lists the seven intersections identified through discussions with city staff.

Table 1: Roadway Segments

#	Roadway Segment	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	Oakdale Rd between Claribel Rd & Claratina Ave	2 lanes	6 lanes	4 lanes
2	Oakdale Rd between Claratina Ave & Mable Ave	2 lanes	6 lanes	4 lanes
3	Oakdale Rd between Mable Ave & Bridgewood Way	3 lanes	6 lanes	4 lanes
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	2 lanes	6 lanes	4 lanes
5	Claratina Ave between McHenry Ave & Coffee Rd	2 lanes	6 lanes	4 lanes
6	Claratina Ave between Coffee Rd & Oakdale Rd	2 lanes	6 lanes	4 lanes

Source: Kittelson & Associates, Inc. 2025

Table 2: Study Intersections and Intersection Control

No	Intersection Name	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	Signal	Signal
2	Coffee Rd & Claratina Ave	Roundabout ¹³	Roundabout ²³	Roundabout ²³
3	Oakdale Rd & Claratina Ave	Signal	Signal	Roundabout ²³
4	Oakdale Rd & Claribel Ave	Signal	Signal	Signal
5	Oakdale Rd & Mable Ave	Signal	Signal	Roundabout ²
6	Oakdale Rd & Bridgewood Way	Two-way Stop	Signal	Roundabout ¹
7	Oakdale Rd & Sylvan Ave	Signal	Signal	Roundabout ²³

Source: Kittelson & Associates, Inc. 2025

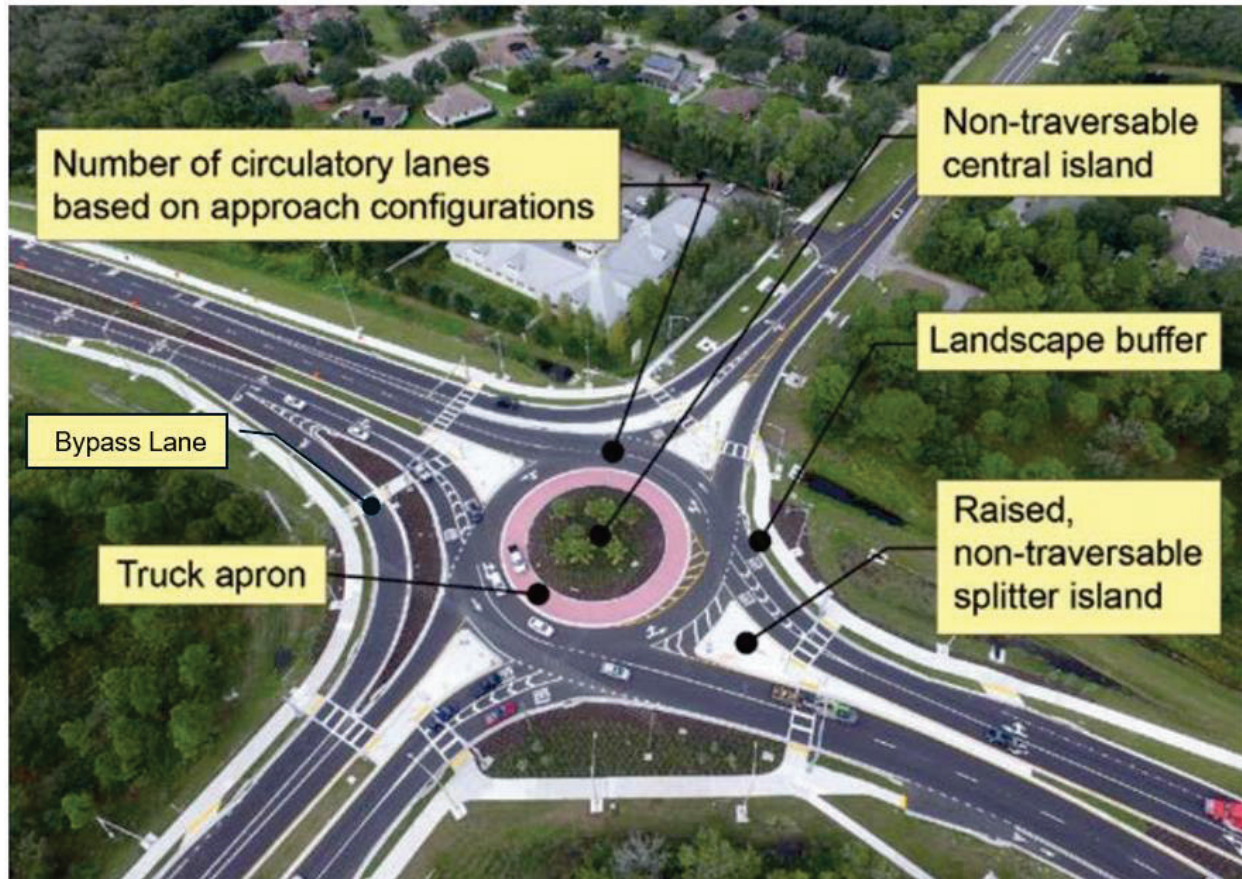
Note: ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Kittelson conducted turning movement and tube counts at these locations in June 2024. A summary of the traffic count data is provided in **Appendix A**.

Understanding Roundabouts

A roundabout is a circular intersection form in which traffic travels counterclockwise around a central island and entering traffic must yield to circulating traffic. Figure 1 shows a roundabout annotated with common features including a bypass lane and circulatory lane.

Figure 1: Common Roundabout Features



Source: NCHRP 1043; Edited by Kittelson & Associates, Inc.

The circulatory roadway is the portion of a roundabout where vehicles travel counterclockwise around the central island. In multilane roundabouts, this roadway may include two or more circulating lanes, which should not be confused with bypass lanes.

Bypass lanes, also known as channelized turn lanes or slip lanes can be added to roundabouts to improve capacity for specific turning movements. However, their implementation requires careful consideration of potential conflicts with pedestrians and bicyclists, as well as operational impacts such as reverse traffic patterns during opposing peak periods.³

Currently, Modesto has multilane roundabouts along Sylvan Avenue at Roselle Avenue and Millbrook Avenue but none of them feature a bypass lane.

³ National Academies of Sciences, Engineering, and Medicine. 2023. *Guide for Roundabouts*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27069>.

Figure 2: Study Area



- Study Intersections
- Study Segments

Figure 1: Study Area





Section 2

Existing Conditions

Roadway Network

The following section outlines the existing and planned roadway conditions in the study area, covering pedestrian network, bicycle facilities, transit system, and roadway network.

PEDESTRIAN NETWORK

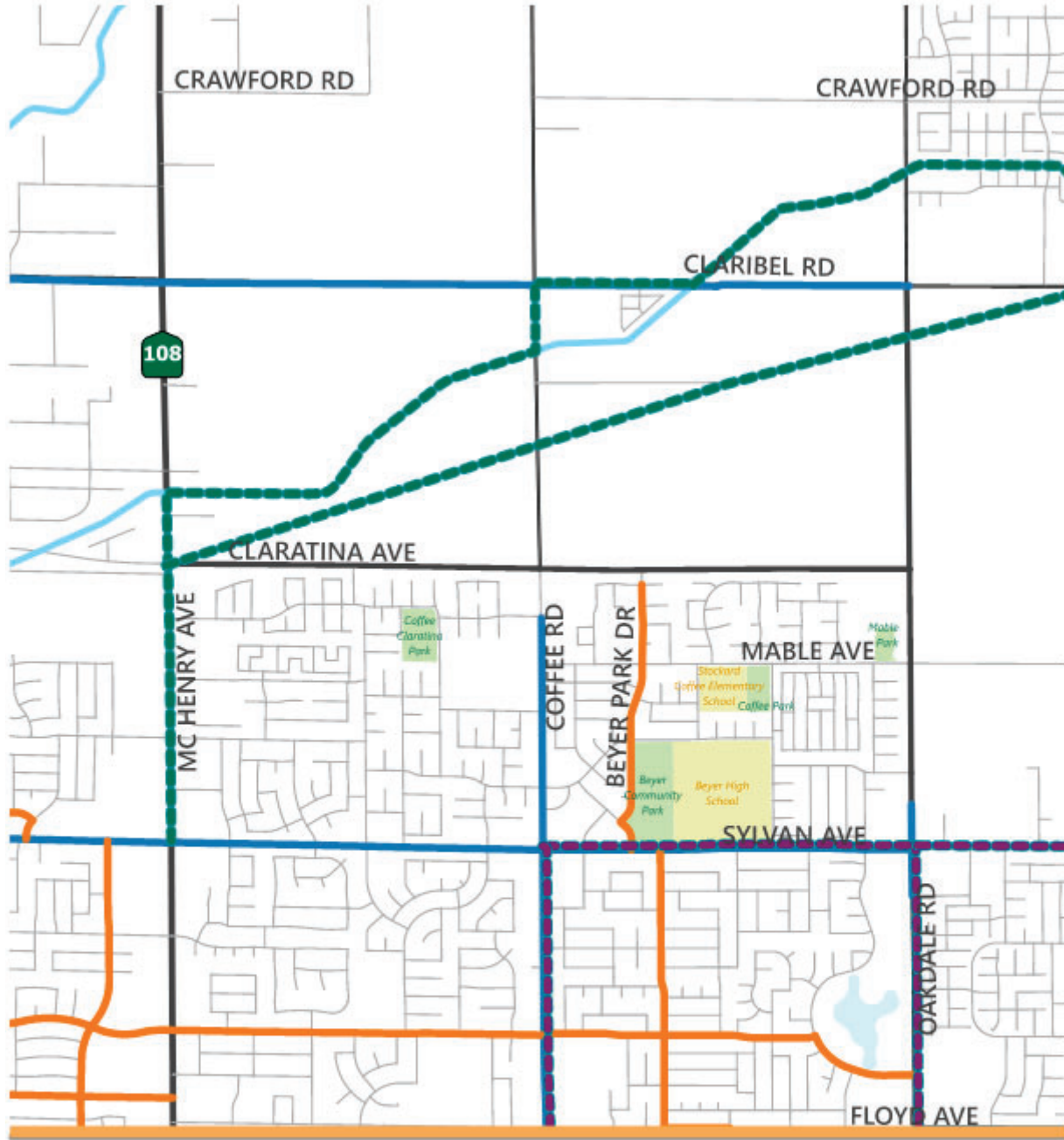
There are parks, schools, and retail stores located near the study intersections and segments that contribute to pedestrian activity in the area. Marked crosswalks are provided at all study intersections except for Oakdale Road and Bridgewood Way. Due to the predominantly undeveloped nature of the area, sidewalks are limited and are present only along the west side of Oakdale Road between Claratina Avenue and Sylvan Avenue.

BICYCLE FACILITIES

Figure 3 illustrates the existing bicycle network within the study area. Class II bike lanes are present on Claribel Road (between McHenry Avenue and Oakdale Road), Sylvan Avenue (between McHenry Avenue and Oakdale Road), and Coffee Road (south of Montana Drive). Beyer Park Drive and Keller Street are designated as Class III shared bicycle routes.

According to the City of Modesto Non-Motorized Transportation Plan, Class IV separated bikeways are proposed for Sylvan Avenue, Oakdale Road, Mable Avenue, and Coffee Road. Additionally, Sylvan Meadows Drive, Beyer Park Drive, and Keller Street are planned to be upgraded to Class IIIB Bicycle Boulevards.

Figure 3: Bicycle Network



- | Planned | Existing Bikeways |
|---------|------------------------------|
| | Class I Shared Use Path |
| | Class II Bike Lane |
| | Class II Buffered Bike Lane |
| | Class III Bike Route |
| | Class IV Protected Bike Lane |

Figure 2: Bicycle Network



TRANSIT SYSTEM

The study area is served by several StanRTA routes which serve Oakdale Road, Sylvan Avenue, Mable Avenue and McHenry Avenue. **Figure 4** and **Table 3** describe the routes that directly serve the study area.

Table 3: StanRTA Bus Routes

Route Number	Description	Frequency	Days and Times
23	Travels between the Modesto Transit Center and Kiernan along McHenry. <i>Stops of interest include McHenry Village and Walmart.</i>	Every 30 Minutes (Weekdays and Saturdays) and Every 1 Hour on Sundays	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
32	Travels between the Modesto Transit Center and Beyer High School neighborhoods via I St., Scenic, Coffee, Mable, Oakdale, and Sylvan. <i>Stops of interest include the Health Department, Downey High School, Memorial Medical Center, Beyer High School, and Beyer Park.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
60	Travels between the Modesto Transit Center and Oakdale through Riverbank via Sunrise, Floyd, Oakdale Rd, Patterson, and Hwy 108. <i>Stops of interest include Gladys Lemon Senior Center, daycare centers, schools, local government buildings, the post office, and grocery stores.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (5 AM – 10 PM) and Weekends (reduced times)

Source: StanRTA, 2025

Figure 4: Transit Network

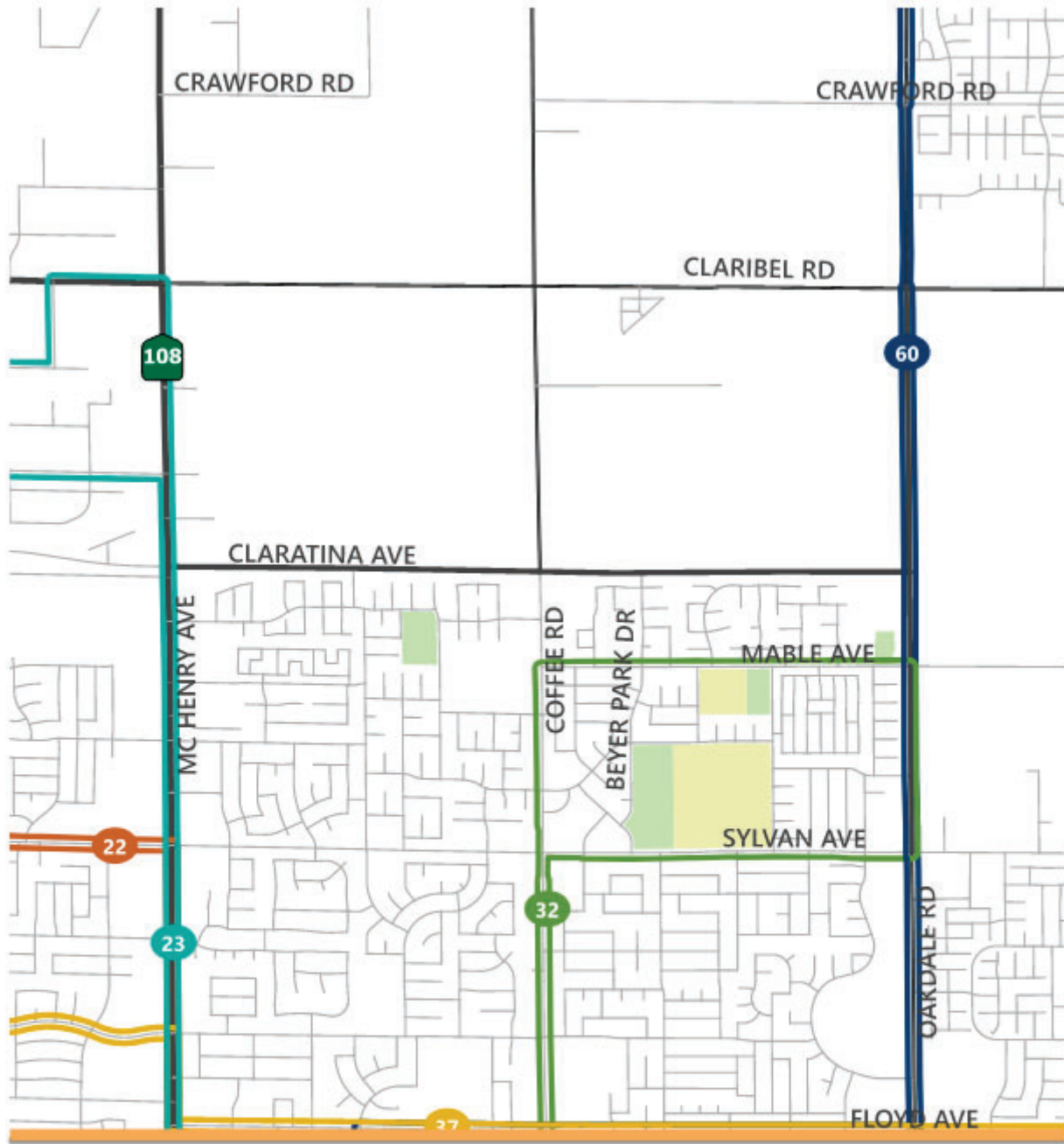


Figure 3: Transit Network

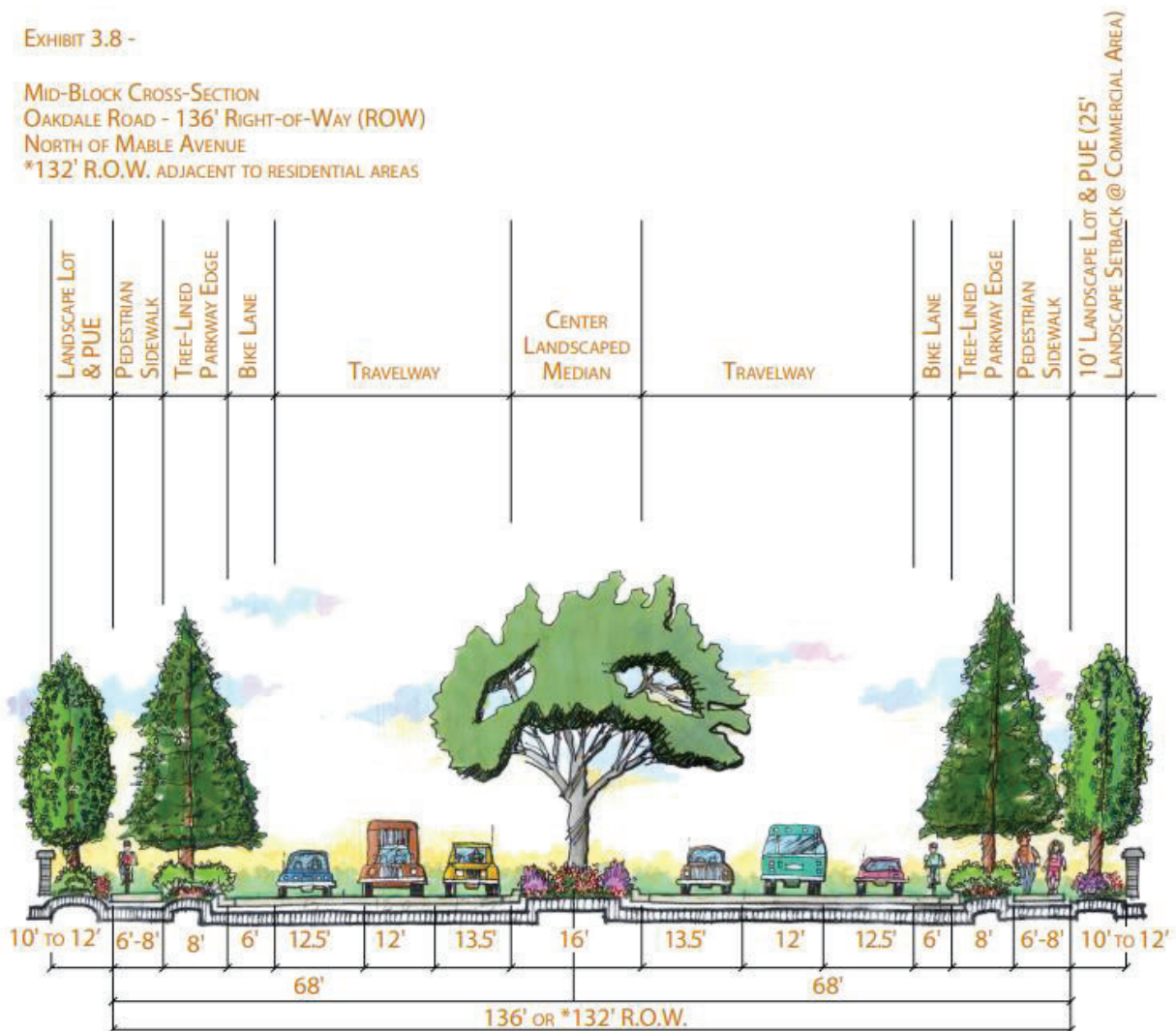


ROADWAY CONFIGURATION

Oakdale Road is a north-south arterial that connects SR 132 (Yosemite Boulevard) in the south to SR 108 (Patterson Road) in the north. The segment between Claribel Road and Claratina Avenue is a two-lane undivided roadway, primarily surrounded by undeveloped agricultural land. Between Claratina Avenue and Sylvan Avenue, residential developments line the west side of the roadway. The southbound direction of this segment provides two travel lanes with left-turn pockets at major intersections. The posted speed limit for the segment is 45 mph.

Figure 5 shows the proposed Oakdale Road cross section from the Tivoli Specific Plan, which proposes widening the road to three lanes in each direction. The proposed cross section includes 6 feet wide bike lanes and 8 feet wide sidewalks in each direction. Additionally, it includes a landscaped strip acting as a buffer between the paved road and sidewalk and another landscaped lot and public utility easement. The total right-of-way (ROW) is approximately 136 feet.

Figure 5: Proposed Oakdale Road Cross Section

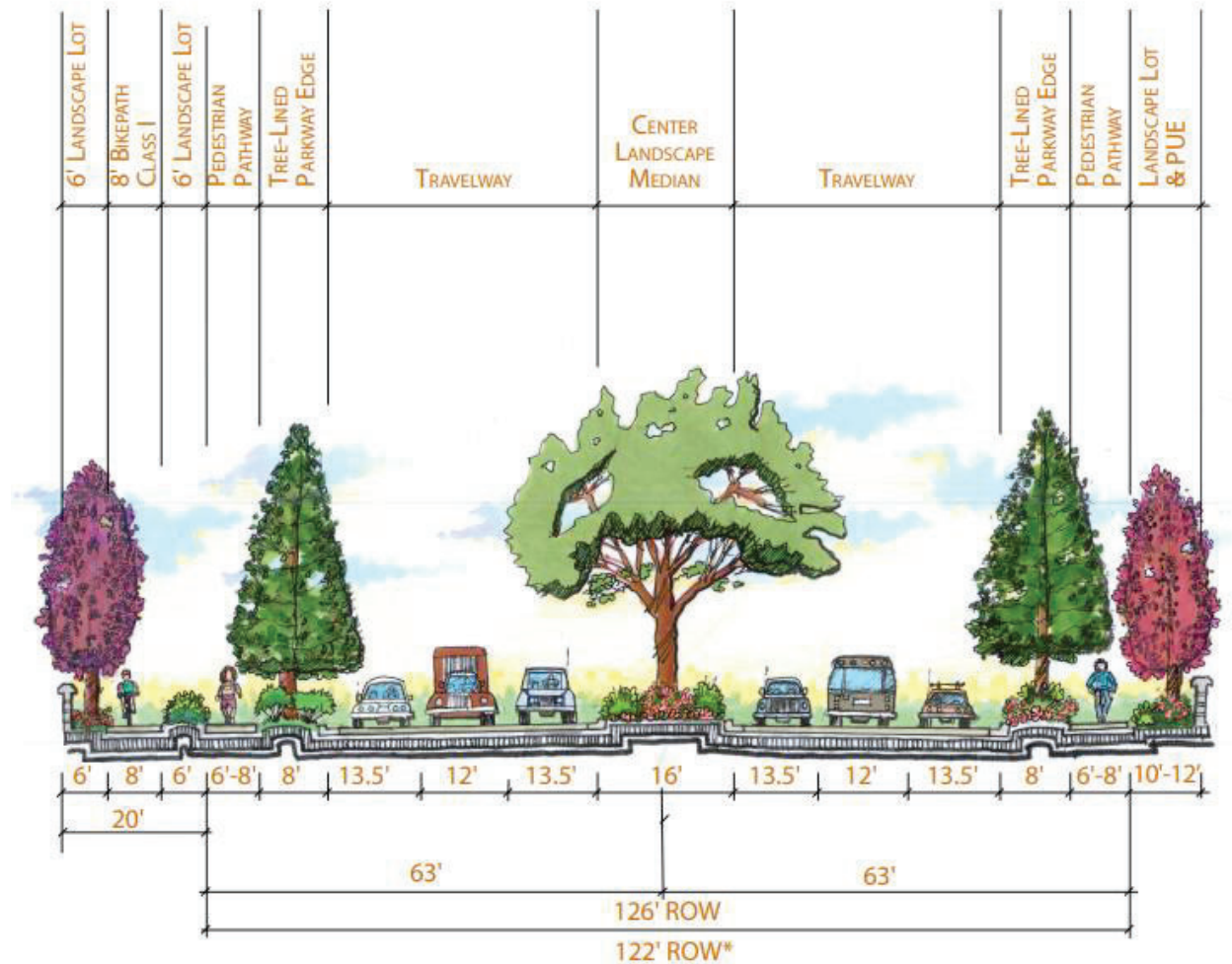


Source: Tivoli Specific Plan, 2008

Claratina Avenue within the study area is an east-west, two-lane undivided roadway connecting SR 108 (McHenry Avenue) to Oakdale Road. The north side of the segment is primarily agricultural, except near the intersection with McHenry Avenue, where a used car dealership and a church are located. The south side is predominantly residential. The posted speed limit for this segment is 45 mph.

Figure 6 shows the proposed Claratina Avenue cross section east of Oakdale Road included in the Tivoli Specific Plan, which proposes widening of the roadway to six lanes. Pedestrian pathways are included in both directions and a Class I Bike path is proposed on the north side. The total right-of-way is approximately 126 feet.

Figure 6: Claratina Avenue Cross Section



Source: Tivoli Specific Plan, 2008

Besides the two study segments, the other major cross streets include Claribel Road, Sylvan Avenue, and Mable Avenue. For the purpose of this study, it is anticipated that there will be no changes in numbers of travel lanes on the cross streets.

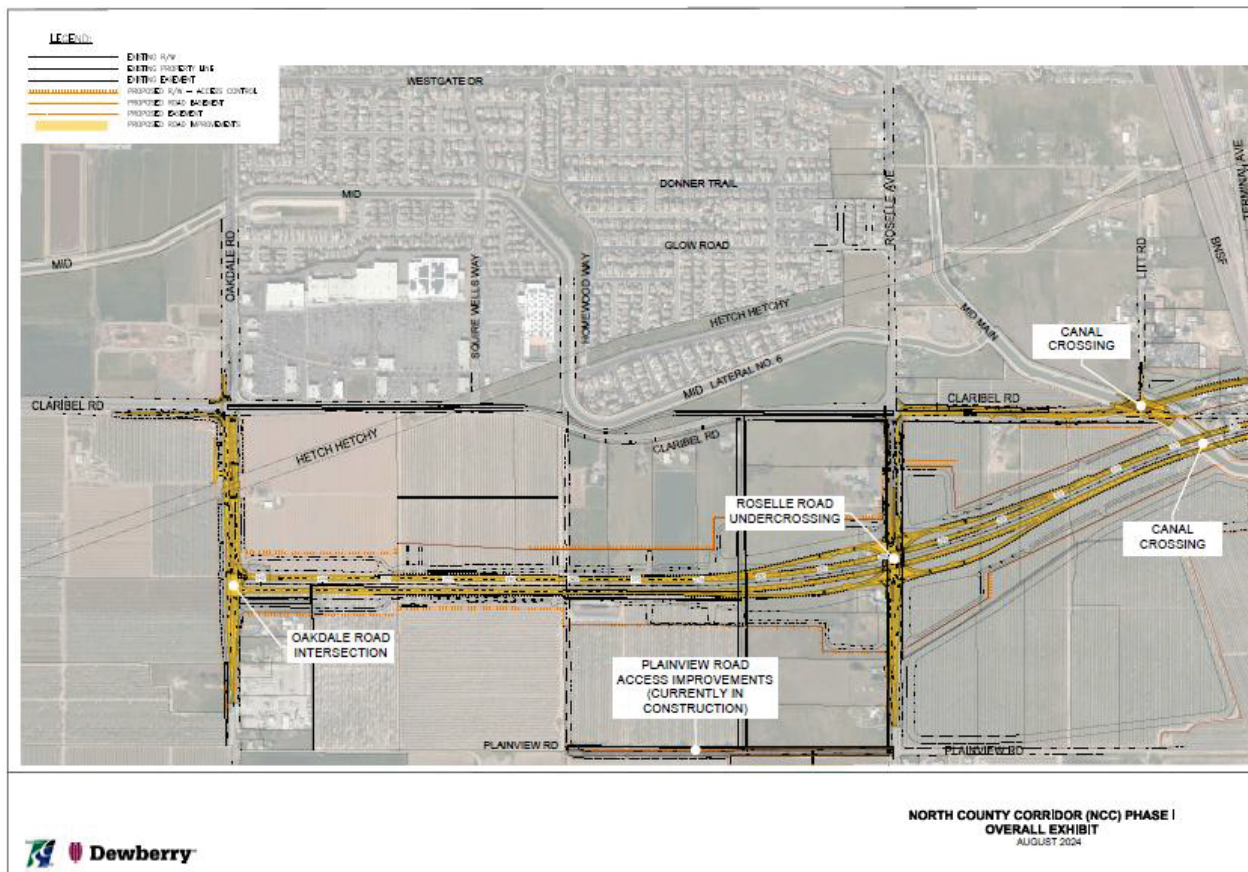
INTERSECTION CONFIGURATIONS

Oakdale and Claribel Road

The planned intersection geometry for Oakdale Road and Claribel Road was obtained from the North County Corridor Phase 1 project, as shown in **Figure 7**. An additional southbound through lane and northbound left-turn pockets will be added to the existing intersection. Additionally, the westbound through lane will be converted into a left-turn trap lane, and a new westbound right-turn pocket will be added.

The Oakdale Road intersection at the North County Corridor identified in the exhibit was included in the future road network for traffic forecasts, but its operations were not evaluated in this study.

Figure 7: North County Corridor Phase 1 Project - Conceptual Exhibit



Source: North County Corridor Phase 1 Project, 2024

Coffee Road and Claratina Avenue

Figure 8 illustrates the planned roundabout at Coffee Road and Claratina Avenue, which will convert the existing single-lane roundabout into a multilane roundabout, with two circulating lanes on all approaches, and with yield-controlled right-turn bypass lanes on the eastbound (west leg) and southbound (north leg) approaches.

Figure 8: Coffee Road and Claratina Avenue Planned Roundabout



Source: City of Modesto, 2024



Section 3

Traffic Operations

Traffic Operations

The following section evaluates the traffic operations at the study intersections and roadway segments.

INTERSECTION ANALYSIS

The study intersections were evaluated using the methodologies of the Transportation Research Board's (TRB) *Highway Capacity Manual (HCM) 7th Edition*. Traffic signal timing data was obtained from the City of Modesto, City of Riverbank, and Stanislaus County. Roundabout configuration was based on feasible implementation and coordination with City staff. The analysis was implemented using the PTV VISTRO traffic analysis software package.

Intersection operations results are based on intersection control delay (in seconds) and correspond to a Level of Service (LOS). LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. The operational LOS are given letter designations from A to F, with A representing free-flow (underutilized) operating conditions and F representing severely congested flow (over-capacity) with high delays

Table 4 presents the relationship between the average delay to LOS for both signalized, roundabout and unsignalized intersections from the HCM 7th edition. Although the HCM recommends evaluating roundabouts using unsignalized delay thresholds, this study, in consultation with City staff, has applied the signalized criteria to roundabouts to enable a more equitable comparison.

Table 4: Level of Service Definition for Intersections

Signalized Intersection and Roundabout Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Unsignalized Intersection Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
		into "up-stream" intersections.	

Source: Transportation Research Board, Highway Capacity Manual 7th Edition

As per the City of Modesto General Plan, LOS standard is LOS "D" or better for all intersections. Under Policy V.A.6, on roadways where the LOS is expected to be level F, mitigation measures other than road widening, such as the addition of bicycle lanes, improved pedestrian access, improved transit service, and the establishment of walkable development patterns to improve the quality of service for all travel modes are to be considered.

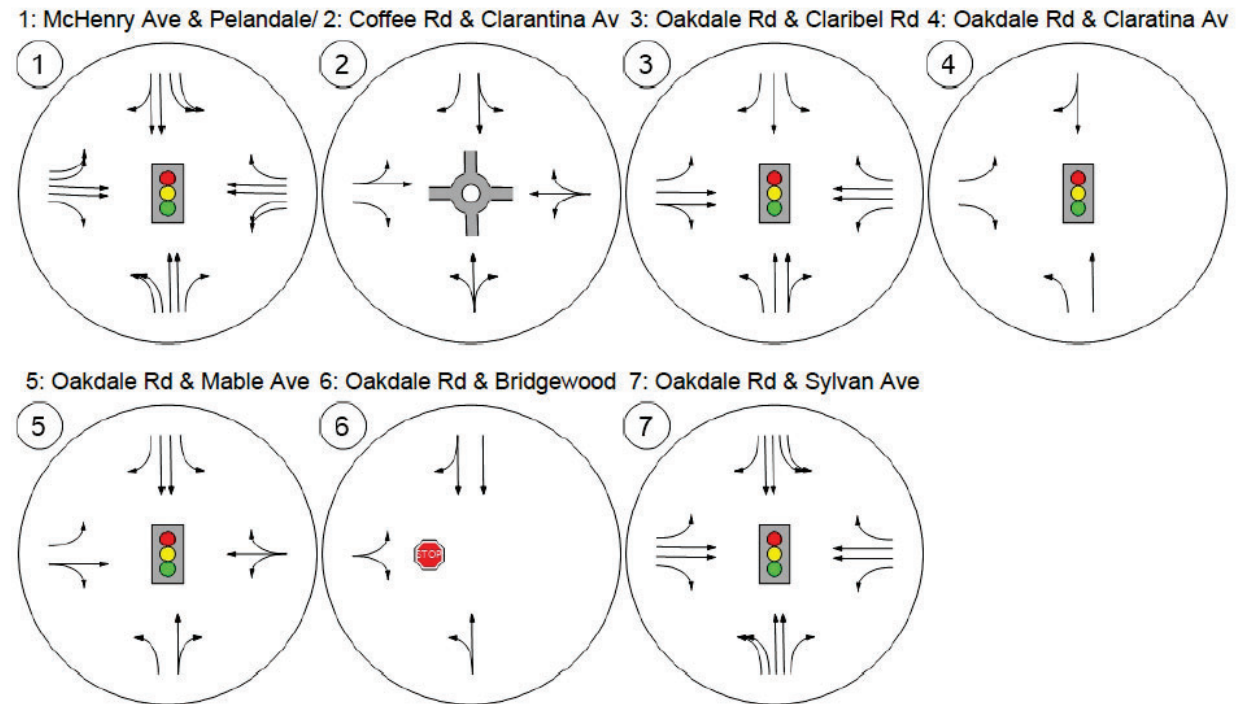
The study intersections LOS analysis results are presented below under each study scenario.

Existing Conditions

Figure 9 shows the existing lane configuration and traffic control for each study intersection. Kittelson conducted weekday morning (7:00 AM to 9:00 AM) and weekday evening (4:00 AM to 6:00 PM) peak periods turning movement counts at the study intersections in June 2024. A summary of the traffic count data is provided in **Appendix A**.

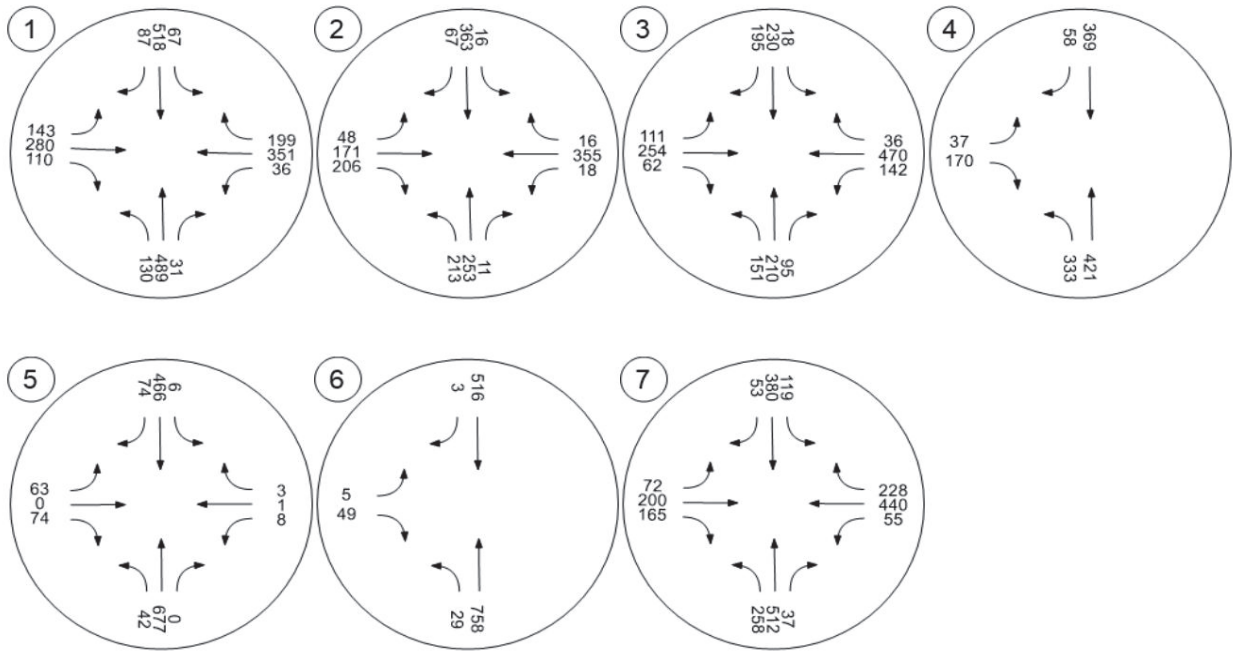
Figure 10 and **Figure 11** summarizes the AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the AM and PM peak hours are shown in **Table 5**. Detailed LOS worksheets are available in **Appendix B**.

Figure 9: Existing Lane Configuration and Traffic Control



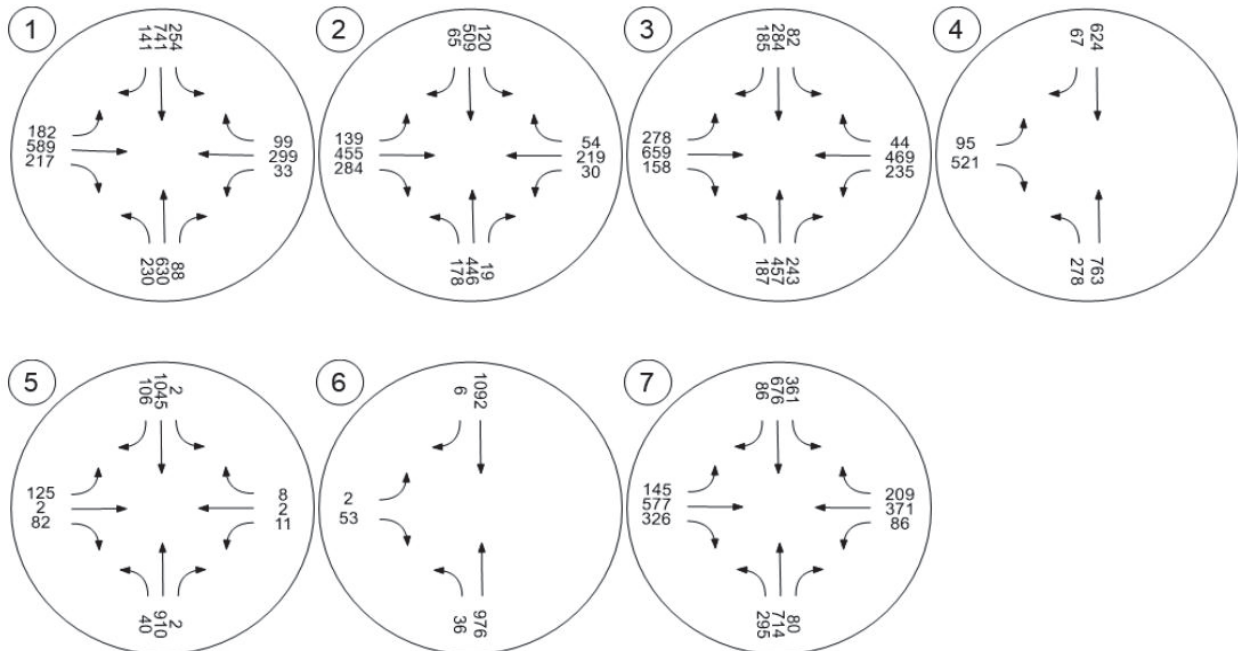
Source: Kittelson & Associates, Inc. 2025

Figure 10: Existing Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 11: Existing Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 5: Existing Conditions LOS Results

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	AM	0.610	25.8	C
			PM	0.672	50.3	D
2	Coffee Rd & Claratina Ave	Roundabout ¹³	AM	NA	8.8	A
			PM	NA	27.6	D
3	Oakdale Rd & Claratina Ave	Signalized	AM	0.645	12	B
			PM	0.828	35.3	D
4	Oakdale Rd & Claribel Ave	Signalized	AM	0.399	24.7	C
			PM	0.638	131.4	F
5	Oakdale Rd & Mable Ave	Signalized	AM	0.421	18.4	B
			PM	0.565	64.5	E
6	Oakdale Rd & Bridgewood Way	Two-way Stop	AM	0.020	20.3	C
			PM	0.026	52.6	F
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.402	62.2	E
			PM	0.587	52	D

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

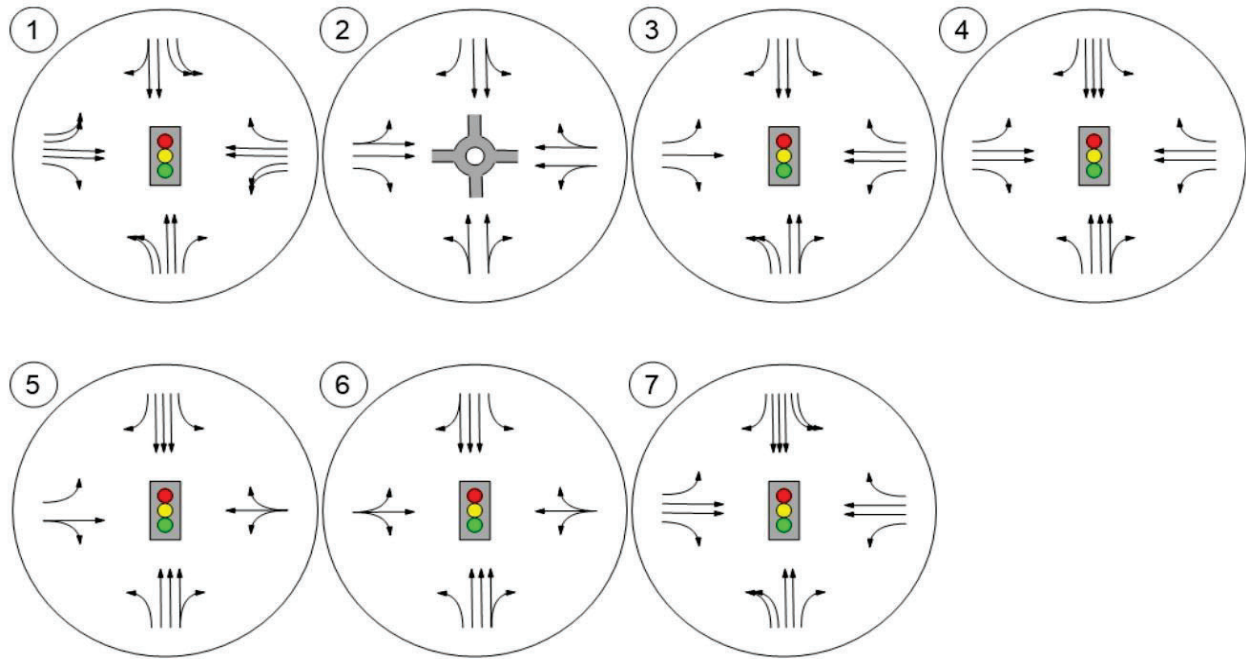
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Under existing conditions, four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity (V/C greater than 1.00).

Future (2046) Planned Conditions

The Future (2046) Planned Conditions represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes. **Figure 12** shows the lane configuration and traffic control for each study intersection under planned conditions. The Oakdale Road and Bridgewood Way intersection was evaluated as a signalized intersection.

Figure 12: Future (2046) Planned Conditions Intersection Lane Configuration



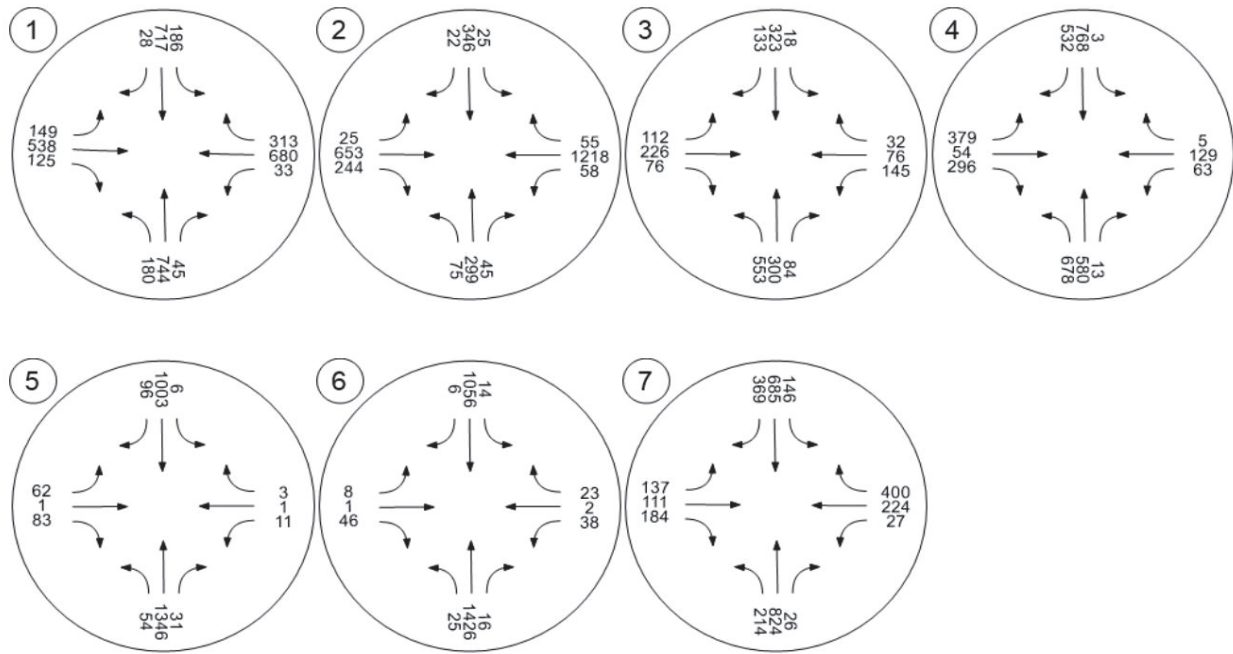
Source: Kittelson & Associates, Inc. 2025

Traffic volumes were extracted using the Stanislaus Council of Governments (StanCOG) 2022 Regional Transportation Plan (RTP) Travel Demand Model. The StanCOG travel demand model forecasts traffic volumes considering inputs such as land uses, population characteristics, and roadway capacities. The model was updated to include the most recent plans for the North County Corridor and the roads within the Tivoli Specific Plan.

The model provides traffic estimates for a pre-COVID base year (2019) and a future horizon year (2046). The base year model reasonably reflects transportation demand conditions for the Existing Conditions scenario, and the Year 2046 horizon year model generally reflects transportation conditions with expected regional growth consistent with the city's General Plan land use pattern and transportation system.

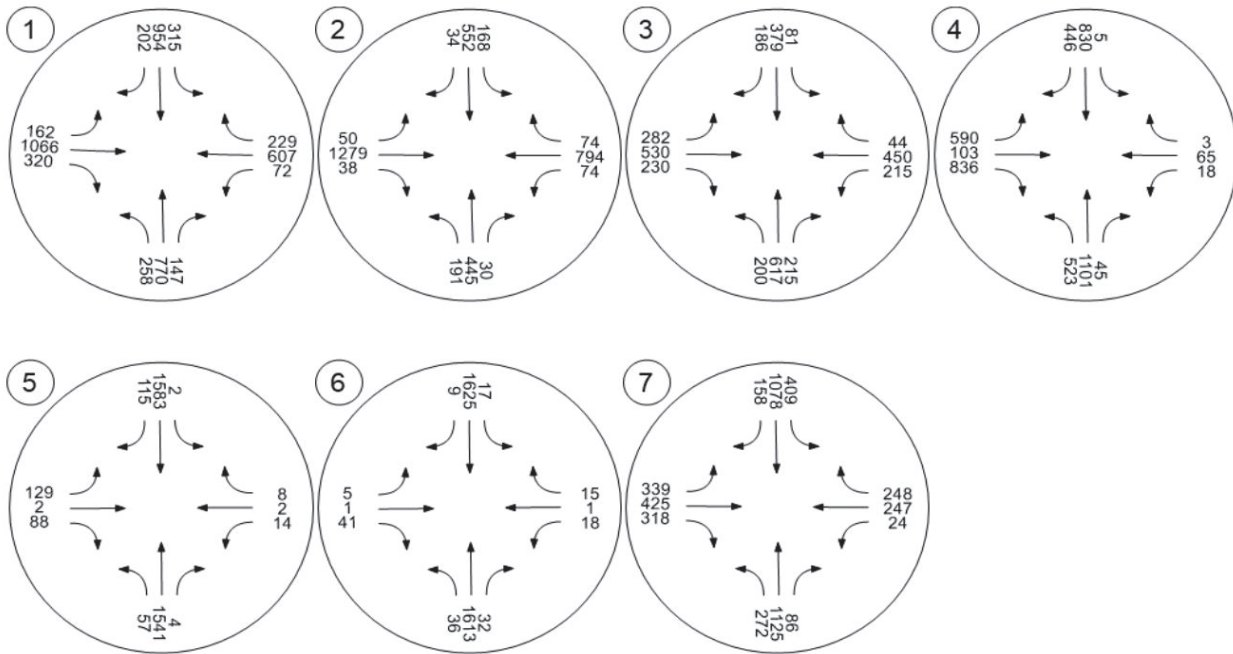
Figure 13 and **Figure 14** summarizes the 2046 AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the 2046 AM and PM peak hours are shown in **Table 6**. Detailed LOS worksheets are available in **Appendix C**.

Figure 13: Future (2046) Planned Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 14: Future (2046) Planned Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 6: Future (2046) Planned Conditions LOS Summary

No.	Intersection Name	Control Type	Peak Hour	2046 Planned (6 Lane)		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	AM	0.572	32.86	C
			PM	0.890	167.00	F
2	Coffee Rd & Claratina Ave	Roundabout ²³	AM	NA	14.36	B
			PM	NA	61.43	E
3	Oakdale Rd & Claribel Ave	Signal	AM	0.298	25.91	C
			PM	0.660	70.76	E
4	Oakdale Rd & Claratina Ave	Signal	AM	1.138	125.34	F
			PM	0.970	137.22	F
5	Oakdale Rd & Mable Ave	Signal	AM	0.463	17.57	B
			PM	0.470	17.20	B
6	Oakdale Rd & Bridgewood Way	Signal	AM	0.380	14.48	B
			PM	0.440	14.57	B
7	Oakdale Rd & Sylvan Ave	Signal	AM	0.702	45.73	D
			PM	0.780	95.40	F

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each of the signalized intersection. Under Future (2046) Planned Conditions, five intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection is operating over capacity.

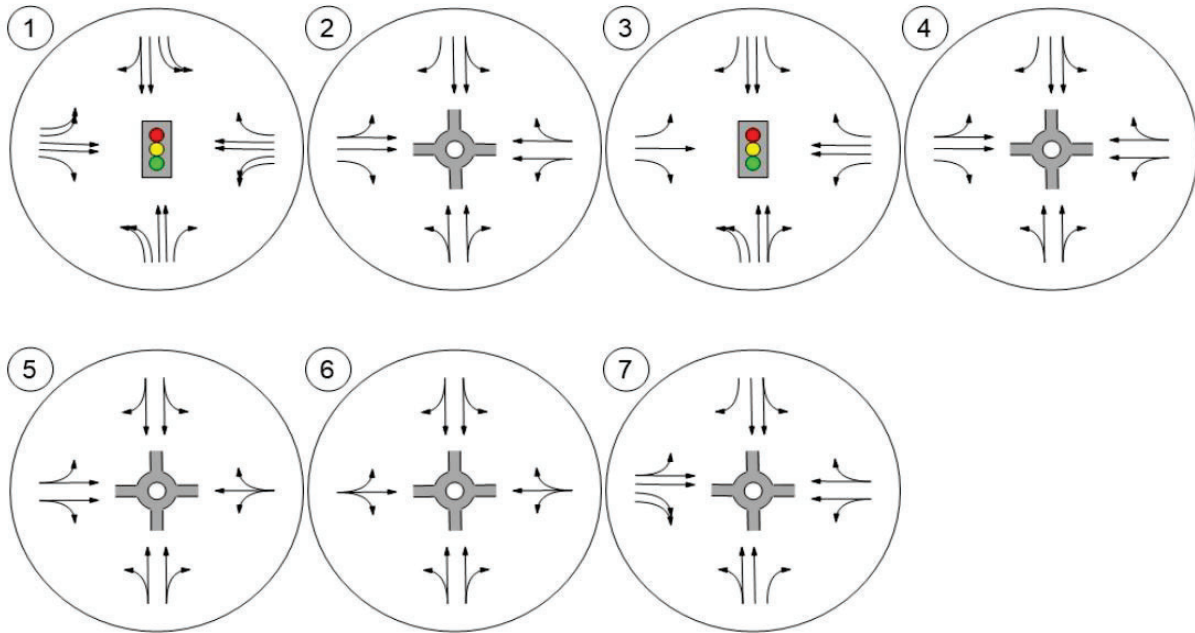
Future (2046) Adjusted (Reduced Classification) Conditions

The Future (2046) Adjusted Conditions represents the future roadway network which evaluates an alternative scenario where the study corridors are classified as four lanes instead of six lanes. Additionally, the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue were evaluated as roundabouts as shown in **Figure 15**.

The traffic volumes were projected using the StanCOG travel demand model by updating the number of lanes to represent the reclassified four-lane segments, which resulted in a slight decrease in volumes as presented in **Figure 16** and **Figure 17**.

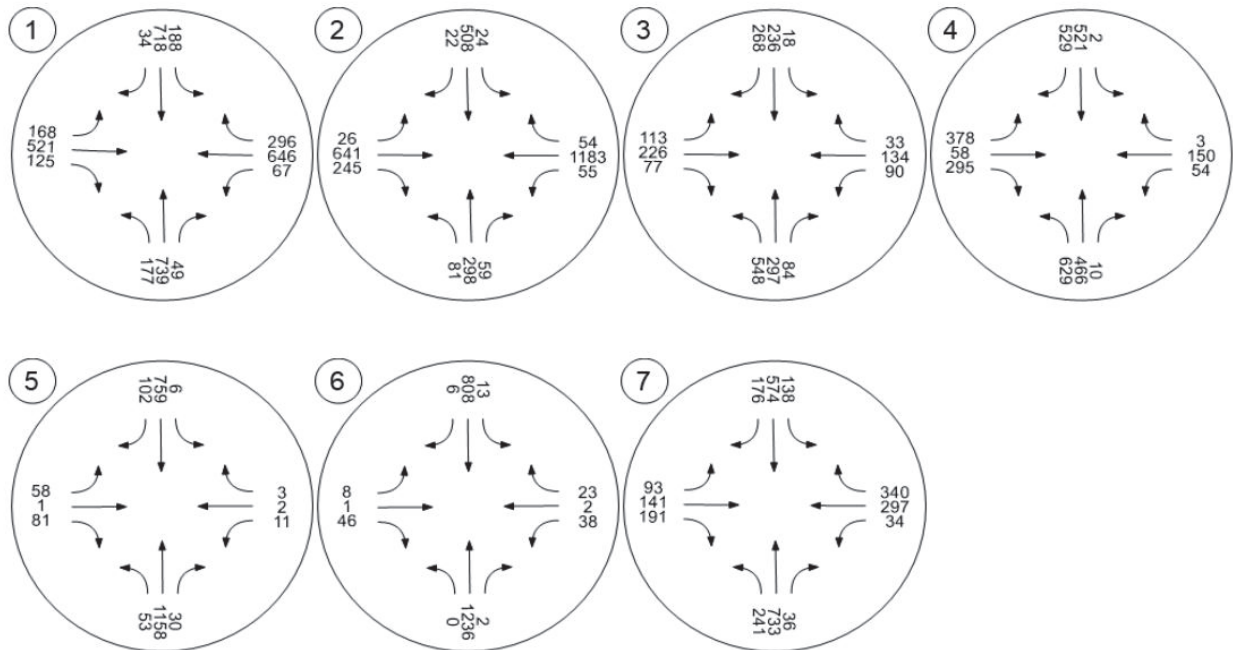
The intersection operation results for the AM and PM peak hours are shown in **Table 7**. Detailed LOS worksheets are available in **Appendix D**.

Figure 15: Future (2046) Adjusted Conditions Lane Configuration and Traffic Controls



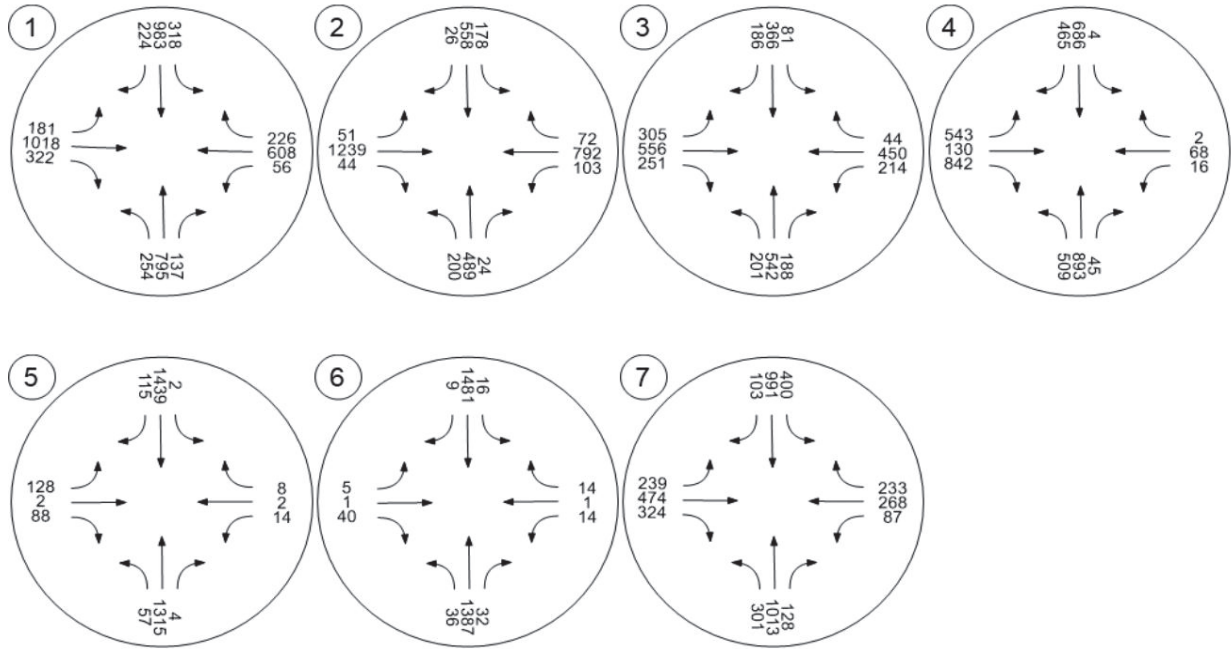
Source: Kittelson & Associates, Inc. 2025

Figure 16: Future (2046) Adjusted Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 17: Future (2046) Adjusted Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 7: Future (2046) Adjusted Conditions LOS Summary

No.	Intersection Name	Control Type	2046 Adjusted (4 Lane)			Change From Planned
			V/C	Delay	LOS	
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	0.565	46.7	D	13.84
			0.857	76.4	E	-90.6
2	Coffee Rd & Claratina Ave	Roundabout ²³	NA	16.8	C	2.44
			NA	67.8	E	6.37
3	Oakdale Rd & Claribel Ave	Signalized	0.382	34.46	C	8.55
			0.78	69.2	E	-1.56
4	Oakdale Rd & Claratina Ave	Roundabout ²³	NA	15.7	B	-109.64
			NA	34.8	C	-102.42
5	Oakdale Rd & Mable Ave	Roundabout ²	NA	7.3	A	-10.27
			NA	11.2	B	-6
6	Oakdale Rd & Bridgewood Way	Roundabout ¹	NA	6.8	A	-7.68
			NA	9.4	A	-5.17
7	Oakdale Rd & Sylvan Ave	Signalized	0.599	42.3	D	-3.43
			0.787	94.5	F	-0.9

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

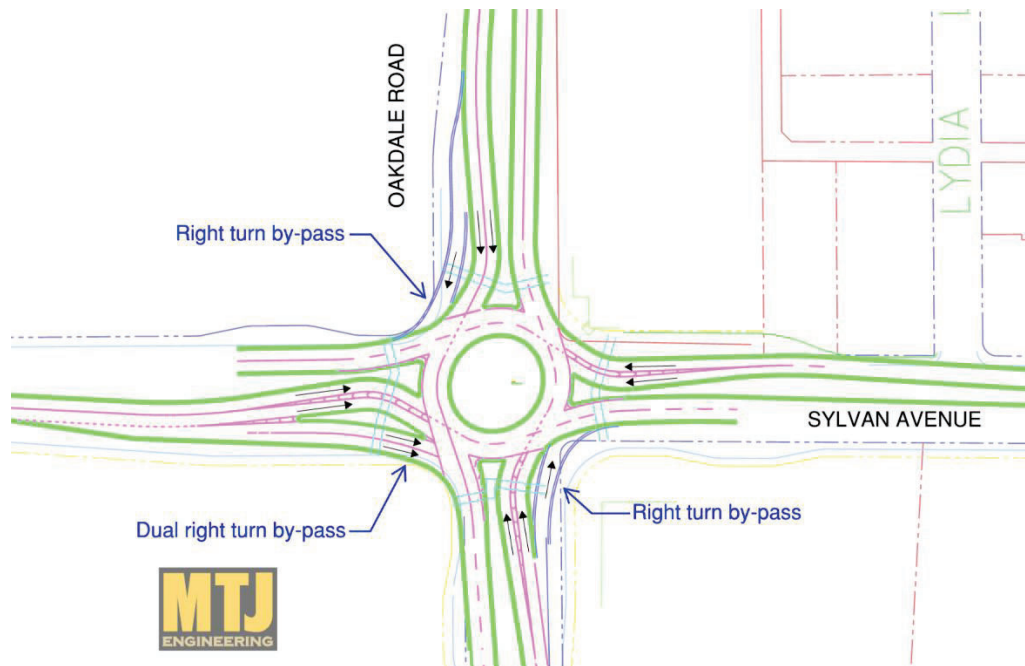
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each approach of the signalized intersections. Under future (2046) adjusted conditions, four intersections would operate below acceptable LOS thresholds during at least one peak hour. However, none of the intersections would operate over capacity. In most locations, the delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth is expected to continue to operate at LOS E.

Oakdale Road / Sylvan Avenue

Figure 18 shows the conceptual roundabout at Oakdale Road and Sylvan Avenue, which includes two circulating lanes at every approach, dual right-turn bypass lanes on the westbound approach, and single right turn bypass lanes on the northbound and southbound approach. Kittelson evaluated this roundabout using both VISTRO and SIDRA software. The HCM does not provide a methodology for analyzing a dual bypass lane, but both Vistro and SIDRA use proprietary methodologies to produce results. The Kittelson team compared the results of each analysis from both models to what supported by research and documented in HCM7 about one- versus two-lane roundabout approaches. Kittelson then selected the most appropriate results for inclusion in this study.

Figure 18: Oakdale Road and Sylvan Avenue - Conceptual Roundabout



Source: City of Modesto, 2024

Table 8 summarizes the LOS and delay at the Oakdale Road and Sylvan Avenue intersection under both signalized and roundabout scenarios for the Future (2046) Adjusted Conditions. During the AM peak hour, the roundabout would perform better than the signal. In the PM peak hour, the VISTRO analysis shows higher delay for the roundabout compared to the signal. However, Kittelson conducted a supplemental analysis using SIDRA, and found that the roundabout would result in lower average delays than the signal.

Kittelson also evaluated the intersection with a single bypass right-turn lane and found minimal change in delay, indicating that the additional bypass lane may not provide any additional capacity benefit

Table 8: Oakdale Road and Sylvan Avenue Intersection LOS Summary

No.	Intersection Name	Control Type	Software	Peak Hour	2046 Buildout (4 Lane)		
					V/C	Delay	LOS
7	Oakdale Rd & Sylvan Ave	Signal	VISTRO	AM	0.599	42.3	D
				PM	0.787	94.5	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	VISTRO	AM	NA	13.55	B
				PM	NA	127.48	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	SIDRA	AM	0.796	16	B
				PM	1.154	59.9	E
7	Oakdale Rd & Sylvan Ave	Roundabout – Single Right Turn Bypass Lanes	SIDRA	PM	1.154	60.2	E

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Other Considerations for Roundabouts

The Future (2046) Adjusted scenario changes four intersections along Oakdale Road from signalized to roundabout control. The Future (2046) Planned scenario showed signal operations not being able to efficiently handle the volumes resulting in high delays at some intersections, even with six through lanes on the study corridors. Reducing the through lanes from three to two in each direction would only worsen the delays if remaining under signalized control. However, the proposed roundabouts can provide similar or lower delays with two lanes in each direction. Further, there are other considerations where roundabouts may provide benefits at these locations.

Safety Benefits

Roundabouts are an FHWA Proven Safety Countermeasure because they can substantially reduce crashes that result in serious injury or death. In comparison to signalized intersections, roundabouts have been shown to result in reductions of up to 78% of fatal and injury crashes.⁴

Right-of-Way Constraints

Kittelson's comparison between roundabouts and traffic signals is based solely on operational analysis. However, it is important to also consider right-of-way (ROW) constraints and potential acquisition costs

⁴ FHWA Highway Safety Programs. Retrieved from <https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>

associated with implementing roundabouts. The City of Modesto has developed conceptual exhibits overlaying roundabout layouts with property lines to assess whether they can be constructed within existing city ROW. The proposed roundabout configurations fit within the existing right-of-way, as the number of approach lanes is able to be reduced using a roundabout compared to a signal. As explained in Section 2.4.3 of NCHRP Research Report 1043: Guide for Roundabouts, the following spatial considerations apply to roundabouts in comparison to other intersection control types:

- Roundabouts may be larger *at the intersection* than other control types because of their size and shape.
- Roundabouts may be able to be spaced more closely to one another than traffic signals because of shorter queue lengths (less chance of queue spillback).
- Roundabouts may serve similar or more capacity with fewer total lanes (e.g., no dedicated left- or right-turn lanes) than signals—meaning the roadway between intersections can be narrower.

Additional detailed design work will be necessary to confirm the constructability of the roundabouts.

Site Access

As with any intersection form and control type, site access in the immediate vicinity of an intersection creates challenges. A few considerations for roundabouts include:

- Roundabouts provide safe and efficient U-turn opportunities which allows for full access points to be converted to right-in, right-out or left-in, right-out. This allowance removes the most difficult and riskiest movements at an access point (left-out movements) by converting them to U-turns.
- Because roundabouts may allow for fewer lanes on the approach compared to signalized intersection, they are conducive to access management (with a median taking the place of what could have been a turn lane in a signalized alternative).
- Access is strongly discouraged within 50 feet of the circulatory roadway (between the entry and pedestrian crosswalk). This location complicates the pedestrian ramp and creates wayfinding challenges for people with vision disabilities, and also introduces new conflicts in a challenging location for drivers.
- Access is best avoided along the splitter island of a roundabout approach; however, if it is unavoidable, then right-in, right-out access can be provided with a U-turn at the intersection as previously described.⁵ Additionally, access could be accommodated by shortening a splitter island to allow for left turns to and from a driveway, although doing so introduces more conflict points.⁶

Roundabouts may offer the ability to provide access to adjacent properties closer to the intersection than signalized intersections without the associated degradation in operations and safety associated with nearby access at signals.

⁵ MassDOT and Kittelson & Associates. Guidelines for the Planning and Design of Roundabouts. 5.9.6 Access Management. Retrieved from <https://www.mass.gov/doc/massdot-guidelines-for-the-planning-and-design-of-roundabouts/download>

⁶ Modern Roundabout Intersections: When To Use Them? A Comparison with Signalized Intersections. Retrieved from https://www.mvcommission.org/sites/default/files/docs/Roundabout_comparison_with_signals.pdf

Corridor Operations

Roundabouts located along a corridor provide advantages over signalized corridors or corridors with a mix of control types. Because roundabouts serve similar or greater capacity than comparable signals with shorter queue lengths than comparable signalized intersections and without producing platoons. Roundabout operations result in randomized flow rather than platoons. Roundabout operations are typically better with a random arrival pattern than with a platooned flow; mixing signals and roundabouts may result in platoons arriving at a roundabout from a nearby signal and creating queueing.

As a result, when considering roundabouts, consistency along the corridor is beneficial for driver expectations and for operational performance should be considered to allow drivers to develop a sense of predictability and help optimize the traffic flow.⁷ Consistency along Oakdale Road is recommended for operational efficiency.

ROADWAY SEGMENT ANALYSIS

Traffic volumes on roadway segments are used to determine the overall usage and congestion. Under existing conditions, the roadway segment analysis is based on traffic counts taken at a single location or link, which is intended to be representative of the entire segment.

LOS for roadway segments is assessed based on the volume in relationship to the capacity threshold as presented in the HCM 2010 edition and adopted by the City of Modesto as shown in **Table 9**.

⁷ TDOT Roundabout Design Reference Guide. Retrieved from <https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/training/Roundabout%20Design%20Reference%20Guide.pdf#:~:text=Roundabouts%20result%20in%20randomized%2C%20un%2Dplatooned%20flow%20along,in%20a%20corridor%20with%20coordinated%20signal%20progression.&text=Roundabout%20corridors%20can%20also%20provide%20for%20design,adjust%20where%20right%2Dof%2Dway%20impacts%20occur%20at%20intersections>.

Table 9: Roadway Segment Threshold and LOS Relationship

Type of Roadway Segment	Hourly Capacity ^{a,c}	Daily Volume Threshold ^{b,c}				
		LOS A	LOS B	LOS C	LOS D	LOS E
Freeway Mainline	2,000	8,000	12,750	18,750	23,130	25,000
Expressway – Class A	1,500	5,630	9,380	13,120	15,750	18,750
Expressway – Class B	1,250	4,690	7,820	10,940	13,130	15,630
Expressway – Class C	1,000	3,750	6,250	8,750	10,500	12,500
Principal Arterial (6 lanes)	850	3,190	5,320	7,440	8,930	10,630
Minor Arterial (4 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Arterial (4 lanes)	750	660	1,780	3,190	5,530	9,380
Minor Arterial (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Major Collector (4 lane facility)	700	2,450	4,110	5,780	6,910	8,750
Downtown Collector	700	2,450	4,110	5,780	6,910	8,750
Minor Collector (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Collector (2 lanes)	650	570	1,540	2,760	4,800	8,130
Local Roadway	500	440	1,190	2,130	3,690	6,250
Rural Road	900	790	2,140	3,830	6,640	11,250

^a Vehicles per through lane per hour.

^b Vehicles per lane per day. Peak hour capacity eight percent (8%) of daily capacity based on a review of peak hour to daily counts on over 200 roadway segments in the City.

^c Hourly and daily calculated based on the method presented in the *Highway Capacity Manual (HCM)* (Transportation Research Board 2010). LOS is assessed based on the volume in relationship to the capacity threshold. For example, a freeway lane carrying 18,700 vehicles on a daily basis would be classified as LOS C as it is between the LOS B and LOS C threshold; if the volume was 19,000 vehicles a day, it would be classified as LOS D.

Note: These are generalized capacities that can be adjusted based on local roadway conditions, including the percentage of turning traffic, intersection spacing, driveway spacing, levels of pedestrian activity, provision of on-street parking, adjacent land use types and other factors.

Source: City of Modesto, 2016.

Table 10 includes roadway segment analysis summary under each study scenario. Under existing conditions with two lanes, Oakdale Rd between Claribel Rd & Claratina Ave operates at LOS D with a volume-to-capacity (V/C) ratio at 0.90. Traffic volumes for future conditions are based on the StanCOG travel demand model as explained in the earlier sections. Under both Future (2046) Planned Conditions

and Future (2046) Adjusted Conditions, all roadway segments would operate at LOS A. Given that a V/C ratio near 1.0 indicates optimal capacity utilization, the low ratios in the Future (2046) Planned Conditions represents overbuilt conditions.

Table 10: Roadway Segment Analysis Summary

#	Roadway Segment	Existing Conditions			Future (2046) – Planned Conditions			Future (2046) – Adjusted Conditions		
		Volume	Daily V/C	LOS	Volume	Daily V/C	LOS	Volume	Daily V/C	LOS
1	Oakdale Rd between Claribel Rd & Claratina Ave	19,100	0.90	D	20,100	0.32	A	17,600	0.41	A
2	Oakdale Rd between Claratina Ave & Mable Ave	24,000	0.75	C	29,500	0.46	A	25,400	0.60	A
3	Oakdale Rd between Mable Ave & Bridgewood Way	24,900	0.78	C	29,360	0.46	A	25,300	0.60	A
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	25,400	0.79	C	29,500	0.46	A	25,400	0.60	A
5	Claratina Ave between McHenry Ave & Coffee Rd	14,100	0.75	C	23,150	0.41	A	22,700	0.60	A
6	Claratina Ave between Coffee Rd & Oakdale Rd	9,670	0.52	A	19,000	0.34	A	19,800	0.53	A

Source: Kittelson & Associates, Inc. 2025

TRAVEL TIME

Table 11 represents the travel time analysis summary for the study corridor under existing conditions and **Table 12** represents projected travel time for the study corridor under both the Planned and Adjusted conditions. Under the Adjusted conditions, travel times are expected to decrease by 0.6 – 2.6 minutes compared to Planned conditions. There are two cases in which travel times are projected to increase under Adjusted conditions, both by 0.1 minutes. The existing conditions travel times were determined through Ggoogle Maps data, while the planned and adjusted were determined by adding the delays at intersections along the corridor to the travel time between each intersection.

Table 11: Travel Time Summary - Existing Conditions

Roadway	Route	Movement	Weekday (min)		Weekday Peak (min)		Monday - Friday (min)		Monday - Friday Peak (min)	
			Avg	StD	Avg	StD	Avg	StD	Avg	StD
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.3	0.3	29.7	2.9	3.3	0.3	3.9	0.1
Claratina Avenue	Oakdale Road to CA 108	Westbound	3.1	0.2	34.7	1.0	3.1	0.2	3.5	0.0
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	3.2	0.6	23.6	2.0	3.3	0.8	4.7	0.7
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	3.2	0.7	21.7	2.0	3.4	1.0	5.5	1.1

Note: StD – Standard Deviation
Source: Kittelson & Associates, Inc. 2025

Table 12: Travel Time Summary - Future Conditions

Roadway	Route	Movement	2046 Planned (min)		2046 Adjusted (min)	
			AM	PM	AM	PM
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.8	8.1	3.3	5.5
Claratina Avenue	Oakdale Road to CA 108	Westbound	4.4	5.0	3.4	4.4
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	4.0	6.9	4.1	6.4
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	4.4	5.6	3.8	5.7

Source: Kittelson & Associates, Inc. 2025

VEHICLE MILES TRAVELED ASSESSMENT

Table 13 summarizes the Vehicle Miles Traveled (VMT) assessment for the three study scenarios. The total VMT in Stanislaus County was calculated using the StanCOG travel demand model. Under the Future (2046) Adjusted Conditions, the total VMT is expected to decrease slightly compared to Future (2046) Planned Conditions. This is likely due to less induced demand because of the reduction in travel lanes.

Table 13: VMT Summary

Scenario	Stanislaus County Total VMT
Existing Conditions	11,056,945
Future (2046) Planned Conditions	13,395,154
Future (2046) Adjusted Conditions	13,395,008
Change with Adjusted Conditions	-147

Source: Kittelson & Associates, Inc. 2025

Summary

The Study findings and conclusions are provided below by corridor.

Oakdale Road

The Study confirms that Oakdale Road (from Claribel Avenue to Scenic Drive) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

Further, the operational analysis confirms that the following intersections would perform more efficiently as roundabouts rather than signalized intersections.

- Oakdale Rd & Claratina Ave
- Oakdale Rd & Mable Ave
- Oakdale Rd & Bridgewood Way
- Oakdale Rd & Sylvan Ave

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - Oakdale Rd & Claribel Ave – PM Peak Hour
 - Oakdale Rd & Claratina Ave – PM Peak Hour
 - Oakdale Rd & Mable Ave – PM Peak Hour
 - Oakdale Rd & Bridgewood Way – PM Peak Hour
 - Oakdale Rd & Sylvan Ave – AM Peak Hour
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Claratina Ave
 - Oakdale Rd & Sylvan Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Sylvan Ave

For all locations the average delay would decrease from the Future (2046) Planned Conditions, as shown in **Table 14**.

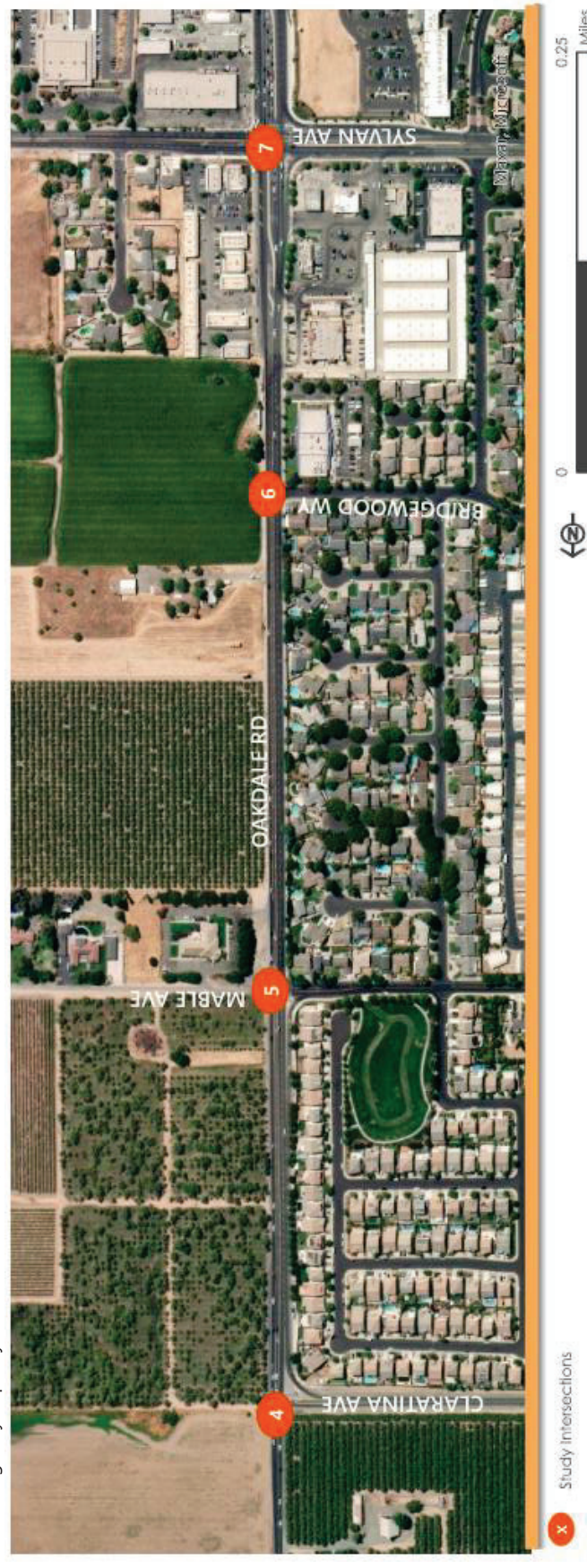
Table 14: Oakdale Road LOS Summary

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions			2046 No Build			2046 Buildout (6 Lane)			2046 Buildout (4 Lane)			Change					
				V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS						
4	Oakdale Rd & Claratina Ave	Signalized	AM	0.548	53.3	D	1.234	284.47	F	1.138	125.3 ⁴	F	NA	15.7	B	-109.64					
			PM	0.86	76.9	E	10.04	1,351.5	F	0.97	137.2 ²	F	NA	34.8	C	-102.42					
5	Oakdale Rd & Mable Ave	Signalized	AM	0.44	30.5	C	0.75	71.55	E	0.463	17.57	B	NA	7.3	A	-10.27					
			PM	0.813	70.8	E	0.90	341.03	F	0.47	17.20	B	NA	11.2	B	-6					
6	Oakdale Rd & Bridgewood Way	Signalized	AM	Currently No Signal			Currently No Signal			0.386			14.48			B			Roundabout ¹		
			PM	Currently No Signal			Currently No Signal			0.44			14.57			B			Roundabout ¹		
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.45	102.4	F	0.599	42.54	D	0.702	45.73	D	0.796	16	B	-29.73					
			PM	0.606	87.7	F	0.79	106.17	F	0.78	95.40	F	1.154	59.9	E	-35.5					

Notes: AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number. ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025



Claratina Avenue

The Study confirms that Claratina Avenue (from Oakdale Road to McHenry Avenue) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave

In most locations, average delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth in expected to continue to operate at LOS E.

OAKDALE CLARATINA TRAFFIC ANALYSIS STUDY

Modesto, CA

July 2, 2025



Inside front cover

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Oakdale Claratina Traffic Analysis Study Modesto, CA

Prepared for:

Tamora Bryant
Harris & Associates

Michael Sacuskie
City of Modesto

Prepared by:

Kittelson & Associates, Inc.
155 Grand Avenue, Suite 505
Oakland, CA 94612
510.839.1742

Project Team:

Dhawal Kataria, AICP, RSP₁
Mychal Loomis, PE, TE, PTOE, RSP₁
TJ Hribar
Mike Aronson, PE
Mike Alston TE, RSP₁

Project Number 30299

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- Appendix A: Traffic Counts Summary
- Appendix B: Existing Conditions LOS Worksheets
- Appendix C: Future (2046) Planned Conditions LOS Worksheets
- Appendix D: Future (2046) Adjusted Conditions LOS Worksheets



Section 1

Introduction

Introduction

The Oakdale Claratina Traffic Analysis Study (Study) aims to assess the following:

- Whether the planned classifications of Oakdale Road (from Claribel Avenue to Scenic Drive) and Claratina Avenue (from Oakdale Road to McHenry Avenue) could be reduced from six lanes to four lanes and accommodate anticipated future growth in the study area. This is primarily assessed based on the intersection and roadway segment operations, changes in travel time, and other relevant indicators.
- The feasibility and anticipated operations of using roundabout control at the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue.

BACKGROUND

The City of Modesto General Plan and Tivoli Specific Plan designate Oakdale Road (from Claribel Road to Scenic Drive) as a six-lane Principal Arterial but note that it is constrained between Sylvan Avenue and Scenic Drive. Claratina Avenue is classified as an Expressway west of Oakdale Road and as a six-lane Principal Arterial east of Oakdale.¹

Since the General Plan's adoption, changes to the planned roadway network have occurred, including the reduction of the reclassification of a road parallel to Oakdale Road, Claus Road, from six lanes to four lanes, and the programming of the North County Corridor Phase 1 east of Oakdale Road.²

The City of Modesto (city) seeks an analysis of Oakdale Road and Claratina Avenue to determine whether a six-lane facility remains necessary to meet the area's transportation needs. The city is considering reclassifying these roads as four lanes. This study provides a data-driven evaluation to guide stakeholders—including the city, Stanislaus County, the development community, the Stanislaus Council of Governments (StanCOG), and nearby landowners—on whether the proposed reclassification can effectively accommodate the movement of people.

STUDY SCENARIOS

The study evaluated the following scenarios under existing and future (2046) conditions:

- **Existing Conditions:** Represents the current roadway network, assessed using observed traffic counts.
- **Future (2046) Planned Conditions:** Represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes, assessed using 2046 volumes estimated by the Stanislaus County travel demand model as modified for the

¹ City of Modesto General Plan (March 2019). *Chapter V. Transportation*. Retrieved from <https://www.modestogov.com/DocumentCenter/View/15012/GPA-10-001-DOC-Chapter-V-3-6-19-PDF>

² Stanislaus County. North County Corridor Phase 1 Project. Retrieved from <https://northcountycorridorphase1.com/>

Modesto General Plan and current plans for the North County Expressway Phase 1 and the planned road network for the Tivoli Specific Plan.

- **Future (2046) Adjusted Conditions:** Evaluates an alternative future roadway network scenario where the study corridors are reduced to four lanes and assessed using volumes estimated by a projected 2046 traffic volumes from the travel demand model as modified to include the four lane segments.

STUDY AREA

Figure 2 illustrates the study intersections and roadway segments analyzed in this study. **Table 1** presents the roadway segments analyzed, along Oakdale Avenue and Claratina Avenue, which are being considered for reclassification from six lanes to four. **Table 2** lists the seven intersections identified through discussions with city staff.

Table 1: Roadway Segments

#	Roadway Segment	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	Oakdale Rd between Claribel Rd & Claratina Ave	2 lanes	6 lanes	4 lanes
2	Oakdale Rd between Claratina Ave & Mable Ave	2 lanes	6 lanes	4 lanes
3	Oakdale Rd between Mable Ave & Bridgewood Way	3 lanes	6 lanes	4 lanes
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	2 lanes	6 lanes	4 lanes
5	Claratina Ave between McHenry Ave & Coffee Rd	2 lanes	6 lanes	4 lanes
6	Claratina Ave between Coffee Rd & Oakdale Rd	2 lanes	6 lanes	4 lanes

Source: Kittelson & Associates, Inc. 2025

Table 2: Study Intersections and Intersection Control

No	Intersection Name	Existing Conditions	Future (2046) Planned Conditions	Future (2046) Adjusted Conditions
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	Signal	Signal
2	Coffee Rd & Claratina Ave	Roundabout ¹³	Roundabout ²³	Roundabout ²³
3	Oakdale Rd & Claratina Ave	Signal	Signal	Roundabout ²³
4	Oakdale Rd & Claribel Ave	Signal	Signal	Signal
5	Oakdale Rd & Mable Ave	Signal	Signal	Roundabout ²
6	Oakdale Rd & Bridgewood Way	Two-way Stop	Signal	Roundabout ¹
7	Oakdale Rd & Sylvan Ave	Signal	Signal	Roundabout ²³

Source: Kittelson & Associates, Inc. 2025

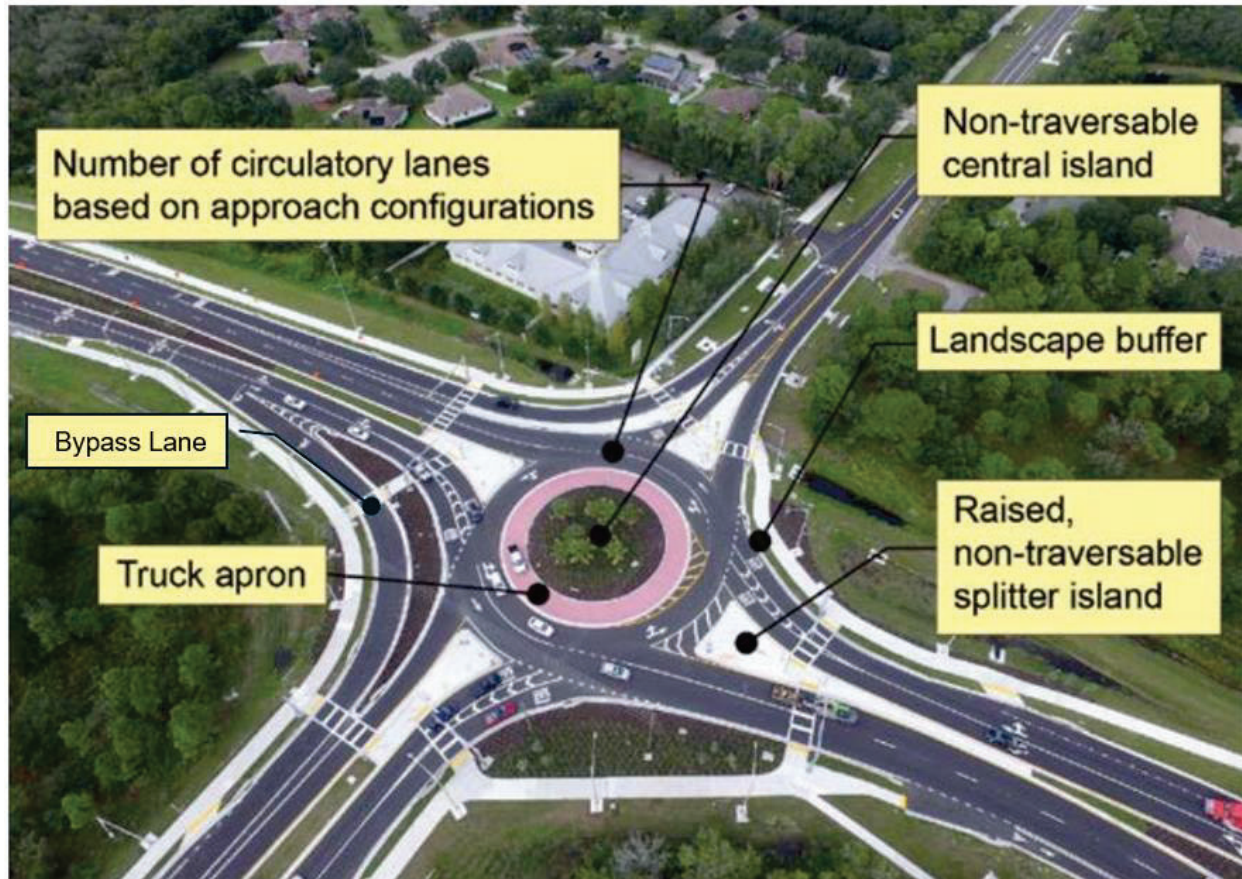
Note: ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Kittelson conducted turning movement and tube counts at these locations in June 2024. A summary of the traffic count data is provided in **Appendix A**.

Understanding Roundabouts

A roundabout is a circular intersection form in which traffic travels counterclockwise around a central island and entering traffic must yield to circulating traffic. Figure 1 shows a roundabout annotated with common features including a bypass lane and circulatory lane.

Figure 1: Common Roundabout Features



Source: NCHRP 1043; Edited by Kittelson & Associates, Inc.

The circulatory roadway is the portion of a roundabout where vehicles travel counterclockwise around the central island. In multilane roundabouts, this roadway may include two or more circulating lanes, which should not be confused with bypass lanes.

Bypass lanes, also known as channelized turn lanes or slip lanes can be added to roundabouts to improve capacity for specific turning movements. However, their implementation requires careful consideration of potential conflicts with pedestrians and bicyclists, as well as operational impacts such as reverse traffic patterns during opposing peak periods.³

Currently, Modesto has multilane roundabouts along Sylvan Avenue at Roselle Avenue and Millbrook Avenue but none of them feature a bypass lane.

³ National Academies of Sciences, Engineering, and Medicine. 2023. *Guide for Roundabouts*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27069>.

Figure 2: Study Area



- Study Intersections
- Study Segments

Figure 1: Study Area





Section 2

Existing Conditions

Roadway Network

The following section outlines the existing and planned roadway conditions in the study area, covering pedestrian network, bicycle facilities, transit system, and roadway network.

PEDESTRIAN NETWORK

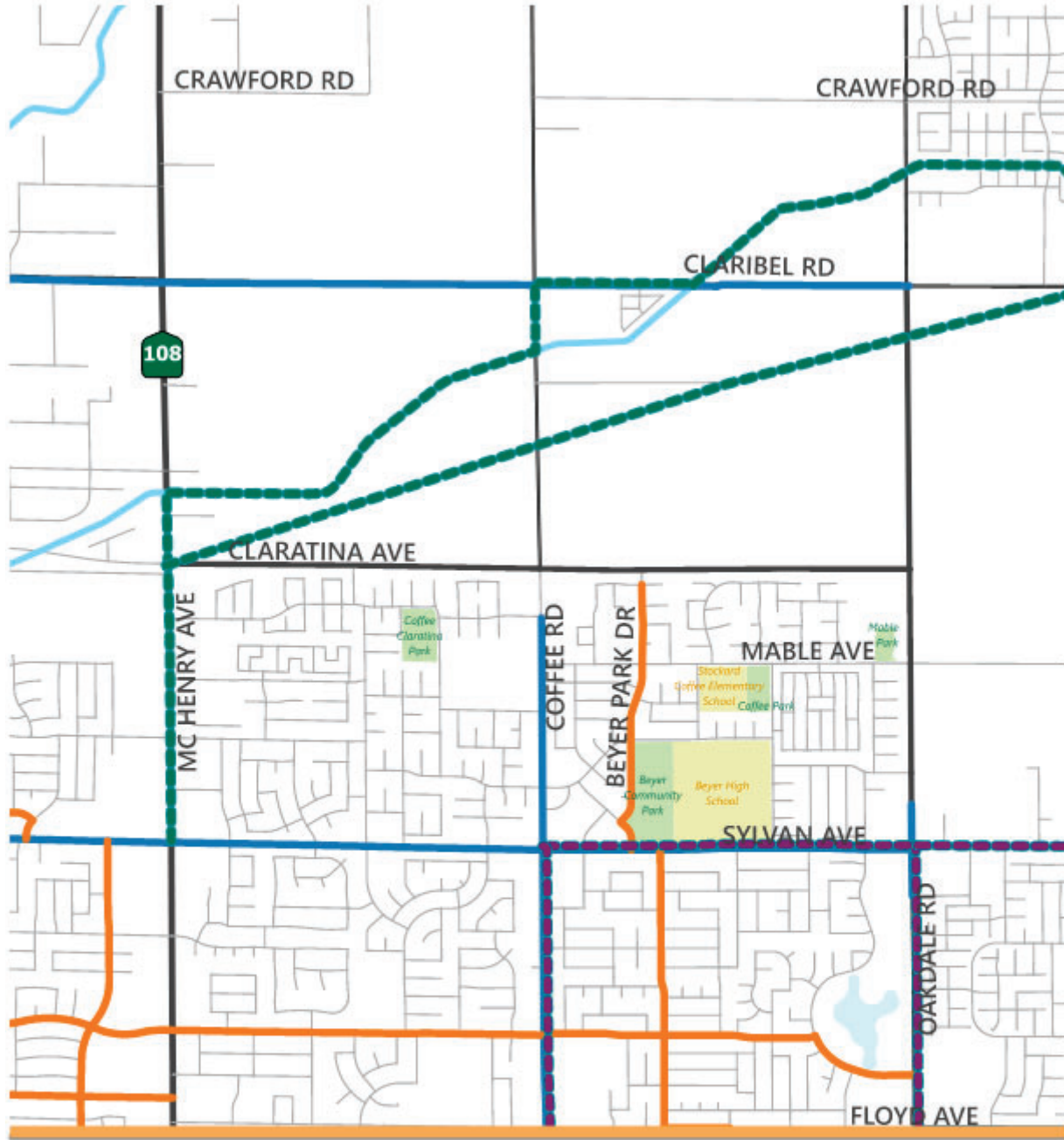
There are parks, schools, and retail stores located near the study intersections and segments that contribute to pedestrian activity in the area. Marked crosswalks are provided at all study intersections except for Oakdale Road and Bridgewood Way. Due to the predominantly undeveloped nature of the area, sidewalks are limited and are present only along the west side of Oakdale Road between Claratina Avenue and Sylvan Avenue.

BICYCLE FACILITIES

Figure 3 illustrates the existing bicycle network within the study area. Class II bike lanes are present on Claribel Road (between McHenry Avenue and Oakdale Road), Sylvan Avenue (between McHenry Avenue and Oakdale Road), and Coffee Road (south of Montana Drive). Beyer Park Drive and Keller Street are designated as Class III shared bicycle routes.

According to the City of Modesto Non-Motorized Transportation Plan, Class IV separated bikeways are proposed for Sylvan Avenue, Oakdale Road, Mable Avenue, and Coffee Road. Additionally, Sylvan Meadows Drive, Beyer Park Drive, and Keller Street are planned to be upgraded to Class IIIB Bicycle Boulevards.

Figure 3: Bicycle Network



- | Planned | Existing Bikeways |
|---------|------------------------------|
| | Class I Shared Use Path |
| | Class II Bike Lane |
| | Class II Buffered Bike Lane |
| | Class III Bike Route |
| | Class IV Protected Bike Lane |

Figure 2: Bicycle Network



TRANSIT SYSTEM

The study area is served by several StanRTA routes which serve Oakdale Road, Sylvan Avenue, Mable Avenue and McHenry Avenue. **Figure 4** and **Table 3** describe the routes that directly serve the study area.

Table 3: StanRTA Bus Routes

Route Number	Description	Frequency	Days and Times
23	Travels between the Modesto Transit Center and Kiernan along McHenry. <i>Stops of interest include McHenry Village and Walmart.</i>	Every 30 Minutes (Weekdays and Saturdays) and Every 1 Hour on Sundays	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
32	Travels between the Modesto Transit Center and Beyer High School neighborhoods via I St., Scenic, Coffee, Mable, Oakdale, and Sylvan. <i>Stops of interest include the Health Department, Downey High School, Memorial Medical Center, Beyer High School, and Beyer Park.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (6 AM – 10 PM) and Weekends (reduced times)
60	Travels between the Modesto Transit Center and Oakdale through Riverbank via Sunrise, Floyd, Oakdale Rd, Patterson, and Hwy 108. <i>Stops of interest include Gladys Lemon Senior Center, daycare centers, schools, local government buildings, the post office, and grocery stores.</i>	Every 30 Minutes on Weekdays and Every 1 Hour on Weekends	Weekdays (5 AM – 10 PM) and Weekends (reduced times)

Source: StanRTA, 2025

Figure 4: Transit Network

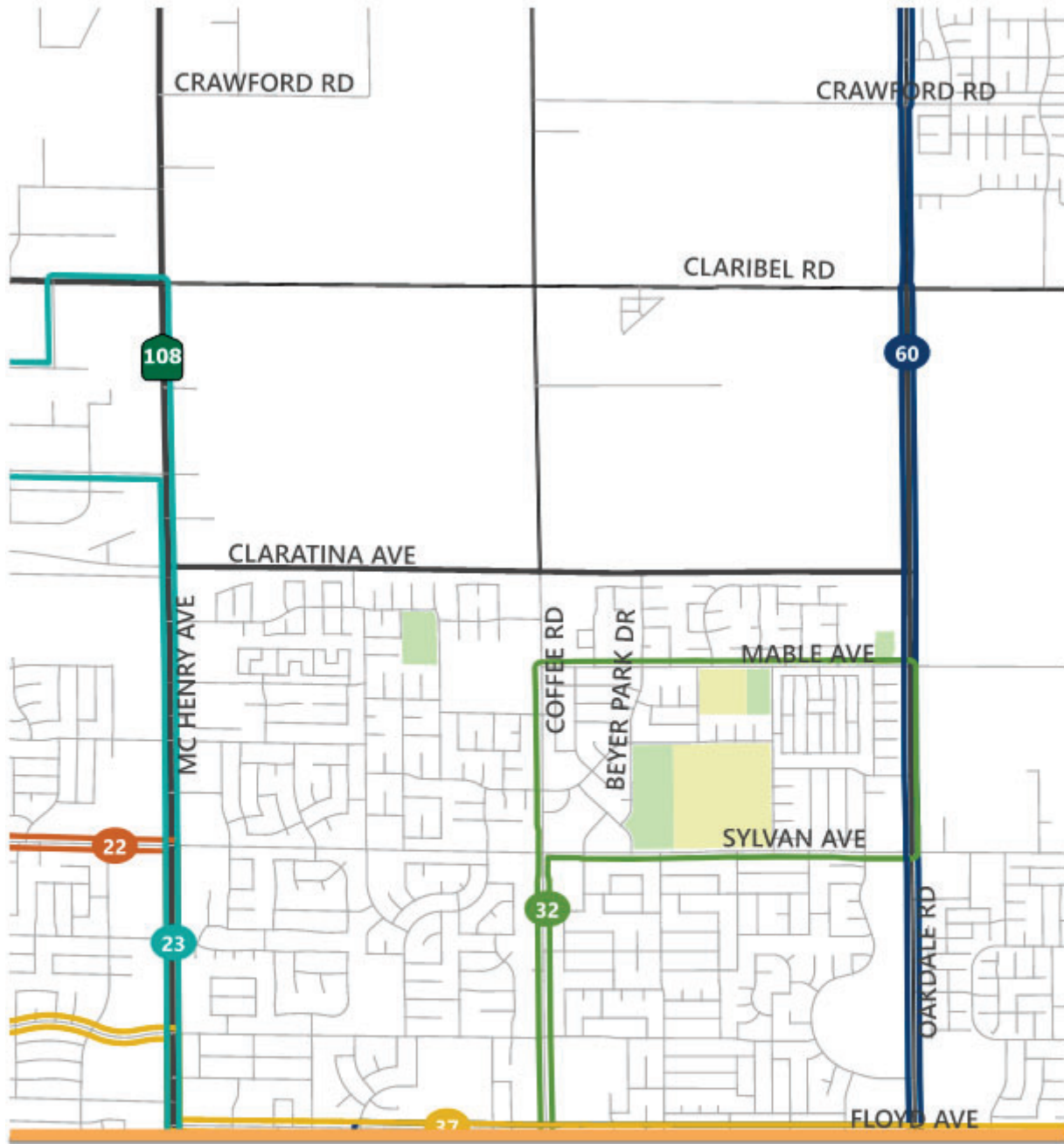


Figure 3: Transit Network

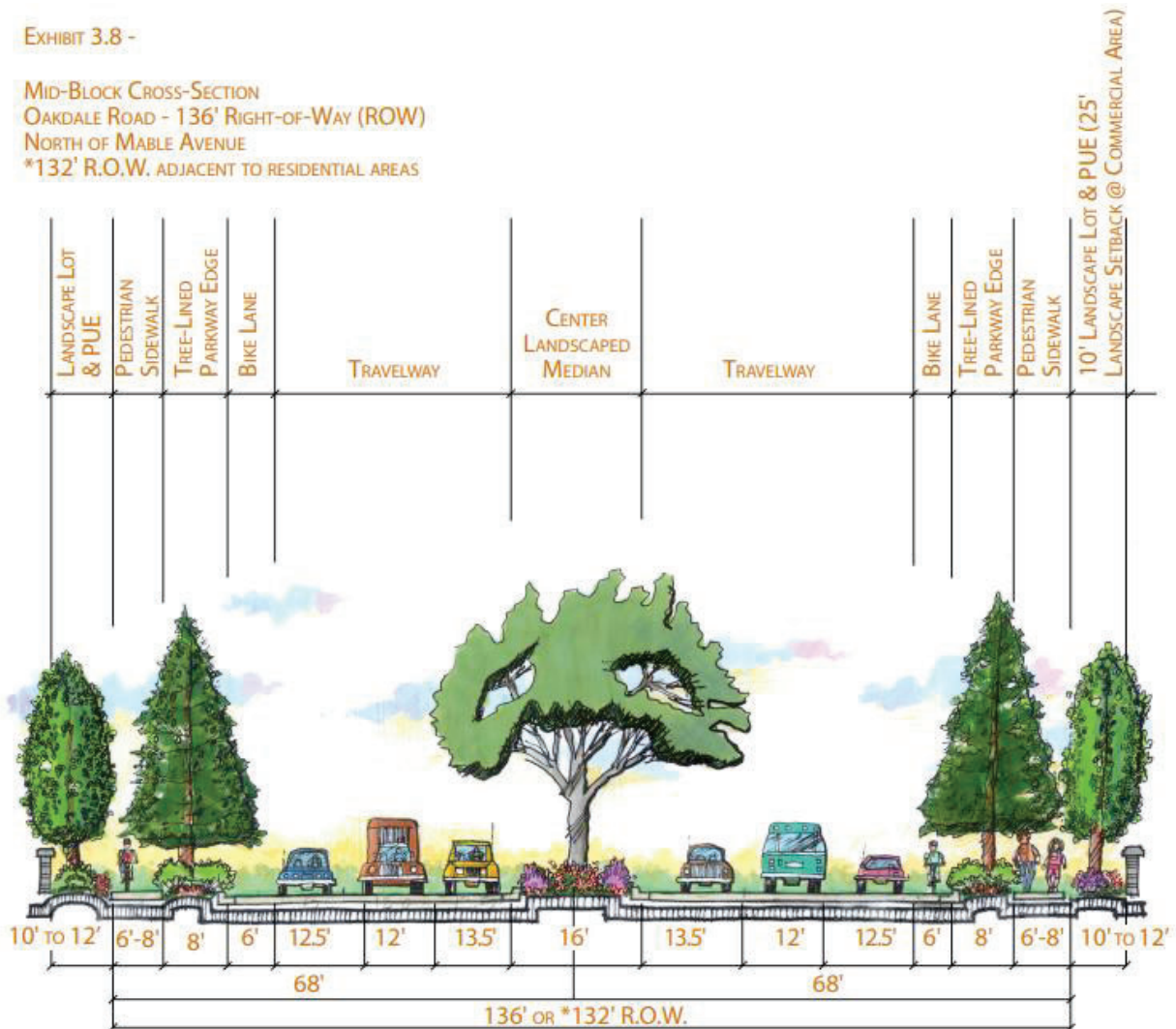


ROADWAY CONFIGURATION

Oakdale Road is a north-south arterial that connects SR 132 (Yosemite Boulevard) in the south to SR 108 (Patterson Road) in the north. The segment between Claribel Road and Claratina Avenue is a two-lane undivided roadway, primarily surrounded by undeveloped agricultural land. Between Claratina Avenue and Sylvan Avenue, residential developments line the west side of the roadway. The southbound direction of this segment provides two travel lanes with left-turn pockets at major intersections. The posted speed limit for the segment is 45 mph.

Figure 5 shows the proposed Oakdale Road cross section from the Tivoli Specific Plan, which proposes widening the road to three lanes in each direction. The proposed cross section includes 6 feet wide bike lanes and 8 feet wide sidewalks in each direction. Additionally, it includes a landscaped strip acting as a buffer between the paved road and sidewalk and another landscaped lot and public utility easement. The total right-of-way (ROW) is approximately 136 feet.

Figure 5: Proposed Oakdale Road Cross Section

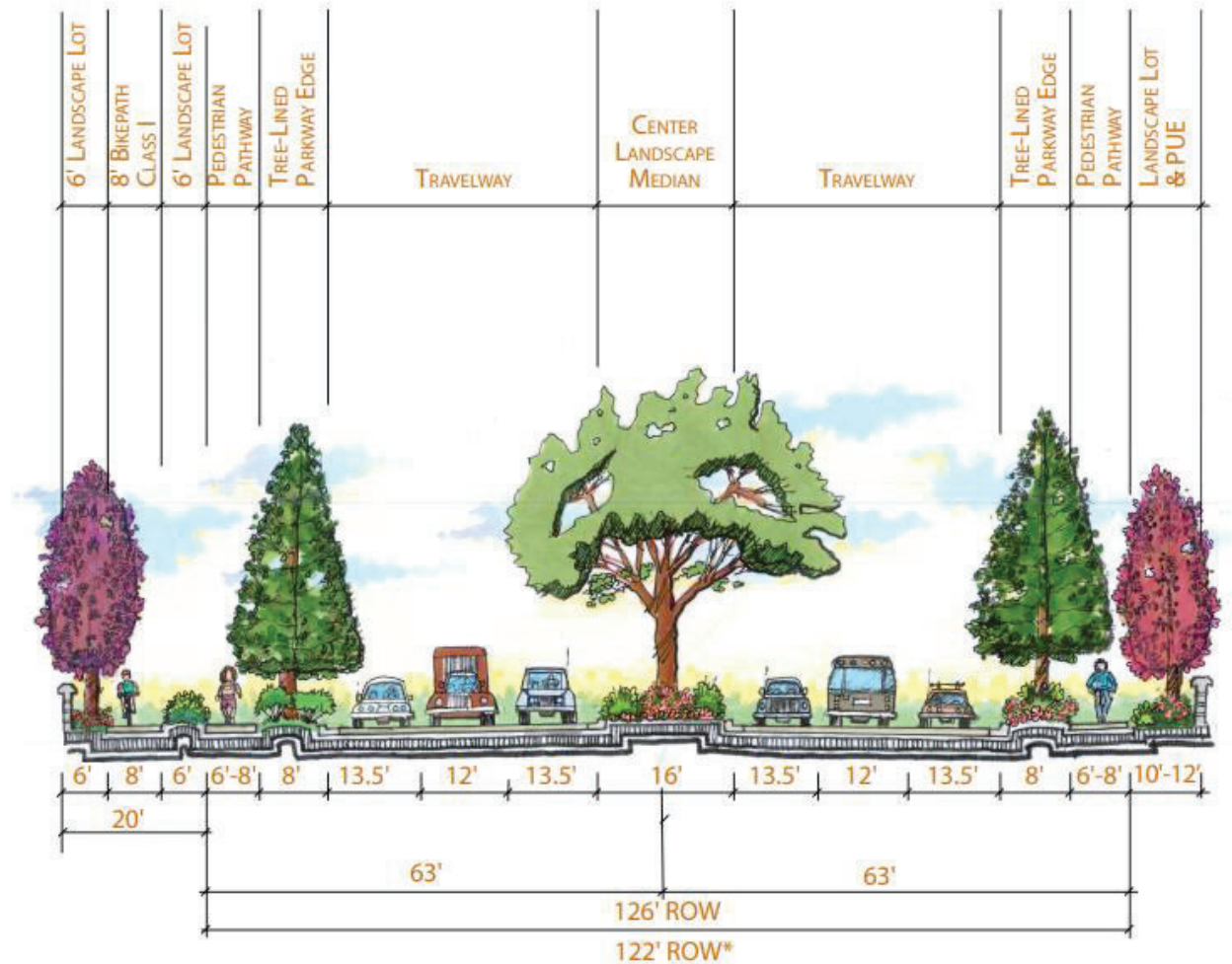


Source: Tivoli Specific Plan, 2008

Claratina Avenue within the study area is an east-west, two-lane undivided roadway connecting SR 108 (McHenry Avenue) to Oakdale Road. The north side of the segment is primarily agricultural, except near the intersection with McHenry Avenue, where a used car dealership and a church are located. The south side is predominantly residential. The posted speed limit for this segment is 45 mph.

Figure 6 shows the proposed Claratina Avenue cross section east of Oakdale Road included in the Tivoli Specific Plan, which proposes widening of the roadway to six lanes. Pedestrian pathways are included in both directions and a Class I Bike path is proposed on the north side. The total right-of-way is approximately 126 feet.

Figure 6: Claratina Avenue Cross Section



Source: Tivoli Specific Plan, 2008

Besides the two study segments, the other major cross streets include Claribel Road, Sylvan Avenue, and Mable Avenue. For the purpose of this study, it is anticipated that there will be no changes in numbers of travel lanes on the cross streets.

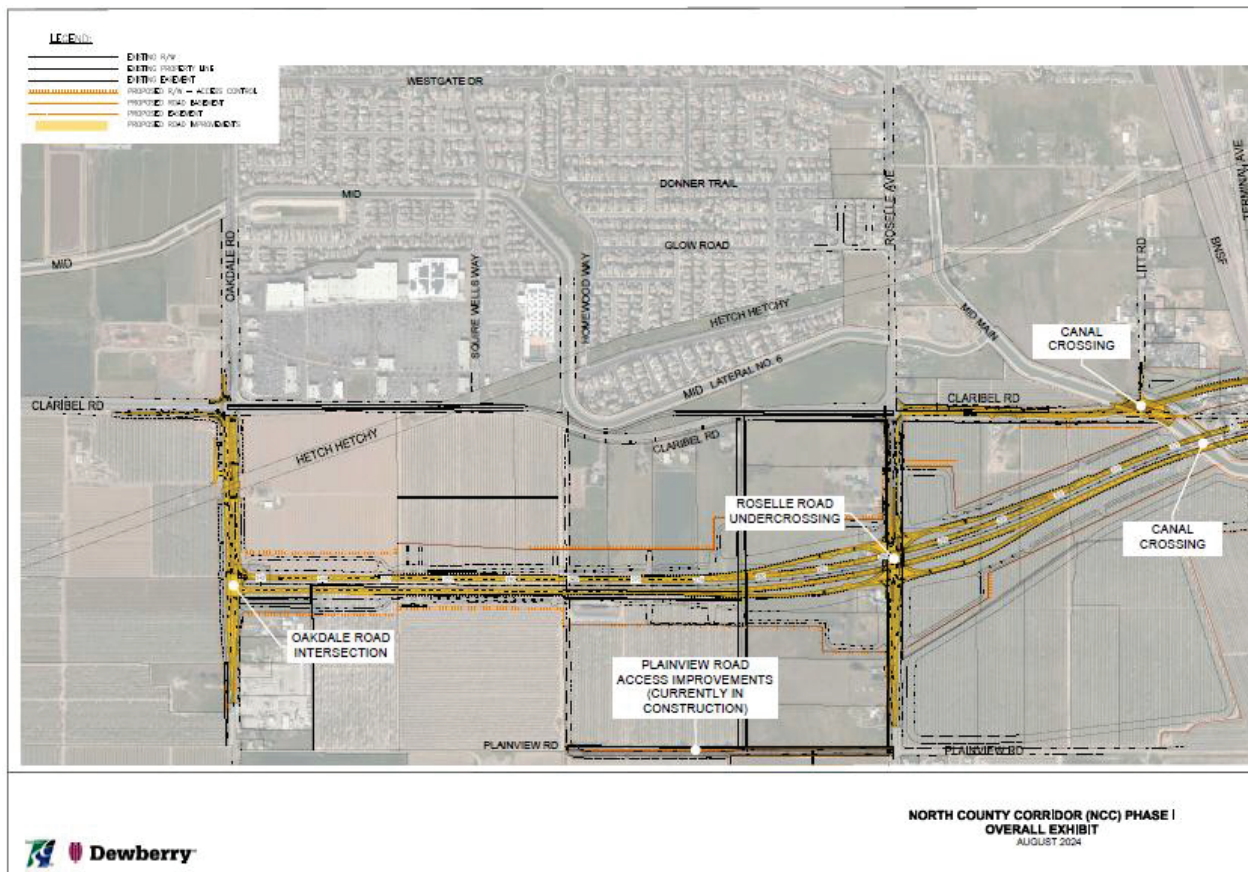
INTERSECTION CONFIGURATIONS

Oakdale and Claribel Road

The planned intersection geometry for Oakdale Road and Claribel Road was obtained from the North County Corridor Phase 1 project, as shown in **Figure 7**. An additional southbound through lane and northbound left-turn pockets will be added to the existing intersection. Additionally, the westbound through lane will be converted into a left-turn trap lane, and a new westbound right-turn pocket will be added.

The Oakdale Road intersection at the North County Corridor identified in the exhibit was included in the future road network for traffic forecasts, but its operations were not evaluated in this study.

Figure 7: North County Corridor Phase 1 Project - Conceptual Exhibit



Source: North County Corridor Phase 1 Project, 2024

Coffee Road and Claratina Avenue

Figure 8 illustrates the planned roundabout at Coffee Road and Claratina Avenue, which will convert the existing single-lane roundabout into a multilane roundabout, with two circulating lanes on all approaches, and with yield-controlled right-turn bypass lanes on the eastbound (west leg) and southbound (north leg) approaches.

Figure 8: Coffee Road and Claratina Avenue Planned Roundabout



Source: City of Modesto, 2024



Section 3

Traffic Operations

Traffic Operations

The following section evaluates the traffic operations at the study intersections and roadway segments.

INTERSECTION ANALYSIS

The study intersections were evaluated using the methodologies of the Transportation Research Board's (TRB) *Highway Capacity Manual (HCM) 7th Edition*. Traffic signal timing data was obtained from the City of Modesto, City of Riverbank, and Stanislaus County. Roundabout configuration was based on feasible implementation and coordination with City staff. The analysis was implemented using the PTV VISTRO traffic analysis software package.

Intersection operations results are based on intersection control delay (in seconds) and correspond to a Level of Service (LOS). LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort, and convenience. The operational LOS are given letter designations from A to F, with A representing free-flow (underutilized) operating conditions and F representing severely congested flow (over-capacity) with high delays

Table 4 presents the relationship between the average delay to LOS for both signalized, roundabout and unsignalized intersections from the HCM 7th edition. Although the HCM recommends evaluating roundabouts using unsignalized delay thresholds, this study, in consultation with City staff, has applied the signalized criteria to roundabouts to enable a more equitable comparison.

Table 4: Level of Service Definition for Intersections

Signalized Intersection and Roundabout Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Unsignalized Intersection Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
>80.0	F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into “up-stream” intersections.	>50.0

Source: Transportation Research Board, Highway Capacity Manual 7th Edition

As per the City of Modesto General Plan, LOS standard is LOS “D” or better for all intersections. Under Policy V.A.6, on roadways where the LOS is expected to be level F, mitigation measures other than road widening, such as the addition of bicycle lanes, improved pedestrian access, improved transit service, and the establishment of walkable development patterns to improve the quality of service for all travel modes are to be considered.

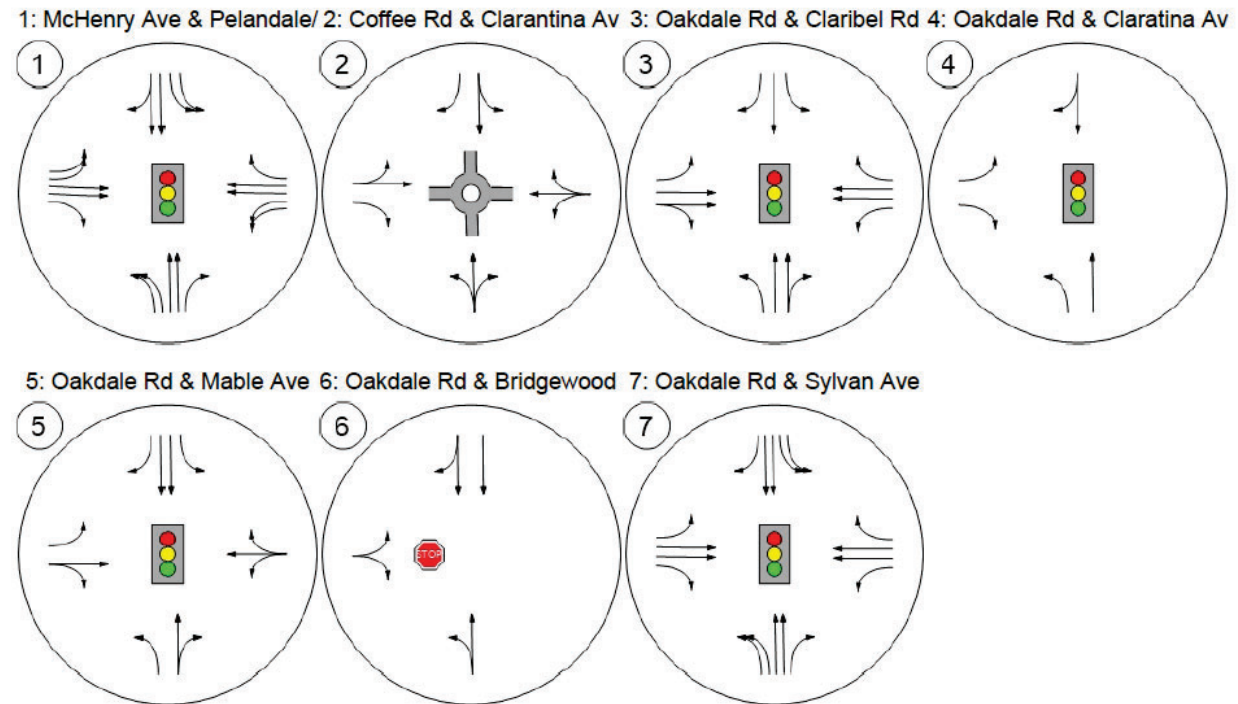
The study intersections LOS analysis results are presented below under each study scenario.

Existing Conditions

Figure 9 shows the existing lane configuration and traffic control for each study intersection. Kittelson conducted weekday morning (7:00 AM to 9:00 AM) and weekday evening (4:00 AM to 6:00 PM) peak periods turning movement counts at the study intersections in June 2024. A summary of the traffic count data is provided in **Appendix A**.

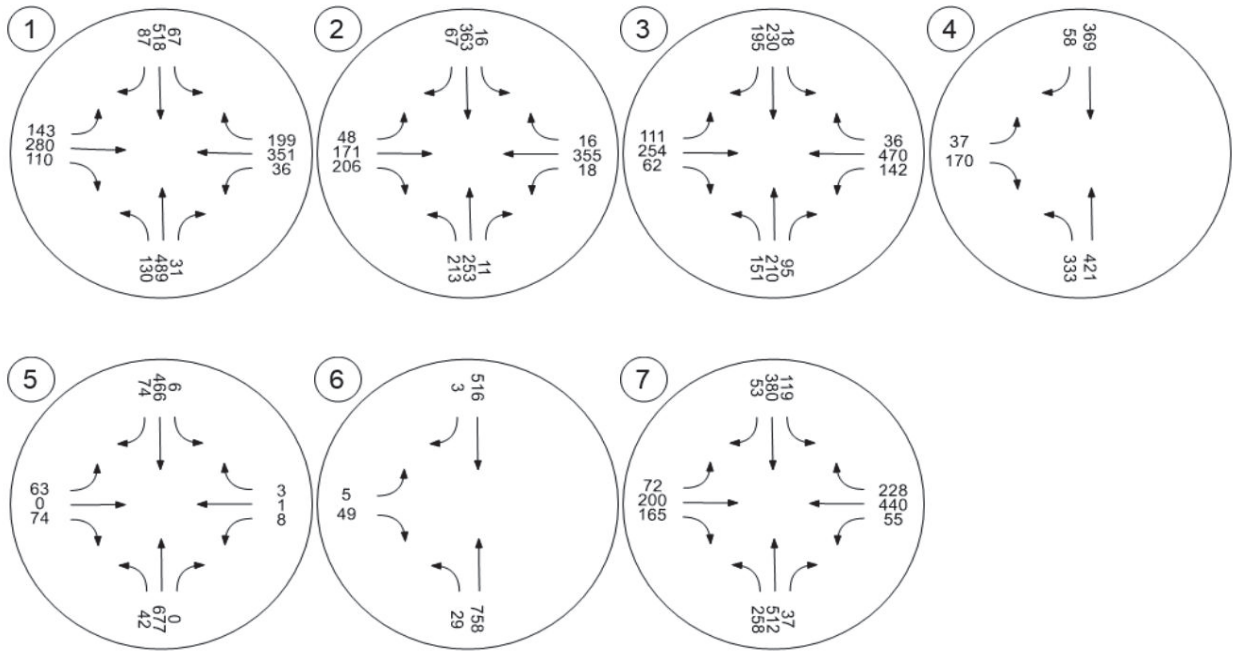
Figure 10 and **Figure 11** summarize the AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the AM and PM peak hours are shown in **Table 5**. Detailed LOS worksheets are available in **Appendix B**.

Figure 9: Existing Lane Configuration and Traffic Control



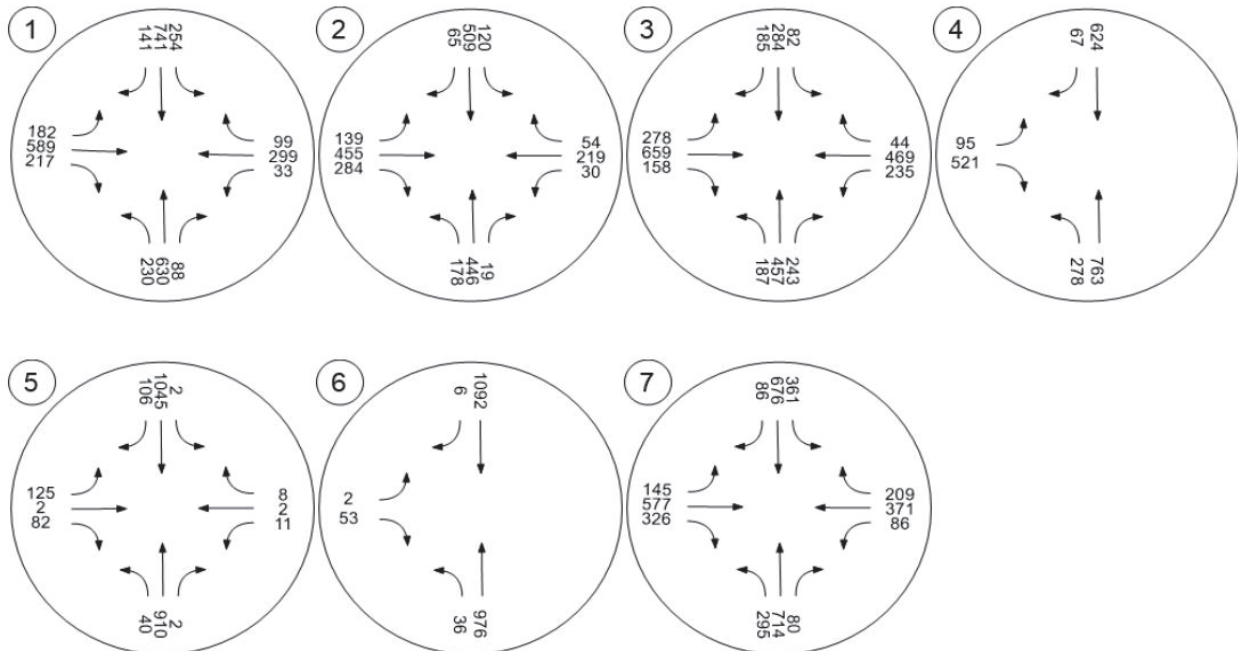
Source: Kittelson & Associates, Inc. 2025

Figure 10: Existing Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 11: Existing Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 5: Existing Conditions LOS Results

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	AM	0.610	25.8	C
			PM	0.672	50.3	D
2	Coffee Rd & Claratina Ave	Roundabout ¹³	AM	NA	8.8	A
			PM	NA	27.6	D
3	Oakdale Rd & Claratina Ave	Signalized	AM	0.645	12	B
			PM	0.828	35.3	D
4	Oakdale Rd & Claribel Ave	Signalized	AM	0.399	24.7	C
			PM	0.638	131.4	F
5	Oakdale Rd & Mable Ave	Signalized	AM	0.421	18.4	B
			PM	0.565	64.5	E
6	Oakdale Rd & Bridgewood Way	Two-way Stop	AM	0.020	20.3	C
			PM	0.026	52.6	F
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.402	62.2	E
			PM	0.587	52	D

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

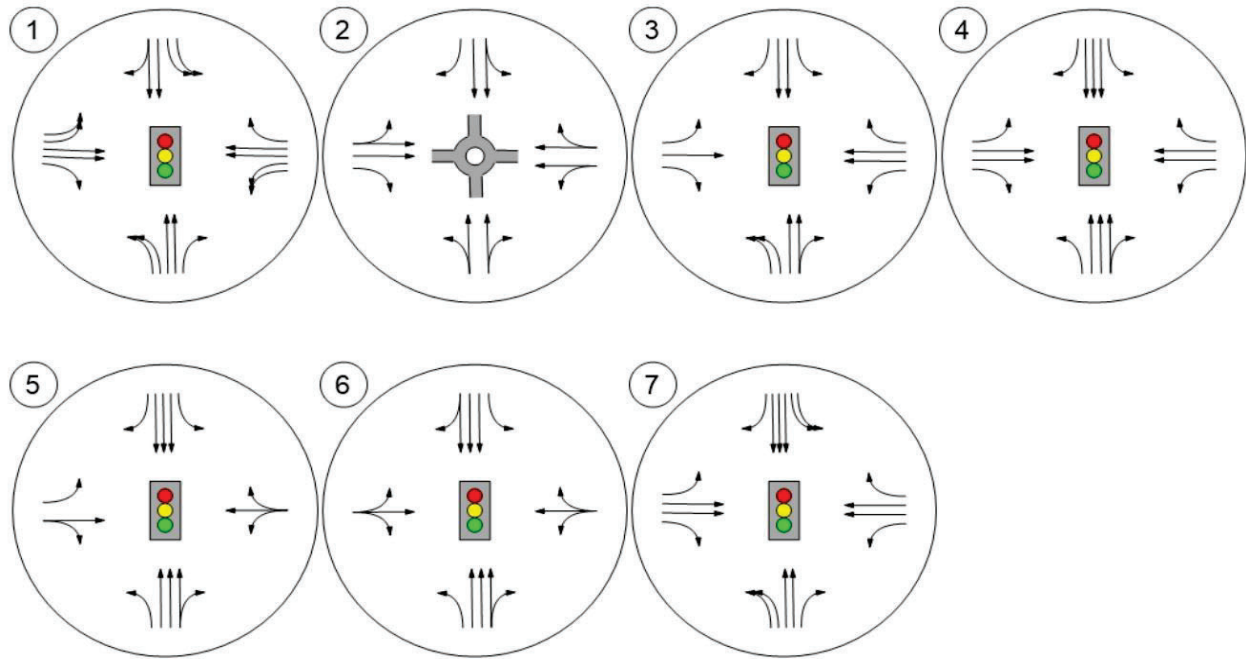
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Under existing conditions, four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity (V/C greater than 1.00).

Future (2046) Planned Conditions

The Future (2046) Planned Conditions represents the future roadway network outlined in the General Plan, which includes expanding Oakdale Road and Claratina Avenue to six lanes. **Figure 12** shows the lane configuration and traffic control for each study intersection under planned conditions. The Oakdale Road and Bridgewood Way intersection was evaluated as a signalized intersection.

Figure 12: Future (2046) Planned Conditions Intersection Lane Configuration



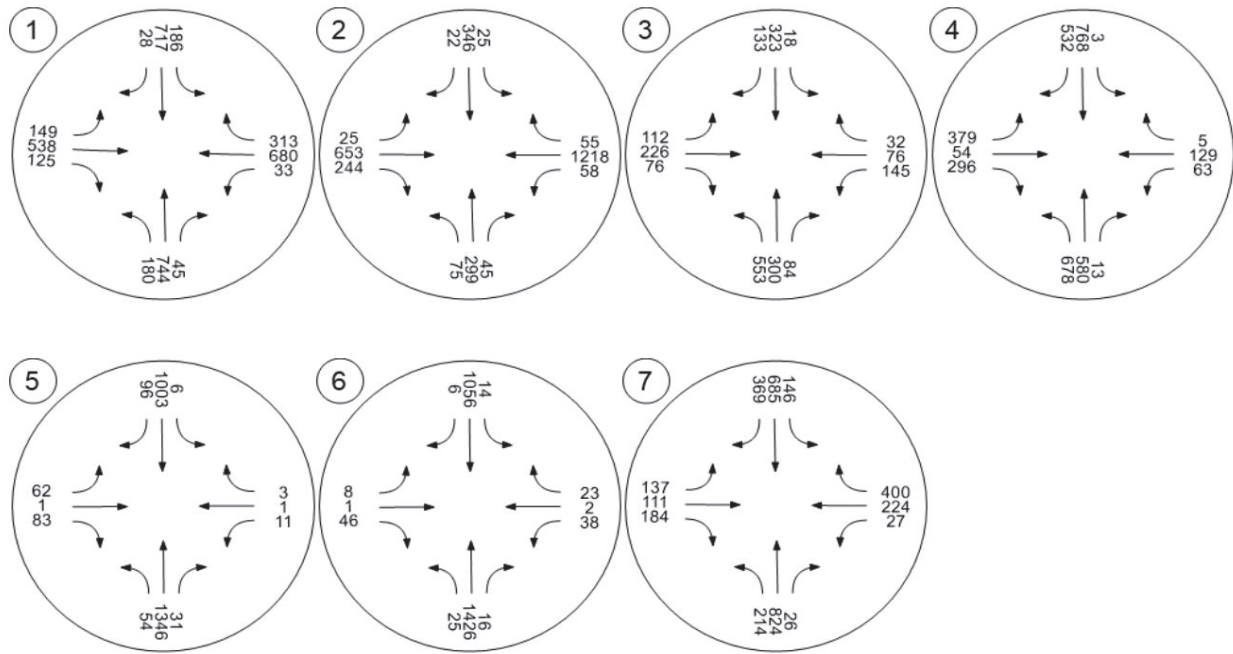
Source: Kittelson & Associates, Inc. 2025

Traffic volumes were extracted using the Stanislaus Council of Governments (StanCOG) 2022 Regional Transportation Plan (RTP) Travel Demand Model. The StanCOG travel demand model forecasts traffic volumes considering inputs such as land uses, population characteristics, and roadway capacities. The model was updated to include the most recent plans for the North County Corridor and the roads within the Tivoli Specific Plan.

The model provides traffic estimates for a pre-COVID base year (2019) and a future horizon year (2046). The base year model reasonably reflects transportation demand conditions for the Existing Conditions scenario, and the Year 2046 horizon year model generally reflects transportation conditions with expected regional growth consistent with the city's General Plan land use pattern and transportation system.

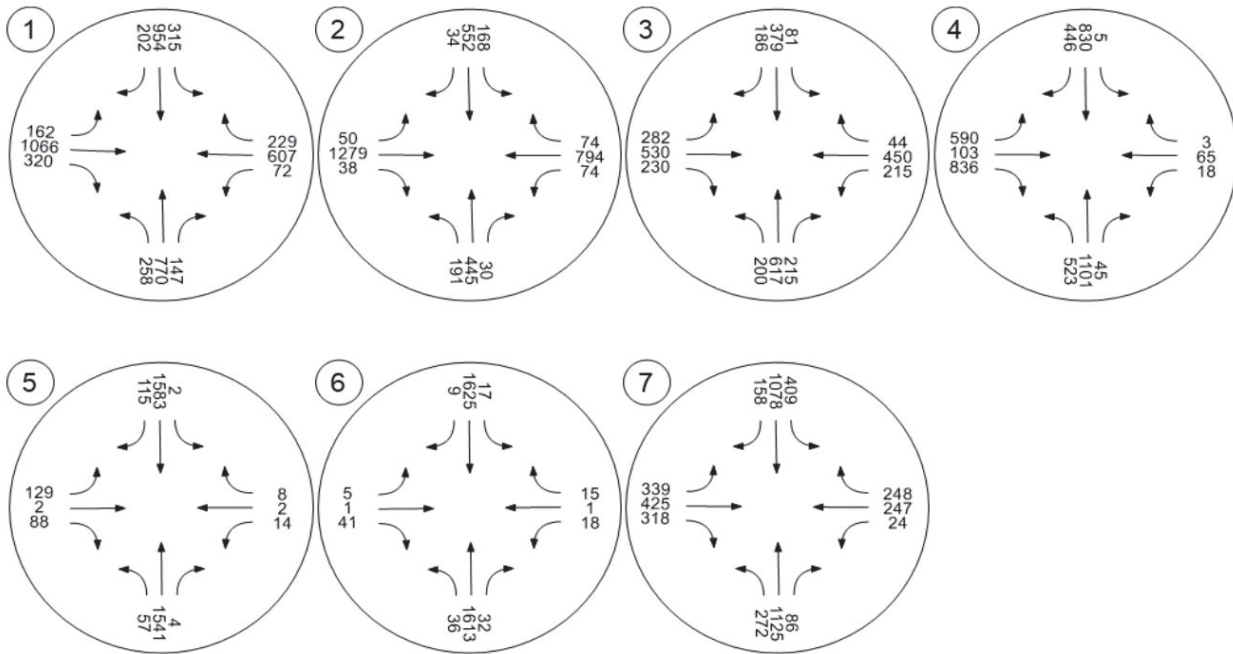
Figure 13 and **Figure 14** summarizes the 2046 AM and PM Peak Hour traffic volumes, respectively. The intersection operation results for the 2046 AM and PM peak hours are shown in **Table 6**. Detailed LOS worksheets are available in **Appendix C**.

Figure 13: Future (2046) Planned Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 14: Future (2046) Planned Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 6: Future (2046) Planned Conditions LOS Summary

No.	Intersection Name	Control Type	Peak Hour	2046 Planned (6 Lane)		
				V/C	Delay	LOS
1	McHenry Ave & Palandale Ave/Claratina Ave	Signal	AM	0.572	32.86	C
			PM	0.890	167.00	F
2	Coffee Rd & Claratina Ave	Roundabout ²³	AM	NA	14.36	B
			PM	NA	61.43	E
3	Oakdale Rd & Claribel Ave	Signal	AM	0.298	25.91	C
			PM	0.660	70.76	E
4	Oakdale Rd & Claratina Ave	Signal	AM	1.138	125.34	F
			PM	0.970	137.22	F
5	Oakdale Rd & Mable Ave	Signal	AM	0.463	17.57	B
			PM	0.470	17.20	B
6	Oakdale Rd & Bridgewood Way	Signal	AM	0.380	14.48	B
			PM	0.440	14.57	B
7	Oakdale Rd & Sylvan Ave	Signal	AM	0.702	45.73	D
			PM	0.780	95.40	F

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each of the signalized intersection. Under Future (2046) Planned Conditions, five intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection is operating over capacity.

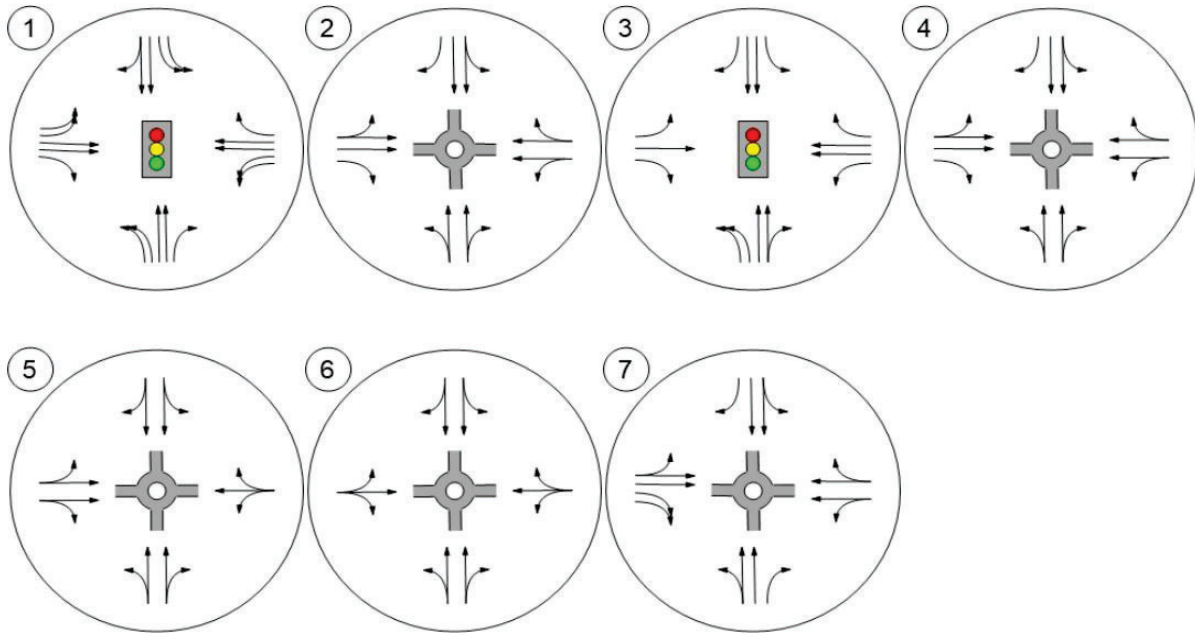
Future (2046) Adjusted (Reduced Classification) Conditions

The Future (2046) Adjusted Conditions represents the future roadway network which evaluates an alternative scenario where the study corridors are classified as four lanes instead of six lanes. Additionally, the intersections at Oakdale Road and Claratina Avenue; Oakdale Road and Mable Avenue; Oakdale Road and Bridgewood Way; and Oakdale Road and Sylvan Avenue were evaluated as roundabouts as shown in **Figure 15**.

The traffic volumes were projected using the StanCOG travel demand model by updating the number of lanes to represent the reclassified four-lane segments, which resulted in a slight decrease in volumes as presented in **Figure 16** and **Figure 17**.

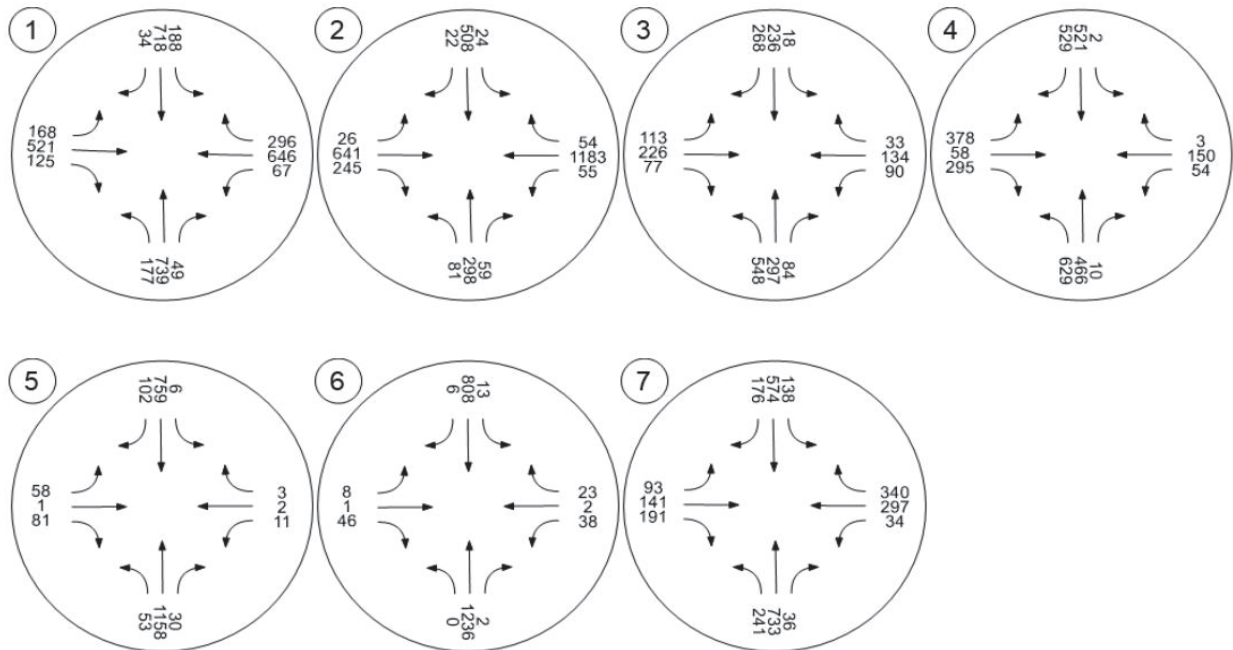
The intersection operation results for the AM and PM peak hours are shown in **Table 7**. Detailed LOS worksheets are available in **Appendix D**.

Figure 15: Future (2046) Adjusted Conditions Lane Configuration and Traffic Controls



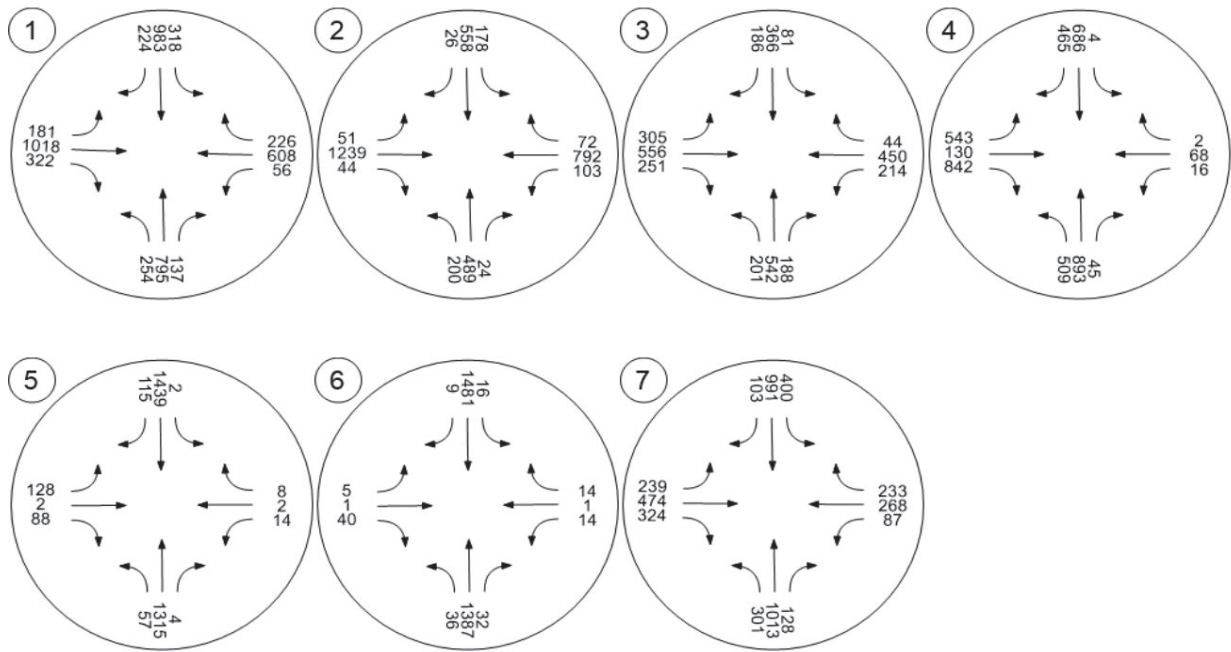
Source: Kittelson & Associates, Inc. 2025

Figure 16: Future (2046) Adjusted Conditions - AM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Figure 17: Future (2046) Adjusted Conditions - PM Peak Hour Traffic Volumes



Source: Kittelson & Associates, Inc. 2025

Table 7: Future (2046) Adjusted Conditions LOS Summary

No.	Intersection Name	Control Type	2046 Adjusted (4 Lane)			Change From Planned
			V/C	Delay	LOS	
1	McHenry Ave & Palandale Ave/Claratina Ave	Signalized	0.565	46.7	D	13.84
			0.857	76.4	E	-90.6
2	Coffee Rd & Claratina Ave	Roundabout ²³	NA	16.8	C	2.44
			NA	67.8	E	6.37
3	Oakdale Rd & Claribel Ave	Signalized	0.382	34.46	C	8.55
			0.78	69.2	E	-1.56
4	Oakdale Rd & Claratina Ave	Roundabout ²³	NA	15.7	B	-109.64
			NA	34.8	C	-102.42
5	Oakdale Rd & Mable Ave	Roundabout ²	NA	7.3	A	-10.27
			NA	11.2	B	-6
6	Oakdale Rd & Bridgewood Way	Roundabout ¹	NA	6.8	A	-7.68
			NA	9.4	A	-5.17
7	Oakdale Rd & Sylvan Ave	Signalized	0.599	42.3	D	-3.43
			0.787	94.5	F	-0.9

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

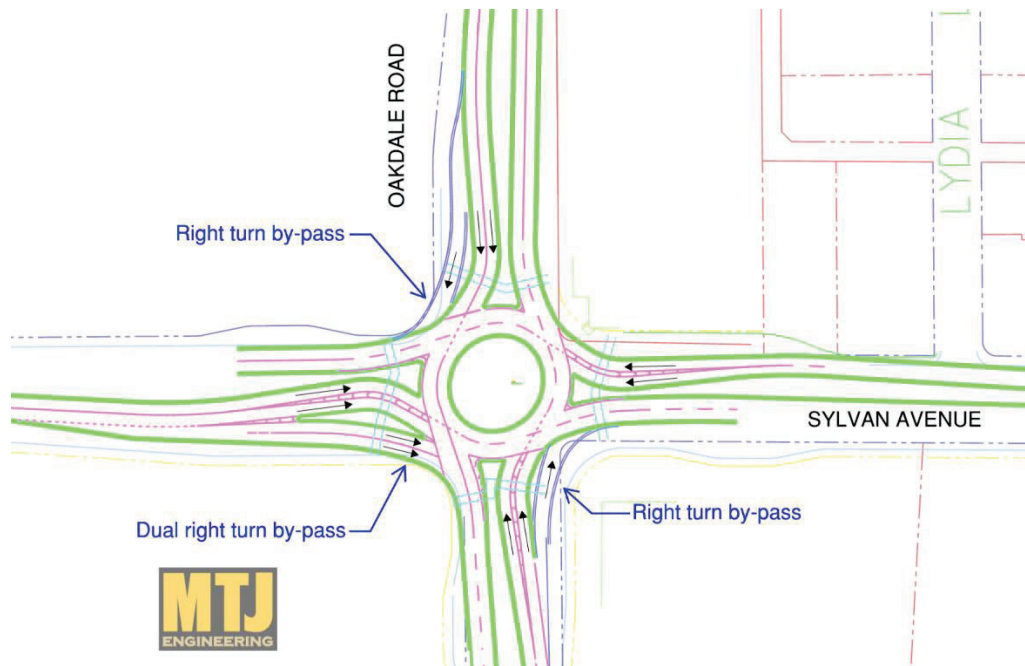
Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Traffic signal timings were optimized to balance the volume and capacity on each approach of the signalized intersections. Under future (2046) adjusted conditions, four intersections would operate below acceptable LOS thresholds during at least one peak hour. However, none of the intersections would operate over capacity. In most locations, the delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth is expected to continue to operate at LOS E.

Oakdale Road / Sylvan Avenue

Figure 18 shows the conceptual roundabout at Oakdale Road and Sylvan Avenue, which includes two circulating lanes at every approach, dual right-turn bypass lanes on the westbound approach, and single right turn bypass lanes on the northbound and southbound approach. Kittelson evaluated this roundabout using both VISTRO and SIDRA software. The HCM does not provide a methodology for analyzing a dual bypass lane, but both Vistro and SIDRA use proprietary methodologies to produce results. The Kittelson team compared the results of each analysis from both models to what supported by research and documented in HCM7 about one- versus two-lane roundabout approaches. Kittelson then selected the most appropriate results for inclusion in this study.

Figure 18: Oakdale Road and Sylvan Avenue - Conceptual Roundabout



Source: City of Modesto, 2024

Table 8 summarizes the LOS and delay at the Oakdale Road and Sylvan Avenue intersection under both signalized and roundabout scenarios for the Future (2046) Adjusted Conditions. During the AM peak hour, the roundabout would perform better than the signal. In the PM peak hour, the VISTRO analysis shows higher delay for the roundabout compared to the signal. However, Kittelson conducted a supplemental analysis using SIDRA, and found that the roundabout would result in lower average delays than the signal.

Kittelson also evaluated the intersection with a single bypass right-turn lane and found minimal change in delay, indicating that the additional bypass lane may not provide any additional capacity benefit

Table 8: Oakdale Road and Sylvan Avenue Intersection LOS Summary

No.	Intersection Name	Control Type	Software	Peak Hour	2046 Buildout (4 Lane)		
					V/C	Delay	LOS
7	Oakdale Rd & Sylvan Ave	Signal	VISTRO	AM	0.599	42.3	D
				PM	0.787	94.5	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	VISTRO	AM	NA	13.55	B
				PM	NA	127.48	F
7	Oakdale Rd & Sylvan Ave	Roundabout – Dual Right Turn Bypass Lanes	SIDRA	AM	0.796	16	B
				PM	1.154	59.9	E
7	Oakdale Rd & Sylvan Ave	Roundabout – Single Right Turn Bypass Lanes	SIDRA	PM	1.154	60.2	E

Notes:

AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number.

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025

Other Considerations for Roundabouts

The Future (2046) Adjusted scenario changes four intersections along Oakdale Road from signalized to roundabout control. The Future (2046) Planned scenario showed signal operations not being able to efficiently handle the volumes resulting in high delays at some intersections, even with six through lanes on the study corridors. Reducing the through lanes from three to two in each direction would only worsen the delays if remaining under signalized control. However, the proposed roundabouts can provide similar or lower delays with two lanes in each direction. Further, there are other considerations where roundabouts may provide benefits at these locations.

Safety Benefits

Roundabouts are an FHWA Proven Safety Countermeasure because they can substantially reduce crashes that result in serious injury or death. In comparison to signalized intersections, roundabouts have been shown to result in reductions of up to 78% of fatal and injury crashes.⁴

Right-of-Way Constraints

Kittelson's comparison between roundabouts and traffic signals is based solely on operational analysis. However, it is important to also consider right-of-way (ROW) constraints and potential acquisition costs

⁴ FHWA Highway Safety Programs. Retrieved from <https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>

associated with implementing roundabouts. The City of Modesto has developed conceptual exhibits overlaying roundabout layouts with property lines to assess whether they can be constructed within existing city ROW. The proposed roundabout configurations fit within the existing right-of-way, as the number of approach lanes is able to be reduced using a roundabout compared to a signal. As explained in Section 2.4.3 of NCHRP Research Report 1043: Guide for Roundabouts, the following spatial considerations apply to roundabouts in comparison to other intersection control types:

- Roundabouts may be larger *at the intersection* than other control types because of their size and shape.
- Roundabouts may be able to be spaced more closely to one another than traffic signals because of shorter queue lengths (less chance of queue spillback).
- Roundabouts may serve similar or more capacity with fewer total lanes (e.g., no dedicated left- or right-turn lanes) than signals—meaning the roadway between intersections can be narrower.

Additional detailed design work will be necessary to confirm the constructability of the roundabouts.

Site Access

As with any intersection form and control type, site access in the immediate vicinity of an intersection creates challenges. A few considerations for roundabouts include:

- Roundabouts provide safe and efficient U-turn opportunities which allows for full access points to be converted to right-in, right-out or left-in, right-out. This allowance removes the most difficult and riskiest movements at an access point (left-out movements) by converting them to U-turns.
- Because roundabouts may allow for fewer lanes on the approach compared to signalized intersection, they are conducive to access management (with a median taking the place of what could have been a turn lane in a signalized alternative).
- Access is strongly discouraged within 50 feet of the circulatory roadway (between the entry and pedestrian crosswalk). This location complicates the pedestrian ramp and creates wayfinding challenges for people with vision disabilities, and also introduces new conflicts in a challenging location for drivers.
- Access is best avoided along the splitter island of a roundabout approach; however, if it is unavoidable, then right-in, right-out access can be provided with a U-turn at the intersection as previously described.⁵ Additionally, access could be accommodated by shortening a splitter island to allow for left turns to and from a driveway, although doing so introduces more conflict points.⁶

Roundabouts may offer the ability to provide access to adjacent properties closer to the intersection than signalized intersections without the associated degradation in operations and safety associated with nearby access at signals.

⁵ MassDOT and Kittelson & Associates. Guidelines for the Planning and Design of Roundabouts. 5.9.6 Access Management. Retrieved from <https://www.mass.gov/doc/massdot-guidelines-for-the-planning-and-design-of-roundabouts/download>

⁶ Modern Roundabout Intersections: When To Use Them? A Comparison with Signalized Intersections. Retrieved from https://www.mvcommission.org/sites/default/files/docs/Roundabout_comparison_with_signals.pdf

Corridor Operations

Roundabouts located along a corridor provide advantages over signalized corridors or corridors with a mix of control types. Because roundabouts serve similar or greater capacity than comparable signals with shorter queue lengths than comparable signalized intersections and without producing platoons. Roundabout operations result in randomized flow rather than platoons. Roundabout operations are typically better with a random arrival pattern than with a platooned flow; mixing signals and roundabouts may result in platoons arriving at a roundabout from a nearby signal and creating queueing.

As a result, when considering roundabouts, consistency along the corridor is beneficial for driver expectations and for operational performance should be considered to allow drivers to develop a sense of predictability and help optimize the traffic flow.⁷ Consistency along Oakdale Road is recommended for operational efficiency.

ROADWAY SEGMENT ANALYSIS

Traffic volumes on roadway segments are used to determine the overall usage and congestion. Under existing conditions, the roadway segment analysis is based on traffic counts taken at a single location or link, which is intended to be representative of the entire segment.

LOS for roadway segments is assessed based on the volume in relationship to the capacity threshold as presented in the HCM 2010 edition and adopted by the City of Modesto as shown in **Table 9**.

⁷ TDOT Roundabout Design Reference Guide. Retrieved from <https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/training/Roundabout%20Design%20Reference%20Guide.pdf#:~:text=Roundabouts%20result%20in%20randomized%2C%20un%2Dplatooned%20flow%20along,in%20a%20corridor%20with%20coordinated%20signal%20progression.&text=Roundabout%20corridors%20can%20also%20provide%20for%20design,adjust%20where%20right%2Dof%2Dway%20impacts%20occur%20at%20intersections>.

Table 9: Roadway Segment Threshold and LOS Relationship

Type of Roadway Segment	Hourly Capacity ^{a,c}	Daily Volume Threshold ^{b,c}				
		LOS A	LOS B	LOS C	LOS D	LOS E
Freeway Mainline	2,000	8,000	12,750	18,750	23,130	25,000
Expressway – Class A	1,500	5,630	9,380	13,120	15,750	18,750
Expressway – Class B	1,250	4,690	7,820	10,940	13,130	15,630
Expressway – Class C	1,000	3,750	6,250	8,750	10,500	12,500
Principal Arterial (6 lanes)	850	3,190	5,320	7,440	8,930	10,630
Minor Arterial (4 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Arterial (4 lanes)	750	660	1,780	3,190	5,530	9,380
Minor Arterial (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Major Collector (4 lane facility)	700	2,450	4,110	5,780	6,910	8,750
Downtown Collector	700	2,450	4,110	5,780	6,910	8,750
Minor Collector (2 lane facility with center left-turn lane)	925	810	2,190	3,930	6,820	11,560
Minor Collector (2 lanes)	650	570	1,540	2,760	4,800	8,130
Local Roadway	500	440	1,190	2,130	3,690	6,250
Rural Road	900	790	2,140	3,830	6,640	11,250

^a Vehicles per through lane per hour.

^b Vehicles per lane per day. Peak hour capacity eight percent (8%) of daily capacity based on a review of peak hour to daily counts on over 200 roadway segments in the City.

^c Hourly and daily calculated based on the method presented in the *Highway Capacity Manual (HCM)* (Transportation Research Board 2010). LOS is assessed based on the volume in relationship to the capacity threshold. For example, a freeway lane carrying 18,700 vehicles on a daily basis would be classified as LOS C as it is between the LOS B and LOS C threshold; if the volume was 19,000 vehicles a day, it would be classified as LOS D.

Note: These are generalized capacities that can be adjusted based on local roadway conditions, including the percentage of turning traffic, intersection spacing, driveway spacing, levels of pedestrian activity, provision of on-street parking, adjacent land use types and other factors.

Source: City of Modesto, 2016.

Table 10 includes roadway segment analysis summary under each study scenario. Under existing conditions with two lanes, Oakdale Rd between Claribel Rd & Claratina Ave operates at LOS D with a volume-to-capacity (V/C) ratio at 0.90. Traffic volumes for future conditions are based on the StanCOG travel demand model as explained in the earlier sections. Under both Future (2046) Planned Conditions

and Future (2046) Adjusted Conditions, all roadway segments would operate at LOS A. Given that a V/C ratio near 1.0 indicates optimal capacity utilization, the low ratios in the Future (2046) Planned Conditions represents overbuilt conditions.

Table 10: Roadway Segment Analysis Summary

#	Roadway Segment	Existing Conditions			Future (2046) – Planned Conditions			Future (2046) – Adjusted Conditions		
		Volume	Daily V/C	LOS	Volume	Daily V/C	LOS	Volume	Daily V/C	LOS
1	Oakdale Rd between Claribel Rd & Claratina Ave	19,100	0.90	D	20,100	0.32	A	17,600	0.41	A
2	Oakdale Rd between Claratina Ave & Mable Ave	24,000	0.75	C	29,500	0.46	A	25,400	0.60	A
3	Oakdale Rd between Mable Ave & Bridgewood Way	24,900	0.78	C	29,360	0.46	A	25,300	0.60	A
4	Oakdale Rd between Bridgewood Way & Sylvan Ave	25,400	0.79	C	29,500	0.46	A	25,400	0.60	A
5	Claratina Ave between McHenry Ave & Coffee Rd	14,100	0.75	C	23,150	0.41	A	22,700	0.60	A
6	Claratina Ave between Coffee Rd & Oakdale Rd	9,670	0.52	A	19,000	0.34	A	19,800	0.53	A

Source: Kittelson & Associates, Inc. 2025

TRAVEL TIME

Table 11 represents the travel time analysis summary for the study corridor under existing conditions and **Table 12** represents projected travel time for the study corridor under both the Planned and Adjusted conditions. Under the Adjusted conditions, travel times are expected to decrease by 0.6 – 2.6 minutes compared to Planned conditions. There are two cases in which travel times are projected to increase under Adjusted conditions, both by 0.1 minutes. The existing conditions travel times were determined through Ggoogle Maps data, while the planned and adjusted were determined by adding the delays at intersections along the corridor to the travel time between each intersection.

Table 11: Travel Time Summary - Existing Conditions

Roadway	Route	Movement	Weekday (min)		Weekday Peak (min)		Monday - Friday (min)		Monday - Friday Peak (min)	
			Avg	StD	Avg	StD	Avg	StD	Avg	StD
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.3	0.3	29.7	2.9	3.3	0.3	3.9	0.1
Claratina Avenue	Oakdale Road to CA 108	Westbound	3.1	0.2	34.7	1.0	3.1	0.2	3.5	0.0
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	3.2	0.6	23.6	2.0	3.3	0.8	4.7	0.7
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	3.2	0.7	21.7	2.0	3.4	1.0	5.5	1.1

Note: StD – Standard Deviation
Source: Kittelson & Associates, Inc. 2025

Table 12: Travel Time Summary - Future Conditions

Roadway	Route	Movement	2046 Planned (min)		2046 Adjusted (min)	
			AM	PM	AM	PM
Claratina Avenue	CA 108 to Oakdale Road	Eastbound	3.8	8.1	3.3	5.5
Claratina Avenue	Oakdale Road to CA 108	Westbound	4.4	5.0	3.4	4.4
Oakdale Road	Sylvan Avenue to Claribel Avenue	Northbound	4.0	6.9	4.1	6.4
Oakdale Road	Claribel Avenue to Sylvan Avenue	Southbound	4.4	5.6	3.8	5.7

Source: Kittelson & Associates, Inc. 2025

VEHICLE MILES TRAVELED ASSESSMENT

Table 13 summarizes the Vehicle Miles Traveled (VMT) assessment for the three study scenarios. The total VMT in Stanislaus County was calculated using the StanCOG travel demand model. Under the Future (2046) Adjusted Conditions, the total VMT is expected to decrease slightly compared to Future (2046) Planned Conditions. This is likely due to less induced demand because of the reduction in travel lanes.

Table 13: VMT Summary

Scenario	Stanislaus County Total VMT
Existing Conditions	11,056,945
Future (2046) Planned Conditions	13,395,154
Future (2046) Adjusted Conditions	13,395,008
Change with Adjusted Conditions	-147

Source: Kittelson & Associates, Inc. 2025

Summary

The Study findings and conclusions are provided below by corridor.

Oakdale Road

The Study confirms that Oakdale Road (from Claribel Avenue to Scenic Drive) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

Further, the operational analysis confirms that the following intersections would perform more efficiently as roundabouts rather than signalized intersections.

- Oakdale Rd & Claratina Ave
- Oakdale Rd & Mable Ave
- Oakdale Rd & Bridgewood Way
- Oakdale Rd & Sylvan Ave

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - Oakdale Rd & Claribel Ave – PM Peak Hour
 - Oakdale Rd & Claratina Ave – PM Peak Hour
 - Oakdale Rd & Mable Ave – PM Peak Hour
 - Oakdale Rd & Bridgewood Way – PM Peak Hour
 - Oakdale Rd & Sylvan Ave – AM Peak Hour
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Claratina Ave
 - Oakdale Rd & Sylvan Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - Oakdale Rd & Claribel Ave
 - Oakdale Rd & Sylvan Ave

For all locations the average delay would decrease from the Future (2046) Planned Conditions, as shown in **Table 14**.

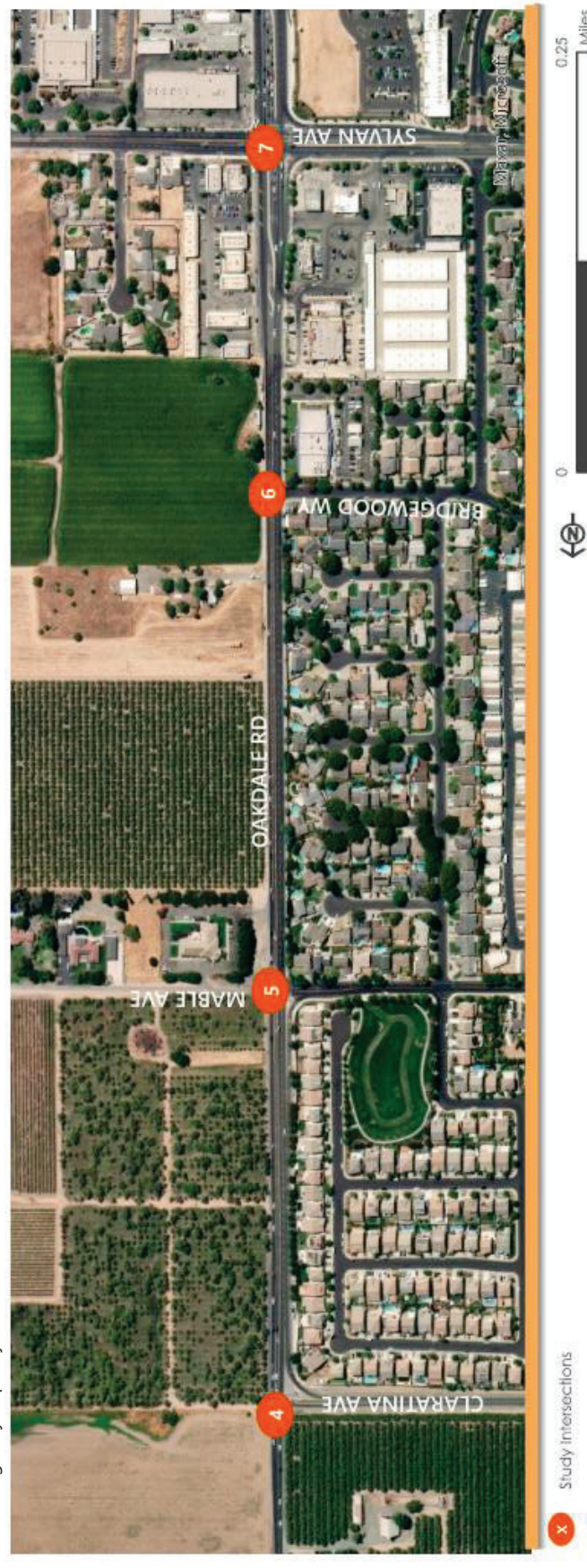
Table 14: Oakdale Road LOS Summary

No.	Intersection Name	Control Type	Peak Hour	Existing Conditions			2046 No Build			2046 Buildout (6 Lane)			2046 Buildout (4 Lane)			Change					
				V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS						
4	Oakdale Rd & Claratina Ave	Signalized	AM	0.548	53.3	D	1.234	284.47	F	1.138	125.3 ⁴	F	NA	15.7	B	-109.64					
			PM	0.86	76.9	E	10.04	1,351.5	F	0.97	137.2 ²	F	NA	34.8	C	-102.42					
5	Oakdale Rd & Mable Ave	Signalized	AM	0.44	30.5	C	0.75	71.55	E	0.463	17.57	B	NA	7.3	A	-10.27					
			PM	0.813	70.8	E	0.90	341.03	F	0.47	17.20	B	NA	11.2	B	-6					
6	Oakdale Rd & Bridgewood Way	Signalized	AM	Currently No Signal			Currently No Signal			0.386			14.48			B			Roundabout ¹		
			PM	Currently No Signal			Currently No Signal			0.44			14.57			B			Roundabout ¹		
7	Oakdale Rd & Sylvan Ave	Signalized	AM	0.45	102.4	F	0.599	42.54	D	0.702	45.73	D	0.796	16	B	-29.73					
			PM	0.606	87.7	F	0.79	106.17	F	0.78	95.40	F	1.154	59.9	E	-35.5					

Notes: AM = weekday a.m. peak hour; PM = weekday p.m. peak hour; V/C = volume/capacity ratio; LOS = Level of Service; Delay reported in seconds per vehicle; No. = intersection number. ¹single circulating lane roundabout; ²dual circulating lane roundabout; ³includes bypass lanes

Bold text indicates operations below the LOS standard.

Source: Highway Capacity Manual 7th Edition; Kittelson & Associates, 2025



Claratina Avenue

The Study confirms that Claratina Avenue (from Oakdale Road to McHenry Avenue) can be reclassified from their planned six-lane classification to four lanes, while still accommodating the area's anticipated future growth to the 2046 horizon year.

The findings and conclusions from the traffic operational analysis by scenario are summarized below:

- **Existing Conditions:** The following four intersections operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections are operating over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
- **Future (2046) Planned Conditions:** The following five intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, only Oakdale Road and Claratina Avenue intersection would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave
- **Future (2046) Adjusted Conditions:** The following four intersections would operate below acceptable LOS thresholds during at least one of the peak hours. However, none of the intersections would operate over capacity.
 - McHenry Ave & Palandale Ave/Claratina Ave
 - Coffee Rd & Claratina Ave

In most locations, average delay would decrease from the Future (2046) Planned Conditions except for Coffee Road and Claratina Avenue. The intersection is an existing roundabout and with the planned growth in expected to continue to operate at LOS E.