City of Manteca Planning Commission

AGENDA REPORT

MEETING DATE March 21, 2024

PROJECT NAME Crossroads Plaza – 2064 North Union Road

APPLICATION NUMBER GPA 22-04, REZ 22-05, SPC 22-07, & UPN 22-08

RECOMMENDATION

Staff recommends the Planning Commission conduct a public hearing and:

1. Adopt Resolution 1651 recommending approval of a General Plan Amendment, Site Plan & Design Review Application, and Minor Use Permit, and recommending the City Council introduce by title only and waive the first reading of an Ordinance approving a Rezone for the construction of a 6,816-square-foot Auto Zone auto parts store and a 5,200-square-foot Circle K convenience store with a 12-pump gas station on a 1.98-acre site located at 2064 North Union Road (File No. GPA22-04, REZ22-05, SPC22-07, UPN22-08).

PROJECT INFORMATION	
Applicant:	Grey Peak Development, LLC, James Allen & Tenea Davis, 1925 Village Center Circle, Ste. # 150, Las Vegas NV 89134
Property Owner:	Manteca 18, LLC, Jim Berookhim, 2355 Westwood Blvd., Ste. 410, Los Angeles, CA 90064
General Plan Designation:	Currently High Density Residential (HDR), but will be re-designated to Commercial (C)
Zoning:	Currently Multiple-Family Dwelling (R-3), but will be rezoned to Neighborhood Commercial (CN)
Existing Use:	Vacant
Proposed Use:	Auto Zone auto parts store and a gas station with a Circle K convenience store
Parcel Size	1.98 acres
Adjacent Uses:	North: Lathrop Road and a commercial development East: Single-family residential South: Multi-family residential West: Union Road and a commercial development

PROJECT DESCRIPTION

The project consists of a commercial development including a 6,816-square-foot Auto Zone auto parts store and a 5,200-square-foot Circle K convenience store with a 12-pump

gas station. See Figure 1 for Site Plan. The project will require approval of a General Plan Amendment, Rezone, Site Plan & Design Review, and a Minor Use Permit.

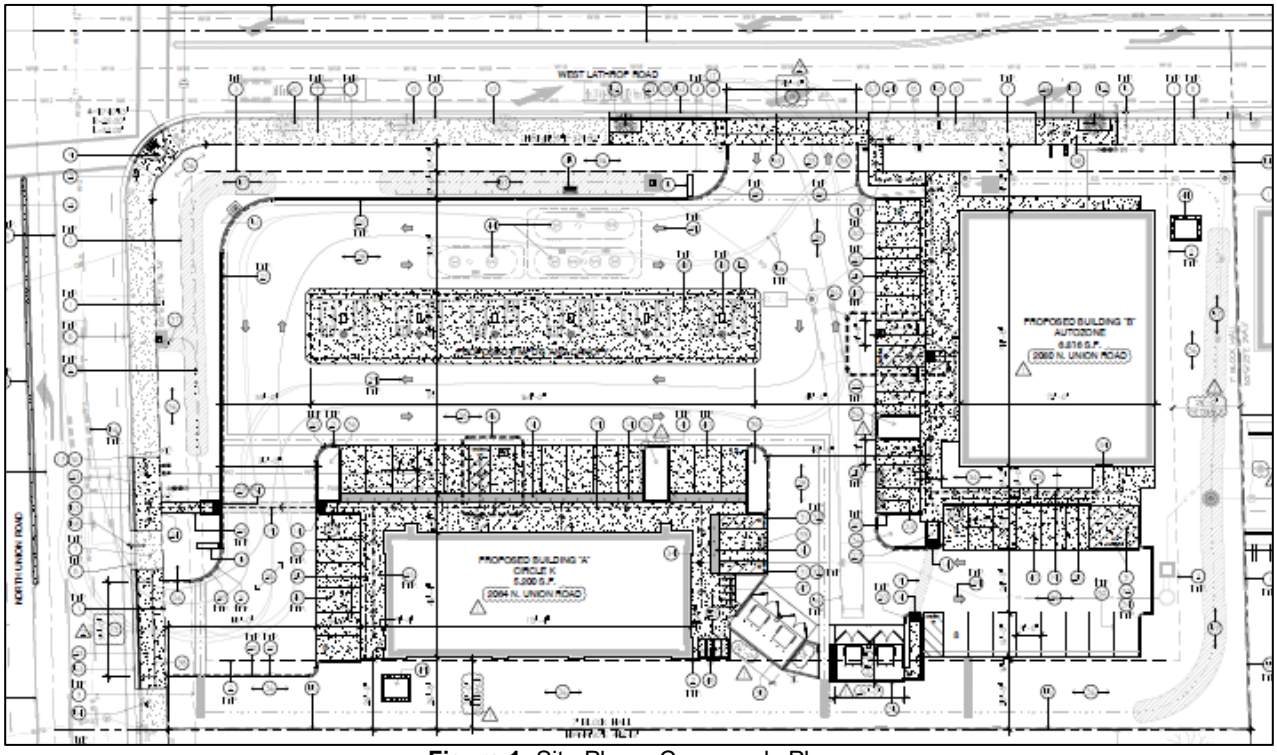


Figure 1: Site Plan – Crossroads Plaza

PROJECT LOCATION

The project site is located at the southeast corner of North Union Road and West Lathrop Road at 2064 North Union Road (APN: 216-020-01). The site is approximately one mile west of the Highway 99/Lathrop Road Interchange. The site is bound by West Lathrop Road and commercial uses to the north, single-family homes to the east, an apartment complex to the south, and North Union Road and commercial uses to the west. See Figures 2 and 3 for the Project Site Map and Vicinity Map.

Figure 2: Project Site – Crossroads Plaza – 2064 N. Union Rd. Site outlined in yellow.

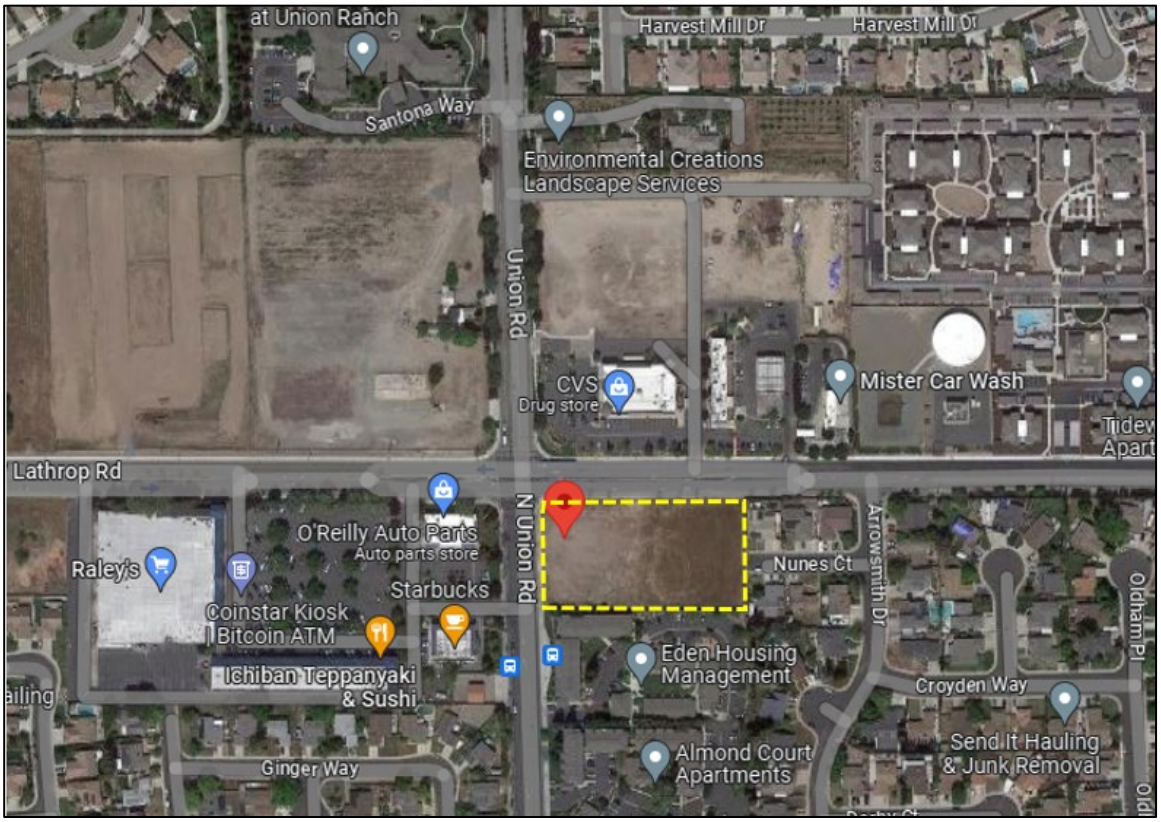


Figure 3: Vicinity Map – Crossroads Plaza. Site outlined in yellow.

ANALYSIS

The proposed General Plan Amendment, Rezone, Site Plan & Design Review, and Minor Use Permit application were analyzed with respect to conformance with the:

1. Manteca General Plan Update
2. Manteca Municipal Code
3. Manteca Climate Action Plan
4. California Environmental Quality Act (CEQA)

GENERAL PLAN CONFORMANCE

As shown on the current General Plan Land Use Map below (Figure 4), the project site currently has a General Plan land use designation of High Density Residential (HDR), but the designation will change to Commercial (C) as part of the upcoming General Plan Update (Figure 5). This project is requesting a General Plan Amendment because it is requesting approval prior to the General Plan Update being approved, and therefore the new designation of C is not yet memorialized. Per the General Plan Update, the C land use designation will provide for neighborhood, community, and regional-serving retail and service uses; offices; restaurants; service stations; highway-oriented and visitor commercial and lodging; auto-serving and heavy commercial uses; wholesale; warehousing; public and quasi-public uses; commercial recreation and public gathering facilities; and similar and compatible uses. The C Designation allows for a maximum site coverage of 50%, and the project has a proposed site coverage of approximately 20%.

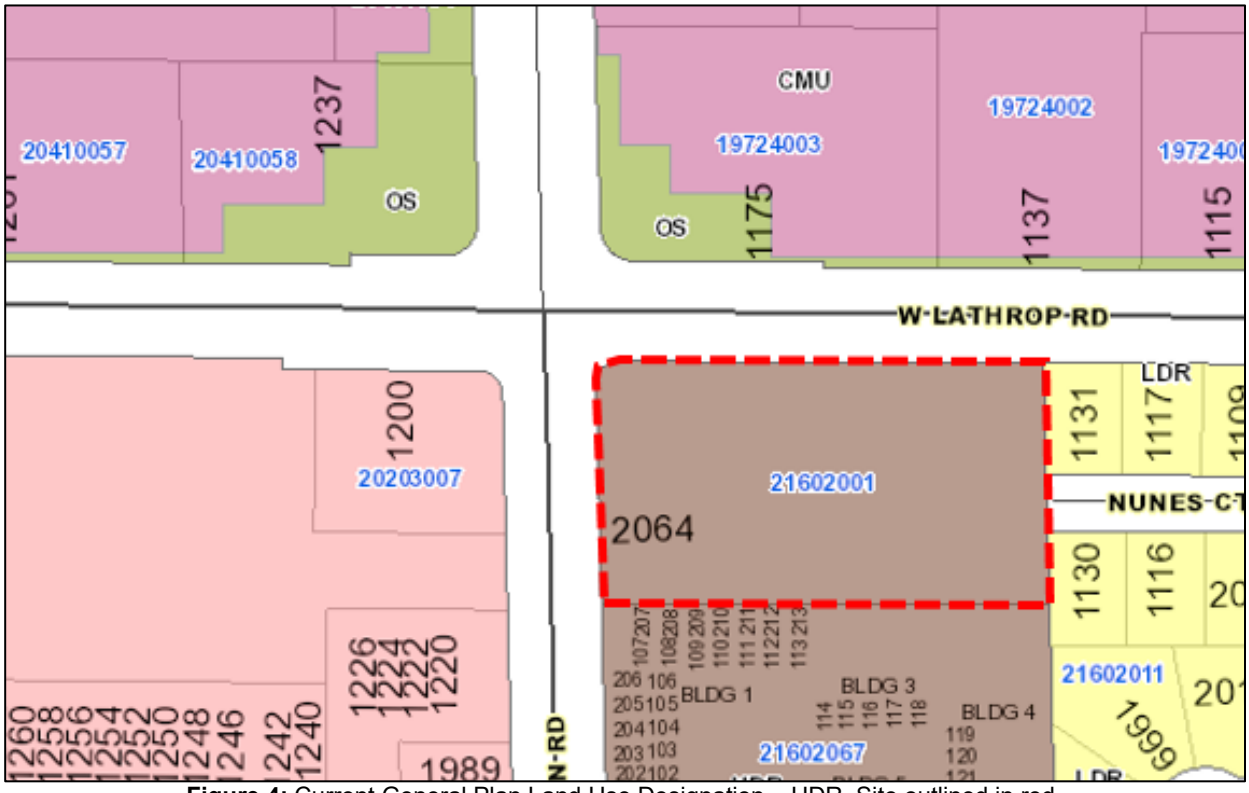


Figure 4: Current General Plan Land Use Designation – HDR. Site outlined in red.

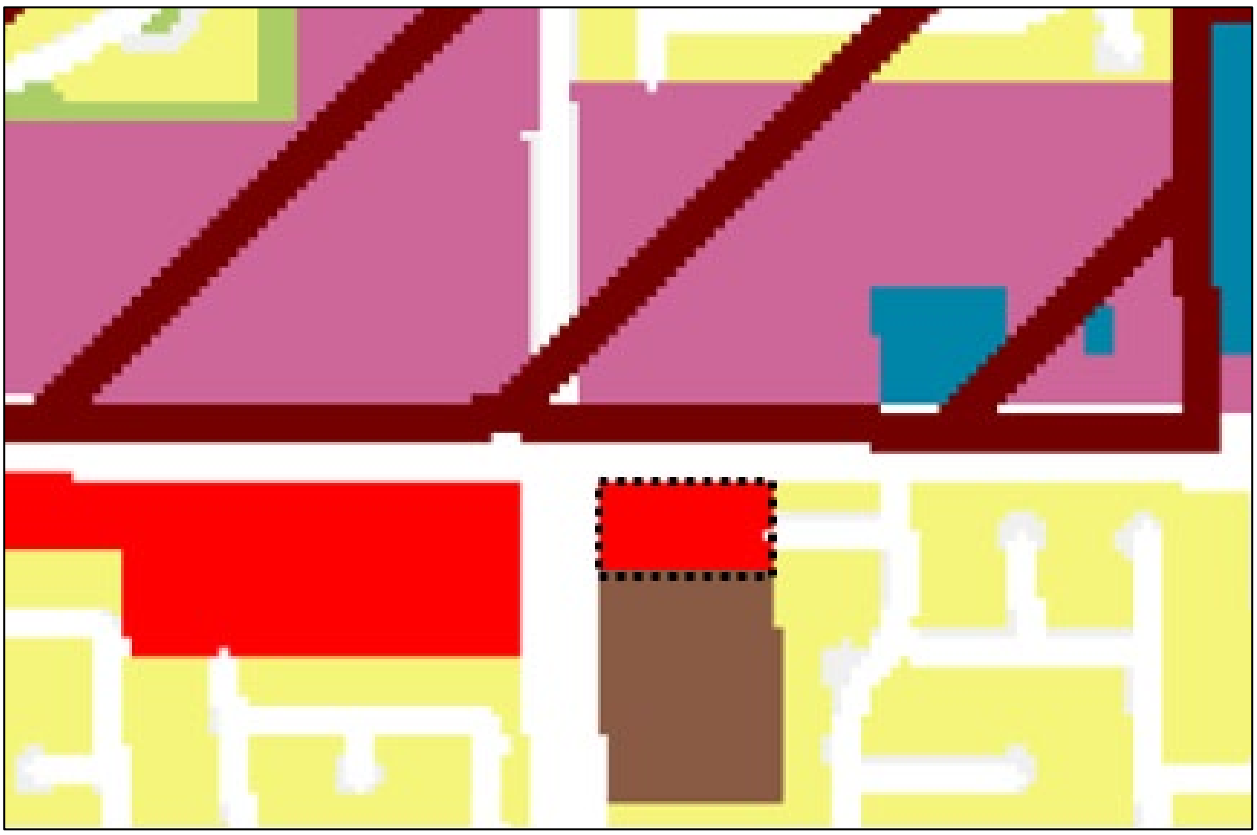


Figure 5: General Plan Update Land Use Designation – 'C.' Site outlined in black.

The proposed uses include an Auto Zone auto parts store and a Circle K convenience store with a 12-pump gas station. Based on these uses, the project conforms to the uses anticipated in the new General Plan and the C land use designation.

In addition to conforming to the C land use designation requirements, the project supports the following General Plan goals and policies:

1. **Land Use Policy LU-P-22: New commercial development serving citywide and regional shopping needs shall be located along major arterial streets.**

   Analysis: This development may serve both citywide and regional shopping needs as it is located close to the Highway 99 Interchange. Both Union Road and Lathrop Road are designated as arterial streets in Manteca.

2. **Community Design Goal CD-8: Upgrade and enhance the visual quality of Manteca's arterial and collector streets.**

   Analysis: The site development will include two buildings and one fuel canopy, all constructed in a coordinating contemporary architectural style. The two buildings have strong vertical and horizontal details and a mix of materials, creating an acceptable appearance. All public-facing sides of the facades include an acceptable

level of architectural interest. These buildings will enhance the City identity by developing a currently undeveloped corner at a prominent intersection in the City. See Figures 6 through 8 for the facades.

Figure 6: Facades of Circle K Convenience Store

Figure 7: Facades of Auto Zone building

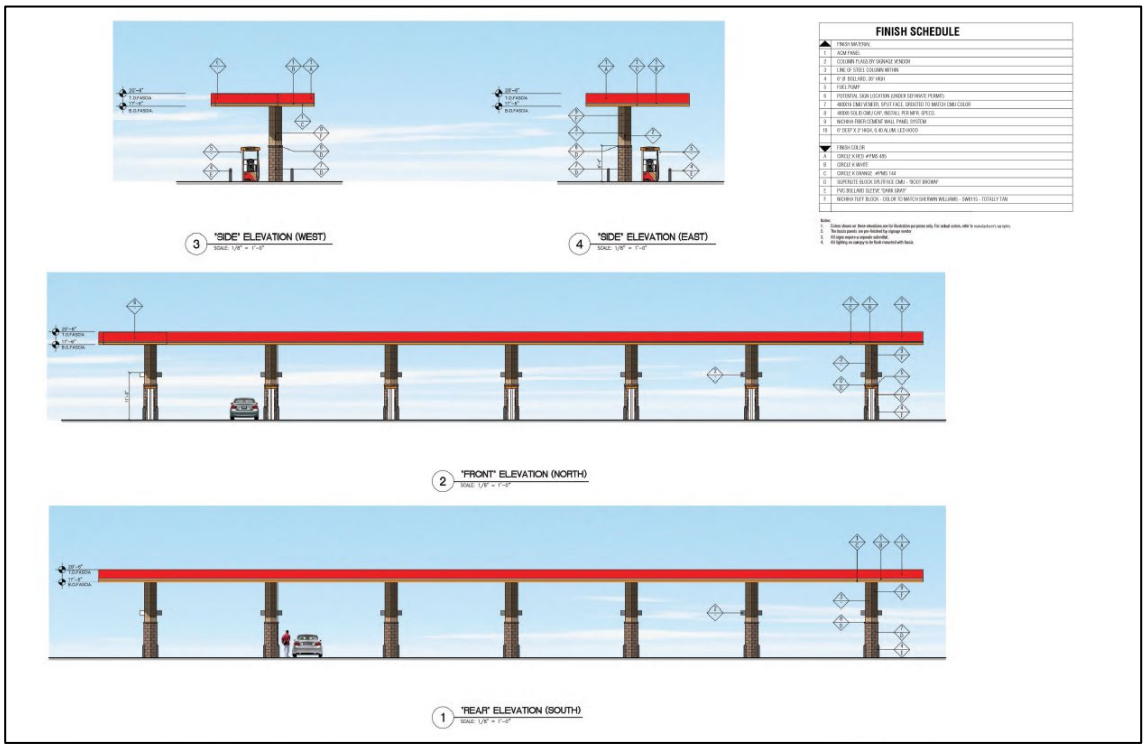


Figure 8: Gas station canopy

3. **Land Use Policy LU-P-49: The City shall give priority to in-fill development and new development contiguous to existing developed areas, whenever practical.**

   Community Design Goal CD-1: Retain the compact and cohesive community form of the City.

   Analysis: The project is within City limits, surrounded by existing development on all sides, making this an in-fill site. Infill development is a way to reinforce compact development and maintain a cohesive city form.

ZONING CODE CONFORMANCE

Zoning Ordinance Conformance

The project site is currently zoned Multiple-Family Dwelling (R-3), but the project is requesting a rezone to Neighborhood Commercial (CN) to ensure consistency with the new General Plan land use designation (See Figure 9). The project consists of a gas station, convenience store, and auto parts store, all of which are appropriate uses in the CN zone. The convenience store and auto parts store are allowed uses in this zone, and the gas station is conditionally allowed with a Minor Use Permit.

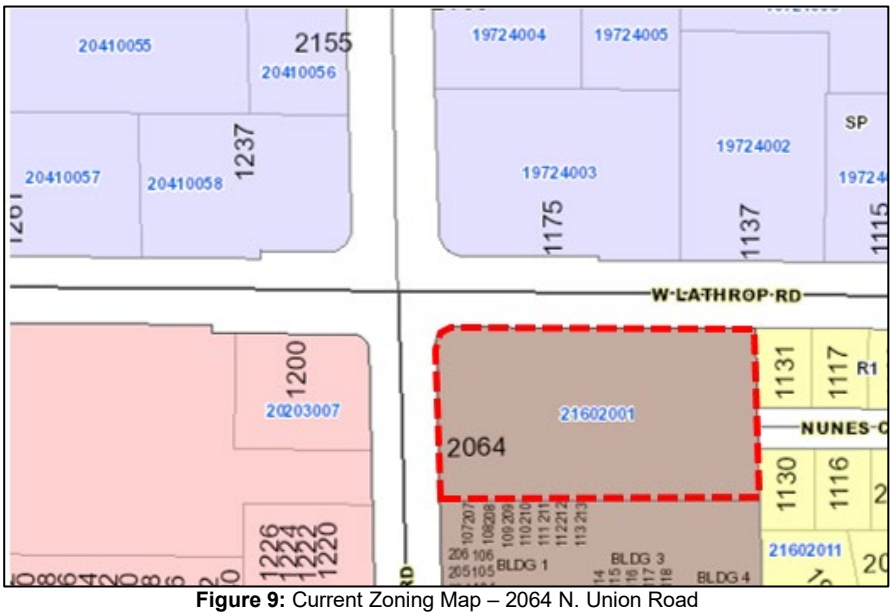


Figure 9: Current Zoning Map – 2064 N. Union Road

The project also meets the development standards of the CN zone, including setbacks and height. The maximum allowed height is 45 feet, and the structures on site will have the following heights:

Structure	Height
Circle K Convenience Store	**23 feet**
Auto Zone Store	**24 feet**
Fuel Canopy	**20 feet, 6 inches**

The CN zone generally requires 0-foot setbacks on all sides, except for when a residential zoning district is adjacent to a commercial-zoned property, all structures shall be setback a minimum of 40 feet from the shared property line; however, the Planning Commission may reduce this setback if they can find compliance with the Performance Standards in Chapter 17.58. This project conducted a Noise Impact Study and an Air Quality and Greenhouse Gas Assessment, and was found to have less than significant impacts. This project is required to comply with all Performance Standards in Chapter 17.58 at all times. Therefore, the Planning Commission can approve the proposed setbacks of all structures on site:

Structures Closest to Adjacent Residential	Distance to Residential Zone
Circle K Convenience Store	**25 feet**
Auto Zone Store	**30 feet**

The site requires 42 parking stalls for the combined uses on the site, and the site plan proposes 46. The stalls include 18 stalls for the convenience store and 24 stalls for the auto parts store.

The Municipal Code outlines landscaping requirements for new projects. All areas of the site not paved or built will be landscaped in conformance with the Municipal Code. Additionally, gas stations require a minimum of 20% of the site to be landscaped, and this

project meets that requirement. The proposed landscaping includes the required shade trees in the parking areas, as well as the required trees in the buffer areas along rights of way and between parcels in as many places as possible. The landscape planting areas include a mix of trees and shrubs, as required by Code. Three mature oak trees were removed for the development of this project. Therefore, this project is required to replace those trees with three new trees that are a minimum 36-inch box size. See Figure 10 for Landscape Plan.

This project will also meet all illumination standards set in the Code to ensure adequate illumination without light spillover or glare for the adjacent residential uses.

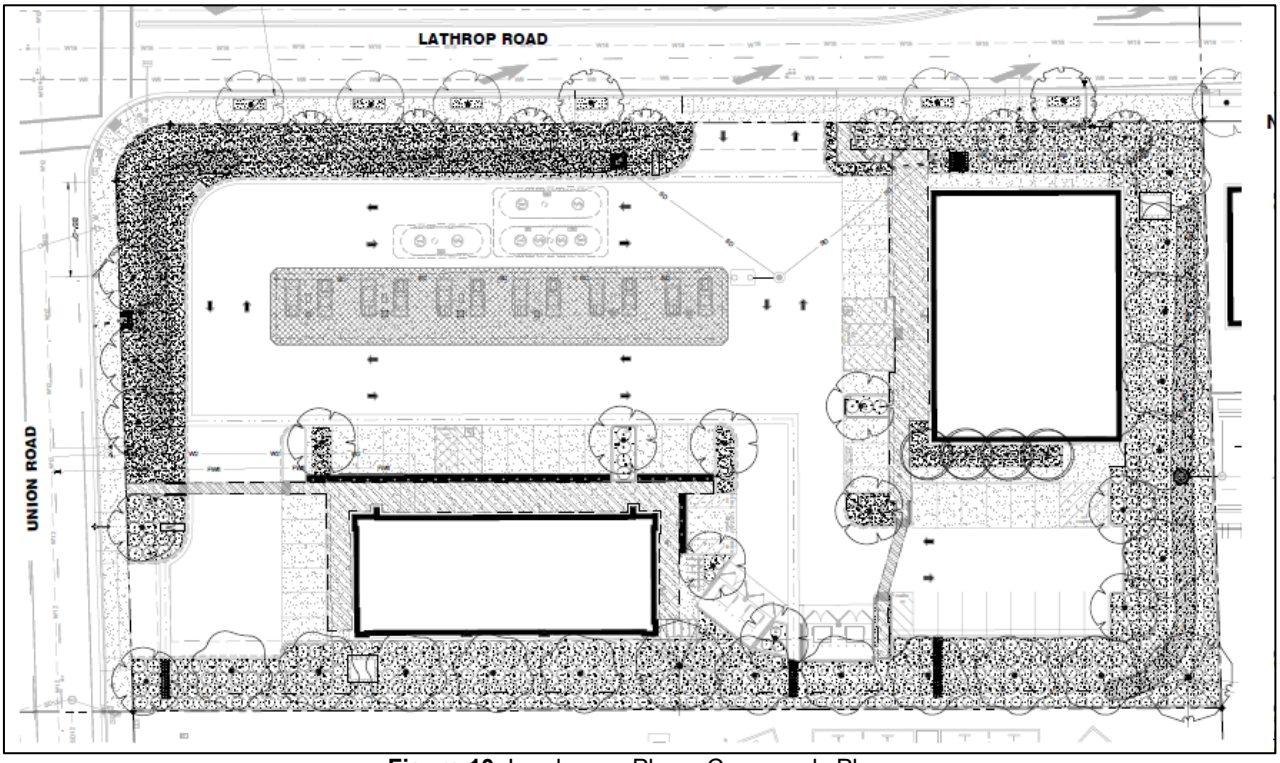


Figure 10: Landscape Plan – Crossroads Plaza

General Plan Amendment Findings

The purpose of a General Plan Amendment is to allow for modifications to the General Plan text or to change the General Plan land use designation on a parcel. The designated Approving Authority is the City Council, and the Development Services Director and Planning Commission make a recommendation of approval or denial to the City Council.

If a General Plan Amendment is requested, the applicant shall demonstrate to the City Council that there is a substantial benefit to be derived from such amendment. Additionally, the City Council must find that the proposed amendment meets the letter and intent of the General Plan goals and policies.

Analysis: This project is requesting a General Plan Amendment because it is requesting approval prior to the General Plan Update being approved, and therefore the new

designation of C is not yet memorialized. A commercial use was envisioned here as part of the General Plan Update in order to provide commercial uses for local and regional users. As described above, the projects meets the intent of multiple General Plan goals and policies, and will provide a benefit to the City in that the site will provide commercial goods and services to both residents and visitors, and will upgrade the visual quality of a prominent intersection in the City.

Rezone Findings

The purpose of a Zoning Amendment is to allow a modification to any part of Title 17 or to rezone the zoning designation on the Zoning Map for any parcel. The Approving Authority for a rezone is the City Council. The Development Services Director and Planning Commission provide recommendations. The applicant is requesting a rezone approval prior to the City Zoning Map being approved, which will follow shortly after the General Plan Update is approved. The rezone will ensure consistency with the new General Plan land use designation.

The City Council may grant a Rezone when the following Findings are made:

1. **The proposed Zoning Amendment (text or map) is consistent with the General Plan and any applicable Specific Plan goals, policies, and implementation programs.**

   Analysis: The Zoning Amendment to change the zone to CN will ensure the zone is consistent with the General Plan land use designation of C. The project is not part of a Master Plan or Specific Plan. As approved and conditioned, the project is also consistent with other noise, traffic, and air quality requirements established by the City. The project will comply with all other Improvement Standards and any other applicable standards adopted by the City.

2. **The proposed amendment would not be detrimental to the public interest, health, safety, convenience, or welfare of the City.**

   Analysis: The proposed rezone has been reviewed and conditioned to ensure it will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity. This was done via a site plan and design review to ensure compliance with the development standards and requirements of the CN zone, as well as a noise impact study, traffic study, and a air quality and greenhouse gas assessment. The project complies with all applicable development standards of the CN zone, and will comply with all performance standards to ensure compatibility with the neighboring uses.

3. **The amendment has been reviewed in compliance with the provisions of the California Environmental Quality Act (CEQA).**

Analysis: This project has been determined to not be subject to the requirements of the California Environmental Quality Act (CEQA) per Section 15332, In-Fill Development Projects. *It meets the* In-Fill Development Projects *exemption because the project will be consistent with the C General Plan land use designation and CN zoning. The project is on less than 5 acres (1.98 acres) and is completely surrounded by urban uses. The site does not have value as a habitat for endangered, rare, or threatened species, but will follow all requirements from SJCOG- Multi-Species Conservation Plan. Lastly, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality, as this project completed a traffic study, noise impact study, and air quality study and found less than significant impacts, and the project will follow all applicable standards and requirements.*

4. **The site is physically suitable (including absence of physical constraints, access, compatibility with adjoining land uses, and provisions of utilities) for the requested zoning designation and anticipated land uses/development.**

   Analysis: The site is relatively flat and therefore suitable for a commercial development. As described above, it has been thoughtfully reviewed to ensure compatibility with the neighboring residential uses.

Site Plan and Design Review Findings

The approving authority for a Site Plan & Design Review is the Planning Commission, but when a project requires more than one land use entitlement with more than one Approving Authority, all entitlements shall be processed concurrently and final action shall be taken by the highest-level designated Approving Authority for all requested land use entitlements. In order to approve a Site Plan and Design Review application, Section 17.10.060 of the Zoning Ordinance requires that the Approving Authority make the following findings:

1. **The proposed project is consistent with the objectives of the General Plan, complies with applicable zoning regulations, Planned Development, Master Plan or Specific Plan provisions, Improvement Standards, and other applicable standards and regulations adopted by the City.**

   Analysis: The project is consistent with the General Plan land use designation of C and the CN zone, as discussed above. The project is not part of a Master Plan or Specific Plan. As approved and conditioned, the project is also consistent with other noise, traffic, and air quality requirements established by the City. The project will comply with all other Improvement Standards and any other applicable standards adopted by the City.

2. **The proposed project will not create conflicts with vehicular, bicycle, or pedestrian transportation modes of circulation.**

   Analysis: The project was reviewed to ensure it will not create conflicts with vehicular, bicycle, or pedestrian modes of transportation. A traffic analysis was conducted to ensure all movements on site are being performed safely.

3. **The site layout (orientation and placement of buildings and parking areas), as well as the landscaping, lighting, and other development features, is compatible with and complements the existing surrounding environment and ultimate character of the area under the General Plan.**

   Analysis: As reviewed and conditioned, this project will be compatible with and complement the existing surrounding environment as it develops. The project was reviewed with sound planning principles in mind and meets the standards and requirements of the General Plan and Municipal Code.

4. **The proposed architecture, including the character, scale, and quality of the design, relationship with the site and other buildings, building materials, colors, screening of exterior appurtenances, exterior lighting and signing, and similar elements, establishes a clear design concept and is compatible with the character of buildings on adjoining and nearby properties.**

   Analysis: The architecture, as described above, has a clear design concept, and has been designed to be acceptable at this location.

Minor Use Permit Findings

The gas station requires a Minor Use Permit. The approving authority for a Minor Use Permit is the Development Services Director, but when a project requires more than one land use entitlement with more than one Approving Authority, all entitlements shall be processed concurrently and final action shall be taken by the highest-level designated Approving Authority for all requested land use entitlements. The findings for a Minor Use Permit are below:

1. **The proposed use is consistent with the General Plan, any applicable Specific Plan, and the provisions of this Title.**

   Analysis: As mentioned above, the project site will have a General Plan Land Use designation of C and will comply with all applicable standards and provisions of the General Plan and Municipal Code. The project is not part of a Specific Plan.

2. **The proposed use is consistent with the purpose of the applicable district or districts.**

   Analysis: The proposed use of a gas station will be consistent with the standards of the CN zoning district, as described above in the Zoning Code Conformance section.

3. **The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.**

Analysis: The proposed use has been reviewed and conditioned to ensure it will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity. This was done via a site plan and design review, as well as a noise impact study, traffic study, and an air quality and greenhouse gas assessment. The project complies with all applicable development standards, and will comply with all performance standards to ensure compatibility with the neighboring uses.

4. **The proposed project is consistent with the objectives of the General Plan, complies with applicable zoning regulations, Planned Development, Master Plan or Specific Plan provisions, Improvement Standards, and other applicable standards and regulations adopted by the City.**

   Analysis: As described above, the use has been reviewed to be consistent with the General Plan and CN zoning district, and will comply with all applicable Improvement Standards, and other applicable standards and regulations adopted by the City. This project is not part of a Master Plan or Specific Plan.

CLIMATE ACTION PLAN CONFORMANCE

On October 15, 2013, the Manteca City Council approved and adopted the Air Quality Element Update and Climate Action Plan in response to the passing of Assembly Bill AB32. The intent of this plan is to reduce overall greenhouse gas emissions in both private and public sector development. The proposed project conforms to the following Climate Action Plan strategies:

1. **CAP Strategies Water Conservation WC-1: The City shall continue to implement water conservation measures to comply with the Model Water Efficiency Landscape requirements that implement the Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881, Laird).**
   Analysis: This project is required to comply with the Model Water Efficient Landscape Ordinance, per Assembly Bill 1881.

2. **Municipal Strategies - Urban Forestry (UF) *UF-2:* The City of Manteca will consider the following goals and actions when revising its urban forestry program:**
   - **Increase public and private tree plantings citywide**
   - **Use canopy trees along new major roadways and in new developments**

   Analysis: This project will increase the City's tree canopy by installing approximately 44 new trees throughout the site, including along Lathrop Road and Union Road.

ENVIRONMENTAL REVIEW

This project has been determined to not be subject to the requirements of the California Environmental Quality Act (CEQA) per Section 15332, *In-Fill Development Projects*. It meets the *In-Fill Development Projects* exemption because the project will be consistent with the C General Plan land use designation and the CN zone. The project is on less than

5 acres (1.98 acres), and is completely surrounded by urban uses. The site does not have value as a habitat for endangered, rare, or threatened species, but will follow all requirements from SJCOG-Multi-Species Conservation Plan. Lastly, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality, as this project completed a traffic study, noise impact study, and air quality study, and found the project will have less than significant impacts, and the project will follow all applicable standards and requirements, and as approved and conditioned, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality. The site can be adequately served by all required utilities and public services. Therefore, no further environmental review is required.

Report prepared by: Mallorie Fenrich, Senior Planner

Attachments:

1. Planning Commission Resolution No. 1651
   2a. Exhibit A – Approved Plan Set
   2b. Exhibit B - Conditions Of Approval
2. Traffic Impact Analysis from TJW Engineering, Inc.
3. Noise Impact Study from MD Acoustics
4. Air Quality and Greenhouse Gas Assessment from Salem Engineering Group, Inc.
5. PowerPoint Presentation

Approved by:

/s/ 03/12/24

Lea C. Simvoulakis, Deputy Director - Planning Date

City of Manteca

PLANNING COMMISSION RESOLUTION NO. 1651

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MANTECA, STATE OF CALIFORNIA, MAKING FINDINGS AND RECOMMENDING THE CITY COUNCIL APPROVE A GENERAL PLAN AMENDMENT, SITE PLAN & DESIGN REVIEW APPLICATION, AND MINOR USE PERMIT, AND RECOMMENDING THE CITY COUNCIL INDRODUCE BY TITLE ONLY AND WAIVE THE FIRST READING OF AN ORDINANCE APPROVING A REZONE FOR THE CROSSROADS PLAZA PROJECT AT 2064 NORTH UNION ROAD (APN: 216-020-01), WHICH IS FOUND TO BE EXEMPT FROM CEQA ENVIRONMENTAL REVIEW PURSUANT TO 14 CAL. CODE REGS. § 15332, IN-FILL EXEMPTION
(FILE NOS. GPA 22-04, REZ 22-05, SPC 22-07, & UPN 22-08)

WHEREAS, the Manteca Planning Commission, at its duly noticed public hearing on March 21, 2024, considered a General Plan Amendment, Rezone, Commercial Site Plan & Design Review, and Minor Use Permit for the Crossroads Plaza Project at 2064 North Union Road (APN: 216-020-01), as filed by Grey Peak Development, LLC; James Allen & Tenea Davis; 1925 Village Center Circle, Suite # 150, Las Vegas, NV 89134; and

WHEREAS, pursuant to Section 17.08.060 of the Manteca Municipal Code, the City Council is the final decision-making body for the actions and the Planning Commission is the recommending body; and

WHEREAS, the project is a commercial development consisting of a 6,816-square-foot Auto Zone auto parts store and a 12-pump gas station with a 5,200-square-foot Circle K convenience store on 1.98 acres at 2064 North Union Road; and

WHEREAS, the approved project plans are attached as **Exhibit A**; and

WHEREAS, the project Conditions of Approval are attached as **Exhibit B**; and

WHEREAS, the current General Plan land use designation for the project site is High Density Residential (HDR), but will be redesignated to Commercial (C) as part of the General Plan Update. This project is requesting a General Plan Amendment because it is requesting approval prior to the General Plan Update being approved, and therefore the new designation of C is not yet memorialized. The proposed project will be consistent with the uses allowed in the C designation; and

WHEREAS, the current zone for the project is Multiple-Family Dwelling (R-3), but the project is requesting a rezone to Neighborhood Commercial (CN) prior to the City Zoning Map Update, which will follow shortly after the General Plan Update is approved. This rezone will

ensure consistency with the new General Plan land use designation. The proposed project will be consistent with the uses allowed in the CN zone; and

WHEREAS, the project is consistent with land use policies of the General Plan in that the project's design reinforces acceptable urban design, acceptable quality development, and a compact City form, promotes infill development; and,

WHEREAS, the project is consistent with community design goals and policies of the General Plan in that this development includes quality contemporary architecture with an acceptable level of visual interest, and will also include a strong tree canopy and landscape plan to upgrade and enhance the visual quality of Lathrop Road and Union Road; and

WHEREAS, the project is consistent with the City's Climate Action Plan in that the proposed project will conform to all applicable Model Water Efficiency Landscape requirements (MWELO) and it will install many new trees; and

WHEREAS, the project has been determined to not be subject to the requirements of the California Environmental Quality Act (CEQA) per Section 15332, *In-Fill Development Projects* because the project will be consistent with the C General Plan land use designation and CN zone. The project is on less than 5 acres (1.98 acres) and completely surrounded by urban uses. The site does not have value as a habitat for endangered, rare, or threatened species, but will follow all requirements from SJCOG-Multi-Species Conservation Plan. Lastly, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality, as this project completed a traffic study, noise impact study, and air quality study, and found the project will have less than significant impacts, and the project will follow all applicable standards and requirements and as approved and conditioned, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality. The site can be adequately served by all required utilities and public services. Therefore, no further environmental review is required; and

WHEREAS, the Planning Commission has considered all information related to this matter, as presented at a public meeting, including any supporting reports by City Staff, and any information provided during public meetings.

NOW, THEREFORE, BE IT RESOLVED, that the Manteca Planning Commission, pursuant to the Manteca Municipal Code, upon evidence in the staff report and project file, makes the following findings to support the recommendation for approval of the General Plan Amendment, Rezone, Site Plan & Design Review, and Minor Use Permit, File Nos. GPA 22-04, REZ 22-05, SPC 22-07 & UPN 22-08.

General Plan Amendment Findings

1. The General Plan Amendment to C produces a benefit to the City in that this designation on this parcel was envisioned as part of the General Plan Update, and the project supports multiple General Plan goals and policies, and the development will provide a benefit by providing commercial goods and services to both residents and visitors, as well as upgrade the visual quality of a prominent intersection in the City.

Rezone Findings

1. The Zoning Amendment to change the zone to CN will ensure the zone is consistent with the General Plan land use designation of C. The project is not part of a Master Plan or Specific Plan. As approved and conditioned, the project is also consistent with other noise, traffic, and air quality requirements established by the City. The project will comply with all other Improvement Standards and any other applicable standards adopted by the City.

2. The proposed rezone has been reviewed and conditioned to ensure it will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity. This was done via a site plan and design review to ensure compliance with the development standards and requirements of the CN zone, as well as a noise impact study, traffic study, air quality and greenhouse gas assessment, and a Phase 1 environmental assessment. The project complies with all applicable development standards of the CN zone, and will comply with all performance standards to ensure compatibility with the neighboring uses.

3. This project has been determined to not be subject to the requirements of the California Environmental Quality Act (CEQA) per Section 15332*, In-Fill Development Projects*. It meets the *In-Fill Development Projects* exemption because the project will be consistent with the C General Plan land use designation and CN zoning. The project is on less than 5 acres (1.98 acres) and is completely surrounded by urban uses. The site does not have value as a habitat for endangered, rare, or threatened species, but will follow all requirements from SJCOG- Multi-Species Conservation Plan. Lastly, approval of the project will not result in any significant effects relating to traffic, noise, air quality, or water quality, as this project completed a traffic study, noise impact study, and air quality study and found less than significant impacts, and the project will follow all applicable standards and requirements.

4. The site is relatively flat and therefore suitable for a commercial development. As described above, it has been thoughtfully reviewed to ensure compatibility with the neighboring residential uses.

Site Plan & Design Review Findings

1. The project is consistent with the General Plan land use designation of C and the CN zone, as discussed above. The project is not part of a Master Plan or Specific Plan. As approved and conditioned, the project is also consistent with other noise, traffic, and air quality requirements established by the City. The project will comply with all other Improvement Standards and any other applicable standards adopted by the City.

2. The project was reviewed to ensure it will not create conflicts with vehicular, bicycle, or pedestrian modes of transportation. A traffic analysis was conducted to ensure all movements on site are being performed safely.

3. As reviewed and conditioned, this project will be compatible with and complement the existing surrounding environment as it develops. The project was reviewed with sound

planning principles in mind and meets the standards and requirements of the General Plan and Municipal Code.

4. The architecture, as described above, has a clear design concept, and has been designed to be acceptable at this location.

Minor Use Permit Findings:

1. As described in the project staff report, the project site will have a General Plan Land Use designation of C and will comply with all applicable standards and provisions of the General Plan and Municipal Code. The project is not part of a Specific Plan.

2. The proposed use of a gas station will be consistent with the standards of the CN zoning district, as described above in the Zoning Code Conformance section.

3. The proposed use has been reviewed and conditioned to ensure it will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity. This was done via a site plan and design review, as well as a noise impact study, traffic study, air quality and greenhouse gas assessment, and a Phase 1 environmental assessment. The project complies with all applicable development standards, and will comply with all performance standards to ensure compatibility with the neighboring uses.

4. As described in the project staff report, the use has been reviewed to be consistent with the General Plan and CN zoning district, and will comply with all applicable Improvement Standards, and other applicable standards and regulations adopted by the City. This project is not part of a Master Plan or Specific Plan.

I hereby certify that Resolution No. 1651 was passed and adopted by the Planning Commission of the City of Manteca at a regularly scheduled public hearing held on March 21, 2024, by the following vote:

Roll Call:

AYES:

NOES:

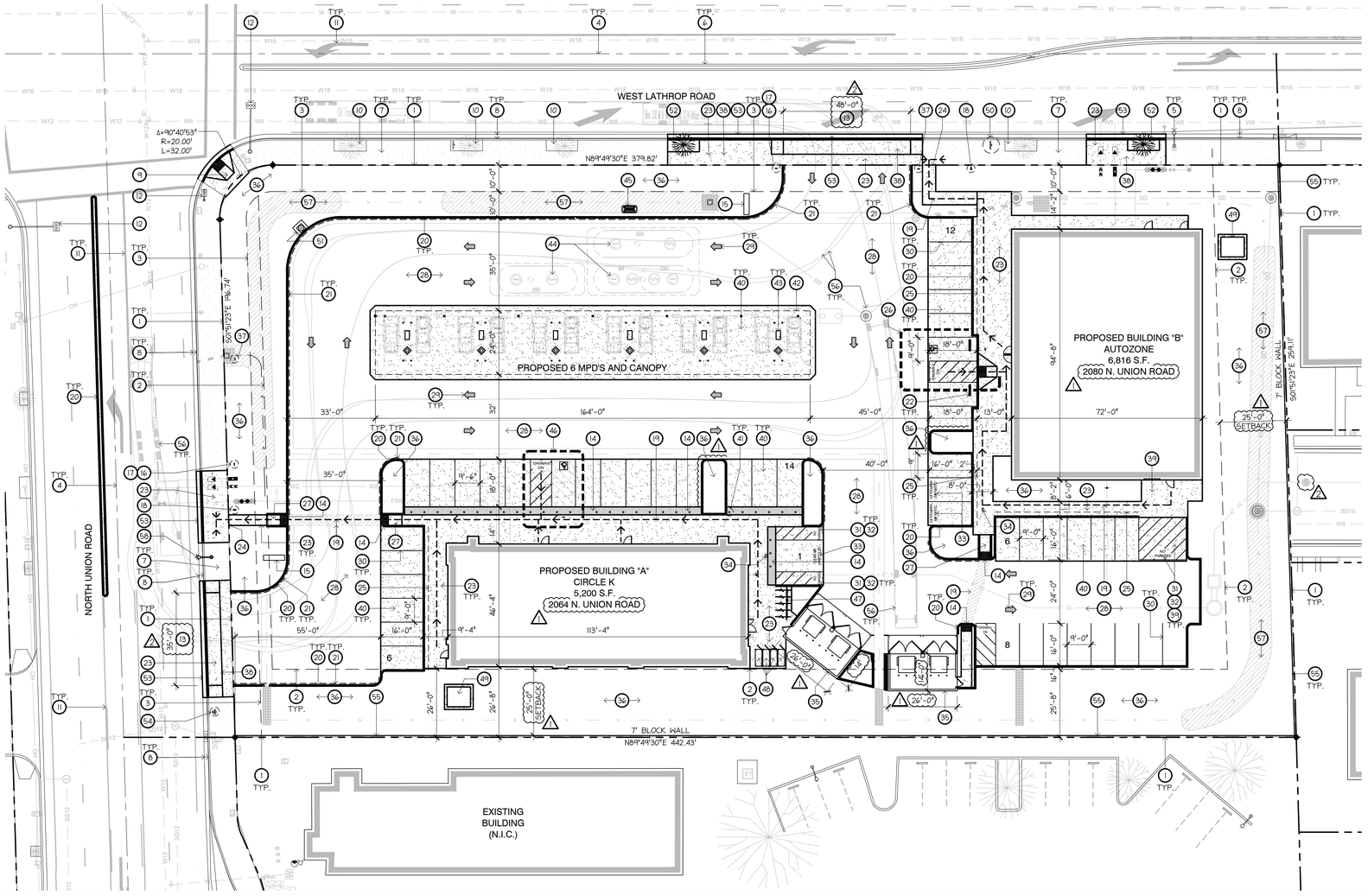
ABSTAIN:

ABSENT:

_____ _____

Chairman Date

Exhibits:
Exhibit A: Approved Plan Set
Exhibit B: Conditions of Approval



PROJECT DATA

PARCEL DATA

A.P.N.:	216-020-01
LAND USE DESIGNATION:	CN (NEIGHBORHOOD COMMERCIAL)
ZONING:	CN
EXISTING LAND AREA	
A.P.N.: 216-020-01	(1.98 ACRES) ±86,249 S.F.
TOTAL GROSS LAND AREA:	(1.98 ACRES) ±86,249 S.F.

BUILDING DATA

BUILDING "A" - CIRCLE K	
GROSS BUILDING AREA:	5,200 S.F.
CONSTRUCTION TYPE:	TYPE V-B
BUILDING OCCUPANCY TYPE:	M (MERCANTILE)
FIRE SPRINKLERS:	YES
FIRE ALARM:	NO
NUMBER OF STORIES:	1
ACTUAL BUILDING HEIGHT:	23'-0"
BUILDING "B" - AUTOZONE	
GROSS BUILDING AREA:	6,816 S.F.
CONSTRUCTION TYPE:	TYPE V-B
BUILDING OCCUPANCY TYPE:	M (MERCANTILE)
FIRE SPRINKLERS:	YES
FIRE ALARM:	NO
NUMBER OF STORIES:	1
ACTUAL BUILDING HEIGHT:	21'-0"

ALLOWABLE BUILDING AREA

BUILDING "A" - CIRCLE K

BUILDING ALLOWABLE AREA IS BASED ON AN OCCUPANCY OF M, THE LOWEST BASIC ALLOWABLE AREA PER TABLE 506.2 OF THE C.B.C. THAT IS ANTICIPATED FOR THIS BUILDING.

ALLOWABLE BUILDING AREA CALCULATION PER C.B.C. EQUATION 5-1:

A_a = 9,000 S.F. > 5,200 S.F. (OKAY)

BUILDING "B" - AUTOZONE

BUILDING ALLOWABLE AREA IS BASED ON AN OCCUPANCY OF M (MERCANTILE), THE LOWEST BASIC ALLOWABLE AREA PER TABLE 506.2 OF THE C.B.C. THAT IS ANTICIPATED FOR THESE BUILDINGS.

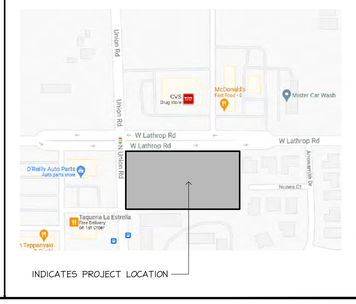
ALLOWABLE BUILDING AREA CALCULATION PER C.B.C. EQUATION 5-1:

A = 36,000 S.F. > 6,816 S.F. (OKAY)

PARKING DATA

TOTAL REQUIRED VEHICLE PARKING STALLS REQUIRED BY ZONING ORDINANCE	
RETAIL, SERVICE, AND OFFICE USES, ALL OTHER COMMERCIAL USES NOT OTHERWISE LISTED (4 PER 1,000 S.F. OF GROSS FLOOR AREA) 4 / 12.016:	48
TOTAL REQUIRED VEHICLE PARKING STALLS:	48
ACCESSIBILITY PARKING REQUIREMENTS	
VAN ACCESSIBLE:	2
CALGREEN VEHICLE PARKING REQUIREMENTS	
CLEAN AIR DESIGNATED PARKING SPACES: (PER CALGREEN SECTION AND TABLE 5.106.5.2)	3
FUTURE EV CHARGING SPACES: (PER CALGREEN SECTION AND TABLE 5.106.5.3.3)	2
FUTURE VAN ACCESSIBLE:	1
CALGREEN BICYCLE PARKING REQUIREMENTS	
SHORT-TERM BICYCLE PARKING: (PER CAL GREEN SECTION 5.106.4.1.1, 2-BIKE MIN.)	48 x .05 = 3
LONG-TERM BICYCLE PARKING: (PER CAL GREEN SECTION 5.106.4.1.2, 1-BIKE MIN.)	48 x .05 = 3
TOTAL PROVIDED VEHICLE PARKING STALLS	
STANDARD:	41
CLEAN AIR/VANPOOL/EV:	3
FUTURE EV CHARGING STATIONS:	2
VAN ACCESSIBLE:	2
TOTAL PROVIDED VEHICLE PARKING STALLS:	47
RATIO OF PARKING SPACES TO FLOOR AREA:	4.08 SPACES PER 1,000 S.F.

VICINITY MAP



GENERAL NOTES

1. SIGNS, OTHER THAN DIRECTIONAL SIGNS, IF APPLICABLE, ARE NOT APPROVED FOR INSTALLATION AS PART OF THIS SPECIAL PERMIT.
2. IF ARCHAEOLOGICAL AND/OR ANIMAL FOSSIL MATERIAL IS ENCOUNTERED DURING PROJECT SURVEYING, GRADING, EXCAVATING, OR CONSTRUCTION, WORK SHALL STOP IMMEDIATELY.
3. IF THERE ARE SUSPECTED HUMAN REMAINS, THE SAN JOAQUIN COUNTY CORONER SHALL BE IMMEDIATELY CONTACTED - IF THE REMAINS OR OTHER ARCHAEOLOGICAL MATERIAL IS POSSIBLY NATIVE AMERICAN IN ORIGIN, THE NATIVE AMERICAN HERITAGE COMMISSION (PHONE: (916) 653-4082) SHALL BE IMMEDIATELY CONTACTED, AND THE CALIFORNIA ARCHAEOLOGICAL INVENTORY/SOUTHERN SAN JOAQUIN VALLEY INFORMATION CENTER (PHONE: (805) 644-2289) SHALL BE CONTACTED TO OBTAIN A REFERRAL LIST OF RECOGNIZED ARCHAEOLOGISTS - AN ARCHAEOLOGICAL ASSESSMENT SHALL BE CONDUCTED FOR THE PROJECT, THE SITE SHALL BE FORMALLY RECORDED, AND RECOMMENDATIONS MADE TO THE CITY AS TO ANY FURTHER SITE INVESTIGATION OR SITE AVOIDANCE/PRESERVATION.
4. IF ANIMAL FOSSILS ARE UNCOVERED, THE MUSEUM OF PALEONTOLOGY, U.C. BERKELEY SHALL BE CONTACTED TO OBTAIN A REFERRAL LIST OF RECOGNIZED PALEONTOLOGISTS - AN ASSESSMENT SHALL BE CONDUCTED BY A PALEONTOLOGIST AND, IF THE PALEONTOLOGIST DETERMINES THE MATERIAL TO BE SIGNIFICANT, IT SHALL BE PRESERVED.
5. ANY SURVEY MONUMENTS WITHIN THE AREA OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A PERSON LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF CALIFORNIA.
6. TWO WORKING DAYS BEFORE COMMENCING EXCAVATION OPERATIONS WITHIN THE STREET RIGHT-OF-WAY AND/OR UTILITY EASEMENTS, ALL EXISTING UNDERGROUND FACILITIES SHALL HAVE BEEN LOCATED BY UNDERGROUND SERVICES ALERT (USA) CALL 1-800-642-2444.
7. ALL EXISTING SIDEWALKS IN EXCESS OF 2% MAXIMUM CROSS SLOPE MUST BE BROUGHT INTO COMPLIANCE PRIOR TO ACCEPTANCE BY PUBLIC WORKS.
8. ALL EXTERIOR DOORS, DURING THE HOURS OF DARKNESS, SHALL BE ILLUMINATED WITH A MINIMUM OF 0.5 FOOT-CANDLE OF LIGHT.
9. NO USE SHALL BE OPERATED SUCH THAT SIGNIFICANT, DIRECT GLARE, INCIDENTAL TO THE OPERATION OF THE USE IS VISIBLE BEYOND THE BOUNDARIES OF THE PROPERTY WHERE THE USE IS LOCATED.
10. DIRECT OR SKY-REFLECTED GLARE FROM FLOODLIGHTS SHALL NOT BE DIRECTED INTO ANY OTHER PROPERTY OR STREET.
11. NO LIGHT OR COMBINATION OF LIGHTS, OR ACTIVITY SHALL CAST LIGHT EXCEEDING ONE FOOT CANDLE ONTO A PUBLIC STREET, WITH THE ILLUMINATION LEVEL MEASURED AT THE CENTERLINE OF THE STREET - NO LIGHT, COMBINATION OF LIGHTS, OR ACTIVITY SHALL CAST LIGHT EXCEEDING 0.5 FOOT CANDLE ONTO A RESIDENTIALLY ZONED PROPERTY, OR ANY PROPERTY CONTAINING RESIDENTIAL USES.
12. THE FOLLOWING TYPES OF EXTERIOR LIGHTING ARE PROHIBITED: DROP-DOWN LENSES; MERCURY VAPOR LIGHTS; SEARCHLIGHTS, LASER LIGHTS, OR ANY OTHER LIGHTING THAT FLASHES, BLINKS, ALTERNATES, OR MOVES.
13. FIRE HYDRANTS AND ACCESS ROADS SHALL BE INSTALLED, TESTED, AND APPROVED AND SHELL BE MAINTAINED SERVICEABLE PRIOR TO AND DURING ALL PHASES OF DEVELOPMENT - THE 4-1/2" OUTLET SHALL FACE THE ACCESS LANE.
14. ALL ACCESSIBLE PARKING STALLS SHALL BE PLACED ADJACENT TO FACILITY ACCESS RAMPS OR IN STRATEGIC AREAS WHERE THE HANDICAPPED SHALL NOT HAVE TO WHEEL OR WALK BEHIND PARKED VEHICLES WHILE TRAVELING TO OR FROM ACCESSIBLE PARKING STALLS AND RAMPS.
15. THE REQUIRED 4' MINIMUM PATH OF TRAVEL SHALL BE PROVIDED ALONG THE PUBLIC SIDEWALK DIRECTLY IN FRONT OF THE PROPERTY, AS REQUIRED BY THE CALIFORNIA ADMINISTRATION CODE (TITLE 24) - A PEDESTRIAN EASEMENT MAY BE REQUIRED IF REQUIREMENTS ARE NOT MET.

KEYED NOTES

1. DASHED LINES INDICATE EXISTING PROPERTY LINE.
2. DASHED LINES INDICATE EXISTING BUILDING SETBACK.
3. DASHED LINES INDICATE EXISTING 10'-0" RIGHT-OF-WAY DEDICATION. ⚠1
4. DASHED LINES INDICATE EXISTING STREET CENTERLINE.
5. EXISTING STREET LIGHT TO REMAIN.
6. EXISTING MEDIAN TO REMAIN.
7. EXISTING PUBLIC SIDEWALK TO REMAIN.
8. EXISTING PUBLIC CURB AND/OR GUTTER TO REMAIN.
9. EXISTING PUBLIC CURB CUT RAMP TO BE REMOVED AND REPLACED WITH A NEW ADA COMPLIANT RAMP - SEE CIVIL PLANS.
10. EXISTING TREE WELL TO REMAIN.
11. EXISTING STREET STRIPING TO REMAIN.
12. EXISTING TRAFFIC SIGNAL TO REMAIN.
13. NEW CONCRETE DRIVE APPROACH PER CITY OF MANTECA PUBLIC WORKS STANDARDS.
14. NEW PUBLIC TRUNCATED DOMES PER CITY OF MANTECA PUBLIC WORKS STANDARDS.
15. NEW MONUMENT SIGNAGE UNDER SEPARATE SUBMITTAL AND PERMIT.
16. NEW POLE MOUNTED TOW-AWAY SIGNAGE PER CITY OF MANTECA STANDARDS.
17. NEW SIGN(S) (17" x 22" MINIMUM) AT ALL PUBLIC ENTRANCE DRIVES TO THE PROPERTY WHICH STATE "WARNING - VEHICLES STOPPED, PARKED, OR LEFT STANDING IN FIRE LANES WILL BE IMMEDIATELY REMOVED AT OWNER'S EXPENSE - 22658(a) CALIFORNIA VEHICLE CODE.
18. NEW POLE MOUNTED DOUBLE SIDED ACCESSIBLE DIRECTIONAL SIGNAGE.
19. DASHED LINES INDICATE REQUIRED ACCESSIBLE ROUTE AS SHOWN - THE ACCESSIBLE ROUTE AS DELINEATED IS A BARRIER-FREE ROUTE 48" MINIMUM IN WIDTH WITH NO ABRUPT LEVEL CHANGES EXCEEDING 1/2" UNLESS BEVELED AT A 1:2 MAXIMUM SLOPE, AND NO VERTICAL LEVEL CHANGES EXCEEDING 1/4" - THE CROSS SLOPE DOES NOT EXCEED 2.00% AND SLOPE IN THE DIRECTION OF TRAVEL DOES NOT EXCEED 5.00% (EXCEPT AT DOOR LANDINGS, WHICH THE SLOPE IN THE DIRECTION OF TRAVEL SHALL NOT EXCEED 2.00%) - THE SURFACE IS FIRM, STABLE, AND SLIP RESISTANT - THE ACCESSIBLE ROUTE IS FREE OF OVERHANGING OBSTRUCTIONS BELOW 80" AND OBJECTS PROTRUDING GREATER THAN 4" FROM A WALL ABOVE 27" AND BELOW 80".
20. NEW 6" HIGH AND 6" DEEP CONCRETE CURB PER CITY OF MANTECA STANDARDS.
21. DASHED LINES INDICATE NEW FIRE LANE STRIPING OVER NEW CONCRETE CURB AND/OR AC DIKE - CURBS ADJACENT TO OPEN DRIVES OVER 20'-0" LONG SHALL BE PAINTED RED WITH 4" HIGH PAINTED WHITE LETTERING STATING "NO PARKING - FIRE LANE" OCCURRING APPROXIMATELY EVERY 50'-0".
22. NEW 6" HIGH CONCRETE WHEEL STOP PER CITY OF MANTECA STANDARDS.
23. NEW CONCRETE FLATWORK - CONCRETE FLATWORK SHALL NOT EXCEED MAXIMUM SLOPE IN ANY DIRECTION. ⚠1
24. NEW CONCRETE FLATWORK MEETS EXISTING CONCRETE FLATWORK.
25. DASHED LINES INDICATE REQUIRED 2'-0" DEEP VEHICULAR OVERHANG - THERE SHALL BE NO OBSTRUCTIONS OVER 6" HIGH ALLOWED WITHIN A VEHICULAR OVERHANG.
26. NEW ACCESSIBLE PARKING STALLS, CONCRETE CURB CUT RAMPS, CONCRETE PAVING, CONCRETE WHEEL STOPS, SIGNAGE, LOADING/UNLOADING ZONES, TRUNCATED DOMES, AND STRIPING/ISA' SYMBOLS.
27. DASHED LINES INDICATE NEW ACCESSIBLE CONCRETE CURB CUT RAMP.
28. NEW AC PAVING PER CITY OF MANTECA STANDARDS.
29. NEW DIRECTIONAL ARROW STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS.
30. NEW 4" WIDE STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS.
31. NEW 4" WIDE STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS ALONG PERIMETER WITH PAINTED WHITE INFILL STRIPING AT 45 DEGREES AND AT 36" ON CENTER MAXIMUM.
32. NEW 12" HIGH LETTERS PAINTED TRAFFIC WHITE STATING "NO PARKING" AS SHOWN.
33. NEW 12" HIGH LETTERS PAINTED WHITE STATING "CLEAN AIR/VANPOOL/EV" AS SHOWN - THE FOLLOWING CHARACTERS SHALL BE PAINTED IN SUCH A MANOR THAT THE LOWER EDGE OF THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED VEHICLE - THESE DESIGNATED PARKING STALLS ARE FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT, AND CARPOOL/VAN POOL VEHICLES PER CAL GREEN SECTION 5.106.5.2 - SEE "PARKING DATA" SECTION ON THIS SHEET.
34. NEW ELECTRICAL RACEWAY FOR FUTURE ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).
35. NEW C.M.U. BLOCK TRASH AND RECYCLING ENCLOSURE PER CITY OF MANTECA STANDARDS.
36. NEW LANDSCAPE AREA.
37. NEW 30 INCH STATE STANDARD "STOP" SIGN(S) AT LOCATION(S) SHOWN.
38. EXISTING APPROACHES TO BE REMOVED AND REPLACED WITH CURB, GUTTER AND SIDEWALK TO MATCH EXISTING IMPROVEMENTS.
39. NEW HEAVY DUTY CONCRETE FOR DELIVERY AREA.
40. NEW LIGHT DUTY CONCRETE FOR PARKING AREA.
41. NEW BOLLARD - CONFIRM FINAL LOCATIONS AND PAINT COLOR SELECTIONS PER TENANT IMPROVEMENT PLANS.
42. DASHED LINES INDICATE NEW GAS PUMP CANOPY.
43. NEW GAS PUMPS.
44. DASHED LINES INDICATE NEW IN-GROUND GAS STORAGE TANKS.
45. NEW VENT RACK.
46. NEW ACCESSIBLE PARKING STALLS, CONCRETE PAVING, SIGNAGE, LOADING / UNLOADING ZONES, TRUNCATED DOMES, AND STRIPING/ISA' SYMBOLS.
47. NEW SURFACE MOUNTED "MADRAX" HK238-5-SF 5 BIKE SPACES "HEAVY DUTY WINDER" BICYCLE RACK OR OWNER APPROVED EQUAL - GENERAL CONTRACTOR SHALL CONFIRM ALL ADDITIONAL ACCESSORIES PRIOR TO ORDERING.
48. NEW "GROUND CONTROL SYSTEMS" FBVI FIBERGLASS BICYCLE VAULT BIKE LOCKER (TYPICAL OF 4) - THIS LOCKER ACCOMMODATES ONE BIKE AND IS LOCKABLE - INSTALL PER MANUFACTURERS REQUIREMENTS.
49. NEW ELECTRICAL TRANSFORMER.
50. NEW LOCATION OF RE-LOCATED SIGN.
51. NEW AIR AND WATER STATION.
52. NEW TREE WELL AND NEW TREE PER CITY OF MANTECA STANDARDS.
53. NEW CONCRETE GUTTER.
54. EXISTING FIRE HYDRANT TO REMAIN.
55. NEW 7'-0" TALL C.M.U. BLOCK WALL PER CITY OF MANTECA STANDARDS.
56. CONTINUOUS AND/OR DASHED LINES INDICATE TRUCK TURNING TEMPLATE.
57. DASHED LINES AND HATCHING INDICATE NEW BIOSWALE - SEE CIVIL PLANS. ⚠1 ⚠2
58. RELOCATED STREET LIGHT.

PROPOSED SITE PLAN

ATTACHMENT 6

CENTERLINE DESIGN, LLC
PLANNING - DESIGN - CONSULTING
1508 TOLLHOUSE ROAD, SUITE 'C'
CLOVIS, CALIFORNIA 93611
559-298-3060 (OFFICE)
559-298-3267 (FAX)

PROJECT:
COMMERCIAL DEVELOPMENT FOR:
CROSSROADS PLAZA
2064 NORTH UNION ROAD
MANTECA, CALIFORNIA 95336

STATUS

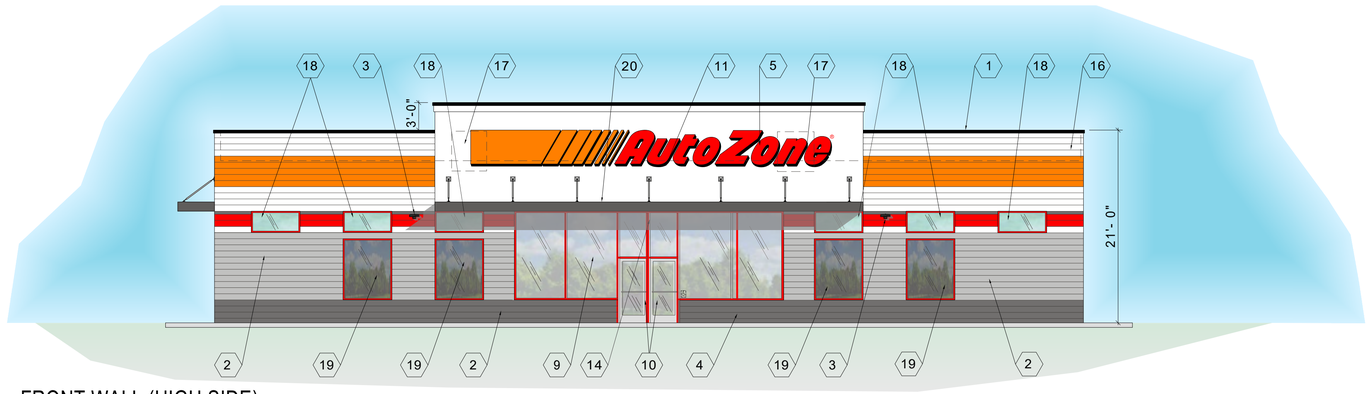
Current Release Date
12-27-23
Planning Submittal
12-13-21
Plan Check Submittal
--

REVISIONS

⚠1 CITY OF MANTECA CUP CONDITIONS OF APPROVAL DATED: 05-13-22
⚠2 CITY OF MANTECA ENGINEERING COMMENTS DATED: 07-11-23
⚠
⚠
⚠

IDENTIFICATION

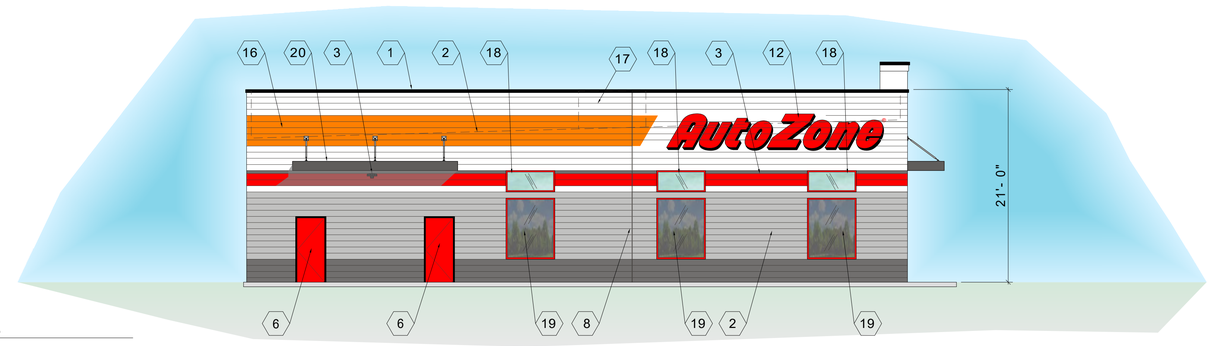
Scale
1" = 20'-0"
Project Coordinator
CHRIS WARD
Project No.
19-157
Sheet
A-0.0



FRONT WALL (HIGH SIDE)

Scale 1/8"=1'-0" 0 4' 8' 16'

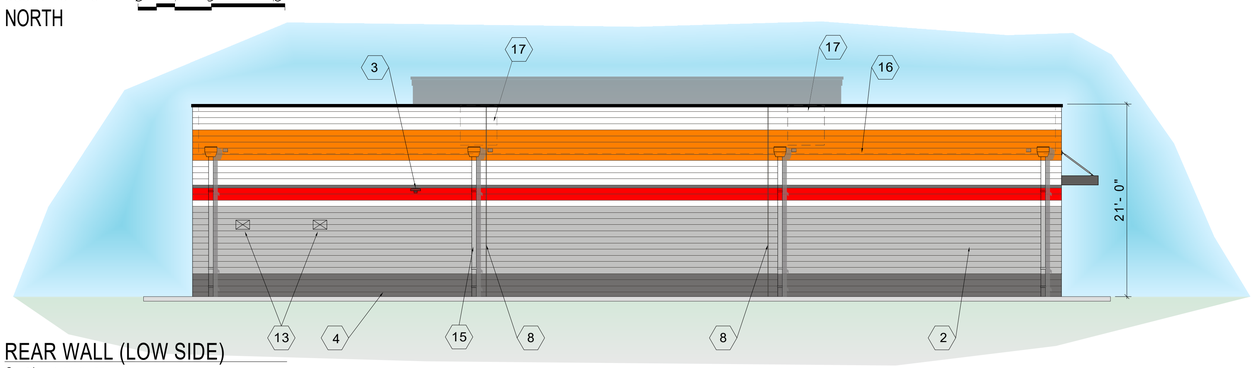
WEST



LEFT SIDE WALL

Scale 1/8"=1'-0" 0 4' 8' 16'

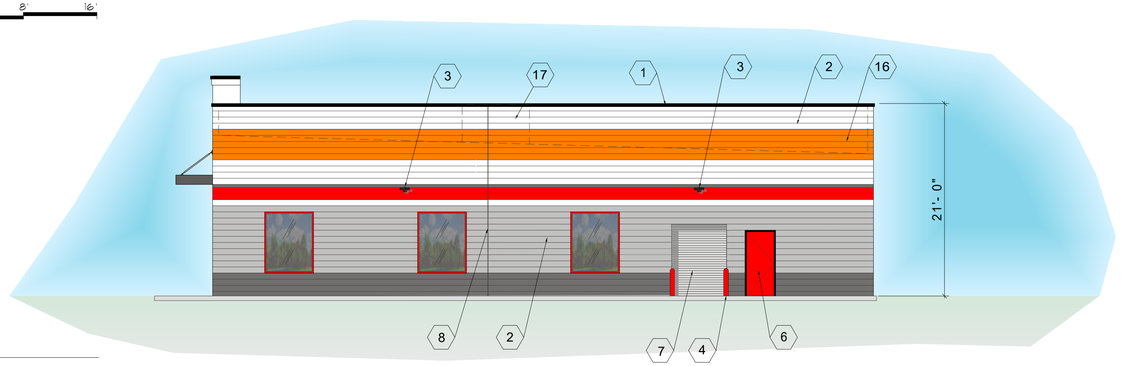
NORTH



REAR WALL (LOW SIDE)

Scale 1/8"=1'-0" 0 4' 8' 16'

EAST



RIGHT SIDE WALL

Scale 1/8"=1'-0" 0 4' 8' 16'

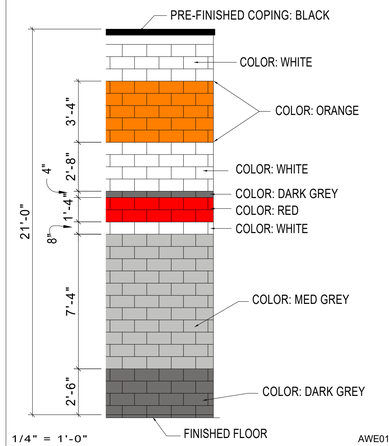
SOUTH

1 TWO PIECE COMPRESSION TRIM SEE DETAIL 4/A6
2 SMOOTH FACE CONCRETE MASONRY UNITS SEE PAINT DETAIL SCHEME THIS SHEET
3 WALL MOUNTED LIGHT FIXTURE. MOUNT AT 11'-10 T.O.F.
4 PIPE GUARD WITH RED SLEEVE
5 EXTERIOR INSULATED FINISH, PAINT: SW6091 RELIABLE WHITE
6 PAINT MAN DOOR RED & METAL FRAMES BLACK
7 DO NOT PAINT OVERHEAD DOOR PAINT ANGLES BLACK
8 EXPANSION JOINT
9 ALUMINUM STOREFRONT - RED KYNAR FINISH
10 GLASS AND ALUMINUM DOORS - CLEAR ANODIZED FINISH
11 FRONT WALL SIGN - 44" Channel Letters - LEFT STRIPES
12 LEFT WALL SIGN - 44" Channel Letters - AZ ONLY
13 TOILET WALL VENTS PAINT TO MATCH WALL
14 STORE ADDRESS - 6" WHITE REFLECTIVE NUMBERS
15 SCUPPERS AND DOWNSPOUTS. PAINTED TO MATCH BACKGROUND WALL COLOR. ADJACENT 4" H. X 6" W. OVERFLOW SCUPPER. FLOWLINE 2" ABOVE ROOF.
16 BOND BEAM AT ROOF LINE
17 HVAC UNITS SCREENED BY PARAPETS
18 CLERESTORY WINDOW - EVERGREEN GLASS
19 FAUX WINDOW - OPAQUE BLACK GLASS
20 4' METAL AWNING - COLOR BLACK

AWN01W

2 ELEVATION KEY NOTES

NOTE: CENTER ALL WALL SIGNAGE VERTICALLY ON THE PAINTED ORANGE STRIPE OR THE TOP TWO BRICK SOLDIER COURSES. PAINT ORANGE STRIPE TO WITHIN 2' OF WALL SIGN. DO NOT PAINT ORANGE STRIPE BEHIND SIGN. CONTINUE ORANGE STRIPE ON E.I.F.S. ABOVE STOREFRONT.



1/4" = 1'-0" AWE01

3 EXTERIOR WALL COLOR SCHEME

ATTACHMENT 6

REVISIONS			
1	04-29-22	4	
2		5	
3		6	

AutoZone Store No. 6158
UNION @ LATHROP
MANTECA CA 95336

EXTERIOR COLOR ELEVATIONS AND KEYNOTES

ARCHITECTURAL GROUP INTERNATIONAL
15 West Seventh Street, Covington, KY 41011
P: 859.261.5400 F: 859.261.5530
www.agi-us.com
designing where you want to

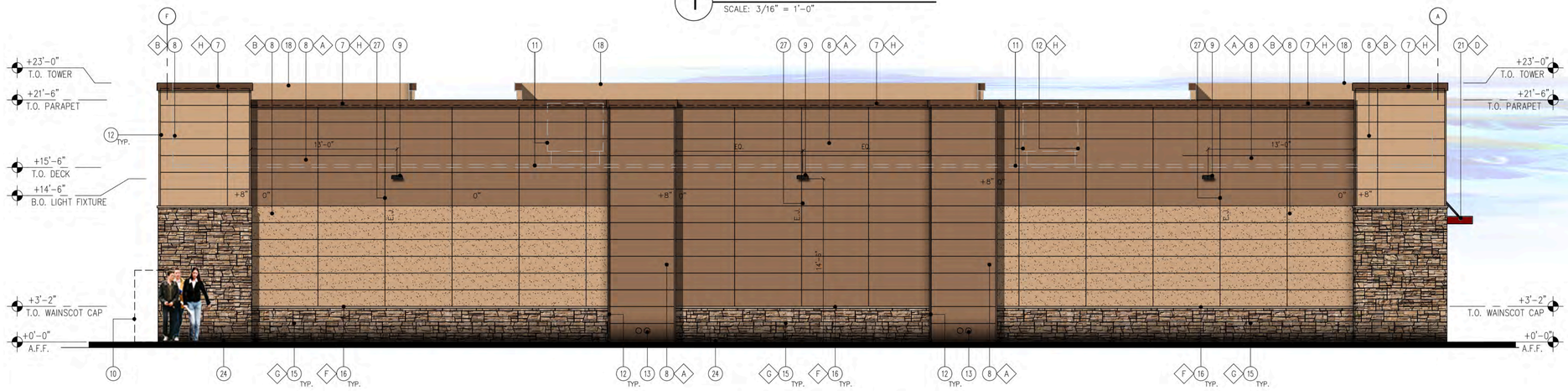
09-07-21

65W2-R

CE

1 FRONT ELEVATION (NORTH)

SCALE: 3/16" = 1'-0"



2 BACK ELEVATION (SOUTH)

SCALE: 3/16" = 1'-0"

3 SIDE ELEVATION (WEST)

SCALE: 3/16" = 1'-0"

4 SIDE ELEVATION (EAST)

SCALE: 3/16" = 1'-0"

KEY NOTES (X)

1. REMOVE EXTERIOR PULL HANDLE FROM THE 'EXIT DOOR', PLUG/CAP HOLES
2. LINE OF CANOPY / SOFFIT
3. DARK BRONZE ANODIZED WINDOW FRAME W/ GRAY TINTED GLASS PER SOLARBAN SOLARGRAY SPECS
4. POTENTIAL SIGN LOCATION (UNDER SEPARATE PERMIT)
5. DARK BRONZE ANODIZED DOOR W/ GRAY TINTED GLASS STOREFRONT SYSTEM
6. SERVICE DOOR, PAINT TO MATCH SURROUNDING WALL
7. PRE-FINISHED METAL COPING
8. NICHIHA FIBER CEMENT WALL PANEL SYSTEM
9. WALL MOUNTED LIGHT FIXTURE, COLOR: BRONZE.
10. SES PANEL LOCATION.
11. ROOF LINE AND HVAC UNITS
12. 1-1/2" NICHIHA CORNER KEY EDGE, TYP. TO ALL CORNERS
13. ROOF DRAIN LEADER AND TAIL OVERFLOW DRAIN TO DAYLIGHT AT SIDEWALK CURB
14. ADDRESSING LOCATION: 8" TALL INCH BLACK NUMBERS. FINAL AREA LOCATION TO BE DETERMINED BY FIRE DEPARTMENT.
15. 1 3/8" THK. X 6" NICHIHA KURASTONE HIGH FIBER CEMENT WAINSCOT
16. 1-1/2" HIGH NICHIHA FIBER CEMENT CAP INSTALL PER MFR. SPECS.
17. NICHIHA ESSENTIAL OVERHANG FLASHING, SEE DETAIL 2/A8.3
18. PARAPET WALL BEYOND
19. (KNOX) KEY-BOX AT 6'-0" AFF (IF REQUIRED BY FIRE DEPARTMENT)
20. FIRE DEPARTMENT CONNECTION (IF REQUIRED)
21. ALUMINUM AWNING WITH SUPPORT RODS ABOVE THE SIDE ENTRY DOOR BY CIRCLE K VENDOR. PROVIDE BLOCKING IN EXTERIOR WALL FOR AWNING AND SUPPORTS
22. EMERGENCY FUEL SHUT-OFF SWITCH
23. INSULATED METAL DOOR
24. NICHIHA ESSENTIAL "STARTER" FLASHING
25. CO2 TANK WITH METAL LOUVERED CONTAINER
26. EXTERIOR FINISH TO EXTEND ABOVE SIDEWALK/GRADE.
27. CONTROL/EXPANSION JOINT "E.J." LOCATION
28. DIRECTIONAL VINYL DECALS BY GRAPHICS VENDOR, TYP.
29. PLANTING TRELLIS
30. ALUMINUM CANOPY WITH SUPPORT RODS BY CIRCLE K VENDOR. PROVIDE BLOCKING IN EXTERIOR WALL FOR CANOPY AND SUPPORTS.

FINISH SCHEDULE (X)

- A – ***NICHIHA TUFF BLOCK – COLOR TO MATCH #SW 6095 TOASTY
- B – ***NICHIHA TUFF BLOCK – COLOR TO MATCH #SW 6115 TOTALLY TAN
- C – 1" INSULATED, DOUBLE PANED GRAY TINTED GLASS
- D – *SHERWIN WILLIAMS #SW 4081 – **SAFETY RED
- E – *SHERWIN WILLIAMS #SW 7005 – CIRCLE K WHITE
- F – ***NICHIHA CHISELED SILL TAN
- G – ***NICHIHA LEDGESTONE BLUFF
- H – *SHERWIN WILLIAMS #SW 6090 – JAVA – FIRESTONE MANSARD BROWN SR (USE FOR PRE-FINISHED METAL COPING)
- I – CIRCLE K ORANGE #PMS 144
- J – ***NICHIHA TUFF BLOCK – COLOR TO MATCH #SW 4081

* USE SHERWIN WILLIAMS MANUFACTURER ONLY
** COLOR TO BE PRE-ORDERED TO ENSURE AVAILABILITY AT TIME OF CONSTRUCTION
*** PURCHASED BY CIRCLE K/INSTALLED BY G.C.
G.C. TO COORDINATE WITH CK PM AND OWNER'S REP circlek@nichiha.com

30 Executive Park
Suite 100
Irvine, CA 92614
t: 949 296 0450

CIRCLE K STORES INC.
255 E. Rincon St. Ste 100
Corona, California 92879
t: (866) 371-2205

LAND DEVELOPMENT CONSULTANTS, LLC
3281 E. Guasti Rd. Suite #700
Ontario, California 91761
t: (909) 974-8422

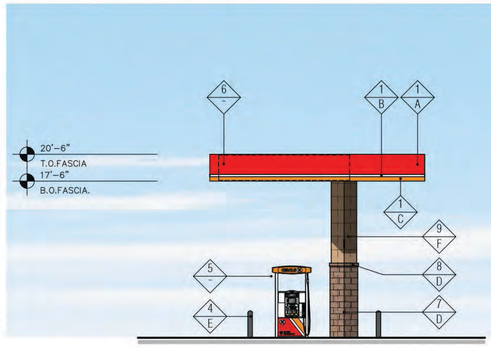
CIRCLE K
2064 N. UNION ROAD
MANTECA,CA
20190372.0

BUILDING EXTERIOR ELEVATIONS - 5200ER

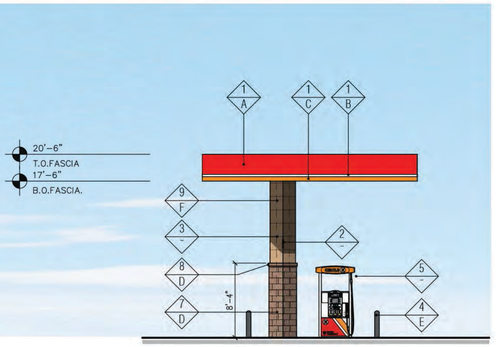
SCALE: AS NOTED

A-2

5/09/2022



3 "SIDE" ELEVATION (WEST)
SCALE: 1/8" = 1'-0"

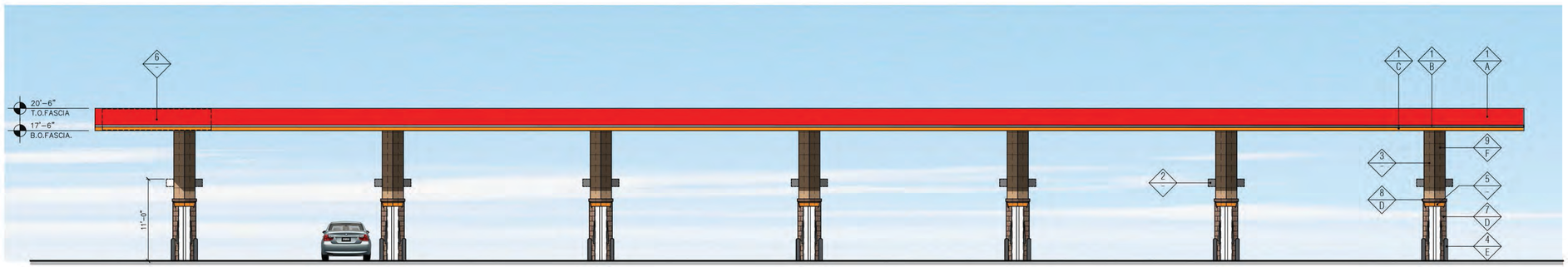


4 "SIDE" ELEVATION (EAST)
SCALE: 1/8" = 1'-0"

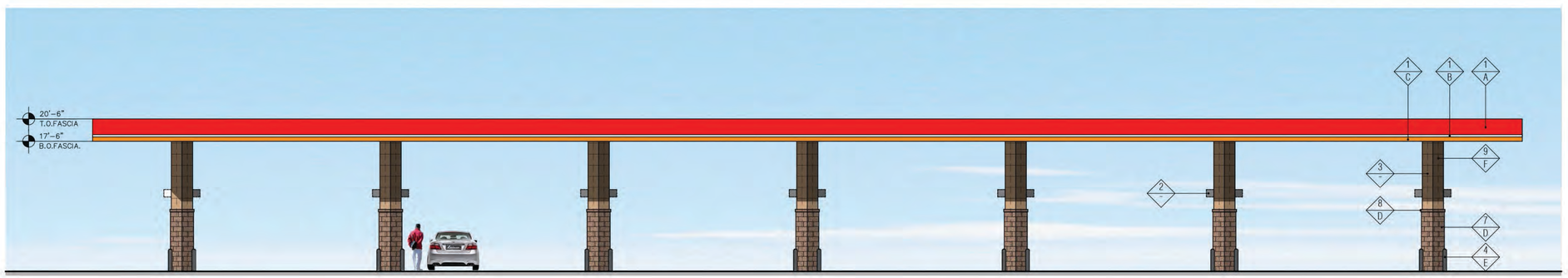
FINISH SCHEDULE

	FINISH MATERIAL
1	ACM PANEL
2	COLUMN FLAGS BY SIGNAGE VENDOR
3	LINE OF STEEL COLUMN WITHIN
4	6" Ø BOLLARD, 36" HIGH
5	FUEL PUMP
6	POTENTIAL SIGN LOCATION (UNDER SEPARATE PERMIT)
7	4X8X16 CMU VENEER, SPLIT FACE, GROUTED TO MATCH CMU COLOR
8	4X8X8 SOLID CMU CAP, INSTALL PER MFR. SPECS.
9	NICHIHA FIBER CEMENT WALL PANEL SYSTEM
10	6" DEEP X 3" HIGH, 0.40 ALUM. LED HOOD
	FINISH COLOR
A	CIRCLE K RED #PMS 485
B	CIRCLE K WHITE
C	CIRCLE K ORANGE #PMS 144
D	SUPERLITE BLOCK SPLITFACE CMU - "BOOT BROWN"
E	PVC BOLLARD SLEEVE "DARK GRAY"
F	NICHIHA TUFF BLOCK - COLOR TO MATCH SHERWIN WILLIAMS - SW6115 - TOTALLY TAN

Notes:
1. Colors shown on these elevations are for illustration purposes only. For actual colors, refer to manufacturer's samples.
2. The fascia panels are pre-finished by signage vendor
3. All signs require a separate submittal.
4. All lighting on canopy to be flush mounted with fascia



2 "FRONT" ELEVATION (NORTH)
SCALE: 1/8" = 1'-0"



1 "REAR" ELEVATION (SOUTH)
SCALE: 1/8" = 1'-0"

30 Executive Park
Suite 100
Irvine, CA 92614
t: 949 296 0450

CIRCLE K STORES INC.
255 E. Rincon St. Ste 100
Corona, California 92879
t: (866) 371-2205

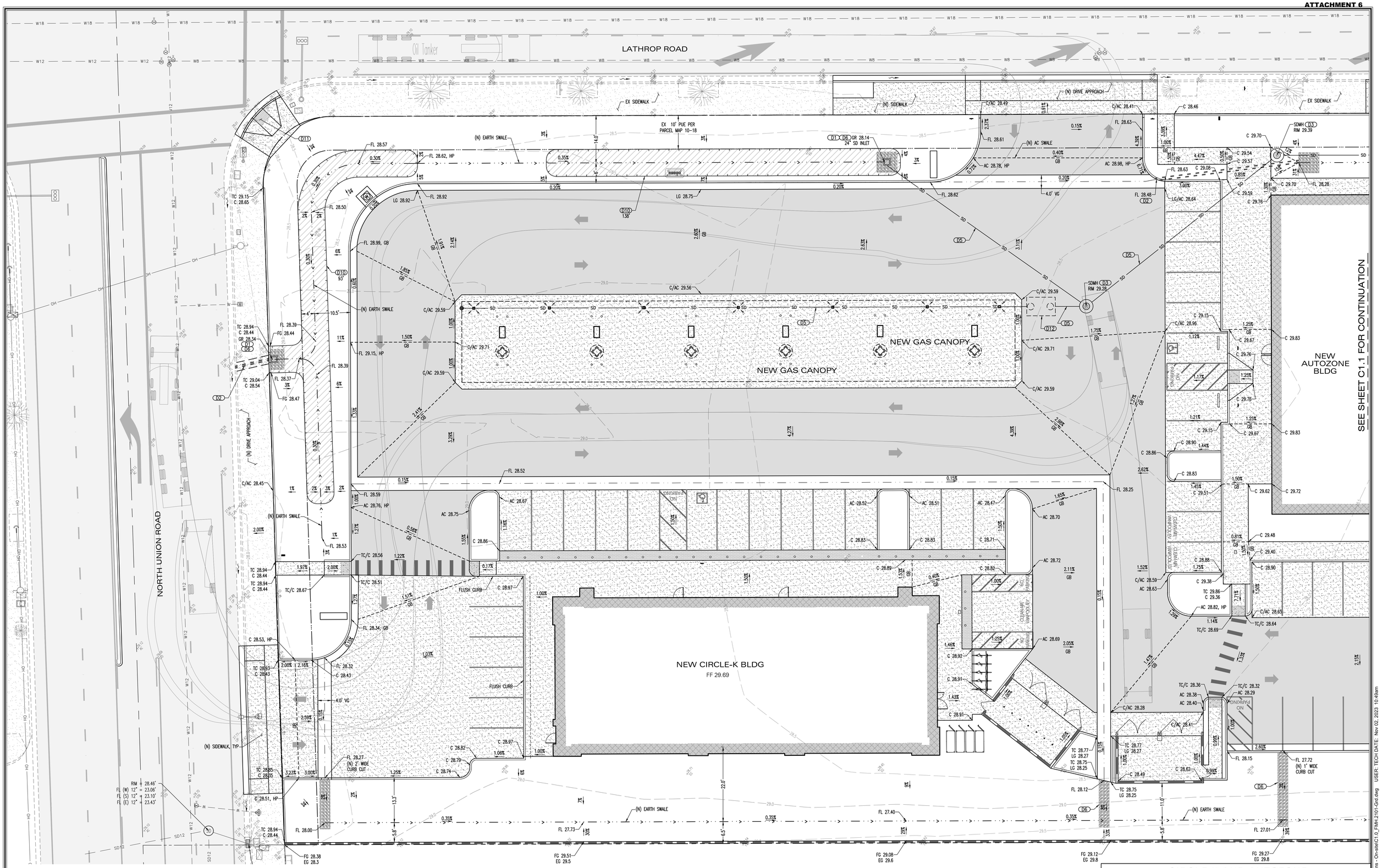
LAND DEVELOPMENT CONSULTANTS, LLC
3281 E. Guasti Rd. Suite #700
Ontario, California 91761
t: (909) 974-8422

CIRCLE K
2064 N. UNION ROAD
MANTECA,CA
20190372.0

FUEL CANOPY EXTERIOR ELEVATIONS - SG07
SCALE: AS NOTED

A-4

09/15/2021



DRAINAGE

- D1 PROPOSED 12" SQUARE INLET, TYPE JENSEN DI 1212 OR EQUAL
- D2 PROPOSED 3" DRAINAGE TUBES FOR DISPOSAL THROUGH CURB
- D3 PROPOSED 48" STORM DRAINAGE MANHOLE WITH GRATED LID WHERE SHOWN
- D4 CONNECT TO EXISTING STORM DRAINAGE MANHOLE
- D5 PROPOSED ADS N-12 PIPE FOR STORM DRAIN SERVICE
- D6 PROPOSED ROUNDED RIP-RAP ROCK MAT, 3" THICK, WITH 1" TO 4" DIAMETER ROCK OVER GEOTEXTILE FABRIC, SEE PLAN FOR LIMITS
- D7 PROPOSED HIGH WATER BREAKOVER THROUGH BOTTOM OF CMU WALL FOR DISCHARGE TO ADJACENT STREET CURB AND GUTTER
- D8 PROPOSED SMALL DIAMETER SIDEWALK CULVERT
- D9 PROPOSED SHALL INLET BOX WITH SMALL DIAMETER CULVERT DISCHARGE UNDER SIDEWALK AND TO SWALE
- D10 PROPOSED 100' LONG GRASSY SWALE BMP PER POST CONSTRUCTION STANDARDS
- D11 PROPOSED 'ADA' RAMP PER CITY STANDARDS
- D12 PROPOSED SAND OIL SEPARATOR

NOT FOR CONSTRUCTION

SCALE: 1" = 10'

CIRCLE K AND AUTOZONE

PRELIMINARY GRADING DRAINAGE PLAN

WEST LATHROP ROAD AND NORTH UNION ROAD
MANTECA, CA 95336

LORE ENGINEERING, INC.
CIVIL ENGINEERING • CONSULTING • PLANNING
820 DEWITT AVENUE, SUITE 101
CLOVIS, CA 93612
(559) 297-6200 TEL
(559) 297-6205 - FAX
EMAIL: HAL@LORE-ENGINEERING.COM : WWW.LORE-ENGINEERING.COM

REV NO	DATE	DESCRIPTION

GRADING/UTILITY PERMIT: DEVELOPMENT PERMIT:

JOB: FMH.2101
SHEET NO: C1.0
SHEET 1 OF 3
DATE: 11/02/23
DESIGNED BY: HML
DRAWN BY: GNX
CHECKED BY: HML

DWG: D:\PROJECTS\2021\FMH.2101\Acad\Plansets\Plans - On-site\C1.0_FMH.2101-Grd.dwg USER: TECH DATE: Nov 02, 2023 10:49am

SEE SHEET C1.1 FOR CONTINUATION

LATHROP ROAD

(N) SIDEWALK

(N) DRIVE APPROACH

EX SIDEWALK

(N) SIDEWALK

GR 28.14
4" SD INLET

FL 28.61

(N) AC SWALE

AC 28.78, HP

AC 28.98, HP

FL 28.62

4.0' VG

FL 28.48

LG/AC 28.64

FL 28.63

FL 28.63

C/AC 28.49

C/AC 28.41

C 28.46

C 29.70

SDMH D3
RIM 29.39

EX 10' PUE PER
PARCEL MAP 10-18

FL 28.04

SDMH D3
RIM 28.23

FG 28.28
EG 28.3

C 29.54

C 29.57

C 29.08

C 29.59

C 29.76

C 29.70

FL 28.28

(N) EARTH SWALE

FG 29.04

FG 28.76

FG 28.77

FL 27.99

EXISTING
HOME

EXISTING
HOME

NEW GAS CANOPY

C/AC 29.59

SDMH D3
RIM 29.28

C/AC 29.71

C/AC 29.59

C/AC 28.96

C 29.15

C 29.67

C 29.76

C 29.76

C 29.67

C 29.15

C 28.90

C 28.86

C 28.83

C 29.51

NEW AUTOZONE BLDG

FF 29.83

C 29.83

C 29.83

C 29.62

C 29.72

C 29.16

C 29.83

C 29.71

C 29.48

C 29.40

C 29.40

TC/C 29.40

C 28.88

C 28.90

C 29.38

TC 29.86
C 29.36

C/AC 28.59
AC 28.63

AC 28.82, HP

TC/C 28.69

TC/C 28.64

C/AC 28.65

AC 28.76

(N) EARTH SWALE

FL 27.74, GB

GR 26.42
SDMH WITH
GRATED LID
D3 X D6

FG 27.97
EG 28.0

RIM = 27.60'
FL (NW) 4" = 25.82'
FL (E) 6" = 25.69'
FL (S) 4" = 25.69'

NUNES CT

FG 28.04
EG 28.2

RIM = 27.91'
FL (N) 12" = 23.51'
FL (E) 12" = 23.78'

NEW CIRCLE-K
BLDG

AC 28.52

AC 28.51

AC 28.47

AC 28.70

AC 28.72

AC 28.69

C 28.83

C 28.83

C 28.71

C 28.89

C 28.82

C 28.92

C 28.91

C 28.91

TC/C 28.36

AC 28.38

AC 28.40

C/AC 28.28

TC/C 28.32

AC 28.29

C/AC 28.41

TC 28.77
LG 28.27

TC 28.75
LG 28.25

C 28.62

C 28.49

FL 28.15

AC 28.20

AC 28.15

AC 28.24

FL 27.85

FL 27.72
(N) 1' WIDE
CURB CUT

FL 28.25

FL 28.12

TC 28.75
LG 28.25

FL 27.40

(N) EARTH SWALE

FL 27.01

FL 26.79

FL 26.69

FG 28.51
EG 28.5

EXISTING
HOME

EXISTING
HOME

FG 29.08
EG 29.6

FG 29.12
EG 29.8

FG 29.27
EG 29.8

FG 29.45
EG 30.0

FG 29.51
EG 30.1

DRAINAGE

- D1 PROPOSED 12" SQUARE INLET, TYPE JENSEN DI 1212 OR EQUAL
- D2 PROPOSED 3" DRAINAGE TUBES FOR DISPOSAL THROUGH CURB
- D3 PROPOSED 48" STORM DRAINAGE MANHOLE WITH GRATED LID WHERE SHOWN
- D4 CONNECT TO EXISTING STORM DRAINAGE MANHOLE
- D5 PROPOSED ADS N-12 PIPE FOR STORM DRAIN SERVICE
- D6 PROPOSED ROUNDED RIP-RAP ROCK MAT, 3' THICK, WITH 1" TO 4" DIAMETER ROCK OVER GEOTEXTILE FABRIC, SEE PLAN FOR LIMITS
- D7 PROPOSED HIGH WATER BREAKOVER THROUGH BOTTOM OF CMU WALL FOR DISCHARGE TO ADJACENT STREET CURB AND GUTTER
- D8 PROPOSED SMALL DIAMETER SIDEWALK CULVERT
- D9 PROPOSED SHALL INLET BOX WITH SMALL DIAMETER CULVERT DISCHARGE UNDER SIDEWALK AND TO SWALE
- D10 PROPOSED 100' LONG GRASSY SWALE BMP PER POST CONSTRUCTION STANDARDS
- D11 PROPOSED 'ADA' RAMP PER CITY STANDARDS
- D12 PROPOSED SAND OIL SEPARATOR

NOT FOR CONSTRUCTION

N

SCALE: 1" = 10'

10 0 10

CIRCLE K AND AUTOZONE

PRELIMINARY GRADING DRAINAGE PLAN

WEST LATHROP ROAD AND NORTH UNION ROAD
MANTECA, CA 95336

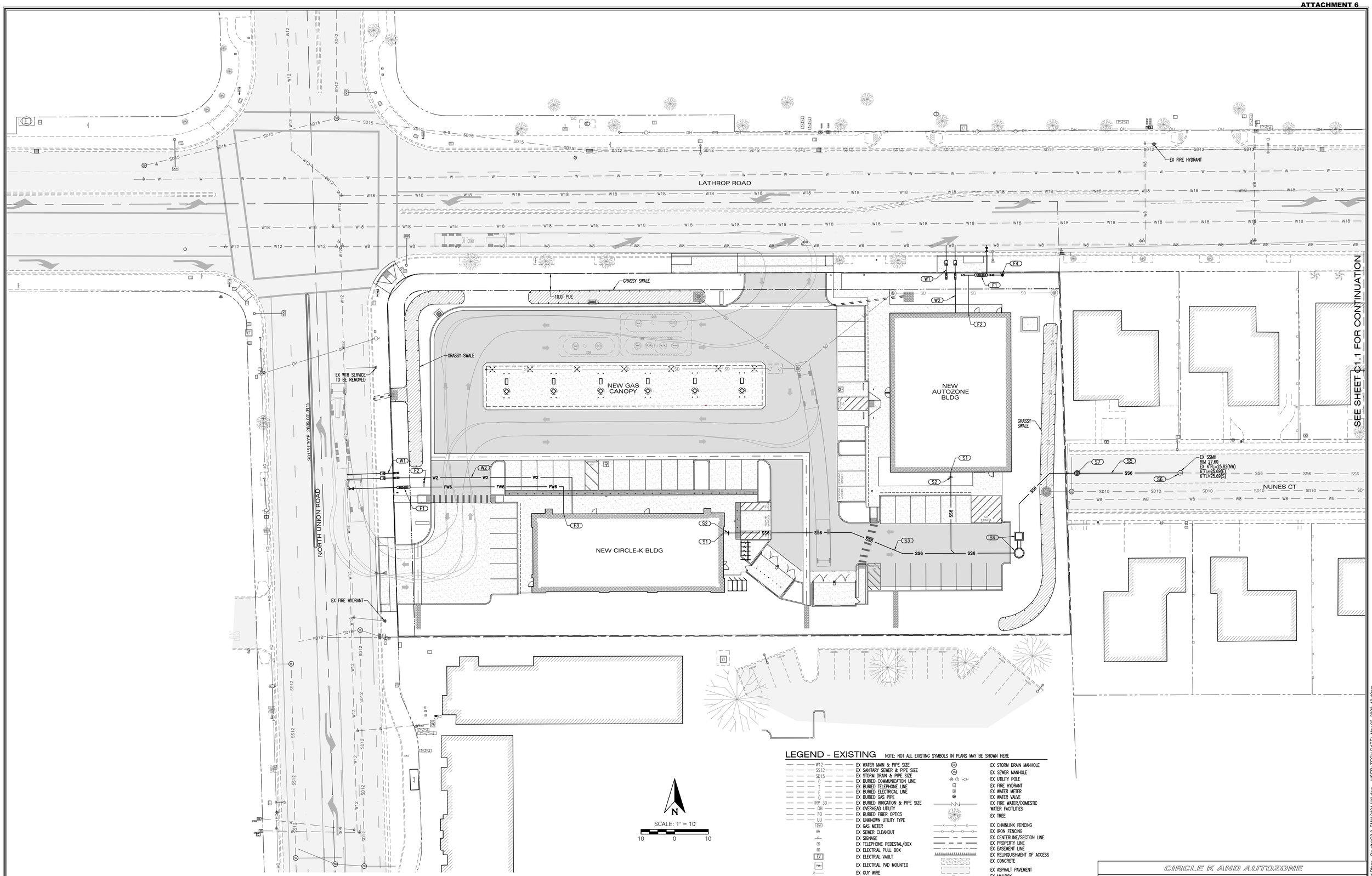
LORE ENGINEERING, INC.
CIVIL ENGINEERING • CONSULTING • PLANNING
820 DEWITT AVENUE, SUITE 101
CLOVIS, CA 93612
(559) 297-5200 TEL
(559) 297-5205 - FAX
EMAIL: HAL@LORE-ENGINEERING.COM · WWW.LORE-ENGINEERING.COM

REV NO	DATE	DESCRIPTION

GRADING/UTILITY PERMIT: DEVELOPMENT PERMIT:

JOB: FMH.2101
SHEET NO: C1.1
SHEET 2 OF 3
DATE: 11/02/23
DESIGNED BY: HML
DRAWN BY: GNX
CHECKED BY: HML

DWG: D:\PROJECTS\2021\FMH.2101\Acad\Planset\Plans - On-site\C1.1_FMH.2101-Grd.dwg USER: TECH DATE: Nov 02, 2023 10:49am



SEE SHEET C1.1 FOR CONTINUATION

LEGEND - EXISTING

NOTE: NOT ALL EXISTING SYMBOLS IN PLANS MAY BE SHOWN HERE

- EX WATER MAIN & PIPE SIZE
- EX SANITARY SEWER & PIPE SIZE
- EX STORM DRAIN & PIPE SIZE
- EX BURIED COMMUNICATION LINE
- EX BURIED TELEPHONE LINE
- EX BURIED ELECTRICAL LINE
- EX BURIED GAS PIPE
- EX BURIED IRRIGATION & PIPE SIZE
- EX OVERHEAD UTILITY
- EX BURIED FIBER OPTICS
- EX UNKNOWN UTILITY TYPE
- EX GAS METER
- EX SEWER CLEANOUT
- EX SIGNAGE
- EX TELEPHONE PEDESTAL/BOX
- EX ELECTRIAL PULL BOX
- EX ELECTRIAL VAULT
- EX ELECTRIAL PAD MOUNTED
- EX GUY WIRE
- EX STREET LIGHT
- EX STREET LIGHT ON WOOD POLE
- EX POLE LIGHT
- EX STORM DRAIN MANHOLE
- EX SEWER MANHOLE
- EX UTILITY POLE
- EX FIRE HYDRANT
- EX WATER METER
- EX WATER VALVE
- EX FIRE WATER/DOMESTIC WATER FACILITIES
- EX TREE
- EX CHAINLINK FENCING
- EX IRON FENCING
- EX CENTERLINE/SECTION LINE
- EX PROPERTY LINE
- EX EASEMENT LINE
- EX RELINQUISHMENT OF ACCESS
- EX CONCRETE
- EX ASPHALT PAVEMENT
- EX MAILBOX
- EX BLOCK WALL
- EX CURB INLET
- EX CURB & GUTTER
- EX CURB
- EX EDGE OF PAVEMENT

WATER

- (W1) PROPOSED IRRIGATION WATER LATERAL, METER AND BACKFLOW PREVENTER PER CITY STANDARDS
- (W2) PROPOSED DOMESTIC WATER LATERAL, METER AND BACKFLOW PREVENTER PER CITY STANDARDS

FIRE

- (F1) PROPOSED BUILDING FIRE LATERAL, STREET VALVE AND ABOVEGROUND DETECTOR CHECK PER CITY STANDARDS
- (F2) PROPOSED BUILDING FDC
- (F3) PROPOSED BUILDING FIRE SPRINKLER RISER
- (F4) PROPOSED FIRE HYDRANT PER CITY STANDARDS

SEWER

- (S1) PROPOSED BUILDING SEWER POINT OF CONNECTION
- (S2) PROPOSED SEWER CLEAN OUT
- (S3) PROPOSED PRIVATE SEWER MAIN
- (S4) PROPOSED PRIVATE SEWER LIFT STATION
- (S5) PROPOSED FORCE MAIN SEWER LATERAL
- (S6) PROPOSED FORCE MAIN CONNECTION TO EXISTING SHALLOW SEWER MANHOLE
- (S7) PROPOSED SANITARY SEWER MANHOLE

NOT FOR CONSTRUCTION

CIRCLE K AND AUTOZONE

PRELIMINARY WET UTILITY PLAN

WEST LATHROP ROAD AND NORTH UNION ROAD
MANTECA, CA 95336

LORE ENGINEERING, INC.
CIVIL ENGINEERING • CONSULTING • PLANNING
820 DEWITT AVENUE, SUITE 101
CLOVIS, CA 93612
(559) 297-5200 TEL
(559) 297-5205 - FAX
EMAIL: HAL@LORE-ENGINEERING.COM : WWW.LORE-ENGINEERING.COM

REV NO	DATE	DESCRIPTION

GRADING/UTILITY PERMIT: DEVELOPMENT PERMIT:

JOB: FMH.2101
SHEET NO: C2.0
SHEET 3 OF 3
DATE: 11/02/23
DESIGNED BY: HML
DRAWN BY: GNX
CHECKED BY: HML

DWG: D:\PROJECTS\2021\FMH.2101\Acad\PlansetPlans - On-site\C2.0_FMH.2101-Util.dwg USER: TECH DATE: Nov 02, 2023 10:49am

PEDESTRIAN PATHWAY

SPECIES	MATURE CANOPY RADIUS (ft)	TOTAL CANOPY AREA (sf)	50%	TOTAL SHADE (sf)
Laurus x 'Saratoga'	10	314	1	157
Pistacia chinensis	15	707	7	2473
Quercus lobata	25	1963	1	981
Zelkova serrata	15	707	2	707
			Tree shade	4318
			Pathway	4403
				100.0%

CONTAINER SIZE PERCENTAGE

SPECIES	QUANTITY	15 GALLON	24" BOX
Ginko Biloba	2	X	
Laursu x 'Saratoga'	4	X	
Pistacia chinensis	14		X
Quercus ilex	16	X	
Quercus lobata	1		X
Zelkova serrata	6	X	
		37%	

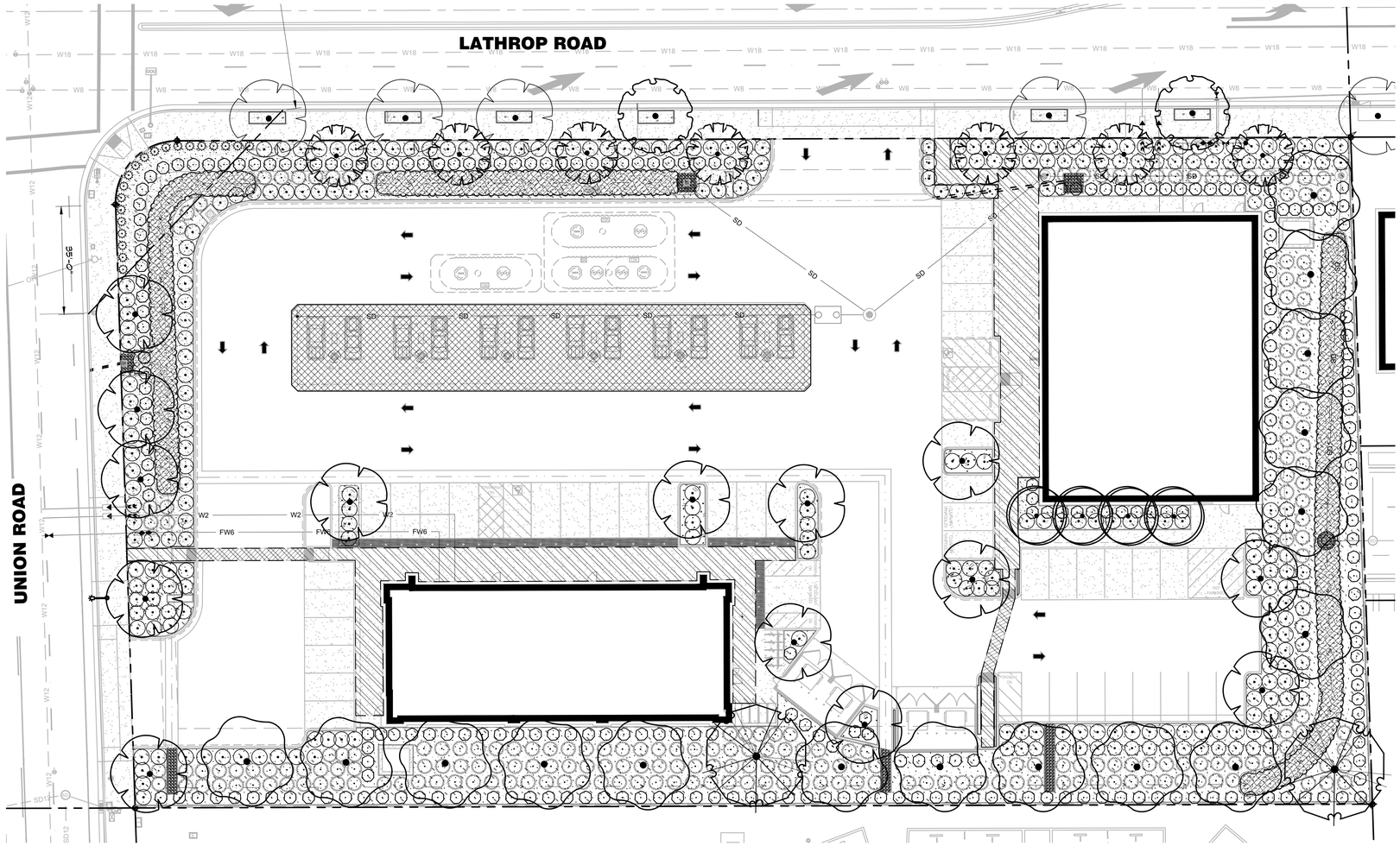
EVERGREEN PERCENTAGE

SPECIES	QUANTITY	DECIDUOUS	EVERGREEN
Ginko Biloba	2	X	
Laursu x 'Saratoga'	4		X
Pistacia chinensis	14	X	
Quercus ilex	16		X
Quercus lobata	2	X	
Zelkova serrata	10	X	
		42%	

REFERENCE NOTES SCHEDULE

SYMBOL	PRELIMINARY DESIGN DESCRIPTION	QTY	NOTES:
	CANOPY	4,896 SF	
	PEDESTRIAN PATHWAY	4,403 SF	
	TOTAL LANDSCAPE AREA	7,916 SF	

SYMBOL	MULCH DESCRIPTION	QTY	NOTES:
	ORGANIC MULCH-WALK ON BARK-3" DEPTH	231.61 CY	
	GRAVEL MULCH - 3" DEPTH - 3/4"	2.67 CY	CA GOLD OR EQUAL



0 20 40 60 feet

SCALE: 1" = 20'

NORTH

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	CONT	WATER USE	MATURE WIDTH	PLANT INFO	QTY
TREES						
	GINKGO BILOBA	15 GAL	MEDIUM	25' TO 30' DIA		2
	LAURUS X 'SARATOGA'	15 GAL	LOW	15' TO 20' DIA		4
	PISTACIA CHINENSIS 'KEITH DAVEY'	15 GAL	LOW	25' TO 30' DIA		14
	QUERCUS ILEX	15 GAL	LOW	30' TO 35' DIA		16
	QUERCUS LOBATA	36"BOX	LOW	30' TO 35' DIA		2
	ZELKOVA SERRATA 'MUSASHINO'	15 GAL	LOW	20' TO 25' DIA		10

SYMBOL	BOTANICAL NAME	SIZE	WATER USE	MATURE WIDTH	MATURE HEIGHT	QTY
EXISTING TREES						
	GINKGO BILOBA	EXISTING	MEDIUM			5
SHRUBS						
	LANTANA X 'NEW GOLD'	1 GAL	LOW	5' DIA	24"	61
	MUHLENBERGIA RIGENS	1 GAL	LOW	5' DIA	4'	224
	NEPETA X 'WALKER'S LOW'	1 GAL	LOW	3' DIA	6" - 12"	20
	OLEA EUROPAEA 'LITTLE OLLIE' TM	5 GAL	LOW	5' DIA		245
	ROSMARINUS OFFICINALIS 'HUNTINGTON CARPET'	1 GAL	LOW	5' DIA	6" - 12"	213

SYMBOL	BOTANICAL NAME	CONT	WATER USE	MATURE WIDTH	QTY
SHRUB AREAS					
	JUNCUS PATENS	1 GAL	MEDIUM	2' DIA	344

ATTACHMENT 6

project:

COMMERCIAL DEVELOPMENT

W. LATHROP RD. NORTH UNION RD. MANTECA, CA.

client:

designlab 252
P.O. Box 27616 Fresno, CA 93729
Studio: 559.472.9966 Fax: 559.472.9969

LICENSED LANDSCAPE ARCHITECT Patrick Boyd, No. 4824 JULY 31, 2025 12/07/2021 STATE OF CALIFORNIA

drawn by:	checked by:
KJ	PB

submittal:	date:
No. 1	12/08/2021
No. 2	07/07/2022
No. 3	09/20/2022
No. 4	10/19/2022
No. 5	11/15/2023

scale: 1"=20'-0"

sheet title:

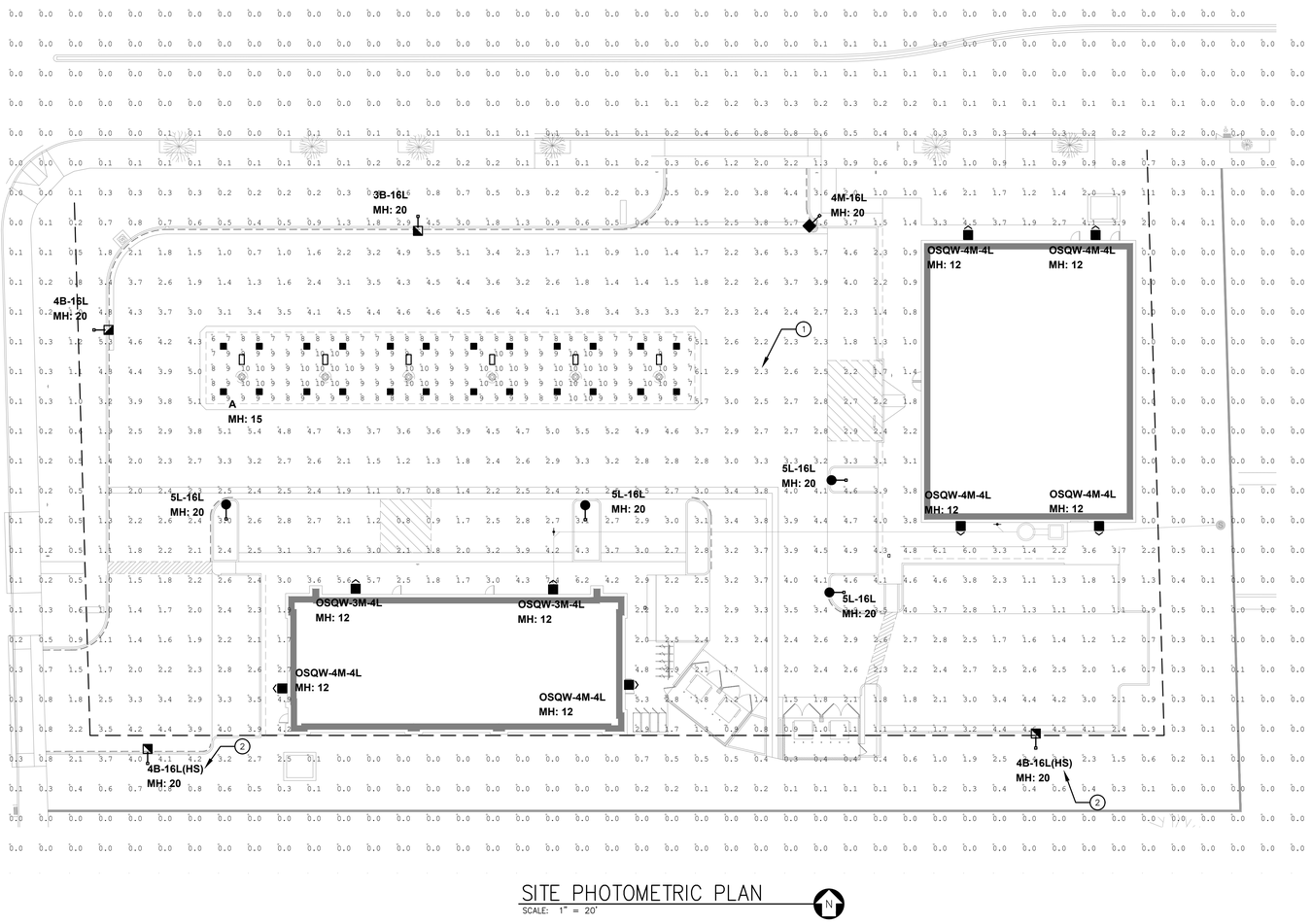
LANDSCAPE SITE PLAN

sheet no.

LSP-1

project no. 21-11-006

GENERAL NOTES	ⓝ SHEET NOTES
A. CALCULATIONS ARE PROVIDED USING INDUSTRY RECOGNIZED SOFTWARE AND ARE PROVIDED FOR ESTIMATION PURPOSES ONLY. INPUT DATA FOR THE CALCULATIONS CORRESPONDS TO THE DATA PROVIDED TO US (ASSUMPTIONS MAY BE MADE FOR INFORMATION THAT IS NOT PROVIDED). RESULTS OF THE LIGHTING CALCULATIONS ACCURATELY REPRESENT THE INPUT DATA. HOWEVER, ACTUAL LIGHTING LEVELS WILL DEPEND ON FIELD CONDITIONS SUCH AS MAINTENANCE, TEMPERATURE, VOLTAGE AND LAMP/BALLAST OUTPUT AND OTHER FACTORS. CALCULATIONS ARE SUBJECT TO LIMITATIONS OF THE SOFTWARE. THIS DOES NOT GUARANTEE THAT ACTUAL LIGHTING LEVELS MEASURED IN THE FIELD WILL MATCH OUR INITIAL CALCULATIONS.	1. NUMBER INDICATES THE FOOTCANDLE LEVEL AT THIS POINT. 2. ALL LIGHT FIXTURES AT THE SOUTH (AND EAST PROPERTY LINE) TO BE PROVIDED WITH HOUSE SHIELDS AS NEEDED TO PROVIDE SHIELDING AT PROPERTY LINE.



SITE PHOTOMETRIC PLAN
SCALE: 1" = 20'

Spectral Engineering
Electrical
Consulting Engineers

CONTACT: MEG L. HOBBS, PE, LEED AP
EMAIL: meg.hobbs@SPECTRALENGINEERING.COM
PHONE: 916-599-2439

Engineer's Signature

REGISTERED PROFESSIONAL ENGINEER
MEG L. HOBBS
No. E17502
ELECTRICAL
STATE OF CALIFORNIA

Project Title

CROSSROADS PLAZA

2064 NORTH UNION ROAD
MANTECA, CA 95336

PLANNING DEPT.
RE-SUBMITTAL
DATE: 02-27-24

Revisions

Job Number	S24-010
Date	02-09-24
Drawn	JS
Checked	MLH

Sheet Title

SITE PHOTOMETRIC CALCULATIONS

Sheet

E1.1

City of Manteca
Development Services Department

Conditions of Approval
Crossroads Plaza
General Plan Amendment 22-04, Rezone 22-05,
Site Plan Review SPC 22-07 & Minor Use Permit UPN 22-08
April 16, 2024

Project File Numbers: GPA 22-04, REZ 22-05, SPC 22-07, & UPN 22-08

Project Name: Crossroads Plaza

Project Address: 2064 North Union Road, Manteca, CA 95336

APN: 216-020-01

Project Applicant: Grey Peak Development, LLC; James Allen & Tenea Davis; 1925 Village Center Circle, Suite #150, Las Vegas, NV 89134

Property Owners: Manteca 18, LLC; Jim Berookhim; 2355 Westwood Boulevard, Suite 410, Los Angeles, CA 90064

NOTE: This list of conditions is not intended to be all-inclusive or a comprehensive list of City regulations. All conditions are referenced to the Crossroads Plaza Project Plan Set (dated 12/27/23) on file with the City of Manteca, Development Services Department, Planning Division.

City of Manteca Development Services Department: Planning Division

1. **Acceptance of Conditions.** Unless the applicant formally objects to these conditions prior to approval by the City Council, the applicant is bound by, must comply with, and must do all things required of or by the applicant pursuant to all of the terms, provisions, and conditions of these Conditions of Approval. All costs associated with compliance with the conditions shall be at the owner/developer's expense.

2. **Expiration of Approval.** This approval for a General Plan Amendment, Rezone, Site Plan and Design Review, and Minor Use Permit shall automatically expire on **April 16, 2026, or 24 months from and after the date of issuance.** The date of issuance is the date these entitlements are approved by the City Council. Prior to the expiration date, the applicant may apply for an extension not to exceed one year.

3. **Vested Rights.** This approval does not vest applicant's rights regarding future development. All ordinances, resolutions, rules, regulations and official policies governing design, improvement and construction standards and specifications applicable to the project and public improvements to be constructed by the applicant shall be those in force and effect at the time the applicable plan or permit approval is granted.
4. **Vesting Fees.** This approval does not vest applicant's rights regarding the payment of any development impact fees, exactions and dedications, processing fees, inspection fees, plan checking fees or charges, or any other fee or charge that could have been legally imposed by the City when the original application was deemed complete. All fees and charges shall be paid at the rate in effect at the time such fees are customarily due.
5. **Fees.** The applicant shall pay all applicable processing fees, permit fees, City development fees, fire fees, school fees, drainage fees, habitat conservation fees and other public entity fees in effect at the time of the issuance of the applicable permit.
6. **Outside Agency Fees.** It is the responsibility of the owner/developer to contact all outside agencies and pay applicable fees associated with this project.
7. **Conformance to Plans.** This approval is dependent upon and limited to the proposals and plans contained, supporting documents submitted, presentations made to staff, Planning Commission and/or City Council as affirmed to by the applicant. Any variation from these plans, proposals, supporting documents or presentations is subject to review and approval prior to implementation.
8. **Subsequent Development.** All activities undertaken in accordance with this approval shall comply with the City's General Plan and Municipal Code. In cases of conflict between the City's Municipal Code or map-specific conditions of approval, the governing priority shall be, to the extent legally permitted, as follows: 1) Municipal Code regulations; 2) project-specific conditions; 3) standard conditions. The applicant shall comply with all regulations and code requirements of the Development Services Director, City Engineer, Building Official, Fire Chief, the Police Chief and any other agencies requiring review of the project. If required, these agencies shall be supplied copies of the final maps, site plans, public improvement plans, grading plans and building plans.
9. **Structure Conformance.** Applicant shall ensure all structures will be built in compliance with the City's Zoning Ordinance.
10. **Utility Companies.** The applicant is responsible for contacting all appropriate utility companies to obtain agreements for extension and/or relocation of services necessary for the proposed development.
11. **Other Requirements.** The applicant shall secure and comply with all applicable federal, state and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

12. **Failure to Comply.** Should the project be found, at any time, not to comply with any of the Conditions of Approval, or should the applicant construct or operate this development in any way other than specified in the Application or Supporting documents or presentations to staff, Planning Commission or City Council, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered violated.

13. **Indemnification.** The applicant shall indemnify and hold harmless the City, its council members and commissioners, officers, agents, employees, and representatives from liability for any award, damages, costs and fees, including without limitation attorneys' fees, incurred by the City and/or awarded to any plaintiff in any action related to or arising out of the City's approval of this project or subdivision Map or any environmental or other documentation related to this project or subdivision Map. The applicant further agrees to provide a defense for the City in any such action.

14. **Limits of Approval.** Approval of this application does not constitute approval of any other entitlement or any other necessary permit, license, or approval.

15. **Compliance with Local and State Laws.** The subject use shall be conducted in full compliance with all local and state laws. No part of this approval shall be construed to permit a violation of any part of the Manteca Municipal Code. This Site Plan & Design Review and Minor Use Permit shall be subject to revocation if the subject use is conducted in such a manner as to cause a nuisance.

16. **Erosion Prevention.** The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site, either wind or water, during the construction and operation of the project covered by this approval.

17. **Location of Conditions.** All conditions of approval for this project shall be written by the project developer on all building permit plan check sets submitted for review and approval. These conditions of approval shall be on, at all times, all grading and construction plans kept on the project site. It is the responsibility of the building developer to ensure that the project contractor is aware of, and abides by, all conditions of approval. Prior approval from the Planning Manager must be received before any changes are constituted in site design, grading, building design, building colors or materials, etc.

18. **Roof mounted screening.** Applicant/developer shall ensure all roof-mounted equipment shall remain screened from public street view.

19. **Signage.** All signage shall be submitted as a separate building permit from the Building Division and shall comply with Chapter 17.54 of the Zoning Ordinance. No signage has been approved with this entitlement approval.

20. **On-site Lighting.** All on-site lighting for parking areas, pedestrian areas and vehicular or pedestrian paths of travel shall be LED lighting. Any new lighting is required to submit a photometric plan for review showing it complies with the following standards (17.50.060.D.):

a. Parking lots, driveways, trash enclosures/areas, public phones, and group mailboxes shall be illuminated with a minimum maintained 1 foot-candle of light and an average not to exceed 4 foot-candles of light. The illumination shall not exceed 10 foot-candles in any one location.
b. Pedestrian walkways shall be illuminated with a minimum maintained 0.5 foot-candle of light and an average not to exceed 2 foot-candles of light.
c. Entryways and exterior doors of nonresidential structures shall be illuminated during the hours of darkness with a minimum maintained 1 foot-candle of light, measured within a 5-foot radius on each side of the door at ground level.

22. **Site Conditions.** The site shall be maintained in a neat and clean manner free of weeds, trash and debris.

23. **Landscaping.** Required planting areas shall be permanently maintained by water, clearing debris and litter, weeding, pruning, insect control, and replacement of plant materials and irrigation equipment as needed to preserve the health and appearance of plant materials. All landscaping shall be maintained in such a manner as to not restrict designated pedestrian access. All trees, shrubs, and plants which, due to accident, damage, disease, or other cause, fail to show a healthy growth shall be replaced, in kind, pursuant to the approved landscape plans within 30 days from the identified damage date. (MMC 17.48.060.A)

24. **Noise.** At all times, property owner shall ensure that operations do not negatively affect the quiet enjoyment of their property and quality of life for nearby residents. Property owner shall ensure noise levels generated at the site do not exceed City performance standards. Refer to Zoning Ordinance, Chapter 17.58, *Performance Standards*. Failure to comply with these standards may result in a revocation hearing.

25. **Design Requirements Prior to Building Permit Issuance**:

a) Prior to issuance of a Certificate of Occupancy, the applicant shall ensure that the site is developed in accordance with the plans dated 12/27/23. Development of the site shall not be modified by the applicant/developer or by any City Department or Division without prior express written approval by the designated approving authority as stipulated in Section 17.10.060 (C) of the City of Manteca Municipal Code. If any structure(s) landscaping, parking, signage or other features of the approved plans are installed, constructed or removed or site improvements otherwise deviate from what was shown or illustrated on these approved plans, that shall render this entitlement modified. All modifications shall be brought into conformance with the approved site plan at the sole expense of the applicant/developer. When modifications have taken place, a Certificate of Occupancy shall not be granted until either: a) the site has been brought into conformance with these approved plans; or, b) the applicant/developer files an application for the appropriate amendment and that application has been approved.

b) All conditions of approval for this project shall be written by the project developer on all building permit plan check sets submitted for review and approval. These conditions of approval shall be on, at all times, all grading and construction plans kept on the project site. It is the responsibility of the building developer to ensure that the project contractor is aware of, and abides by, all conditions of approval. Prior approval from the Deputy Director - Planning must be received before any changes are constituted in site design, grading, building design, building colors or materials, etc.

26. **Tree Replacement**. Three mature oak trees were removed as part of the development of this project. Prior to certificate of occupancy, three new trees must be planted on site at a minimum 36-inch box size, per City Code, Table 17.48.060-1.

27. **Site Lighting**. Prior to building permit issuance, the final illumination photometric must show there is zero light spillover (level of 0.0) at the property lines to the east and south.

28. **Fuel Canopy Design**. Prior to building permit issuance and to the satisfaction of the Development Services Director, the fuel canopy shall incorporate architectural details to match the architectural style of the buildings on site.

29. **Landscape**. Prior to building permit issuance, the final landscape plan must show compliance with all standards and regulations of the landscape ordinance.

30. **Masonry wall**. A 7-foot tall masonry wall is required along the project's south and east property line, as it is a commercial use adjacent to a residential use. The masonry wall is required to remain in an orderly and good condition at all times.
    a. Include a climbing vine planted at the base of the masonry wall to soften the appearance of the wall.

31. **Clear Visibility Triangle**. Trees or shrubs with a full-grown height equal to or greater than 30 inches shall not be planted in the clear visibility triangle at the intersection of Union Road and Lathrop Road.

32. **Facades**. Include windows and/or a trellis with a climbing plant on the east and west facades of the convenience store. Include windows on the north and south facades of the Auto Zone building.

33. **Landscape**. Final landscape plans shall show Cypress trees in the landscape planters along the east and south property lines.

City of Manteca Development Services Department: Building Safety Division

1. Accessible parking spaces complying with CBC § 11B-502 shall be provided in accordance with CBC Table 11B-208.2. CBC § 11B-208.2 and § 11B-208.2.4.

2. Accessible routes shall be provided per CBC § 11B-206. At least one accessible route shall be provided within the site from accessible parking spaces and accessible passenger loading zone; public streets and sidewalks; and public transportation stops to the accessible building or facility entrance they serve. Where more than one route is provided, all routes must be accessible. CBC § 11B-206.2.1.

3. At least one accessible route shall connect accessible buildings, accessible facilities, accessible elements, and accessible spaces that are on the same site, including trash enclosure(s). CBC § 11B-206.2.2.

4. All entrances and exterior ground-floor exits to buildings and facilities shall be accessible and shall comply with CBC § 11B-404. CBC § 11B-206.4.1.

5. Developer shall obtain separate building permits for each structure, signage, trash enclosure, etc. per CBC Admin 104 prior to construction of said structure.

6. Adequate sanitary facilities shall be provided per the requirements of Chapter 4 of the California Plumbing Code and CPC Table 422.1.

7. Developer shall provide bike parking spaces in accordance with California Green Building Standards Code 5.106 for number and distance to the entrance.

8. Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with CGBSC Section 5.106.5.3.:

    - EV Capable spaces shall be provided in accordance with Table 5.106.5.3.1.
        - With 48 proposed parking spaces, eight (8) EV capable spaces are required.
        - With eight (8) EV Capable spaces, two (2) EVCS (EV Capable spaces provided with EVSE) are required.
        - The number of required EVCS count toward the total number of required EV capable spaces.
        - Show all the EV Capable and EV Capable with EVSE spaces on the site plan.

9. The Developer shall submit a letter/certification prepared by a licensed land surveyor or registered civil engineer to the Chief Building Official, certifying that the building location (setbacks) are pursuant to the approved plans prior to receiving a foundation inspection.

10. The project shall comply with the more restrictive of the outdoor potable water reduction requirements of the California Green Building Standards Code 4.304 and the Manteca Water Efficient Landscape Ordinance. Please note this on the plans.

11. The developer shall submit a "Construction and Demolition Waste Reduction and Recycling Plan" for review and approval with the appropriate permit application.

12. At time of building permit, submittal the developer shall incorporate all Conditions of Approvals from all departments and imprint into the submittal set of construction documents/plans.

City of Manteca Engineering Department

General

1. All improvements shall comply with the City of Manteca Standard Plans and Specifications. Improvement plans shall be submitted to the City Engineer for approval. An encroachment permit is required for all work within the public right-of-way.
2. Developer shall provide easements, requested by the respective utility companies, within the project. Any existing facilities within or adjacent to the project that are affected by this project shall be relocated and placed underground at the Developer's expense.
3. Developer shall dedicate ten-foot (10') wide public utility easements on all street frontages for underground facilities and appurtenances.
4. Developer shall indicate on the improvement plans topographical information which shall include one-foot (1') contour intervals and benchmark data based on City datum.
5. During all construction phases, Developer shall comply with City Laws regarding dust control. Developer shall also comply with San Joaquin Valley Unified Air Pollution Control District Regulation VIII (Fugitive Dust Prohibitions) in an effort to reduce the amount of fine particulate matter (PM10) entrained into the ambient air from man-made sources.
6. Prior to the start of construction, all survey monuments that have the possibility of being damaged, destroyed or covered over during the course of construction for this project, shall be located and referenced by a licensed land surveyor and a corner record or record of survey shall be filed with the county surveyor. Survey monuments which are damaged, destroyed or covered over during the course of construction must be re-set at the original location with a new monument and monument box and another corner record or record of survey shall be filed with the county surveyor. All work in this condition shall be done by a licensed land surveyor.
7. Prior to or with the Building Permit plan set the following shall be submitted. Review and approval of these items by the Engineering Department must occur

prior to or with the issuance of the first building permit associated with this project.

a. On-site grading and drainage plan,
b. On-site utility (sanitary sewer, water and storm drain) plan,
c. Off-site improvement plan,
d. Erosion control plans,
e. Stormwater Pollution Prevention Plan (SWPPP),
f. Documentation, as required in the Post-Construction Stormwater Standards Manual, showing compliance with WQO NPDES 2013-0001-DWQ,
g. Joint Trench Intent plans, and
h. Dedication of required rights-of-way and easements to the City.

The plans specified in (a), (b) and (c) above shall be prepared by a Registered Civil Engineer.

The items in (d), (e) and (f) above shall be prepared by a Qualified SWPPP Developer (QSD).

8. Joint trench utility installation shall be in accordance with Manteca Municipal Code Chapter 13.34 and City Standards.
9. All address numbers shall be plainly visible from the street fronting the property. Said numbers/letters shall contrast with background.
10. Developer shall enter into an Improvement Agreement for construction of the roadway and utility improvements which will be dedicated to the City. The agreement will require posting a Performance Bond in the amount of one-hundred percent (100%), posting a Labor-Material Bond in the amount of fifty percent (50%), and payment of all required plan check, testing and inspection fees.
11. Developer shall install a benchmark on the North American Vertical Datum of 1988 vertical control system with this project. Final location shall be approved by the City Engineer and shown on the Improvement Plans. Developer shall obtain a benchmark from the City of Manteca and it shall be punched with the elevation, datum reference and benchmark number, which will be assigned by the City. A corner record shall be filed with the San Joaquin County Surveyor's Office and shall include the language that the benchmark is being added to the City of Manteca Vertical Control Network.
12. Improvements which will be dedicated to the City must use a benchmark on the City of Manteca NVGD29 Vertical Control Network to establish the elevations of the improvements. The benchmark used shall be noted on the Improvement Plans.
13. The Engineering elements for this project shall be reviewed and finalized during the Building Permit review process. Designs/layouts of utilities and roadway

elements presented with the proposed Site Plan are preliminary to support its approval and are not being approved with this action.

Site

14. On-site parking area pavement surface drainage slope shall be as follows: Minimum cross-slope on asphalt concrete is 2% or concrete is 1% with a maximum of 5%. Concrete valley or curb gutters shall have a minimum slope of 0.25%. The pavement slope in ADA areas shall be in accordance with the California Building Code, Chapter 11B.
15. Provide City Standard Refuse/Recycling Enclosures on-site at the locations shown on the site plan. Sizing shall be in accordance with City Standards.
16. The refuse enclosure shall be graded so there is no storm drain flows enter or exit the enclosure area. The enclosure area shall have a connection to the storm drain system, in compliance with the City's Post-Construction Manual.
17. On-site curbing shall conform to City of Manteca Standard ST-35, "Parking Area Curbs".
18. Developer shall ensure no buildings are constructed across property lines.
19. The fueling area design shall meets the *Design Considerations* section of Source Control Measure S-13: Fuel Dispensing Areas in Appendix E of the City's Post-Construction Manual.
20. The area under the gas pump canopy shall drain to itself. Any storm drain inlet in this area must be equipped with a SafeDrain or similar storm drain system protection device, as approved by the City Engineer.
21. A sand-oil separator, in accordance with City Standard M-2 shall be installed as part of the project.
22. Landscape planting at driveway entrances/exits shall be maintained to a maximum height of three and one-half feet (3.5').
23. Egress points from this project to public right-of-way shall be stop controlled. Developer shall install signage and striping at egress points on the project's property to meet this condition.

Streets

24. Existing driveways which are not to be used by this project shall be removed and replaced with sidewalk, vertical curb and gutter.
25. Street improvements and City easement dedications shall be completed as a condition of the first final inspection of a building permit for this development. This shall be noted on the cover of the building permit submittal.
26. Developer shall reconstruct N. Union Road and W. Lathrop Road on the east half and south half of the centerline, respectively. The exact reconstruction method shall be as determined by the City Engineer at the time of Building Permit submittal. At the least, Developer shall grind off the top 2" of the roadway and overlay the roadway with 2" of asphalt concrete (AC).

27. Developer shall modify the signal timing and install upgraded controllers at the intersection of N. Union Road/W. Lathrop Road to optimize the traffic flow at the intersection.
28. Developer shall install street lights along the project's frontage of N. Union Road and W. Lathrop Road. Street lights shall maintain an average foot candle coverage of 0.40, with a minimum allowable foot candle at any location of 0.07 within the public right-of-way. Electrolier photometric plan, showing the foot candle coverage, shall be submitted with the Improvement Plans showing this requirement is met with the existing street lights. If not, the project shall install street lights or modify the existing street lights so this requirement is met.
29. Developer shall install street lights along the project's frontage of N. Union Road and W. Lathrop Road. The electrolier locations shall be finalized during the Improvement Plan or Building Permit review process. Electroliers shall maintain an average foot candle coverage of 0.40, with a minimum allowable foot candle at any location of 0.07, within the City's right-of-way. Electrolier photometric plan, showing the foot candle coverage, shall be submitted with the plans.
30. The thickness of all sidewalks installed with the project shall be six inches (6").
31. Developer shall remove and replace the existing sidewalk, curb, gutter and accessibility ramps along the N. Union Road and W. Lathrop Road frontage of this project which is dilapidated, cracked or creates a tripping hazard, as determined by the City Engineer at the time of Building Permit submittal. Sidewalk installed with this project shall be six inches (6") thick.
32. Driveway(s) and accessibility ramps installed with this project shall be in compliance with the latest revision of the California Building Code, Chapter 11B and Caltrans Standard Plans, detail A88A.
33. Extend the proposed Union Road "Finger" median from the intersection of W. Lathrop Road southerly to limit access of the southerly most driveway to a right-in/right-out. Specific design requirements shall be as directed by the Engineering Department during the Improvement Plan Review.

Water

34. Improvements shall be designed and constructed in conformance with the latest version of the City Water Master Plan.
35. The City's Water Master Plan and User Rate Charges are currently being analyzed and updated by HydroScience. The update of the Master Plan is anticipated to be completed in late 2023. The Water Master Plan will identify improvement projects that need to be engineered and constructed for both the distribution system and the treatment systems. As the needed projects, both distribution and treatment, are identified, and associated costs estimated, user rates, connection charges, and Public Facilities Implementation Plan (PFIP) fees will likely increase. New development projects will have to pay the following fees, as adopted by the City Council, that are in place at the time of development/permit issuance: (1) User Rate Charges, (2) Connection Charges, and (3) PFIP fees.

36. Existing wells within the boundary of the proposed development which are not approved for use by the City, shall be abandoned in accordance with San Joaquin County Public Health Services requirements.
37. Fire hydrant locations shall be as approved by the Fire Department and finalized during the Building Permit review process. Developer shall provide and install fire hydrant "blue dot" reflective markers prior to issuance of the first building permit.
38. The onsite water line shall be maintained by the Property Owner.
39. The onsite fire system shall be maintained by the Property Owner in perpetuity, in accordance with National Fire Protection Association (NFPA) 25 Fire Code, as amended.
40. Developer shall install double check detector check valves (DCDCV) where the fire hydrant/fire service line enters the site from the public water system. The DCDCV shall be installed on private property immediately adjacent to the City right-of-way or a dedicated City access easement and shall be maintained by the property owner.
41. Developer shall install one meter for the domestic water system for this project. The meter shall be installed at an accessible location within the public utility easement, adjacent to the City's ROW. Piping and appurtenances downstream of the water meter are private and will be maintained by the property owner.
42. Developer shall install a backflow prevention device immediately downstream of the water meter. The backflow prevention device shall be maintained by the Property Owner.
43. Developer may install a separate water meter for the landscape irrigation system. The meter shall be installed at an accessible location within the public utility easement, adjacent to the City's ROW or waterline maintenance and access easement. Piping and appurtenances downstream of the water meter are private and will be maintained by the Property Owner. Irrigation water from the potable system shall be protected with a reduced pressure backflow device.
44. Developer is allowed a single connection to the City's water main on N. Lathrop Road and a single connection on W. Lathrop Road. The domestic water system and the landscape water system will separate off of this single connection just before the water meters.
45. Developer shall pay fees associated with the Reclaimed Water Master Plan for all houses within this subdivision for which a building permit is issued after adoption of said Reclaimed Water Master Plan and fees by the City Council of Manteca.
46. Existing service connections to the City's water mains which will not be used by this project shall be abandoned, as directed by the City of Manteca.

Storm Drainage

47. Improvements shall be designed and constructed in conformance with the latest edition of the Storm Drain Master Plan, the City's Post-Construction Manual and City Standards.
48. A preliminary storm drainage plan shall be submitted to the City Engineer for approval concurrently with the first improvement plan submittal. The plan shall be accompanied by calculations for peak flows, total runoff, pipe sizes, detention basin volume and evidence of historical groundwater depth.
49. No under sidewalk drainage is allowed within the City's right-of-way. Developer shall extend the existing storm drain pipe in N. Union Road northerly and install an inlet, in accordance with City Standards. The detailed review and approval of the project's storm drain solution shall be done with the Building Permit review.
50. All drain inlets shall be marked "No Dumping - Drains to River". Drain markers shall be purchased from the City of Manteca at cost plus 15% administrative charge, and installed by the Developer prior to acceptance of the improvements.
51. Developer shall incorporate appropriate site design measure(s) and submit the results of the Post-Construction Runoff Standards Manual. The City of Manteca approval of the proposed measures is precedent to issuance of any building, grading or construction permits.
52. Developer shall develop and submit a Project Stormwater Plan that identifies the methods to be employed to reduce or eliminate stormwater pollutant discharges through the construction, operation and maintenance of source control measures, low impact development design, site design measures, stormwater treatment control measures, and hydromodification control measures. Design and sizing requirements shall comply with the 2015 Post- Construction Stormwater Standards Manual. City of Manteca approval of the Project Stormwater Plan is precedent to issuance of any building, grading, or construction permits. An electronic copy of the Project Stormwater Plan shall be provided to the City of Manteca
53. Developer shall develop a hydromodification management plan to ensure the post-project stormwater runoff flow rate shall not exceed estimated pre-project flow rate for the 2-year, 24-hour storm. The hydromodification management plan shall be incorporated into the Project Stormwater Plan.
54. Developer shall develop and submit an Operations and Maintenance Plan that identifies the operations, maintenance, and inspection requirements of all stormwater treatment and baseline hydromodification control measures identified in the approved Project Stormwater Plan. City of Manteca approval of the preliminary Operations and Maintenance Plan is precedent to issuance of any building, grading, or construction permits. An electronic copy of the Maintenance Plan shall be provided to the City of Manteca.
55. City of Manteca approval of the final Operations and Maintenance Plan and recordation of the Maintenance Access Agreement is precedent to first building final inspection for this project. Two paper copies and an electronic copy of the final Operations and Maintenance Plan shall be provided to the City of Manteca.

56. Post-Construction Management Practices shall conform to the City's adopted Multi-Agency Post Construction Stormwater Standards Manual.

57. Where conflict between standards arises, the standard most-protective to water quality, to public health and safety, and against flooding shall be utilized.

58. Prior to any land disturbing construction activities occurring on a project, Developer shall meet the requirements of NPDES. For sites exceeding 1 acre of disturbance area that are deemed non-exempt, contractor shall prepare and submit a Storm Water Pollution Prevention Plan (SWPPP) and apply for a permit under the California General Construction NPDES permit. SWPPP shall be prepared and signed by a Qualified SWPPP Developer (QSD) certified by the State Water Resources Control Board. All modifications to SWPPP shall be implemented by a QSD in responsible charge for the project. The SWPPP shall be implemented under the supervision of a Qualified SWPPP Practitioner (QSP). For permit information, contact the State Water Resources Control Board (SWRCB) at:

    State Water Resources Control Board
    PO Box 1977, Sacramento, CA 95812-1977
    Attn: Storm Water Permitting Section
    Telephone: (916) 341-5537

    To log in to the SWRCB Storm Water Multiple Application and Report Tracking System (SMARTS) to enter site information and apply for permit, please contact the City of Manteca Engineering Department to establish a project and authorize data entry access.

    All other sites shall conform to the City of Manteca Standards, the California Green Building Standards, and Section E.10 of the NPDES permit 2013-0001-DWQ. All construction involving land disturbing activities shall submit for approval an Erosion Control and Sedimentation Plan (ESCP) prepared and signed by a QSD. All ESCP treatment measures and BMPs must be maintained at all times until construction is completed and the site is stabilized as defined under the Construction General NPDES permit.

    Prior to issuance of the first grading or building permit for a project, a copy of the SWPPP or ESCP shall be submitted by the developer and approved by Authorized Signatory or Legally Responsible Person (LRP) for the City's NPDES program. Contact the City of Manteca Engineering Department to identify appropriate person for review and approval of plans and documents.

59. It is recognized that the design and calculations which have been submitted thus far to demonstrate this project's compliance with the City's Post-Construction Stormwater Standards Manual are approved for project entitlements but may require further refinement for final approval, which is precedent to issuance of any building, grading, or construction permits.

60. Bioretention areas which are adjacent to the City sidewalk shall include a one-foot (1') wide flat area behind the sidewalk prior to the start of the bioretention area side slope.

61. Developer shall pay fair-share costs for storm drainage improvements, including improvements downstream to improve capacity or water quality treatments needed to conform to current Storm Drain Master Plan, City standards and support the development.
62. Developer shall complete the CDD development memorandum, required by Storm Drainage Agreement Amendment No. 1, and submit it to SSJID for review.

Sanitary Sewer

63. Improvements shall be designed and constructed in conformance with the latest version of the City Wastewater Collection System Master Plan and City Standards.
64. The City's Sewer Master Plan and User Rate Charges are currently being analyzed and updated by Stantec. The update of the Master Plan is anticipated to be completed in late 2023. The Sewer Master Plan will identify improvement projects that need to be engineered and constructed for both the collection system and the Wastewater Quality Control Facility (WQCF). As the needed projects, both collection and at the WQCF are identified, and associated costs estimated, user rates, connection charges, and Public Facilities Implementation Plan (PFIP) fees will likely increase. New development projects will have to pay the following fees, as adopted by the City Council, that are in place at the time of development/permit issuance: (1) User Rate Charges, (2) Connection Charges, and (3) PFIP fees.
65. A manhole shall be located at the back of the sidewalk, adjacent to City right-of-way, where the sanitary sewer main enters the development. This manhole shall be the end of the City's maintenance responsibility for the sanitary sewer system.
66. Any existing septic tank(s) on the property that will not be approved by the City shall be abandoned in accordance with the permitting requirements of the San Joaquin County Environmental Health Department prior to issuance of the first building permit.
67. A preliminary sewer plan shall be submitted to the City Engineer for approval concurrently with the first improvement plan submittal. The plan shall be accompanied by calculations for peak wet weather flows showing pipe sizes and slopes for the entire development.
68. The detailed review and approval of the project's sanitary sewer solution shall be done with the Building Permit review. No force mains will be allowed within the City's right-of-way.

City of Manteca Fire Department

1. Building "B" - deferred submittals for Fire Sprinklers and Fire Alarm.

2. Building "A" - deferred submittal for Fire Alarm.

City of Manteca Municipal Code:

907.2. Where required-automatic fire detection system*. A Fire Department approved automatic fire detection system installed in accordance with this code and NFPA 72 shall be provided in accordance with Sections 907.2.1 through 907.2.23 or:*
1. Every building hereafter constructed in which the total floor area is between 3,000 and 6,000 square feet.
2. Every building hereafter remodeled when the cost of remodeling exceeds $100,000 and the total floor area is between 3,000 and 6,000 square feet. The $100,000 valuation shall be based on building valuation data published by the International Conference of Building Officials within a 12-month period. Not fewer than one manual fire alarm box shall be provided in an approved locations to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

Exceptions:
1. *The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.*
2. *The manual fire alarm box is not required for Group R-2 occupancies unless required by the fire code official to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is open to the public.*

3. Private hydrant will be needed within the property for Fire Fighting Operations and within 100 feet of the Fire Department Connection.

City of Manteca Public Works – Park Planning & Projects

1. Trees along Union Road and Lathrop Road shall be outside of the Public Right-of-Way (ROW).

2. Existing street trees along Lathrop Road shall be protected in place unless removed for driveway entrance. Any irrigation revisions shall be coordinated with the Parks Department prior to construction.

3. New planter at back of curb shall receive 24” box tree to match existing tree species on Lathrop Road.

City of Manteca Information Technology Department, GIS Division

1. The proposed Circle K will use the existing address of 2064 NORTH UNION ROAD. The proposed AutoZone will be assigned 2080 NORTH UNION ROAD.

San Joaquin County Environmental Health Department

1. This project shall comply with all applicable requirements from the San Joaquin County Environmental Health Department.

San Joaquin Valley Air Pollution Control District

1. This project shall comply with all applicable requirements from the San Joaquin Valley Air Pollution Control District.

San Joaquin County Multi-Species Habitat Conservation (Laurel Boyd, Habitat Planner)

1. This project is subject to the SJMSCP. If you have any questions, please call (209) 235-0600.

SALEM engineering group, inc.

8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730
(909) 980-6455 Office
(909) 980-6435 Fax

December 15, 2023 **Job No. 4-423-0090**

Ms. Tenea Davis
Manteca 18, LLC
1925 Village Center Circle, Suite 150
Las Vegas, NV 89314

Subject: **TRAFFIC IMPACT ANALYSIS**
Proposed Commercial Development
2064 North Union Road
Manteca, California

Dear Ms. Davis:

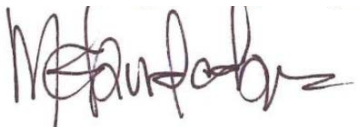
At your request and authorization, a Traffic Memorandum to include the Trip Generation and VMT Screening for the above-referenced project located at 2064 North Union Road in the City of Manteca, California (subject property) was conducted by SALEM's Traffic subconsultant (see following report).

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed project, Crossroads Plaza, to be located at 2064 North Union Road in the City of Manteca. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from the development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Manteca via a scoping agreement and is pursuant to applicable City of Manteca traffic impact analysis guidelines. The proposed project development includes a twelve-pump gas station with a 5,200 square feet convenience store, and a 6,816 square-foot automobile supply store. Site access is planned via two right-in/right-out (RI/RO) driveways, the first on North Union Road and the second on West Lathrop Road. The site is currently zoned as CN for Neighborhood Commercial per the City of Manteca General Plan. The project site is currently vacant. The proposed project is anticipated to be built and generating trips in 2024.

Please refer to the following report for details resulting from this TIA. We appreciate the opportunity to assist you with this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (909) 980-6455.

Respectfully submitted,

SALEM Engineering Group, Inc.



Maria G. Ruvalcaba, EP
Project Manager

ATTACHMENT 6

Crossroads Plaza
Traffic Impact Analysis

City of Manteca, California

December 15, 2023

Prepared by:

TJW ENGINEERING, INC.
9841 Irvine Center Drive, Suite 200
Irvine, CA 92618
949.878.3509 | www.tjwengineering.com

ATTACHMENT 6

TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

December 15, 2023

Ms. Maria Ruvalcaba
SALEM ENGINEERING, INC.
8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730

Subject: Traffic Impact Analysis – Crossroads Plaza, 2064 North Union Road, City of Manteca

Dear Ms. Ruvalcaba:

TJW ENGINEERING, INC. (TJW) is pleased to present you with this traffic impact analysis for the proposed project, Crossroads Plaza, located at 2064 North Union Road in the City of Manteca. This traffic study has been prepared to meet the traffic study requirements for the City of Manteca and assess the forecast traffic operations associated with the proposed project and its impact on the local street network. This report is being submitted to you for review and forwarding to the City of Manteca.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,

Gene Kim, PE, TE
Principal Engineer

David Chew, PTP
Transportation Planner

Registered Civil Engineer *#83175*
Registered Traffic Engineer *#2684*

Daniel Flores, EIT
Project Engineer

ATTACHMENT 6

Crossroads Plaza
Traffic Impact Analysis

City of Manteca, California

December 15, 2023

Prepared for:
Ms. Maria G Ruvalcaba
SALEM ENGINEERING, INC.
8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730

Prepared by:
Gene Kim, PE, TE
David Chew, PTP
Daniel Flores, EIT

TJW ENGINEERING, INC.
9841 Irvine Center Drive, Suite 200
Irvine, CA 92618
949.878.3509 | www.tjwengineering.com

Table of Contents

List of Tables

List of Exhibits

Appendices

Appendix A: Scoping Agreement and City Docs
Appendix B: Existing Traffic Counts
Appendix C: HCM Analysis Sheets

1.0 EXECUTIVE SUMMARY

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed project, Crossroads Plaza, located at 2064 North Union Road in the City of Manteca. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from the development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Manteca via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Manteca traffic impact analysis guidelines.

The proposed project consists of a 12-pump gas station with a 5,200 square foot convenience store and a 6,816 square foot auto supply store. Site access is planned via two right-in/right-out (RI/RO) driveways, the first on North Union Road and the second on West Lathrop Road. The site is currently zoned as CN for Neighborhood Commercial per the City of Manteca General Plan. The project site is currently vacant. The proposed project is anticipated to be built and generating trips in 2024.

The proposed project is projected to generate 984 daily trips, 95 AM peak hour trips, and 87 PM peak hour trips.

The following four (4) intersections and two (2) roadway segments in the vicinity of the project site have been included in the level of service (LOS) analysis:

Intersections:

1. North Union Road/West Lathrop Road.
2. Arrowsmith Drive/West Lathrop Road.
3. Project Driveway #1/West Lathrop Road, and
4. North Union Road/Project Driveway #2.

Roadway Segments:

1. North Union Road south of West Lathrop Road; and
2. West Lathrop Road east of North Union Road.

The study intersections are analyzed for the following study scenarios:

- Existing Traffic Conditions (Existing);
- Opening Year Traffic Plus Projects Conditions (Opening Year with Cumulative Projects + Proposed Project).
- Cumulative Traffic Conditions (Horizon Year 2040 with Cumulative Projects); and

- Cumulative Traffic Plus Project Conditions (Horizon Year 2040 with Cumulative Projects + Proposed Project).

1.1 SUMMARY OF LEVEL OF SERVICE ANALYSIS RESULTS

Table ES-1 summarizes the results of the intersection level of service analysis based on the City of Manteca thresholds of significance for analyzing transportation deficiencies.

Table ES-1
Summary of Transportation Deficiencies at Study Intersections

Intersection			Existing	Opening Year	Cumulative No Project	Cumulative With Project
1	North Union Road	West Lathrop Road	No Deficiencies	No Deficiencies	No Deficiencies	No Deficiencies
2	Arrowsmith Drive	West Lathrop Road	No Deficiencies	No Deficiencies	No Deficiencies	No Deficiencies
3	West Lathrop Road	Project Driveway #1	No Deficiencies	No Deficiencies	No Deficiencies	No Deficiencies
4	North Union Road	Project Driveway #2	No Deficiencies	No Deficiencies	No Deficiencies	No Deficiencies

Existing Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Existing* conditions.

Opening Year Traffic Plus Project Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Opening Year Traffic Plus Project* conditions.

Cumulative Traffic Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Cumulative Traffic* conditions.

Cumulative Traffic Plus Project Conditions

The study intersections are projected to operate at an acceptable LOS during the AM and PM peak hours for *Cumulative Traffic Plus Project* conditions.

1.2 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

Wherever necessary, roadways adjacent to the proposed project site and site access points will be constructed in compliance with recommended roadway classifications and respective cross-sections in the City of Manteca General Plan or as directed by the City Engineer.

Sight distance at each project access point should be reviewed with respect to standard Caltrans and City sight distance standards at the time of final grading, landscaping, and street improvement plans.

Signing/striping should be implemented in conjunction with detailed construction plans for the project site.

2.0 INTRODUCTION

This traffic impact analysis (TIA) analyzes the projected traffic operations associated with the proposed project, Crossroads Plaza, located at 2064 North Union Road in the City of Manteca. The purpose of this TIA is to evaluate potential circulation system deficiencies that may result from the development of the proposed project, and to recommend improvements to achieve acceptable operations, if applicable. This analysis has been prepared in coordination with the City of Manteca via a scoping agreement (See **Appendix A**) and is pursuant to applicable City of Manteca traffic impact analysis guidelines.

2.1 PROJECT DESCRIPTION

The proposed project consists of a 5,200 square foot convenience store and a 6,816 square foot auto supply store. Site access is planned via two right-in/right-out (RI/RO) driveways, the first on North Union Road and the second on West Lathrop Road. The site is currently zoned as CN for Neighborhood Commercial per the City of Manteca General Plan. The project site is currently vacant. The proposed project is anticipated to be built and generating trips in 2025.

Exhibit 1 shows the project site location. **Exhibit 2** shows the proposed project site plan.

2.2 STUDY AREA

The following four (4) intersections and two (2) roadway segments in the vicinity of the project site have been included in the level of service (LOS) analysis:

Intersections:
1. North Union Road/West Lathrop Road
2. Arrowsmith Drive/West Lathrop Road
3. West Lathrop Road/Project Driveway #1
4. North Union Road/Project Driveway #2

Roadway Segments:
1. North Union Road south of West Lathrop Road
2. West Lathrop Road east of North Union Road

The study intersections and roadway segments are all located within the City of Manteca. This traffic analysis follows the *City of Manteca Transportation Impact Analysis Guidelines.*

Exhibit 1 shows the location of the study intersections and roadway segments which are analyzed for the following study scenarios:

- Existing Traffic Conditions (Existing);
- Opening Year Traffic Plus Projects Conditions (Opening Year with Cumulative Projects + Proposed Project);
- Cumulative Traffic Conditions (Horizon Year 2040 with Cumulative Projects); and
- Cumulative Traffic Plus Project Conditions (Horizon Year 2040 with Cumulative Projects + Proposed Project).

Traffic operations are evaluated for the following time periods:

- Weekday AM Peak Hour occurring between 7:00 AM to 9:00 AM; and
- Weekday PM Peak Hour occurring between 4:00 PM to 6:00 PM.

2.3 ANALYSIS METHODOLOGY

2.3.1 Intersection Analysis Methodology

The traffic analysis focuses on the project's off-site traffic-related impacts at the traffic study area intersections and on the study area roadway segments. In accordance with the City of Manteca Transportation Impact Study Guidelines, intersection operation for both signalized and unsignalized intersections is evaluated using the methodology of the Highway Capacity Manual (HCM) 7th Edition (Transportation Research Board, 2022).

The Highway Capacity Manual uses Level of Service (LOS) to describe the quality of flow on roadways and at intersections using a range from LOS A, or very favorable progression, to LOS F, or very poor progression. The LOS definitions for interruption of traffic flow differ depending on the type of traffic control (traffic signal, unsignalized intersection with side street stops, unsignalized intersection with all-way stops).

The Highway Capacity Manual LOS ranges for signalized intersections is based on the intersection's average control delay for all movements at the intersection during the peak hour. Control delays include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Table 1 identifies each Level of Service category with the corresponding general characteristics of traffic flow plus accompanying delay ranges at signalized intersections.

Table 1

HCM – LOS & Delay Thresholds – Signalized Intersections

Level of Service	Description	Delay (in seconds)
A	Very favorable progression: most vehicles arrive during green signal and do not stop. Short cycle lengths.	0 – 10.00
B	Good progression, short cycle lengths. More vehicles stop than for LOS A.	10.01 – 20.00
C	Fair progression; longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.	20.01 – 35.00
D	Progression less favorable, longer cycle length and high flow/capacity ratio. The proportion of vehicles that pass through without stopping diminishes. Individual cycle failures are obvious.	35.01 – 55.00
E	Severe congestion with some long-standing queues on critical approaches. Poor progression, long cycle lengths and high flow/capacity ratio. Individual cycle failures are frequent.	55.01 – 80.00
F	Very poor progression, long cycle lengths and many individual cycle failures. Arrival flow rates exceed capacity of intersection.	> 80.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM 7th Edition (Washington D.C., 2022).

The Highway Capacity Manual LOS range for unsignalized intersections is based on the weighted average control delay expressed in seconds per vehicle. At a two-way or side-street stop-controlled intersection, LOS is calculated for each stop-controlled minor street movement, for the left-turn movement(s) from the major street, and for the intersection as a whole. For approaches consisting of a single lane, the delay is calculated as the average of all movements in that lane. For all-way stop-controlled intersections, LOS is computed for the intersection as a whole. **Table 2** describes the general characteristics of traffic flow and accompanying delay ranges at unsignalized intersections.

Table 2

HCM – LOS & Delay Thresholds – Unsignalized Intersections

Level of Service	Description	Delay (in seconds)
A	Little or no delays.	0 – 10.00
B	Short traffic delays.	10.01 – 15.00
C	Average traffic delays.	15.01 – 25.00
D	Long traffic delays. Multiple vehicles in queue.	25.01 – 35.00
E	Very long delays. Demand approaching capacity of intersection	35.01 – 50.00
F	Very constrained flow with extreme delays and intersection capacity exceeded.	> 50.01

Source: Transportation Research Board, *Highway Capacity Manual*, HCM 7th Edition (Washington D.C., 2022).

This study utilizes *PTV Vistro 2022* analysis software for all signalized and unsignalized intersections. Vistro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis specified in Chapter 16 of the HCM. The level of service and capacity analysis performed within Vistro takes into consideration the optimization and coordination of signalized and unsignalized intersections within a network.

2.3.2 Roadway Segment Analysis Methodology

The City of Manteca Transportation Impact Analysis Guidelines utilizes the Highway Capacity Manual to evaluate roadway segment daily capacity and corresponding LOS for each roadway classification. LOS is estimated by comparing the two-way 24-hour traffic volumes on the roadway segment to the daily roadway capacity, based on its functional classification. This comparison results in a volume-to-capacity (v/c) ratio, which represents the percentage of the daily vehicular capacity that is required to accommodate the daily traffic volume. **Table 3** presents the LOS range based on daily roadway segment capacity.

Table 3
HCM – LOS & Capacity Thresholds – Roadway Segments

Number of Lanes	Maximum Daily Two-Way Traffic Volume (ADT[1])				
	LOS A	LOS B	LOS C	LOS D	LOS E
2	8,400	9,300	11,800	14,700	17,300
4	18,600	20,600	26,000	32,500	38,200
6	28,800	32,000	40,300	50,400	59,300
8	38,100	42,300	53,300	66,600	78,400

Source: City of Manteca Transportation Impact Analysis Guidelines
1: ADT = Average Daily Traffic

2.4 PERFORMANCE CRITERIA

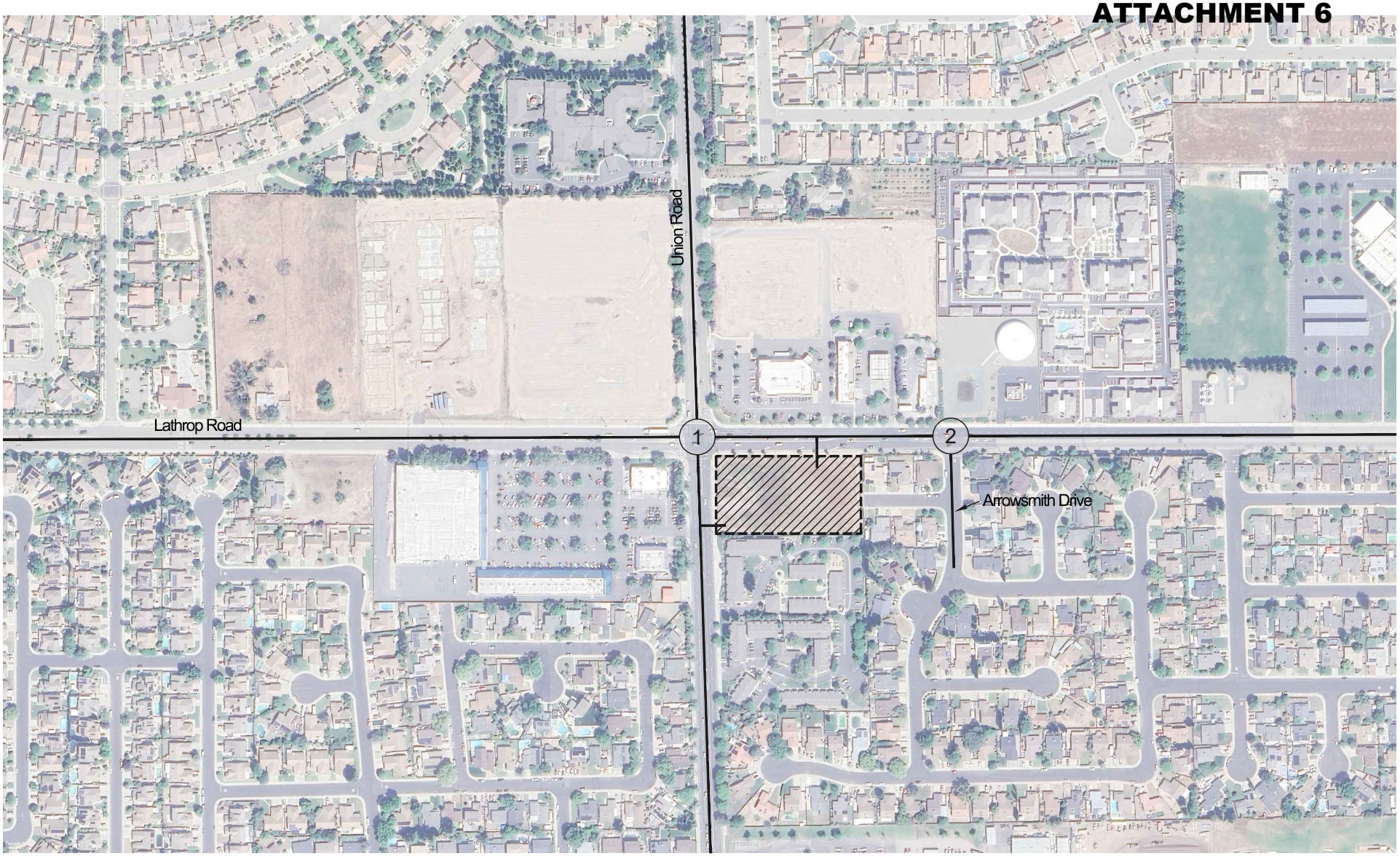
2.4.1 City of Manteca

The City of Manteca General Plan has established the level of service "D" or better as acceptable LOS for all intersections and roadways within the designated street and highway system in the General Plan Circulation Element. For the purposes of analyzing the proposed project's impact on traffic conditions, the City of Manteca Transportation Impact Study Guidelines identify significant impacts through a comparison of "no project" and "with project" traffic conditions.

For signalized and unsignalized intersections, impact is established if the project causes the LOS to change from an acceptable LOS under "no project" conditions to an unacceptable LOS under "with project" conditions. In addition, should the intersection under existing "no project" conditions operate at an unacceptable LOS, the project has an impact if the average vehicle delay increases by five (5) seconds or more.

For roadway segments, impact is established if the project causes the LOS to change from an acceptable LOS under "no project" conditions to an unacceptable LOS under "with project" conditions. Additionally, the project is determined to have an impact should it increase the daily volume-to-capacity ratio (v/c) by more than 0.1.

ATTACHMENT 6



Legend:

Project Site

(#) Study Intersection Location

Exhibit 1: Proposed Project Location

Crossroads Plaza Trip Gen

SEG-23-002

Not to Scale

TJW ENGINEERING, INC.

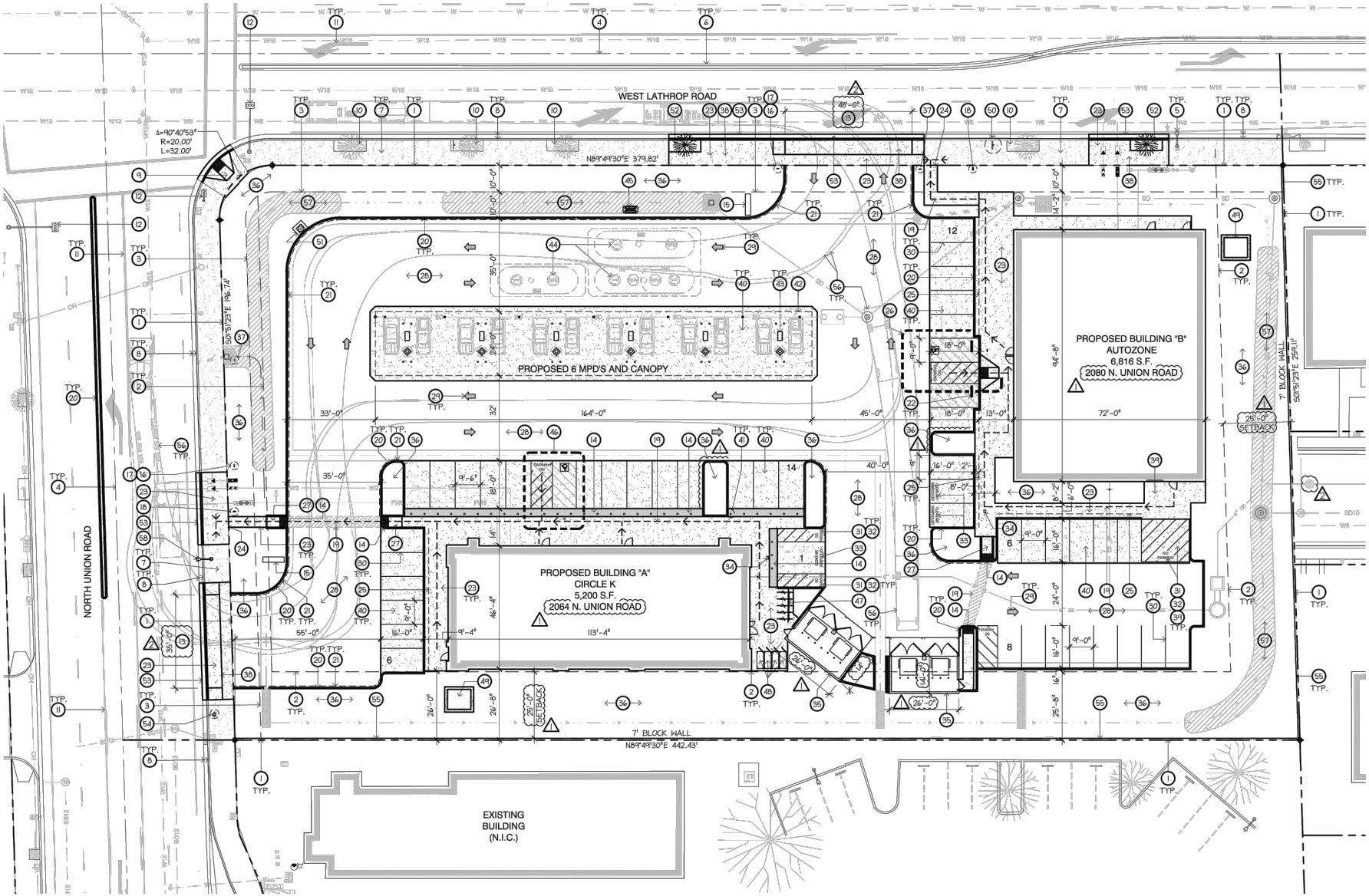


Exhibit 2: Proposed Project Site Plan

Crossroads Plaza Trip Gen

SEG-23-002

Not to Scale

TJW ENGINEERING, INC.

3.0 EXISTING CONDITIONS

3.1 EXISTING CIRCULATION NETWORK/STUDY AREA CONDITIONS

The characteristics of the roadway system within the vicinity of the project site are described in **Table 4.**

Table 4
Roadway Characteristics within Study Area

Roadway	Classification[1]	Jurisdiction	Direction	Existing Travel Lanes	Median Type[2]	Speed Limit (mph)	On-Street Parking
North Union Road	Arterial	Manteca	North-South	4	NM	40	No
West Lathrop Road	Arterial	Manteca	East-West	4	RM	45	No

1: Source: City of Manteca General Plan (April 2023)
2: TWLTL = Two-Way Left-Turn Lane, RM= Raised Median, NM = No Median.

Exhibit 3 shows the existing conditions of the study area intersection controls and roadway geometry.

3.2 CITY OF MANTECA GENERAL PLAN CIRCULATION ELEMENT

The proposed project site is located within the City of Manteca. **Appendix A** contains the current *City of Manteca General Plan Circulation Element* and an explanation of roadway cross sections.

3.3 EXISTING BICYCLE AND PEDESTRIAN FACILITIES

Within the study area, a Class II bike lane exists on North Union Road south of West Lathrop Road.

3.4 EXISTING PUBLIC TRANSIT SERVICES

The City of Manteca is served by the Manteca Transit which provides bus service throughout the City of Manteca. Manteca Transit Route 3 has a stop on North Union Road 95 feet from the south border of the proposed project. **Appendix A** shows the routes in the vicinity of the project site.

3.5 EXISTING TRAFFIC VOLUMES

To determine the existing operation of the study intersections, AM and PM peak period traffic volumes were estimated based on new traffic counts collected on November 14, 2023. Detailed traffic count data is provided in **Appendix B**. **Exhibit 4** shows existing AM and PM peak hour volumes at the study intersections.

3.6 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE ANALYSIS

Existing conditions AM and PM peak hour intersection analysis is shown in **Table 5**. Calculations are based on the existing geometrics at the study area intersections as shown in **Exhibit 3.** HCM analysis sheets are provided in **Appendix C**.

Table 5

Intersection Analysis – Existing Conditions

Intersection			Control Type	Peak Hour	Existing Conditions	
					Delay (s/veh)	LOS
1	North Union Road	West Lathrop Road	Signal	AM	32.00	C
				PM	33.20	C
2	Arrowsmith Drive	West Lathrop Road	TWSC	AM	17.32	C
				PM	14.48	B

Note: TWSC = Two-Way Stop-Control; Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall average delay and LOS are shown. For intersections with one or two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown, the study intersections are currently operating at an acceptable LOS during the AM and PM peak hours.

3.7 EXISTING CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE ANALYSIS

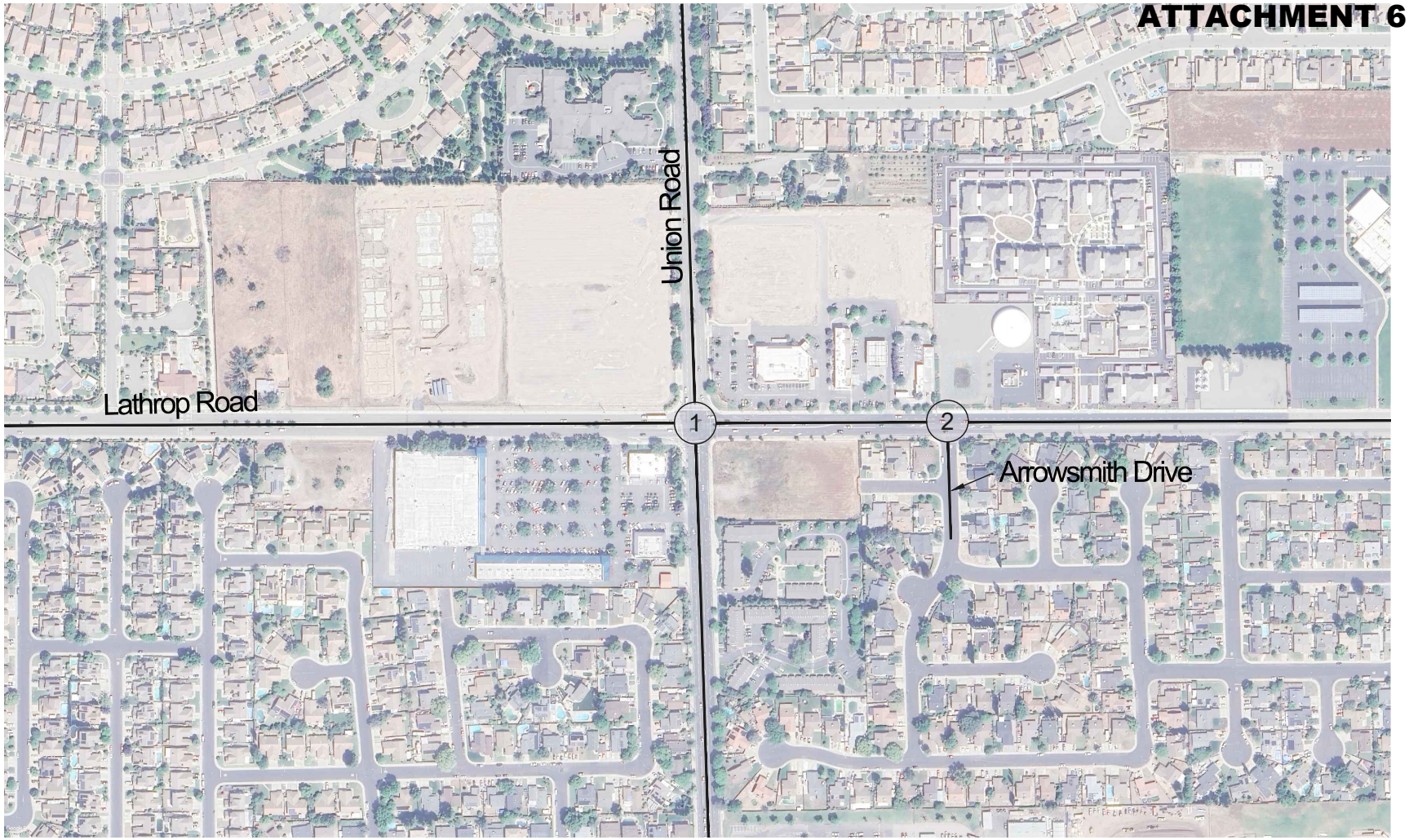
The roadway segment level of service analysis was conducted based on the roadway capacities presented previously in this report. The results of the roadway analysis for Existing Conditions are shown in **Table 6**. Review of this table indicates that the study roadway segments are currently operating at an acceptable level of service on a daily basis.

Table 6

Roadway Segment – Existing Conditions

Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	Existing ADT[1]	V/C	LOS
North Union Road	West Lathrop Road to Sprague Street	Arterial	4	32,500	11,530	0.302	A
West Lathrop Road	North Union Road to Arrowsmith Drive	Arterial	4	32,500	17,180	0.450	A

1: ADT = Average Daily Traffic based on 10% of peak hour volumes.



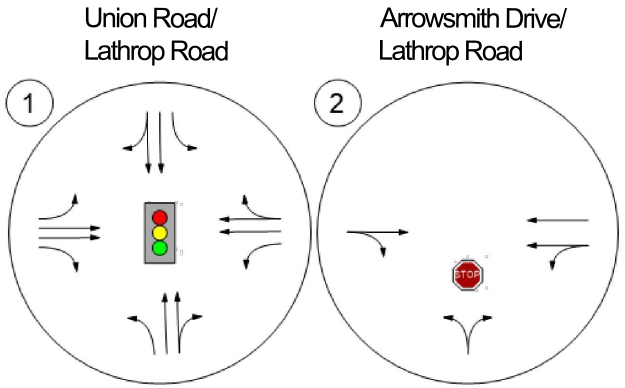
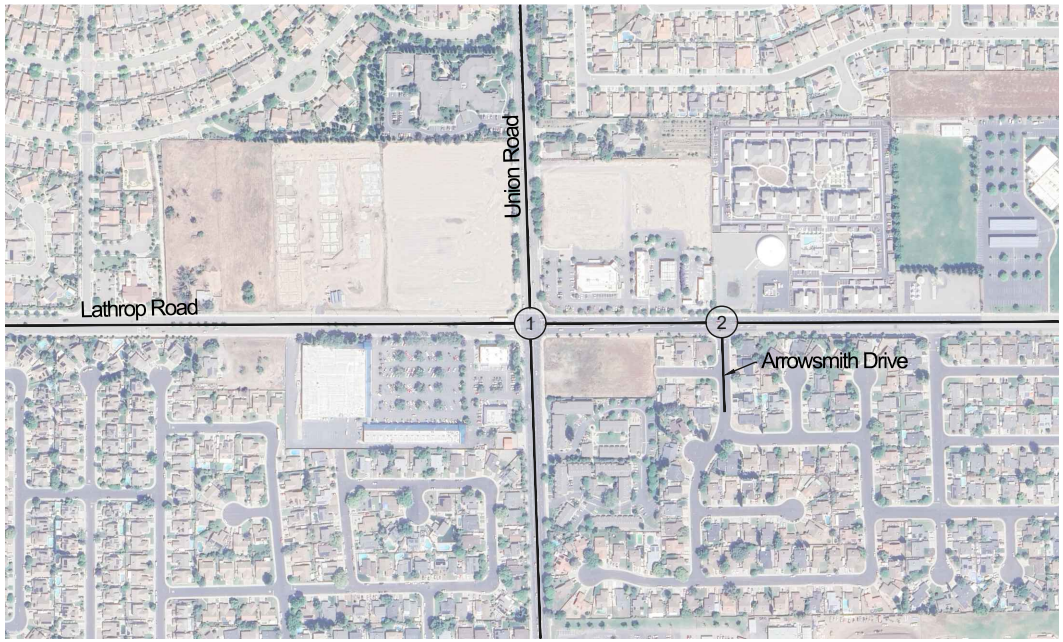
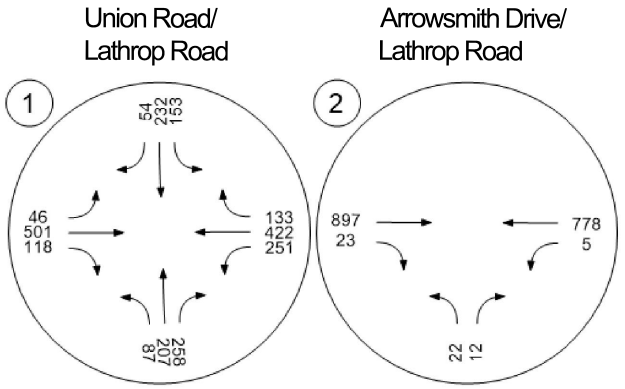


Exhibit 3: Existing Lane Geometry and Intersection Controls

ATTACHMENT 6



AM Peak Hour Volumes



PM Peak Hour Volumes

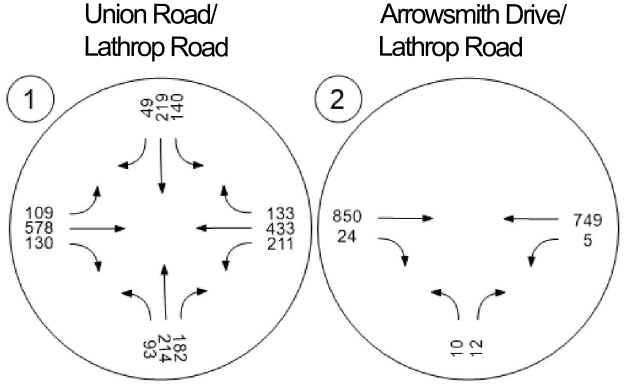


Exhibit 4: Existing AM and PM Peak Hour Volumes

4.0 PROPOSED PROJECT

4.1 PROJECT DESCRIPTION

The proposed project consists of a 5,200 square foot convenience store and a 6,816 square foot auto supply store. Site access is planned via two right-in/right-out (RI/RO) driveways, the first on North Union Road and the second on West Lathrop Road. The site is currently zoned as CN for Neighborhood Commercial per the City of Manteca General Plan. The project site is currently vacant. The proposed project is anticipated to be built and generating trips in 2025.

Exhibit 2 as previously shown displays the proposed project site plan.

4.2 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic, both inbound and outbound, produced by a development. Determining trip generation for a proposed project is based on projecting the amount of traffic that the specific land uses being proposed will produce. Industry standard *Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021)* trip generation rates were used to determine trip generation of for most of the proposed project land uses.

Table 7 summarizes the projected AM peak hour, PM peak hour, and daily trip generation of the proposed project. The proposed project is projected to generate 984 net daily trips with 95 net AM and 87 net PM peak hour trips.

Table 7

Proposed Project Trip Generation

Proposed Land Use[1]	ITE Code	Qty	Unit[2]	Daily		AM Peak Hour					PM Peak Hour				
				Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Convenience Store/Gas Station, GFA (4-5.5k), VFP (>8)	945	12.00	VFP	257.13	3,086	27.04	50:50	162	162	324	22.76	50:50	137	136	273
Pass-By Trips (0.75 Daily, 0.76 AM, 0.75 PM)					*-2,315*			*-123*	*-123*	*-246*			*-103*	*-102*	*-205*
Automobile Parts Sales	843	6.82	TSF	54.57	372	2.51	55:45	9	8	17	4.9	48:52	16	17	33
Pass-By Trips (0.43 Daily, 0.43 PM)					*-160*			*0*	*0*	*0*			*-7*	*-7*	*-14*

Results	Daily	Volume	AM Peak Hour	In	Out	Total	PM Peak Hour	In	Out	Total
Subtotal		3,458		171	170	341		153	153	306
Pass-By Trips		-2,474		-123	-123	-246		-110	-109	-219
Net Total		**984**		**48**	**47**	**95**		**43**	**44**	**87**

1: Trip generation and pass-by rates from ITE Trip Generation (11th Edition, 2021).

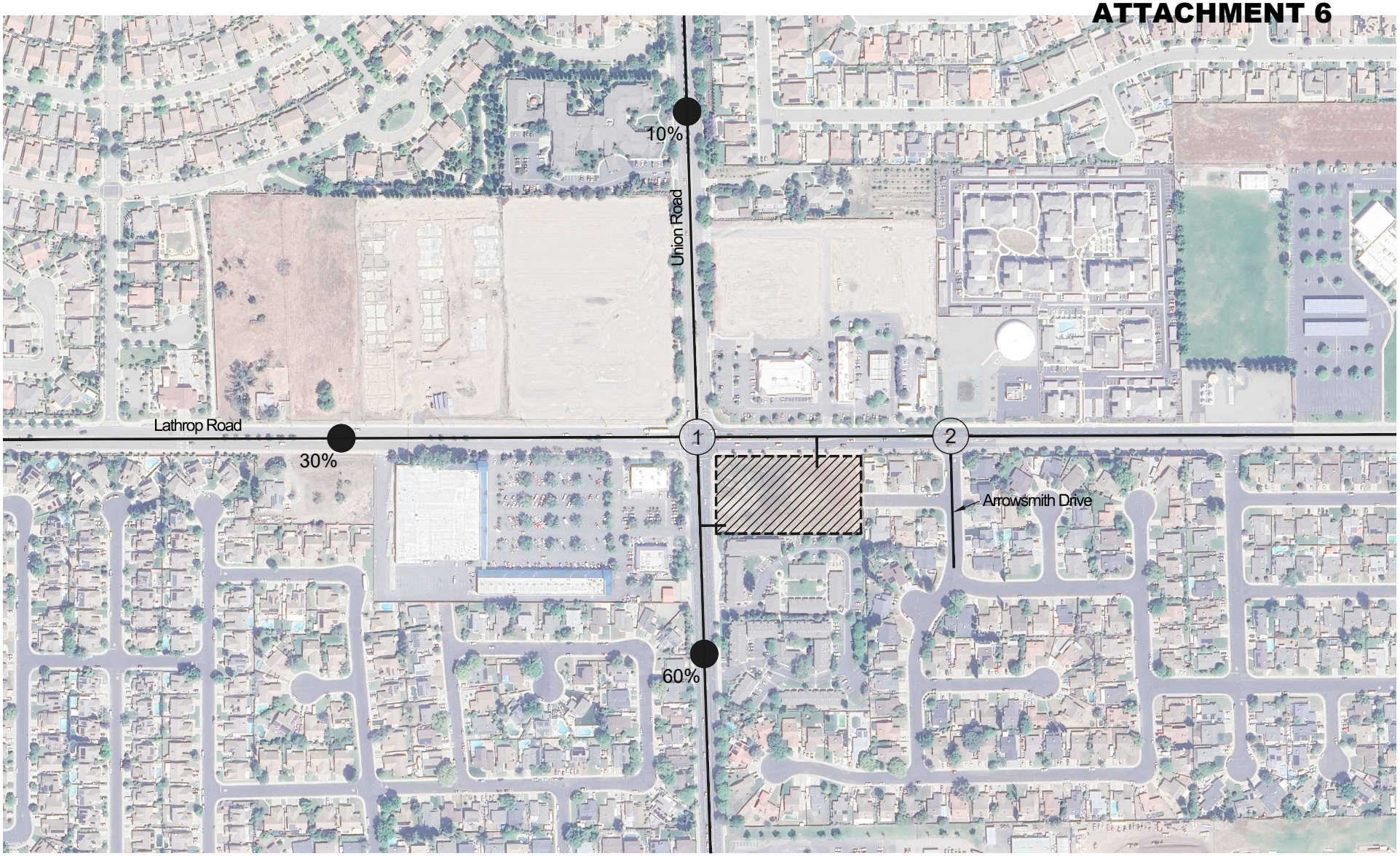
2: TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions.

4.3 PROJECT TRIP DISTRIBUTION

Projecting trip distribution involves identifying probable destinations and traffic routes used by the proposed project's traffic. Potential interaction between proposed land use and surrounding regional access routes are considered to identify probable routes onto which project traffic would distribute. The projected trip distribution for the proposed project is based on anticipated travel patterns to and from the project site.

Exhibit 5 shows the projected trip distribution of proposed project's generated trips.

ATTACHMENT 6



Legend:

▨	Project Site
(#)	Study Intersection Location
(XX%)	Percent Trip Distribution

Exhibit 6: Project Trip Distribution and Trip Assignment at Study Intersections

Crossroads Plaza Trip Gen

SEG-23-002

Not to Scale

TJW ENGINEERING, INC.

5.0 OPENING YEAR PLUS PROJECT TRAFFIC CONDITIONS (OYP)

Opening Year Plus Project Traffic Conditions (OYP) analysis is intended to identify existing conditions with the proposed project.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the OYP scenario are consistent with those previously shown in **Exhibit 3**.

5.2 CUMULATIVE PROJECTS

This analysis also accounts for the projected impact of other reasonably foreseeable development projects in the study area. These cumulative projects may be in various stages of planning, entitlement, and construction. A list of cumulative projects was developed for this analysis through consultation with City of Rialto staff. A summary of cumulative project land uses is shown in **Table 10**. Cumulative project locations are shown in **Exhibit 6**.

5.3 OYP TRAFFIC VOLUMES

Opening Year Plus Project conditions volumes were estimated based on a yearly growth rate of 2.6% per year from base year (2023) to the proposed project's estimated year of completion (2025).

OYP Traffic Volumes = (Existing (2023) Counts * 1.026^2) + Cumulative Projects + Proposed Project

Exhibit 7 shows *Opening Year Plus Project* AM and PM peak hour volumes at the study intersections.

5.4 OYP INTERSECTION LEVEL OF SERVICE ANALYSIS

Opening Year Plus Project AM and PM peak hour intersection analysis is shown in **Table 8**. HCM analysis sheets are provided in **Appendix C**.

Table 8

Intersection Analysis – OYP Traffic Conditions

Intersection			Control Type	Peak Hour	OYP Conditions	
					ICU/Delay[1]	LOS
1	North Union Road	West Lathrop Road	Signal	AM	43.70	D
				PM	50.30	D
2	Arrowsmith Drive	West Lathrop Road	TWSC	AM	21.15	C
				PM	17.03	C
3	West Lathrop Road	Project Driveway #1	TWSC	AM	13.19	B
				PM	13.66	B
4	North Union Road	Project Driveway #2	TWSC	AM	11.59	B
				PM	11.64	B

Note: TWSC = Two-Way Stop-Control; Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual (HCM) 7th Edition, for signalized intersection, the overall average delay and LOS are shown. For intersections with one or two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Opening Year Plus Project* traffic conditions.

5.5 OYP ROADWAY LEVEL OF SERVICE ANALYSIS

The roadway segment level of service analysis results for *Opening Year Plus Project* traffic conditions scenario are summarized in **Table 9**. Review of this table indicates that the study roadway segment**s** are projected to continue to operate at an acceptable level of service on a daily basis.

Table 9

Roadway Segment – OYP Traffic Conditions

Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	OYP ADT[1]	V/C	LOS
North Union Road	West Lathrop Road to Sprague Street	Arterial	4	32,500	19,356	0.507	B
West Lathrop Road	North Union Road to Arrowsmith Drive	Arterial	4	32,500	22,724	0.595	C

1: ADT = Average Daily Traffic based on 10% of peak hour volumes.

Table 10
Cumulative Project Trip Generation

Project	Land Use[1]	ITE Code[2]	Qty	Unit[3]	Daily		AM Peak Hour					PM Peak Hour				
					Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
									In	Out	Total			In	Out	Total
1. GBX – 2261 Operation Place	From reports provided		294.943	TSF		662			46	21	67			22	45	67
2. Airport Business Centre – 2803 N. Airport Way	From reports provided		141.360	TSF		1,010			73	23	96			39	104	143
3. Airport Business Centre North – 3045, 3123, & 3157 N. Airport Way	From reports provided		360	TSF		1,358			97	42	139			48	91	139
4. CenterPoint South – 2229 & 2273 N. Airport Way	From reports provided		99.514	TSF		494			61	8	69			8	55	63
5. Airport Plaza – 2060 W. Lathrop Rd.	From reports provided					6,150			78	70	148			81	70	151
6. Lathrop Road Commercial -2064 Crestwood Ave.	Strip Retail Plaza (<40k)	822	8.402	TSF	54.45	457	2.36	60:40	12	8	20	6.59	50:50	28	27	55
7. North Manteca Annexation 1 (Just the Union Ranch Subdivision)						5,214			94	273	367			307	180	487
8. Luxury Apartments – 1279 W. Lathrop Rd.	Multifamily Housing (Low-Rise), Not Close to Rail Transit	220(1)	136.000	DU	6.74	917	0.4	24:76	13	41	54	0.51	63:37	43	26	69
9. Woodbridge Retail West – 2155, 2127, & 2193 N. Union Rd.	From reports provided					4,254					320					313

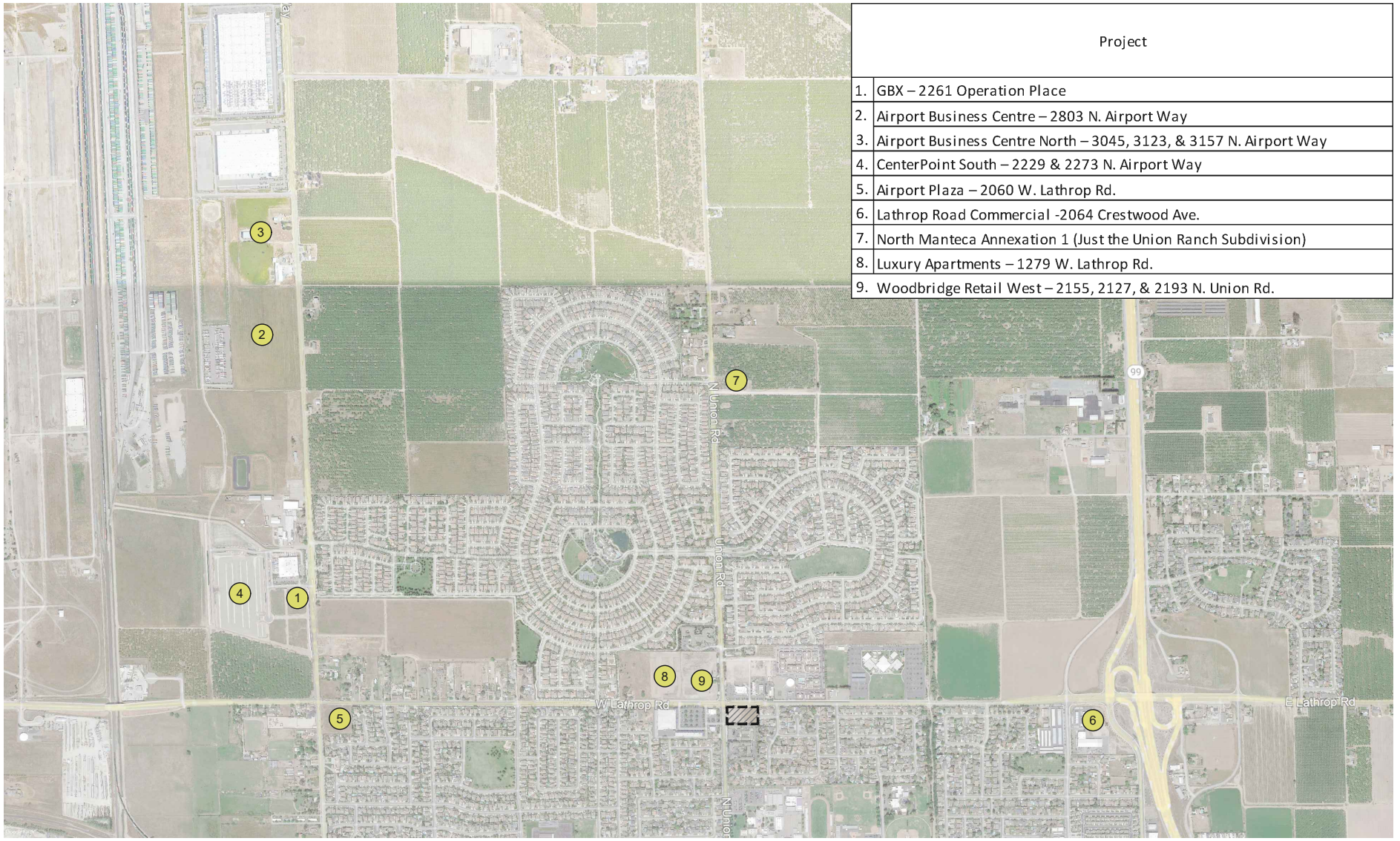
Results	Daily	Volume	AM Peak Hour	In	Out	Total	PM Peak Hour	In	Out	Total
Subtotal		20,516		474	486	1,280		576	598	1,487
Pass-By Trips		0		0	0	0		0	0	0
Net Total		**20,516**		**474**	**486**	**1,280**		**576**	**598**	**1,487**

1: Trip generation and pass-by rates from ITE Trip Generation (11th Edition, 2021).

2: Parentheses reflect subcategory of land use code. For example, 945(2) is only convenience stores/gas stations with a general floor area (GFA) of 2-4k square feet and >8 VFPs.

3: RM = Rooms; TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions; DU = Dwelling Units.

ATTACHMENT 6



	Project
1.	GBX – 2261 Operation Place
2.	Airport Business Centre – 2803 N. Airport Way
3.	Airport Business Centre North – 3045, 3123, & 3157 N. Airport Way
4.	CenterPoint South – 2229 & 2273 N. Airport Way
5.	Airport Plaza – 2060 W. Lathrop Rd.
6.	Lathrop Road Commercial -2064 Crestwood Ave.
7.	North Manteca Annexation 1 (Just the Union Ranch Subdivision)
8.	Luxury Apartments – 1279 W. Lathrop Rd.
9.	Woodbridge Retail West – 2155, 2127, & 2193 N. Union Rd.

Legend:

(X) Approximate Cumulative Project Locations

Project Site

Exhibit 10: Cumulative Project Location

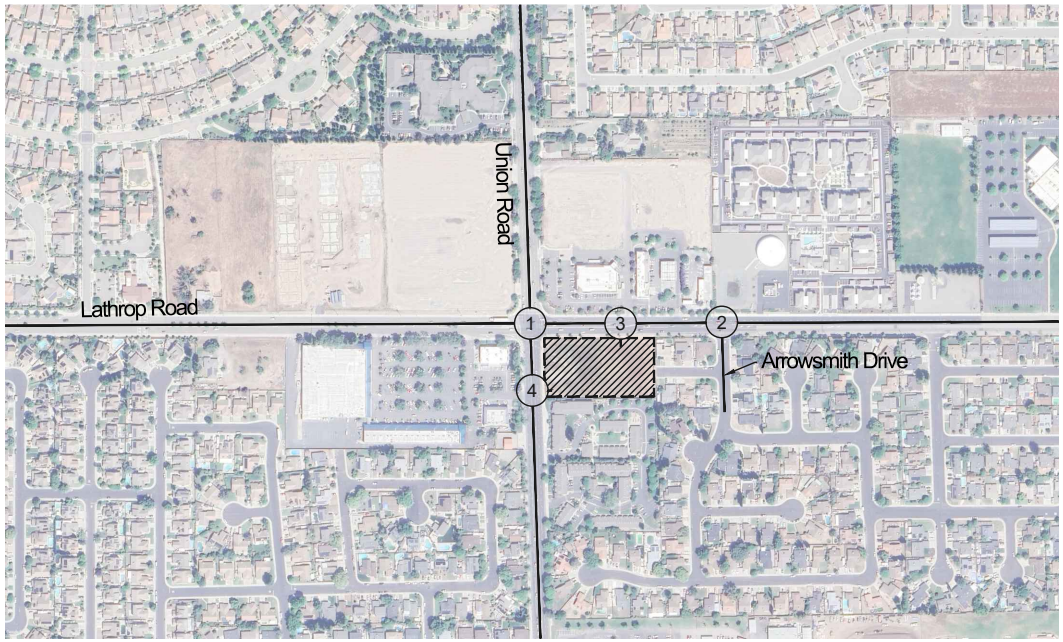
Crossroads Plaza Trip Gen

SEG-23-002

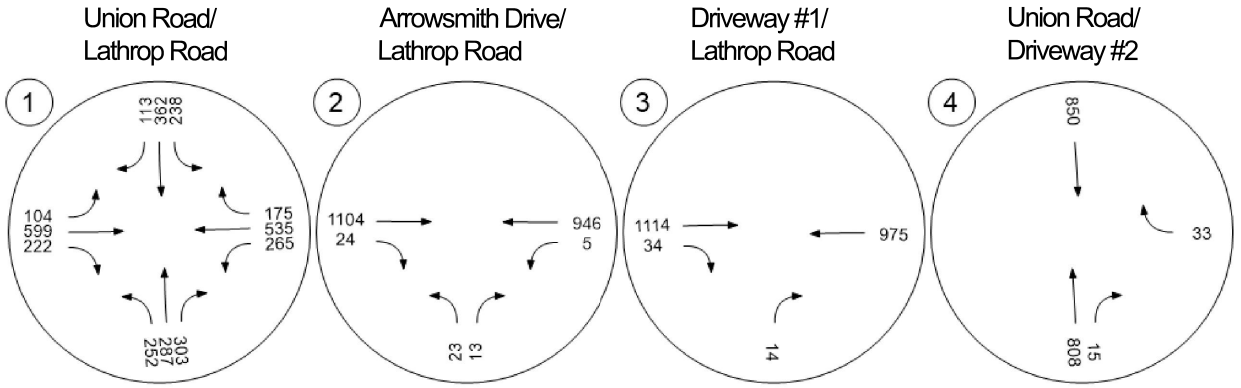
Not to Scale

TJW ENGINEERING, INC.

ATTACHMENT 6



AM Peak Hour Volumes



PM Peak Hour Volumes

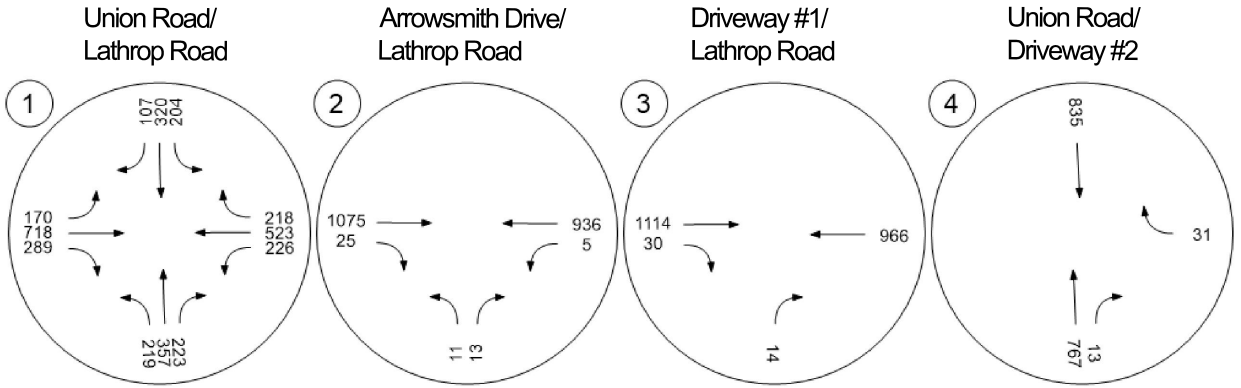


Exhibit 7: Opening Year Plus Project AM and PM Peak Hour Volumes

6.0 CUMULATIVE WITHOUT PROJECT TRAFFIC CONDITIONS (CNP)

Cumulative Without Project (CNP) traffic conditions analysis is intended identify baseline conditions with cumulative projects in the City of Manteca horizon year 2040 and without the proposed project.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *Cumulative Without Project* traffic scenario are consistent with those previously shown in **Exhibit 3**.

6.2 CUMULATIVE PROJECTS

This analysis also accounts for the projected impact of other reasonably foreseeable development projects in the study area. These cumulative projects may be in various stages of planning, entitlement, and construction. Section 5.2 provides a summary of the cumulative projects.

6.3 CNP TRAFFIC VOLUMES

Cumulative Without Project conditions volumes were estimated based on yearly growth rates from current year (2023) to horizon year (2040) in the City of Manteca model. An annual growth rate of 2.6% was applied up to year 2028, followed by a 1% annual growth rate from 2029 to 2040.

Cumulative Without Project Traffic Volumes = (*Existing* (2023) Counts * 1.026^6 * 1.01^12 + Cumulative Projects

Exhibit 8 shows *Cumulative Without Project* AM and PM peak hour volumes at the study intersections.

6.4 CNP INTERSECTION LEVEL OF SERVICE ANALYSIS

Cumulative Without Project AM and PM peak hour intersection analysis is shown in **Table 11**. HCM analysis sheets are provided in **Appendix C.**

Table 11

Intersection Analysis – CNP Traffic Conditions

Intersection			Control Type	Peak Hour	CNP Conditions	
					ICU/Delay[1]	LOS
1	North Union Road	West Lathrop Road	Signal	AM	49.70	D
				PM	49.80	D
2	Arrowsmith Drive	West Lathrop Road	OWSC	AM	22.86	C
				PM	18.87	C

Note: AWSC = OWSC = One-Way Stop Control, Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 7th Edition, for signalized intersection, the overall average delay and LOS are shown. For intersections with one or two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 11**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for *Cumulative Without Project* traffic conditions.

6.5 CNP ROADWAY LEVEL OF SERVICE ANALYSIS

The roadway segment level of service analysis results for *Cumulative Without Project* traffic conditions scenario are summarized in **Table 12**. Review of this table indicates that the study roadway segment**s** are projected to continue to operate at an acceptable level of service on a daily basis.

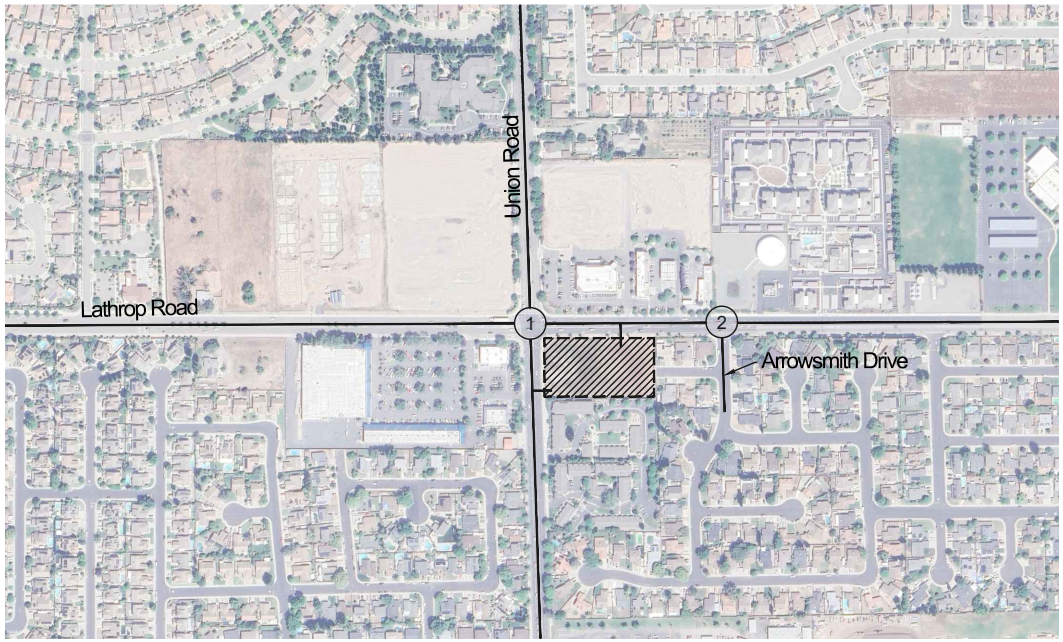
Table 12

Roadway Segment – CNP Traffic Conditions

Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	CNP ADT[1]	V/C	LOS
North Union Road	West Lathrop Road to Sprague Street	Arterial	4	32,500	21,496	0.563	C
West Lathrop Road	North Union Road to Arrowsmith Drive	Arterial	4	32,500	26,155	0.685	D

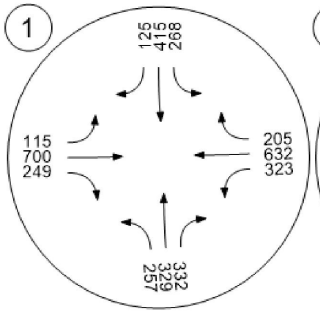
1: ADT = Average Daily Traffic based on 10% of peak hour volumes.

ATTACHMENT 6

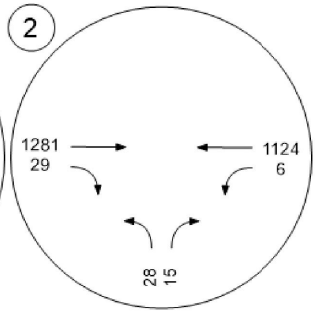


AM Peak Hour Volumes

Union Road/ Lathrop Road

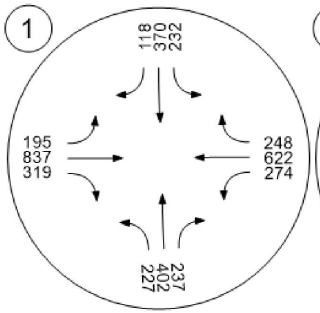


Arrowsmith Drive/ Lathrop Road



PM Peak Hour Volumes

Union Road/ Lathrop Road



Arrowsmith Drive/ Lathrop Road

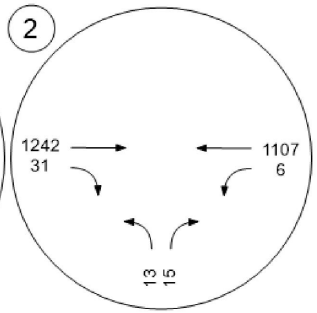


Exhibit 8: Cumulative Without Project AM and PM Peak Hour Volumes

7.0 CUMULATIVE PLUS PROJECT TRAFFIC CONDITIONS (CWP)

Cumulative Plus Project Traffic (CWP) conditions analysis is intended to identify the project-related impacts on both the existing and planned City of Manteca horizon year (2040) circulation system.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for the *Cumulative Plus Project* traffic scenario are consistent with those previously shown in **Exhibit 3**.

7.2 CUMULATIVE PROJECTS

This analysis also accounts for the projected impact of other reasonably foreseeable development projects in the study area. These cumulative projects may be in various stages of planning, entitlement, and construction. Section 5.2 provides a summary of the cumulative projects.

7.3 CWP TRAFFIC VOLUMES

Cumulative Plus Project conditions volumes were estimated based on yearly growth rates from current year (2023) to horizon year (2040) in the City of Manteca model. An annual growth rate of 2.6% was applied up to year 2028, followed by a 1% annual growth rate from 2029 to 2040.

Cumulative Plus Project Traffic Volumes = (*Existing* (2023) Counts * 1.026^6 * 1.01^12) + Cumulative Projects + Proposed Project

Exhibit 9 shows *Cumulative Plus Project* traffic AM and PM peak hour volumes at the study intersections.

7.4 CWP INTERSECTION LEVEL OF SERVICE ANALYSIS

Cumulative Plus Project traffic conditions AM and PM peak hour intersection analysis is shown in **Table 13**. HCM analysis sheets are provided in ***Appendix C***.

Table 13

Intersection Analysis – CWP Conditions

Intersection			Control Type	Peak Hour	CNP Conditions		CWP Conditions		Change	Impact?
					ICU/Delay[1]	LOS	ICU/Delay[1]	LOS		
1	North Union Road	West Lathrop Road	Signal	AM	49.70	D	53.60	D	3.9	No
				PM	49.80	D	51.20	D	1.4	No
2	Arrowsmith Drive	West Lathrop Road	TWSC	AM	22.86	C	23.50	C	0.6	No
				PM	18.87	C	19.28	C	0.4	No
3	West Lathrop Road	Project Driveway #1	TWSC	AM			14.36	B		
				PM			14.30	B		
4	North Union Road	Project Driveway #2	TWSC	AM			12.07	B		
				PM			11.73	B		

Note: OWSC = One-Way Stop Control; Delay shown in seconds per vehicle.

1 = Per the Highway Capacity Manual 7th Edition, overall average delay and LOS are shown for signalized intersections. For intersections with one-or-two-way stop-control, the delay and LOS for the worst individual movement is shown.

As shown in **Table 13**, the study intersections are projected to continue to operate at an acceptable LOS during the AM and PM peak hours for C*umulative Plus Project* traffic conditions.

7.5 CWP ROADWAY LEVEL OF SERVICE ANALYSIS

The roadway segment level of service analysis results for C*umulative Plus Project* traffic conditions scenario are summarized in **Table 14**. Review of this table indicates that the study roadway segment**s** are projected to continue to operate at an acceptable level of service on a daily basis.

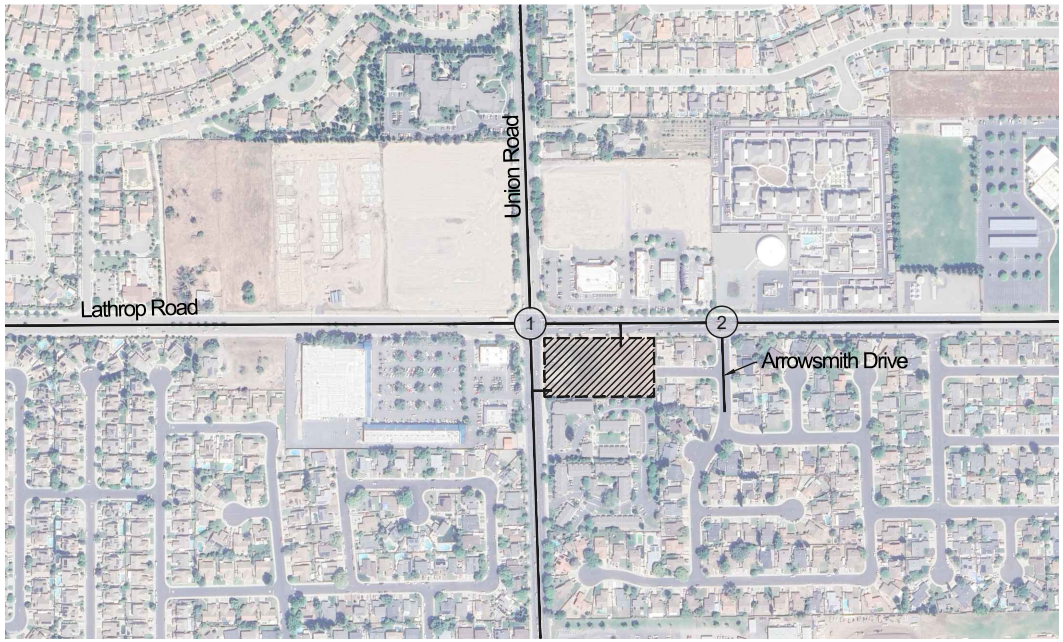
Table 14

Roadway Segment – CWP Traffic Conditions

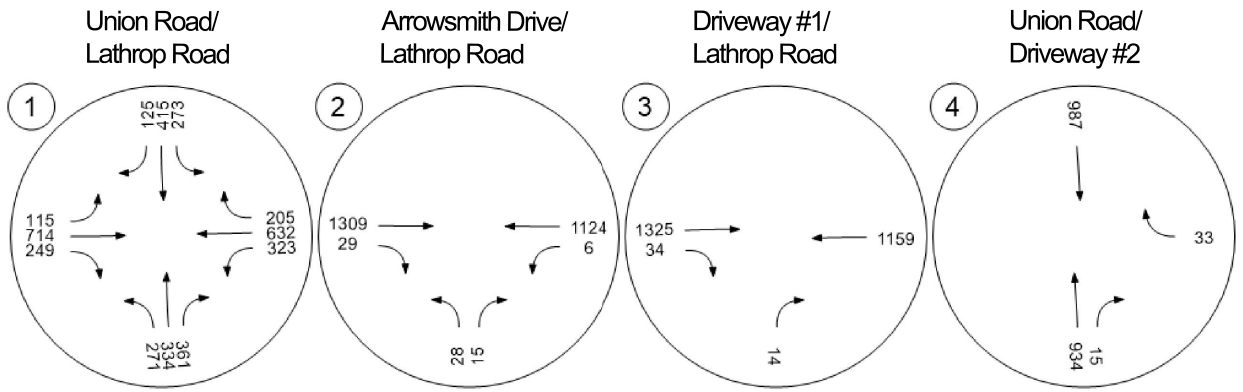
Roadway	Segment	Classification	Existing Travel Lanes	LOS D Capacity	CWP ADT[1]	V/C	LOS
North Union Road	West Lathrop Road to Sprague Street	Arterial	4	32,500	21,988	0.576	C
West Lathrop Road	North Union Road to Arrowsmith Drive	Arterial	4	32,500	26,647	0.698	D

1: ADT = Average Daily Traffic based on 10% of peak hour volumes.

ATTACHMENT 6



AM Peak Hour Volumes



PM Peak Hour Volumes

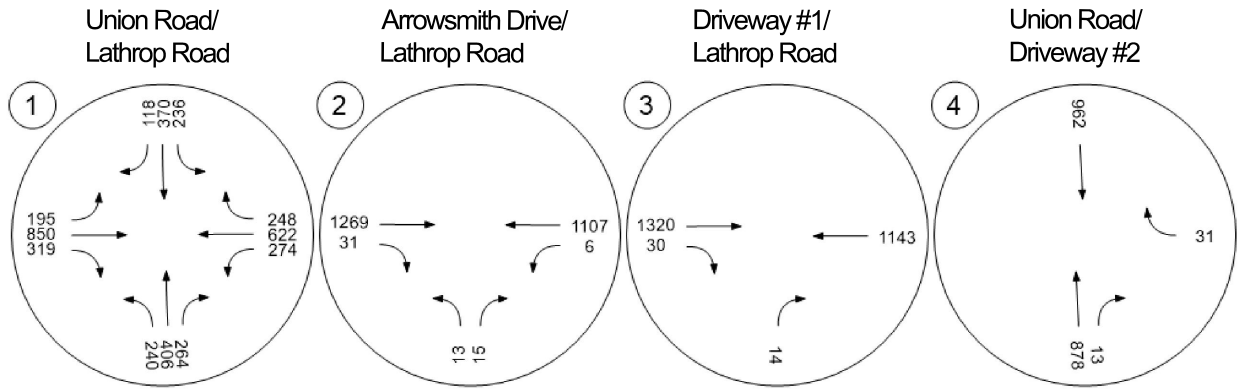


Exhibit 9: Cumulative With Project AM and PM Peak Hour Volume

APPENDIX

APPENDIX A

SCOPING AGREEMENT AND CITY DOCS

David Chew

From: Fenrich, Mallorie <mfenrich@manteca.gov>
Sent: Thursday, November 16, 2023 7:56 AM
To: David Chew
Cc: Maria Ruvalcaba; Travis Yokota; Daniel Flores; Simvoulakis, Lea
Subject: RE: Crossroads Plaza (2064 North Union Road)

Great, provided the items below are addressed in the traffic report, we are supportive.

I will see if we can get you a list of cumulative projects in the area we would like you to include.

Thank you,

Mallorie Fenrich, Senior Planner, MUP, CPD
City of Manteca | Development Services Department
1215 W. Center St., Suite 201| Manteca, CA 95337
Office: 209.456.8514
manteca.gov

From: David Chew <david@tjwengineering.com>
Sent: Tuesday, November 7, 2023 5:27 PM
To: Fenrich, Mallorie <mfenrich@manteca.gov>
Cc: Maria Ruvalcaba <Maria@salem.net>; Travis Yokota <Travis@tjwengineering.com>; Daniel Flores <Daniel@tjwengineering.com>
Subject: RE: Crossroads Plaza (2064 North Union Road)

Hi Mallorie,

Thank you for sending the review on the scoping. Please see below responses:

- Truck turn templates for the gas trucks showing movements entering, exiting, and throughout the site.
  - The project team will include truck turning templates with the application/site plan.
- Show that trucks will stay in their lane when entering and exiting the site.
  - Same as above, these turning exhibits will be provided by the project team.
- Please note that a median will be required on Union Road so this may affect access. The whole site will be right-in/right-out.
  - Confirmed, we will assume right-in/right-out for all driveways.
- This site will not have access to Nunes Court.
  - Confirmed/noted, there will be no access to Nunes Court.
- What will the impacts be for Arrowsmith Drive and Lathrop Road?

- We will include this intersection in our analysis to determine any potential impacts.

We will perform the traffic analysis per the emailed scope from October 3rd with the addition of the above notes.

In addition, can we get a list of cumulative projects within the area that the City would like us to account for/include in our analysis?

Thanks,

From: Fenrich, Mallorie <mfenrich@manteca.gov>
Sent: Tuesday, October 24, 2023 4:29 PM
To: David Chew <david@tjwengineering.com>
Cc: Maria Ruvalcaba <Maria@salem.net>; Simvoulakis, Lea <lsimvoulakis@manteca.gov>
Subject: RE: Crossroads Plaza (2064 North Union Road)

Hi David,

The scope will also need to include the following:

- Truck turn templates for the gas trucks showing movements entering, exiting, and throughout the site.
- Show that trucks will stay in their lane when entering and exiting the site.
- Please note that a median will be required on Union Road so this may affect access. The whole site will be right-in/right-out.
- This site will not have access to Nunes Court.
- What will the impacts be for Arrowsmith Drive and Lathrop Road?

Thank you,

Mallorie Fenrich, Senior Planner, MUP, CPD
City of Manteca | Development Services Department
1215 W. Center St., Suite 201| Manteca, CA 95337
Office: 209.456.8514
manteca.gov

From: David Chew <david@tjwengineering.com>
Sent: Tuesday, October 24, 2023 10:48 AM
To: Fenrich, Mallorie <mfenrich@manteca.gov>
Cc: Maria Ruvalcaba <Maria@salem.net>
Subject: RE: Crossroads Plaza (2064 North Union Road)

Hi Mallorie,

Wanted to follow up on this and see if you've heard back from Engineering yet.

Thanks,

David Chew, PTP
Transportation Planning Manager
TJW Engineering
T. 949.878.3509
D. 949.536.8450

From: Fenrich, Mallorie <mfenrich@manteca.gov>
Sent: Wednesday, October 11, 2023 8:52 AM
To: David Chew <david@tjwengineering.com>
Subject: RE: Crossroads Plaza (2064 North Union Road)

Hi David,

I apologize for the delay. I am waiting to hear back from Engineering that they are okay with the scope.

Thank you,

Mallorie Fenrich, Senior Planner, MUP, CPD
City of Manteca | Development Services Department
1215 W. Center St., Suite 201| Manteca, CA 95337
Office: 209.456.8514
manteca.gov

From: David Chew <david@tjwengineering.com>
Sent: Monday, October 9, 2023 1:08 PM
To: Fenrich, Mallorie <mfenrich@manteca.gov>
Cc: Bahr, David <dbahr@manteca.gov>; Maria Ruvalcaba <Maria@salem.net>
Subject: RE: Crossroads Plaza (2064 North Union Road)

Hello Mallore,

Wanted to follow up on the below email.

Thanks,

ATTACHMENT 6

David??Chew,??PTP
Transportation??Planning??Manager
TJW Engineering
T.??949.878.3509
D.??949.536.8450

From: David Chew
Sent: Tuesday, October 3, 2023 4:47 PM
To: mfenrich@manteca.gov
Cc: dbahr@manteca.gov; Maria Ruvalcaba <Maria@salem.net>
Subject: Crossroads Plaza (2064 North Union Road)

Hello Mallore,

We are working with Maria Ruvalcaba (cc'd) on the Crossroads Plaza Traffic Analysis located at 2064 North Union Road. The proposed project includes a 12-pump gas station with a 5,200 square foot convenience store and a 6,816 square foot auto supply store. A site plan is attached for reference.

In response to the comments provided by the City, we will look at the following as part of the scope for our TIA.

- Study Area Intersection:
  - Lathrop Road / Union Road
  - Lathrop Road / Project Driveway
  - Union Road / Project Driveway

- Study Area Roadway Segments:
  - Union Road south of Lathrop Road
  - Lathrop Road east of Union Road

- Study Scenarios:
  - Existing Conditions
  - Opening Year Plus Proposed Project (Opening Year with Cumulative Projects and Proposed Project)
  - Cumulative Conditions (Horizon Year 2040 with Cumulative Projects
  - Cumulative Conditions with Project (Horizon Year 2040 with Cumulative Projects and Proposed Project)

- Additional scoping related items:
  - The study will review traffic impacts during the AM and PM peak hour periods of 7-9AM and 4-6PM.
  - Trip Generation will be based on latest ITE Trip Generation Manual and trip distribution/assignment will be based on proposed projects and the general area.
  - Annual growth rate of 2.6% will be applied up to year 2028, followed by a 1% growth rate applied from 2029 to year 2040.
  - Cumulative projects will be determined as projects within 0.5 radius of our site
    - City to provide list of cumulative projects
  - VMT analysis – Project will be screened via local serving project as outlined per OPR guidelines

If the above is sufficient, we will consider this proposed project to be scoped as such, and we will be moving forward with the data collection efforts.

Please let us know if you have any questions/concerns.

Thank you,

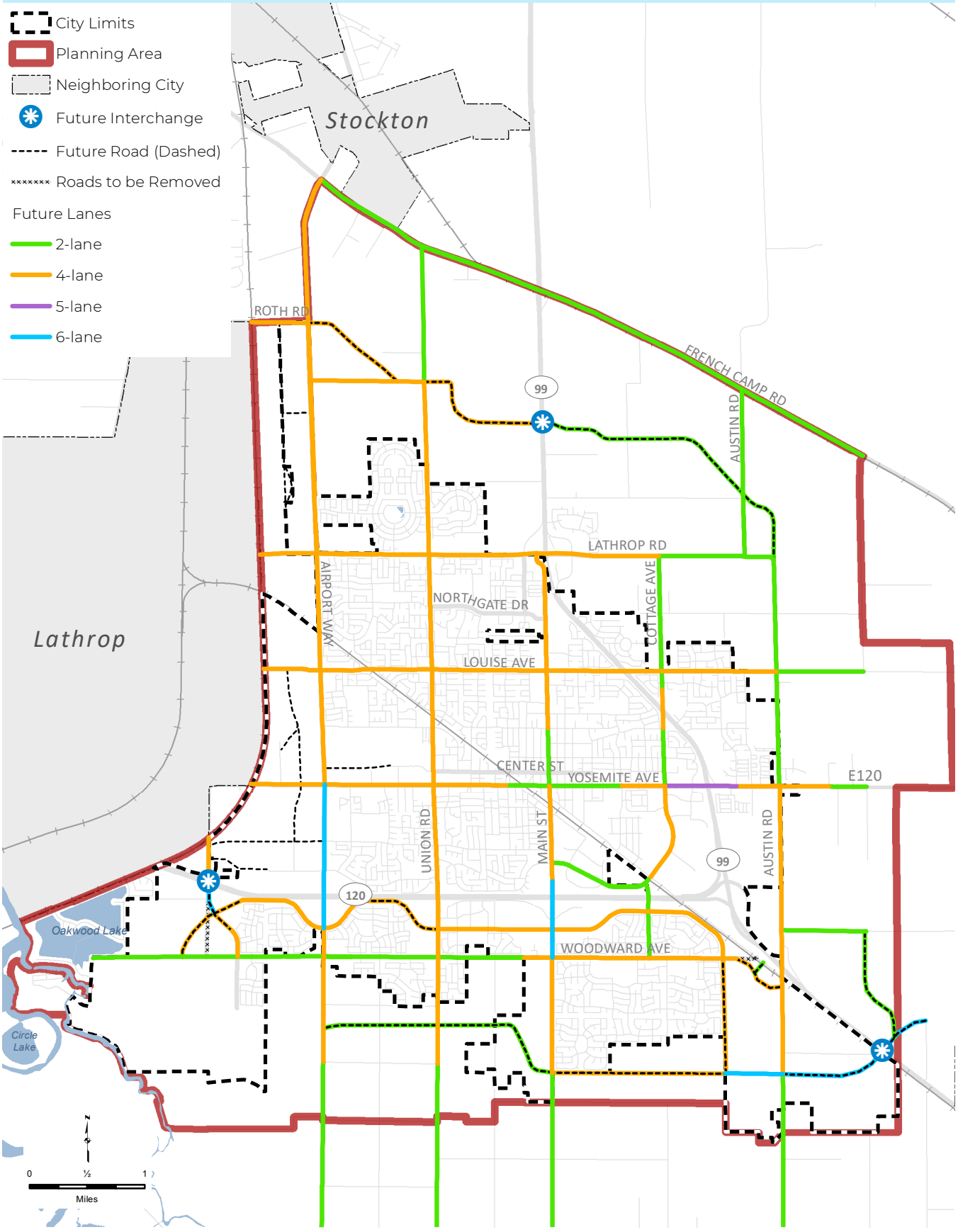
Disclaimer

Table C-1: Street Classifications

Street Type	Description
Parkway	High-capacity thoroughfare, typically four to six lanes, focused on vehicular traffic with limited property frontages. Aesthetically appealing with landscaped median islands. Provides regional access to adjacent land uses and safe crossings for all travel modes along a regional transportation corridor. Intersections typically require a ½ mile separation. Pedestrians and bicycles accommodated in a landscape-separated path. Emphasizes regional vehicle trips through collaborations with other cities and agencies. On-street motor vehicle parking typically prohibited.
Arterial	Major thoroughfare, typically four lanes, focused on through traffic and public transit, with access for major local traffic generators, such as commercial, industrial, institutional, and large high-density housing complexes. Pedestrian sidewalks and Class II or IV bicycle facilities provided on both sides of the street. Curbside landscaping and landscaped medians encouraged. Restriping with narrower lanes allowed where necessary to close gaps in pedestrian and bicycle system. Provides access and safe crossings for all travel modes. On-street vehicle parking is typically prohibited.
Main Street Arterial	Pedestrian-oriented street, typically two lanes, with primarily retail, mixed-use, or recreation uses. Provides access to all travel modes in support of typical "main street" land uses and includes on-street motor vehicle and bicycle parking. Service to pedestrian-oriented retail is of prime importance. Provides enhancements for walking and transit, including bulb-outs to reduce pedestrian crossing distances. On-street motor vehicle parking may be permitted where feasible to enhance access to adjacent uses.
Major Collector	Major collector streets, typically two to four lanes, serve as smaller-scale parallel routes to arterial streets and provide access to neighborhoods. Examples include Center Street, Powers Avenue, and Daniels Street west of Airport Way. Major collector streets will typically provide two travel lanes, a Class II bike lane or Class IV separated bikeway and a sidewalk on both sides. Median islands and turn lanes may be appropriate in certain conditions. For newly constructed major collector streets, on-street parking should be prohibited to reduce pavement width, pedestrian crossing distances, and maintenance costs. On-street parking for existing major collector streets should be restricted or limited by eliminating the parking lane or through the use of bulb-outs to minimize the cross section and discourage speeding.

Street Type	Description
Minor Collector	Minor collector streets, typically two lanes, serve as the backbone circulation routes within larger neighborhoods and commercial/industrial areas, providing primary access to commercial and industrial uses and linking low volume residential streets to major collector and arterial streets. Minor collector streets should be small scale, two lane streets. The streets should be wide enough to safely accommodate traffic flows, but not so wide as to encourage high-speed travel. Depending on the surrounding land uses (e.g., office, commercial, or residential areas), the minor collector may accommodate Class II bike lanes. Sidewalks should be provided on each side of the street.
Residential Streets	While they carry relatively light traffic loads, residential streets, typically two lanes, constitute the majority of Manteca's street system. These streets are intended to serve residential driveways, providing access between homes and larger streets. These streets should include narrow travel and parking lanes to slow travel and discourage through trips and sidewalks on both sides of the street. Features like corner bulb-outs and traffic circles (a smaller version of a roundabout) should be incorporated to improve the aesthetic quality of the street, while calming traffic. Class III bike routes and special pavement markings for bicycles should be provided where appropriate to provide continuity for the bicycle system. Where a residential street ends in a cul-de-sac, a shared bicycle/pedestrian path should be constructed to connect the cul-de-sac to other residential, collector, or arterial streets to shorten travel distances and encourage the use of these modes.
Intersections of City Streets	Intersections are critical components of the street network since they tend to define how well the system operates. Drivers and transit users typically experience most of their traveling delay at intersections. Intersections are important for pedestrians and bicycles since they provide controlled points where these modes can cross major roadways. In general, intersections should have minimum lane widths to serve the type of vehicles expected on the roadway (e.g., lanes should be sufficiently wide to accommodate trucks in industrial areas). Narrower lanes pose less of a barrier for pedestrians to cross and reduce maintenance costs. Where there is demand, u-turn movements should be accommodated in the intersection design to the extent feasible to extend the length of landscaped medians. Bus bays should be included in intersection designs for expressways, arterials, and major collectors to maintain traffic flow while buses are loading and unloading.

Figure C-1: Major Streets Circulation Plan



Future alignments are conceptual and will be refined at the time the improvement is planned for funding.

Figure C-2: Active Transportation Plan - Pedestrian Network

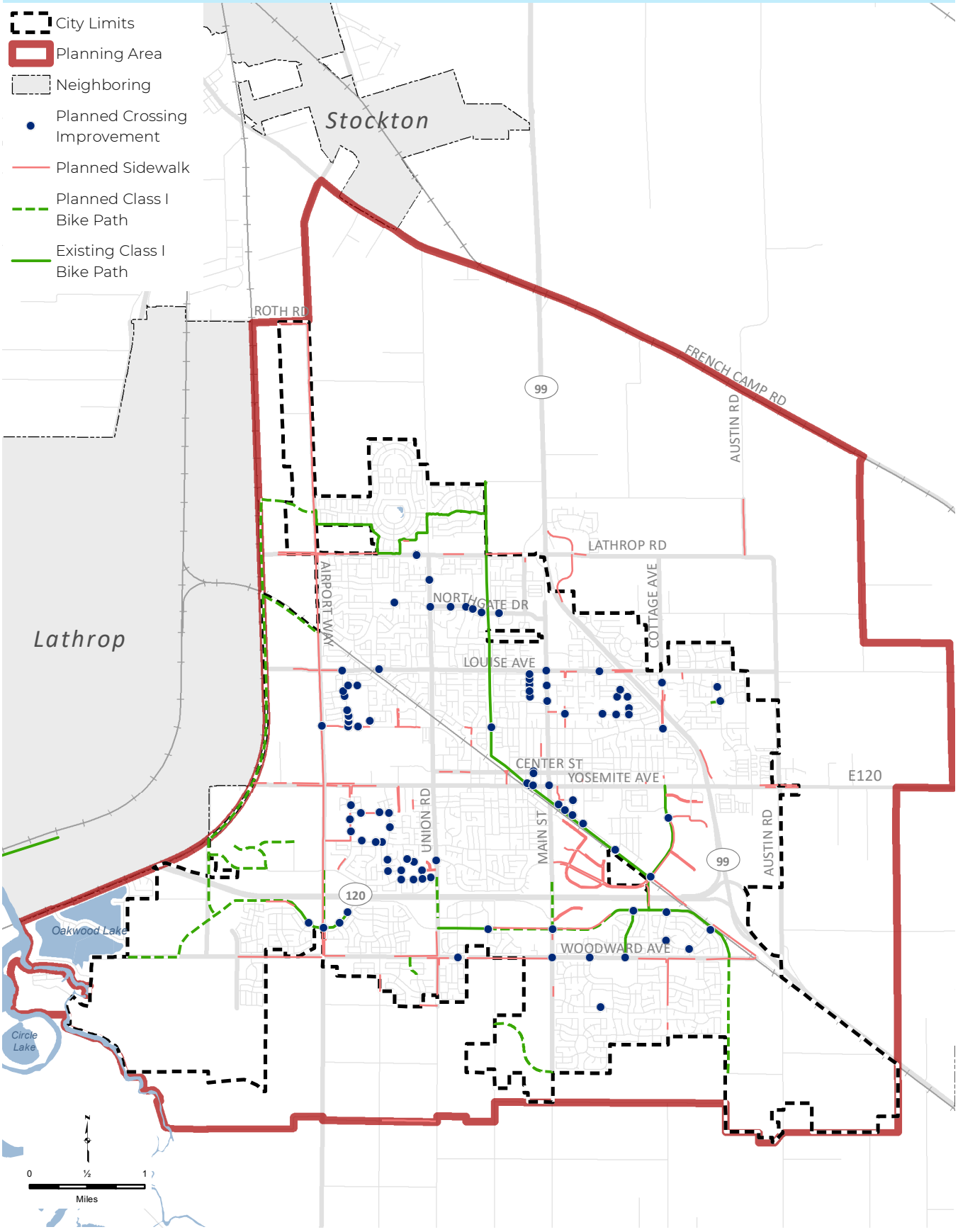
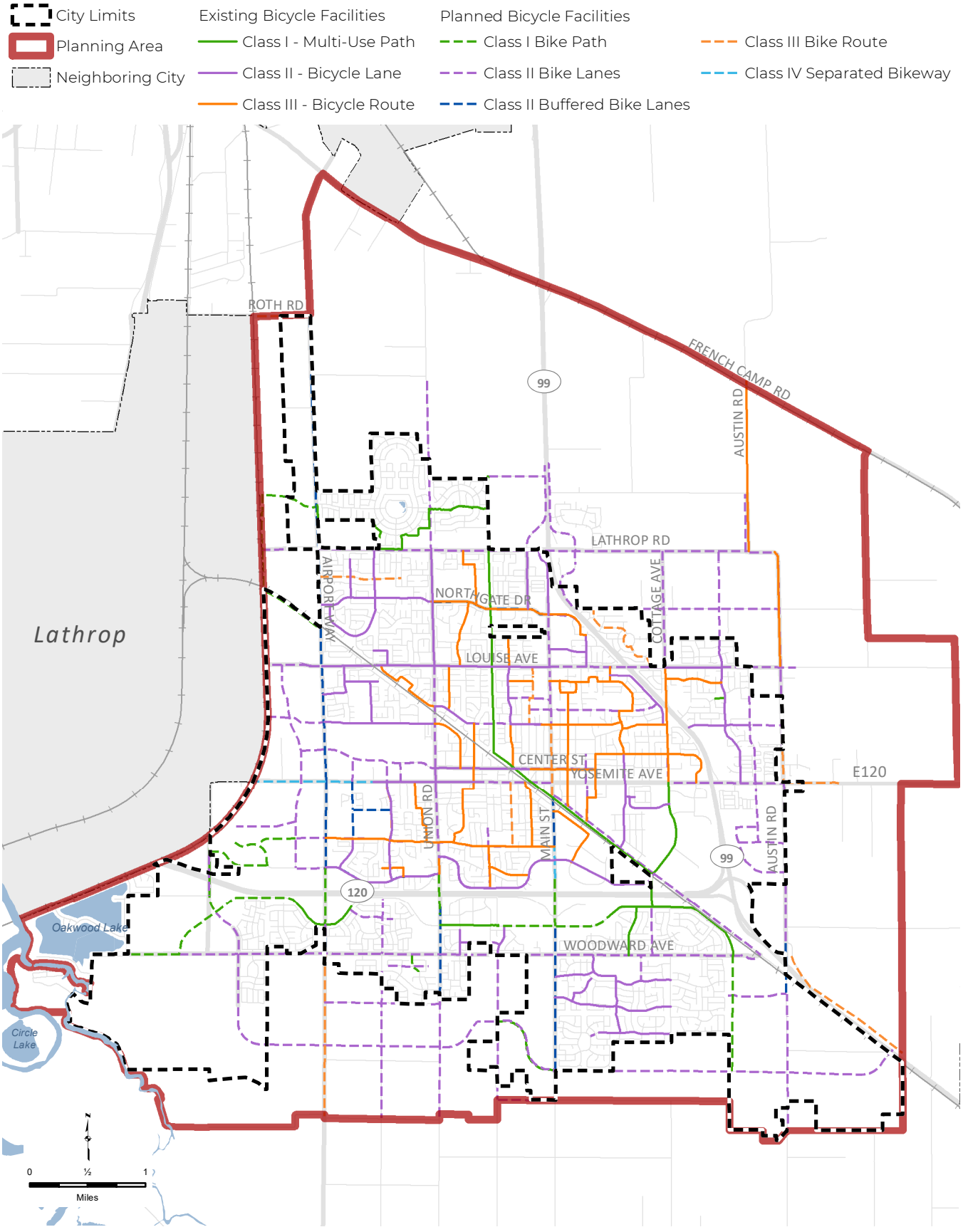


Figure C-3: Active Transportation Plan - Bicycle Network



APPENDIX B

EXISTING TRAFFIC COUNTS AND MODEL VOLUMES

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Union Road
E/W: Lathrop Road
Weather: Clear

File Name : 01_MTC_Union_Lathrop AM
Site Code : 231098
Start Date : 11/14/2023
Page No : 1

Groups Printed- Total Volume

	Union Road Southbound				Lathrop Road Westbound				Union Road Northbound				Lathrop Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	26	23	6	55	22	71	27	120	17	46	26	89	5	81	9	95	359
07:15 AM	33	28	13	74	43	91	24	158	19	21	55	95	7	116	11	134	461
07:30 AM	43	39	22	104	59	136	37	232	24	37	51	112	6	118	18	142	590
07:45 AM	34	42	15	91	62	139	32	233	14	46	86	146	12	125	21	158	628
Total	136	132	56	324	186	437	120	743	74	150	218	442	30	440	59	529	2038
08:00 AM	43	65	7	115	66	69	32	167	24	71	66	161	19	143	46	208	651
08:15 AM	33	86	10	129	64	78	32	174	25	53	55	133	9	115	33	157	593
08:30 AM	25	45	11	81	53	78	24	155	25	60	85	170	12	91	23	126	532
08:45 AM	22	38	11	71	39	64	28	131	18	30	45	93	17	98	23	138	433
Total	123	234	39	396	222	289	116	627	92	214	251	557	57	447	125	629	2209
Grand Total	259	366	95	720	408	726	236	1370	166	364	469	999	87	887	184	1158	4247
Apprch %	36	50.8	13.2		29.8	53	17.2		16.6	36.4	46.9		7.5	76.6	15.9		
Total %	6.1	8.6	2.2	17	9.6	17.1	5.6	32.3	3.9	8.6	11	23.5	2	20.9	4.3	27.3	

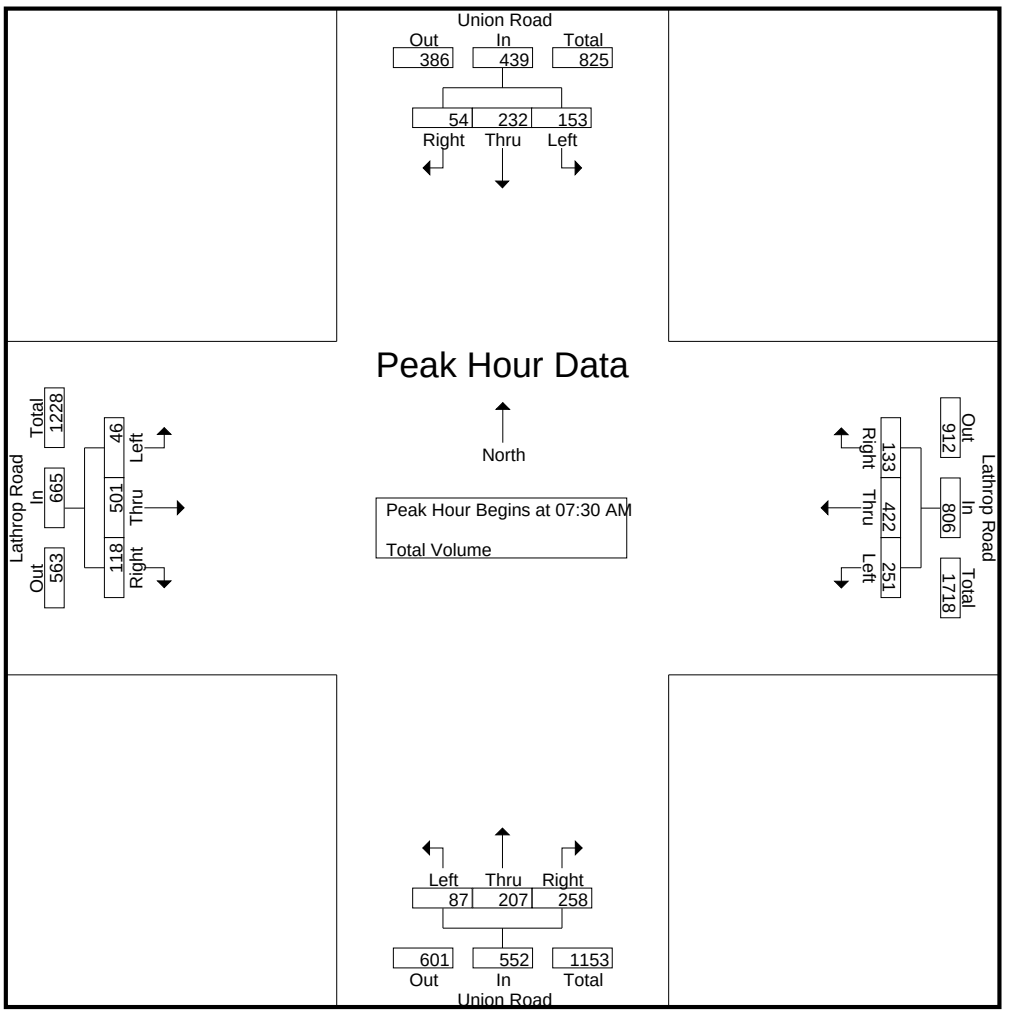
	Union Road Southbound				Lathrop Road Westbound				Union Road Northbound				Lathrop Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**43**	39	**22**	104	59	136	**37**	232	24	37	51	112	6	118	18	142	590
07:45 AM	34	42	15	91	62	**139**	32	**233**	14	46	**86**	146	12	125	21	158	628
08:00 AM	43	65	7	115	**66**	69	32	167	24	**71**	66	**161**	**19**	**143**	**46**	**208**	**651**
08:15 AM	33	**86**	10	**129**	64	78	32	174	**25**	53	55	133	9	115	33	157	593
Total Volume	153	232	54	439	251	422	133	806	87	207	258	552	46	501	118	665	2462
% App. Total	34.9	52.8	12.3		31.1	52.4	16.5		15.8	37.5	46.7		6.9	75.3	17.7		
PHF	.890	.674	.614	.851	.951	.759	.899	.865	.870	.729	.750	.857	.605	.876	.641	.799	.945

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Union Road
E/W: Lathrop Road
Weather: Clear

File Name : 01_MTC_Union_Lathrop AM
Site Code : 231098
Start Date : 11/14/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:45 AM				07:30 AM			
+0 mins.	**43**	39	**22**	104	59	136	**37**	232	14	46	**86**	146	6	118	18	142
+15 mins.	34	42	15	91	62	**139**	32	**233**	24	**71**	66	161	12	125	21	158
+30 mins.	43	65	7	115	**66**	69	32	167	**25**	53	55	133	**19**	**143**	**46**	**208**
+45 mins.	33	**86**	10	**129**	64	78	32	174	25	60	85	**170**	9	115	33	157
Total Volume	153	232	54	439	251	422	133	806	88	230	292	610	46	501	118	665
% App. Total	34.9	52.8	12.3		31.1	52.4	16.5		14.4	37.7	47.9		6.9	75.3	17.7	
PHF	.890	.674	.614	.851	.951	.759	.899	.865	.880	.810	.849	.897	.605	.876	.641	.799

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Union Road
E/W: Lathrop Road
Weather: Clear

File Name : 01_MTC_Union_Lathrop PM
Site Code : 231098
Start Date : 11/14/2023
Page No : 1

Groups Printed- Total Volume

	Union Road Southbound				Lathrop Road Westbound				Union Road Northbound				Lathrop Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	48	57	18	123	49	115	38	202	28	65	48	141	29	171	36	236	702
04:15 PM	36	62	11	109	50	104	30	184	27	59	41	127	32	131	27	190	610
04:30 PM	33	50	13	96	57	116	31	204	16	37	41	94	22	148	35	205	599
04:45 PM	23	50	7	80	55	98	34	187	22	53	52	127	26	128	32	186	580
Total	140	219	49	408	211	433	133	777	93	214	182	489	109	578	130	817	2491
05:00 PM	21	54	10	85	60	126	36	222	36	38	46	120	20	140	36	196	623
05:15 PM	28	50	7	85	62	114	24	200	22	43	44	109	21	104	27	152	546
05:30 PM	28	54	15	97	53	113	27	193	18	45	64	127	27	130	37	194	611
05:45 PM	37	55	9	101	51	123	24	198	24	45	36	105	17	154	20	191	595
Total	114	213	41	368	226	476	111	813	100	171	190	461	85	528	120	733	2375
Grand Total	254	432	90	776	437	909	244	1590	193	385	372	950	194	1106	250	1550	4866
Apprch %	32.7	55.7	11.6		27.5	57.2	15.3		20.3	40.5	39.2		12.5	71.4	16.1		
Total %	5.2	8.9	1.8	15.9	9	18.7	5	32.7	4	7.9	7.6	19.5	4	22.7	5.1	31.9	

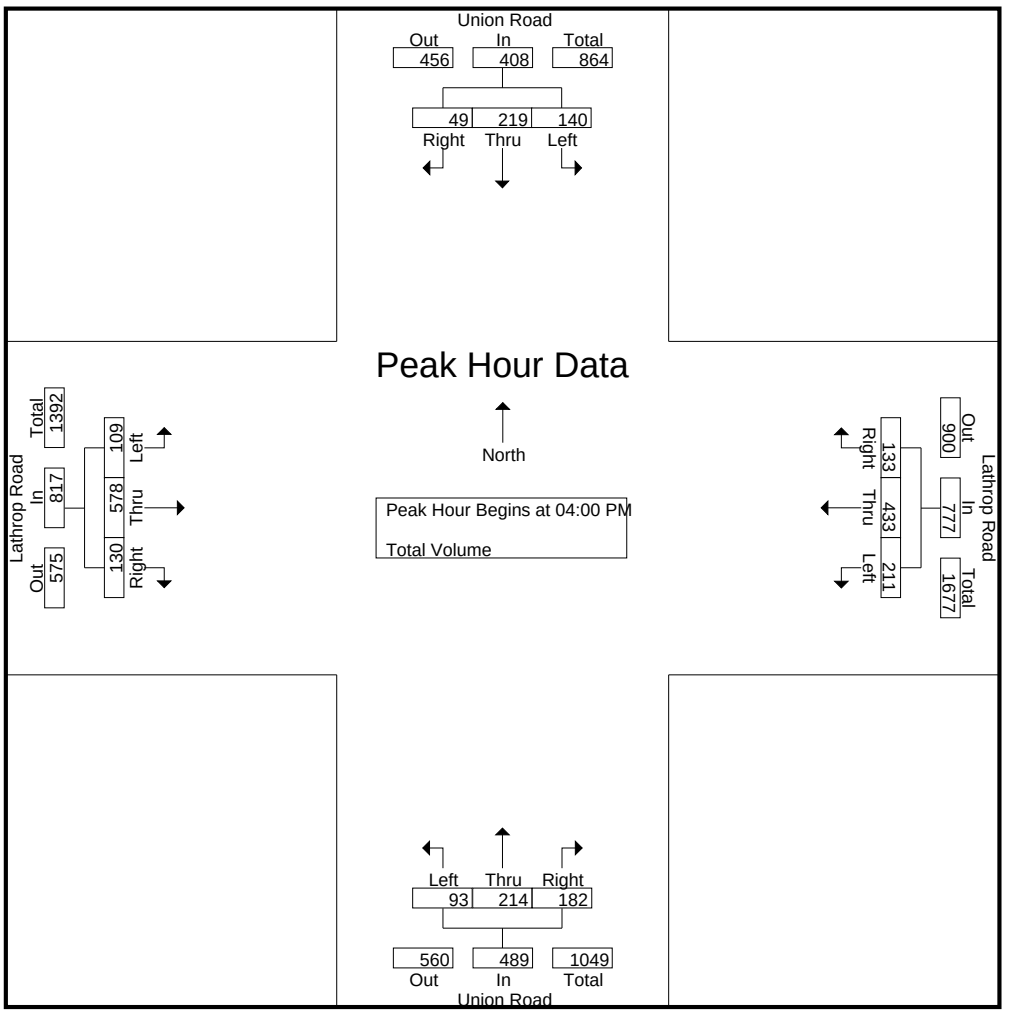
	Union Road Southbound				Lathrop Road Westbound				Union Road Northbound				Lathrop Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**48**	57	**18**	**123**	49	115	**38**	202	**28**	**65**	48	**141**	29	**171**	**36**	**236**	**702**
04:15 PM	36	**62**	11	109	50	104	30	184	27	59	41	127	**32**	131	27	190	610
04:30 PM	33	50	13	96	**57**	**116**	31	**204**	16	37	41	94	22	148	35	205	599
04:45 PM	23	50	7	80	55	98	34	187	22	53	**52**	127	26	128	32	186	580
Total Volume	140	219	49	408	211	433	133	777	93	214	182	489	109	578	130	817	2491
% App. Total	34.3	53.7	12		27.2	55.7	17.1		19	43.8	37.2		13.3	70.7	15.9		
PHF	.729	.883	.681	.829	.925	.933	.875	.952	.830	.823	.875	.867	.852	.845	.903	.865	.887

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Union Road
E/W: Lathrop Road
Weather: Clear

File Name : 01_MTC_Union_Lathrop PM
Site Code : 231098
Start Date : 11/14/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				04:00 PM				04:00 PM			
+0 mins.	**48**	57	**18**	**123**	57	116	31	204	**28**	**65**	48	**141**	29	**171**	**36**	**236**
+15 mins.	36	**62**	11	109	55	98	34	187	27	59	41	127	**32**	131	27	190
+30 mins.	33	50	13	96	60	**126**	**36**	**222**	16	37	41	94	22	148	35	205
+45 mins.	23	50	7	80	**62**	114	24	200	22	53	**52**	127	26	128	32	186
Total Volume	140	219	49	408	234	454	125	813	93	214	182	489	109	578	130	817
% App. Total	34.3	53.7	12		28.8	55.8	15.4		19	43.8	37.2		13.3	70.7	15.9	
PHF	.729	.883	.681	.829	.944	.901	.868	.916	.830	.823	.875	.867	.852	.845	.903	.865

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Arrowsmith Drive
E/W: Lathrop Road
Weather: Clear

File Name : 02_MTC_Arr_Lathrop AM
Site Code : 231098
Start Date : 11/14/2023
Page No : 1

Groups Printed- Total Volume

	Lathrop Road Westbound			Arrowsmith Drive Northbound			Lathrop Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	131	131	3	2	5	145	0	145	281
07:15 AM	1	163	164	2	6	8	192	2	194	366
07:30 AM	5	221	226	8	2	10	220	4	224	460
07:45 AM	0	230	230	3	2	5	247	8	255	490
Total	6	745	751	16	12	28	804	14	818	1597
08:00 AM	0	157	157	6	5	11	244	6	250	418
08:15 AM	0	170	170	5	3	8	186	5	191	369
08:30 AM	1	136	137	3	1	4	205	3	208	349
08:45 AM	1	126	127	3	1	4	165	2	167	298
Total	2	589	591	17	10	27	800	16	816	1434
Grand Total	8	1334	1342	33	22	55	1604	30	1634	3031
Apprch %	0.6	99.4		60	40		98.2	1.8		
Total %	0.3	44	44.3	1.1	0.7	1.8	52.9	1	53.9	

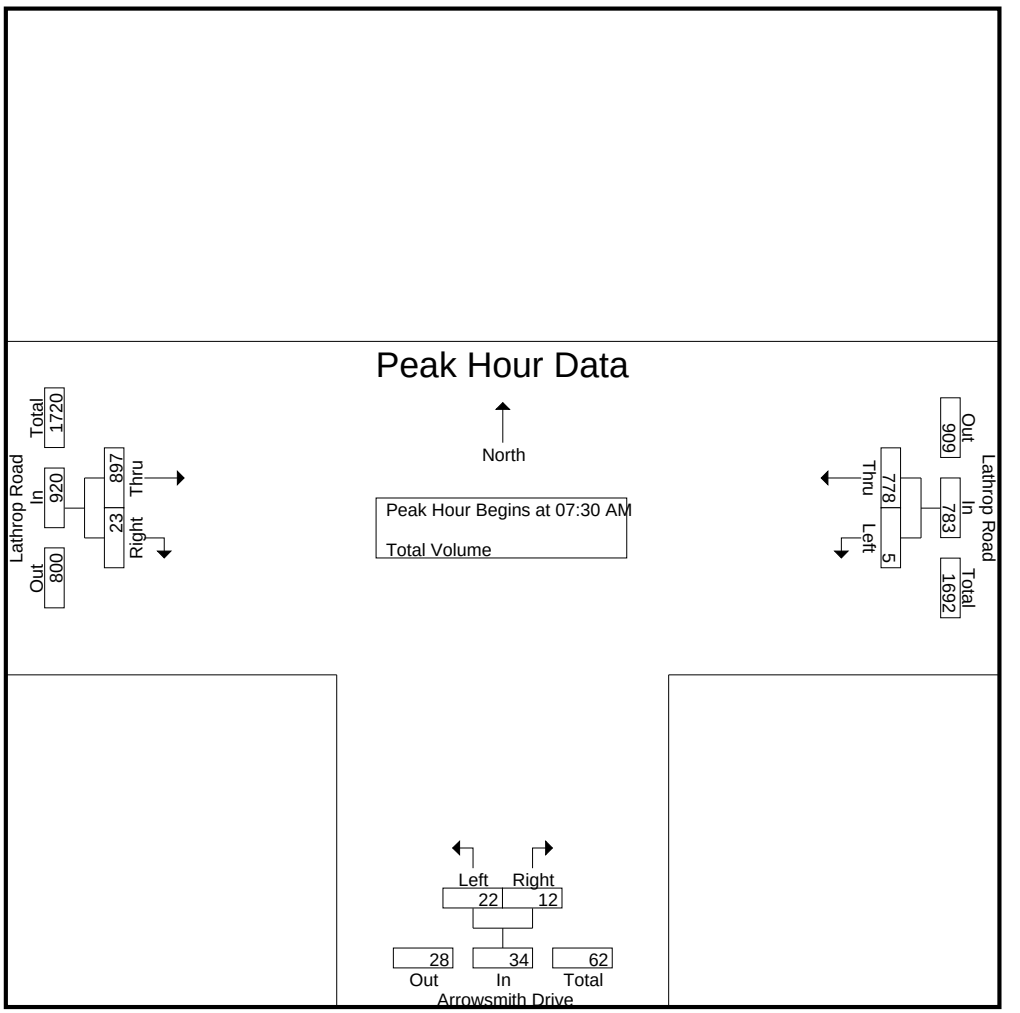
	Lathrop Road Westbound			Arrowsmith Drive Northbound			Lathrop Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**5**	221	226	**8**	2	10	220	4	224	460
07:45 AM	0	**230**	**230**	3	2	5	**247**	**8**	**255**	**490**
08:00 AM	0	157	157	6	**5**	**11**	244	6	250	418
08:15 AM	0	170	170	5	3	8	186	5	191	369
Total Volume	5	778	783	22	12	34	897	23	920	1737
% App. Total	0.6	99.4		64.7	35.3		97.5	2.5		
PHF	.250	.846	.851	.688	.600	.773	.908	.719	.902	.886

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Arrowsmith Drive
E/W: Lathrop Road
Weather: Clear

File Name : 02_MTC_Arr_Lathrop AM
Site Code : 231098
Start Date : 11/14/2023
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:15 AM			07:15 AM		
+0 mins.	**5**	221	226	2	**6**	8	192	2	194
+15 mins.	0	**230**	**230**	**8**	2	10	220	4	224
+30 mins.	0	157	157	3	2	5	**247**	**8**	**255**
+45 mins.	0	170	170	6	5	**11**	244	6	250
Total Volume	5	778	783	19	15	34	903	20	923
% App. Total	0.6	99.4		55.9	44.1		97.8	2.2	
PHF	.250	.846	.851	.594	.625	.773	.914	.625	.905

ATTACHMENT 6

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Arrowsmith Drive
E/W: Lathrop Road
Weather: Clear

File Name : 02_MTC_Arr_Lathrop PM
Site Code : 231098
Start Date : 11/14/2023
Page No : 1

Groups Printed- Total Volume

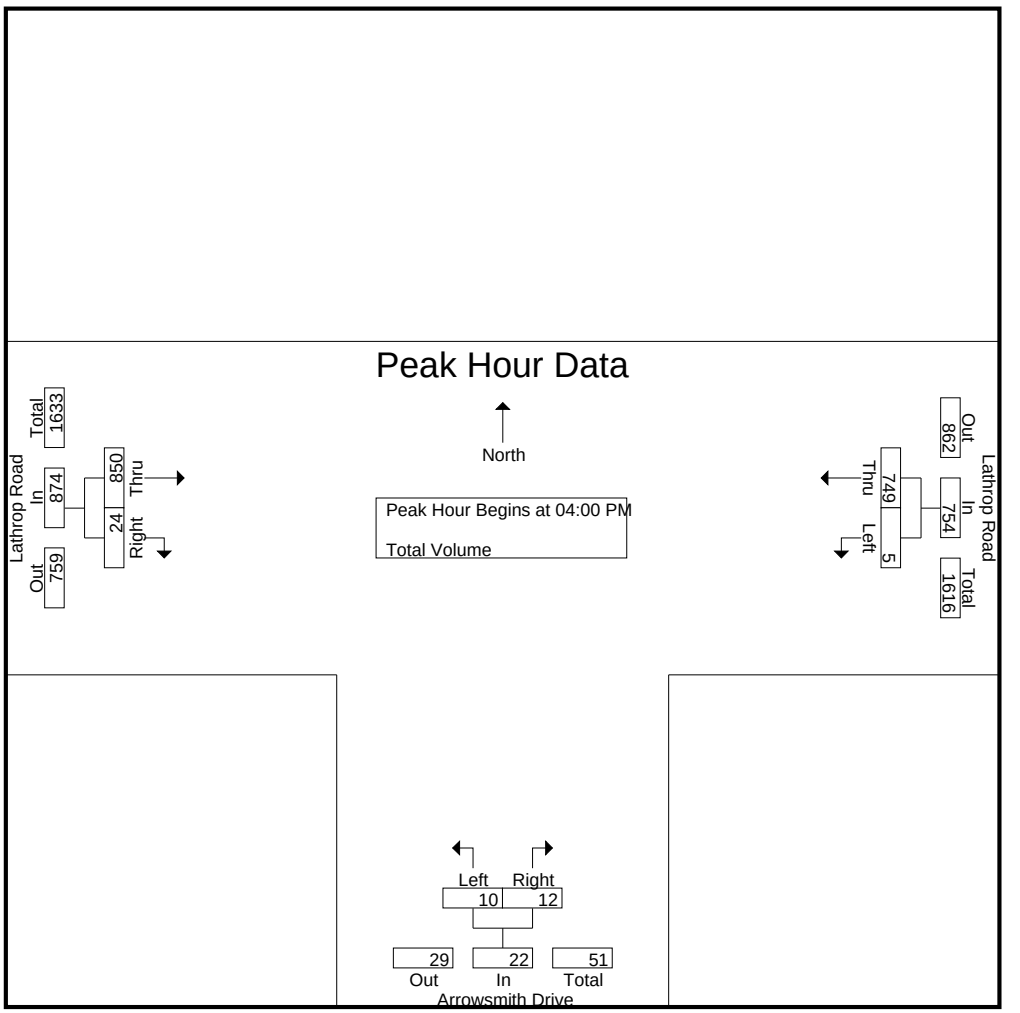
	Lathrop Road Westbound			Arrowsmith Drive Northbound			Lathrop Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	3	197	200	1	1	2	237	7	244	446
04:15 PM	2	187	189	3	1	4	202	4	206	399
04:30 PM	0	183	183	1	8	9	217	8	225	417
04:45 PM	0	182	182	5	2	7	194	5	199	388
Total	5	749	754	10	12	22	850	24	874	1650
05:00 PM	3	214	217	2	0	2	205	3	208	427
05:15 PM	3	179	182	3	0	3	172	8	180	365
05:30 PM	3	218	221	5	2	7	229	8	237	465
05:45 PM	1	168	169	6	4	10	204	7	211	390
Total	10	779	789	16	6	22	810	26	836	1647
Grand Total	15	1528	1543	26	18	44	1660	50	1710	3297
Apprch %	1	99		59.1	40.9		97.1	2.9		
Total %	0.5	46.3	46.8	0.8	0.5	1.3	50.3	1.5	51.9	

	Lathrop Road Westbound			Arrowsmith Drive Northbound			Lathrop Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**3**	**197**	**200**	1	1	2	**237**	7	**244**	**446**
04:15 PM	2	187	189	3	1	4	202	4	206	399
04:30 PM	0	183	183	1	**8**	**9**	217	**8**	225	417
04:45 PM	0	182	182	**5**	2	7	194	5	199	388
Total Volume	5	749	754	10	12	22	850	24	874	1650
% App. Total	0.7	99.3		45.5	54.5		97.3	2.7		
PHF	.417	.951	.943	.500	.375	.611	.897	.750	.895	.925

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Manteca
N/S: Arrowsmith Drive
E/W: Lathrop Road
Weather: Clear

File Name : 02_MTC_Arr_Lathrop PM
Site Code : 231098
Start Date : 11/14/2023
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:00 PM			04:00 PM		
+0 mins.	0	182	182	1	1	2	**237**	7	**244**
+15 mins.	**3**	214	217	3	1	4	202	4	206
+30 mins.	3	179	182	1	**8**	**9**	217	**8**	225
+45 mins.	3	**218**	**221**	**5**	2	7	194	5	199
Total Volume	9	793	802	10	12	22	850	24	874
% App. Total	1.1	98.9		45.5	54.5		97.3	2.7	
PHF	.750	.909	.907	.500	.375	.611	.897	.750	.895

APPENDIX C

HCM ANALYSIS WORKSHEETS

EXISTING CONDITION

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\E AM.pdf
Scenario 1 E AM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	EB Left	0.671	32.0	C
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.090	19.4	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	32.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	87	207	258	153	232	54	46	501	118	251	422	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	207	258	153	232	54	46	501	118	251	422	133
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	55	68	40	61	14	12	133	31	66	112	35
Total Analysis Volume [veh/h]	92	219	273	162	246	57	49	530	125	266	447	141
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	26	0	14	30	0	11	26	0	24	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	33	33	10	37	37	4	16	16	15	28	28
g / C, Green / Cycle	0.07	0.37	0.37	0.11	0.41	0.41	0.04	0.18	0.18	0.17	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.05	0.12	0.17	0.09	0.08	0.08	0.03	0.15	0.08	0.15	0.16	0.16
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1779	1810	3618	1615	1810	1900	1746
c, Capacity [veh/h]	120	692	588	198	774	724	73	648	289	307	586	538
d1, Uniform Delay [s]	41.41	20.59	21.93	39.29	17.25	17.28	42.66	35.59	32.93	36.43	25.71	25.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.73	1.20	2.62	8.12	0.58	0.64	9.97	2.61	1.02	7.28	0.72	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.32	0.46	0.82	0.20	0.20	0.67	0.82	0.43	0.87	0.52	0.52
d, Delay for Lane Group [s/veh]	51.14	21.79	24.54	47.42	17.83	17.91	52.63	38.20	33.95	43.71	26.43	26.51
Lane Group LOS	D	C	C	D	B	B	D	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.31	3.45	4.69	3.90	2.14	2.05	1.27	5.72	2.48	6.21	5.39	4.97
50th-Percentile Queue Length [ft/ln]	57.78	86.13	117.37	97.54	53.45	51.22	31.70	143.01	61.89	155.14	134.68	124.18
95th-Percentile Queue Length [veh/ln]	4.16	6.20	8.25	7.02	3.85	3.69	2.28	9.64	4.46	10.29	9.19	8.62
95th-Percentile Queue Length [ft/ln]	104.00	155.03	206.21	175.57	96.20	92.19	57.06	241.07	111.40	257.27	229.85	215.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.14	21.79	24.54	47.42	17.86	17.91	52.63	38.20	33.95	43.71	26.46	26.51
Movement LOS	D	C	C	D	B	B	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	27.70			28.17			38.45			31.84		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	32.04											
Intersection LOS	C											
Intersection V/C	0.671											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
l_p,int, Pedestrian LOS Score for Intersection	2.540	2.472	2.666	2.656
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	488	577	488	777
d_b, Bicycle Delay [s]	25.73	22.80	25.73	16.84
l_b,int, Bicycle LOS Score for Intersection	2.041	1.943	2.140	2.264
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	19.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	22	12	897	23	5	778
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	12	897	23	5	778
Peak Hour Factor	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	253	6	1	220
Total Analysis Volume [veh/h]	25	14	1012	26	6	878
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.03	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	19.44	13.55	0.00	0.00	10.32	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.40	0.40	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	9.91	9.91	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	17.32		0.00		0.07	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	C					

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\E PM.pdf
Scenario 2 E PM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	NB Left	0.642	33.2	C
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.036	17.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	33.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.642

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	93	214	182	140	219	49	109	578	130	211	433	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	93	214	182	140	219	49	109	578	130	211	433	133
Peak Hour Factor	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	60	51	39	62	14	31	163	37	59	122	37
Total Analysis Volume [veh/h]	105	241	205	158	247	55	123	652	147	238	488	150
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	26	0	17	30	0	21	26	0	21	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	32	32	10	35	35	8	19	19	14	25	25
g / C, Green / Cycle	0.07	0.35	0.35	0.11	0.38	0.38	0.09	0.21	0.21	0.15	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.13	0.09	0.08	0.08	0.07	0.18	0.09	0.13	0.17	0.17
s, saturation flow rate [veh/h]	1810	1900	1619	1810	1900	1783	1810	3618	1615	1810	1900	1749
c, Capacity [veh/h]	136	663	565	195	725	681	159	767	342	278	528	486
d1, Uniform Delay [s]	40.94	21.84	21.93	39.31	18.76	18.79	40.27	34.15	30.80	37.20	28.48	28.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.89	1.51	1.85	7.73	0.67	0.73	7.88	2.76	0.85	7.50	1.24	1.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	0.36	0.37	0.81	0.21	0.22	0.78	0.85	0.43	0.86	0.63	0.63
d, Delay for Lane Group [s/veh]	49.83	23.35	23.78	47.04	19.43	19.52	48.15	36.90	31.65	44.70	29.72	29.84
Lane Group LOS	D	C	C	D	B	B	D	D	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.60	3.91	3.49	3.79	2.25	2.16	2.98	6.99	2.80	5.60	6.29	5.81
50th-Percentile Queue Length [ft/ln]	64.90	97.79	87.20	94.68	56.16	53.92	74.54	174.75	70.10	139.94	157.36	145.33
95th-Percentile Queue Length [veh/ln]	4.67	7.04	6.28	6.82	4.04	3.88	5.37	11.33	5.05	9.48	10.41	9.77
95th-Percentile Queue Length [ft/ln]	116.82	176.02	156.96	170.43	101.10	97.06	134.17	283.15	126.18	236.94	260.22	244.18

Movement, Approach, & Intersection Results

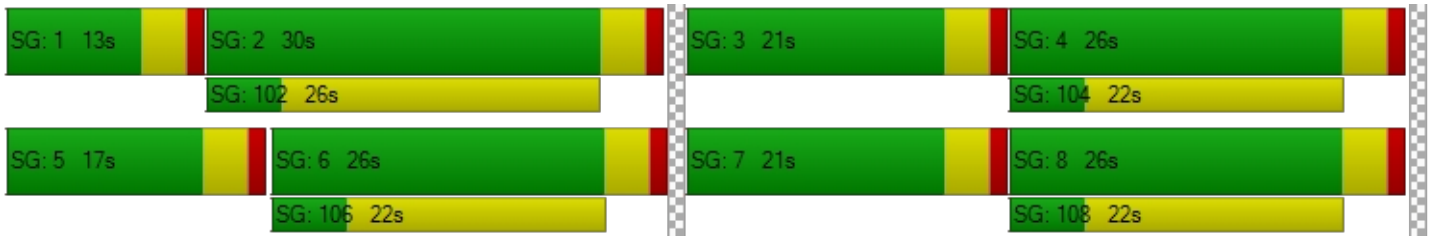
d_M, Delay for Movement [s/veh]	49.83	23.35	23.78	47.04	19.46	19.52	48.15	36.90	31.65	44.70	29.76	29.84
Movement LOS	D	C	C	D	B	B	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	28.56			28.94			37.57			33.83		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	33.22											
Intersection LOS	C											
Intersection V/C	0.642											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.49	36.49	36.49	36.49
l_p,int, Pedestrian LOS Score for Intersection	2.532	2.491	2.710	2.670
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	488	577	488	488
d_b, Bicycle Delay [s]	25.73	22.80	25.73	25.73
l_b,int, Bicycle LOS Score for Intersection	2.014	1.939	2.320	2.282
Bicycle LOS	B	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	17.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	10	12	850	24	5	749
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	12	850	24	5	749
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	230	6	1	202
Total Analysis Volume [veh/h]	11	13	919	26	5	810
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	17.20	12.19	0.00	0.00	9.91	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	4.72	4.72	0.00	0.00	0.21	0.10
d_A, Approach Delay [s/veh]	14.48		0.00		0.06	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	C					

OPENING YEAR PLUS PROJECT

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\OYP AM.pdf

Scenario 3 OYP AM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	WB Left	0.884	43.7	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.120	24.1	C
3	Driveway #1/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Right	0.031	13.2	B
4	N Union Rd/Driveway #2	Two-way stop	HCM 7th Edition	WB Right	0.060	11.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	43.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.884

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	87	207	258	153	232	54	46	501	118	251	422	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	160	69	31	77	118	56	56	72	98	1	91	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	252	287	303	238	362	113	104	599	222	265	535	175
Peak Hour Factor	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	76	80	63	96	30	28	158	59	70	142	46
Total Analysis Volume [veh/h]	267	304	321	252	383	120	110	634	235	280	566	185
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	31	0	21	30	0	12	26	0	22	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	28	28	17	27	27	8	21	21	18	31	31
g / C, Green / Cycle	0.18	0.28	0.28	0.17	0.27	0.27	0.08	0.21	0.21	0.18	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.16	0.18	0.22	0.15	0.15	0.15	0.07	0.19	0.16	0.17	0.23	0.23
s, saturation flow rate [veh/h]	1629	1710	1454	1629	1710	1572	1629	3256	1454	1629	1710	1568
c, Capacity [veh/h]	293	474	403	277	457	420	132	692	309	293	534	489
d1, Uniform Delay [s]	40.25	31.83	33.59	40.78	31.75	31.77	45.38	38.54	37.02	40.64	30.73	30.73
k, delay calibration	0.12	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.14	0.25	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.41	6.54	15.07	11.02	5.14	5.63	12.88	5.34	4.01	18.52	4.45	4.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.64	0.80	0.91	0.57	0.57	0.84	0.92	0.76	0.95	0.73	0.73
d, Delay for Lane Group [s/veh]	51.66	38.36	48.65	51.80	36.89	37.40	58.25	43.89	41.04	59.15	35.18	35.58
Lane Group LOS	D	D	D	D	D	D	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.29	7.23	8.78	6.87	6.06	5.65	3.15	7.99	5.67	8.24	8.90	8.22
50th-Percentile Queue Length [ft/ln]	182.19	180.69	219.52	171.65	151.39	141.21	78.64	199.71	141.68	206.02	222.49	205.38
95th-Percentile Queue Length [veh/ln]	11.72	11.64	13.64	11.16	10.09	9.55	5.66	12.62	9.57	12.95	13.79	12.92
95th-Percentile Queue Length [ft/ln]	292.88	290.91	341.01	279.08	252.29	238.65	141.56	315.60	239.29	323.71	344.81	322.89

Movement, Approach, & Intersection Results

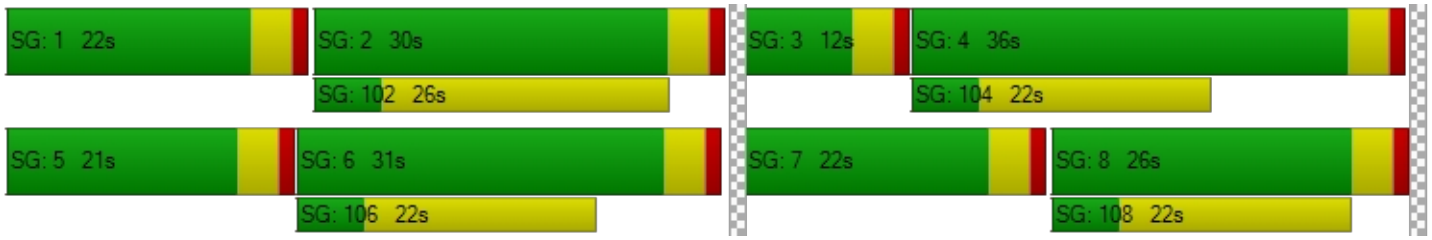
d_M, Delay for Movement [s/veh]	51.66	38.36	48.65	51.80	37.05	37.40	58.25	43.89	41.04	59.15	35.30	35.58
Movement LOS	D	D	D	D	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	46.05			42.03			44.82			41.83		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	43.70											
Intersection LOS	D											
Intersection V/C	0.884											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.44	41.44	41.44	41.44
l_p,int, Pedestrian LOS Score for Intersection	2.656	2.571	2.773	2.743
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	540	520	440	640
d_b, Bicycle Delay [s]	26.68	27.41	30.45	23.15
l_b,int, Bicycle LOS Score for Intersection	2.296	2.182	2.367	2.410
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	24.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	22	12	897	23	5	778
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0260	1.0260	1.0260	1.0260	1.0260	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	160	0	0	127
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	12	1080	24	5	925
Peak Hour Factor	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	305	7	1	261
Total Analysis Volume [veh/h]	26	14	1219	27	6	1044
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.03	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	24.06	15.74	0.00	0.00	11.37	0.00
Movement LOS	C	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.53	0.53	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	13.22	13.22	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	21.15		0.00		0.06	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.39					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Driveway #1/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	0	0	920	0	0	806
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0000	1.0260	1.0260	1.0260	1.0000	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	146	34	0	127
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1090	34	0	954
Peak Hour Factor	1.0000	1.0000	0.9450	1.0000	1.0000	0.8660
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	288	9	0	275
Total Analysis Volume [veh/h]	0	14	1153	34	0	1102
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.19	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.39	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.19		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: N Union Rd/Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	North Union Road		North Union Road		Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	North Union Road		North Union Road		Driveway #2	
Base Volume Input [veh/h]	552	0	0	601	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00
Growth Factor	1.0260	1.0260	1.0000	1.0260	1.0000	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	227	15	0	217	0	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	793	15	0	834	0	33
Peak Hour Factor	0.9450	0.9450	1.0000	0.9450	1.0000	0.9450
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	4	0	221	0	9
Total Analysis Volume [veh/h]	839	16	0	883	0	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.59
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.79
d_A, Approach Delay [s/veh]	0.00		0.00		11.59	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	B					

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\OYP PM.pdf
Scenario 4 OYP PM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	NB Left	0.878	50.3	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.046	21.0	C
3	Driveway #1/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Right	0.033	13.7	B
4	N Union Rd/Driveway #2	Two-way stop	HCM 7th Edition	WB Right	0.061	11.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	50.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.878

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	93	214	182	140	219	49	109	578	130	211	433	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527	1.0527
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	121	132	31	57	89	55	55	110	152	4	67	78
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	219	357	223	204	320	107	170	718	289	226	523	218
Peak Hour Factor	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870	0.8870
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	101	63	57	90	30	48	202	81	64	147	61
Total Analysis Volume [veh/h]	247	402	251	230	361	121	192	809	326	255	590	246
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	24	32	0	22	30	0	24	28	0	28	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	29	29	17	28	28	15	29	29	19	33	33
g / C, Green / Cycle	0.17	0.26	0.26	0.16	0.25	0.25	0.14	0.26	0.26	0.17	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.15	0.20	0.20	0.14	0.15	0.15	0.12	0.25	0.22	0.16	0.26	0.26
s, saturation flow rate [veh/h]	1629	1710	1493	1629	1710	1565	1629	3256	1454	1629	1710	1541
c, Capacity [veh/h]	274	449	392	256	430	394	220	849	379	284	512	462
d1, Uniform Delay [s]	44.89	37.59	37.60	45.50	36.11	36.14	46.63	40.00	38.75	44.49	36.31	36.33
k, delay calibration	0.12	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.32	0.14	0.35	0.35
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.99	12.42	14.07	10.84	5.68	6.27	10.18	6.95	15.08	12.30	12.32	13.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.78	0.78	0.90	0.58	0.59	0.87	0.95	0.86	0.90	0.86	0.86
d, Delay for Lane Group [s/veh]	56.89	50.02	51.67	56.34	41.78	42.42	56.81	46.94	53.83	56.79	48.63	49.92
Lane Group LOS	E	D	D	E	D	D	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.48	10.16	9.06	6.90	6.56	6.11	5.75	11.41	9.86	7.73	12.69	11.62
50th-Percentile Queue Length [ft/ln]	186.89	254.00	226.38	172.42	164.00	152.73	143.69	285.35	246.51	193.20	317.27	290.54
95th-Percentile Queue Length [veh/ln]	11.96	15.39	13.99	11.20	10.76	10.16	9.68	16.95	15.01	12.29	18.53	17.21
95th-Percentile Queue Length [ft/ln]	298.99	384.69	349.76	280.09	269.01	254.06	241.98	423.87	375.25	307.18	463.32	430.31

Movement, Approach, & Intersection Results

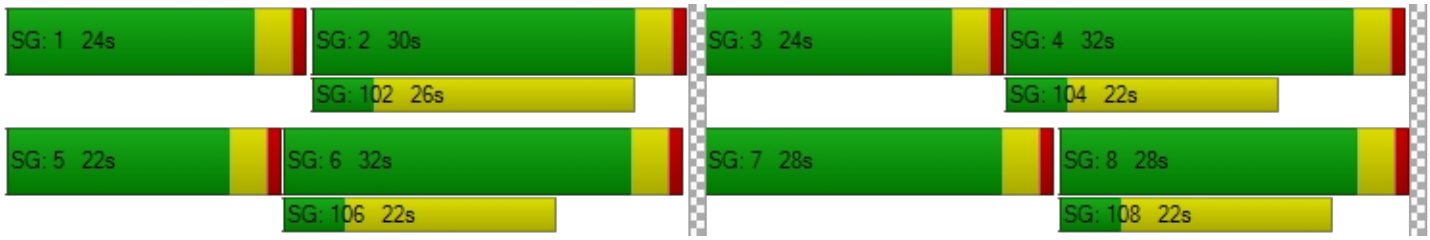
d_M, Delay for Movement [s/veh]	56.89	50.24	51.67	56.34	41.98	42.42	56.81	46.94	53.83	56.79	48.96	49.92
Movement LOS	E	D	D	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	52.46			46.69			50.06			51.01		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	50.26											
Intersection LOS	D											
Intersection V/C	0.878											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.37	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	2.670	2.614	2.835	2.775
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	509	473	436	509
d_b, Bicycle Delay [s]	30.57	32.08	33.62	30.57
l_b,int, Bicycle LOS Score for Intersection	2.302	2.147	2.654	2.460
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	10	12	850	24	5	749
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0260	1.0260	1.0260	1.0260	1.0260	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	180	0	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	12	1052	25	5	916
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	284	7	1	248
Total Analysis Volume [veh/h]	11	13	1137	27	5	990
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	20.97	13.69	0.00	0.00	10.93	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	5.98	5.98	0.00	0.00	0.21	0.10
d_A, Approach Delay [s/veh]	17.03		0.00		0.05	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Driveway #1/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	0	0	900	0	0	777
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.0260	1.0260	1.0260	1.0260	1.0260	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	167	30	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1090	30	0	945
Peak Hour Factor	1.0000	1.0000	0.8870	1.0000	1.0000	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	307	8	0	255
Total Analysis Volume [veh/h]	0	14	1229	30	0	1022
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.66	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.52	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.66		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: N Union Rd/Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	North Union Road		North Union Road		Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	North Union Road		North Union Road		Driveway #2	
Base Volume Input [veh/h]	489	0	0	560	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00
Growth Factor	1.0260	1.0260	1.0260	1.0260	1.0260	1.0260
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	252	13	0	245	0	31
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	754	13	0	820	0	31
Peak Hour Factor	0.8870	0.8870	1.0000	0.8870	1.0000	0.8870
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	213	4	0	231	0	9
Total Analysis Volume [veh/h]	850	15	0	924	0	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.64
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.83
d_A, Approach Delay [s/veh]	0.00		0.00		11.64	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.22					
Intersection LOS	B					

ATTACHMENT 6

CUMULATIVE WITHOUT PROJECT

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\EAC AM.pdf

Scenario 5 EAC AM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	WB Left	0.960	49.7	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.140	26.1	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	49.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.960

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	87	207	258	153	232	54	46	501	118	251	422	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	146	64	2	72	118	56	56	58	98	1	91	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	257	329	332	268	415	125	115	700	249	323	632	205
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	82	83	67	104	31	29	175	62	81	158	51
Total Analysis Volume [veh/h]	257	329	332	268	415	125	115	700	249	323	632	205
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	29	0	21	30	0	12	26	0	24	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	25	25	17	26	26	8	22	22	20	34	34
g / C, Green / Cycle	0.16	0.25	0.25	0.17	0.26	0.26	0.08	0.22	0.22	0.20	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.16	0.19	0.23	0.16	0.16	0.16	0.07	0.21	0.17	0.20	0.25	0.26
s, saturation flow rate [veh/h]	1629	1710	1454	1629	1710	1576	1629	3256	1454	1629	1710	1569
c, Capacity [veh/h]	261	430	366	277	447	412	131	711	317	326	578	530
d1, Uniform Delay [s]	41.90	34.69	36.31	41.25	32.63	32.65	45.53	38.95	36.90	39.94	29.44	29.47
k, delay calibration	0.11	0.50	0.50	0.12	0.50	0.50	0.11	0.11	0.14	0.20	0.27	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.62	12.18	28.62	19.65	6.52	7.09	16.51	12.58	5.34	29.70	5.00	5.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.76	0.91	0.97	0.63	0.63	0.88	0.99	0.78	0.99	0.75	0.76
d, Delay for Lane Group [s/veh]	64.52	46.87	64.93	60.89	39.15	39.74	62.04	51.54	42.24	69.64	34.43	34.99
Lane Group LOS	E	D	E	E	D	D	E	D	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.88	8.76	10.62	7.99	6.74	6.29	3.41	9.63	6.12	10.48	9.86	9.16
50th-Percentile Queue Length [ft/ln]	197.02	219.00	265.58	199.63	168.48	157.28	85.15	240.80	153.12	262.06	246.57	228.97
95th-Percentile Queue Length [veh/ln]	12.48	13.61	15.97	12.62	11.00	10.40	6.13	14.72	10.18	15.79	15.01	14.12
95th-Percentile Queue Length [ft/ln]	312.11	340.35	399.22	315.48	274.91	260.11	153.27	368.04	254.58	394.80	375.34	353.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.52	46.87	64.93	60.89	39.34	39.74	62.04	51.54	42.24	69.64	34.61	34.99
Movement LOS	E	D	E	E	D	D	E	D	D	E	C	C
d_A, Approach Delay [s/veh]	58.34			46.55			50.50			44.43		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	49.73											
Intersection LOS	D											
Intersection V/C	0.960											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.42	41.42	41.42	41.42
l_p,int, Pedestrian LOS Score for Intersection	2.678	2.591	2.797	2.786
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	520	440	680
d_b, Bicycle Delay [s]	28.14	27.40	30.44	21.80
l_b,int, Bicycle LOS Score for Intersection	2.317	2.226	2.437	2.517
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	26.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.140

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	22	12	897	23	5	778
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	132	0	0	127
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	15	1281	29	6	1124
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	4	320	7	2	281
Total Analysis Volume [veh/h]	28	15	1281	29	6	1124
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.04	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	26.09	16.83	0.00	0.00	11.74	0.00
Movement LOS	D	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.63	0.63	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	15.63	15.63	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	22.86		0.00		0.06	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.42					
Intersection LOS	D					

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\EAC PM.pdf

Scenario 6 EAC PM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	SB Left	0.897	49.8	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.062	23.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	49.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.897

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	93	214	182	140	219	49	109	578	130	211	433	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	108	128	4	53	89	55	55	97	152	4	67	78
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	227	402	237	232	370	118	195	837	319	274	622	248
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	101	59	58	93	30	49	209	80	69	156	62
Total Analysis Volume [veh/h]	227	402	237	232	370	118	195	837	319	274	622	248
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	30	0	21	30	0	19	32	0	27	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	27	27	17	27	27	15	30	30	20	35	35
g / C, Green / Cycle	0.15	0.24	0.24	0.15	0.24	0.24	0.14	0.27	0.27	0.19	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.14	0.20	0.20	0.14	0.15	0.15	0.12	0.26	0.22	0.17	0.27	0.27
s, saturation flow rate [veh/h]	1629	1710	1500	1629	1710	1570	1629	3256	1454	1629	1710	1546
c, Capacity [veh/h]	252	414	363	252	414	380	222	886	396	302	550	497
d1, Uniform Delay [s]	45.69	39.46	39.48	45.85	37.12	37.15	46.68	39.25	37.36	43.92	34.56	34.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.30	0.17	0.32	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.13	16.56	18.61	13.01	6.62	7.28	10.73	6.02	10.14	14.68	9.20	10.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.82	0.82	0.92	0.61	0.62	0.88	0.94	0.81	0.91	0.83	0.83
d, Delay for Lane Group [s/veh]	56.82	56.02	58.09	58.86	43.74	44.44	57.41	45.27	47.50	58.60	43.76	44.86
Lane Group LOS	E	E	E	E	D	D	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.83	10.52	9.45	7.12	6.81	6.36	5.87	11.63	9.02	8.49	12.50	11.49
50th-Percentile Queue Length [ft/ln]	170.87	263.08	236.32	178.05	170.19	158.96	146.86	290.86	225.45	212.18	312.47	287.28
95th-Percentile Queue Length [veh/ln]	11.12	15.84	14.49	11.50	11.09	10.49	9.85	17.23	13.94	13.27	18.30	17.05
95th-Percentile Queue Length [ft/ln]	278.06	396.08	362.37	287.47	277.17	262.34	246.23	430.70	348.57	331.63	457.42	426.26

Movement, Approach, & Intersection Results

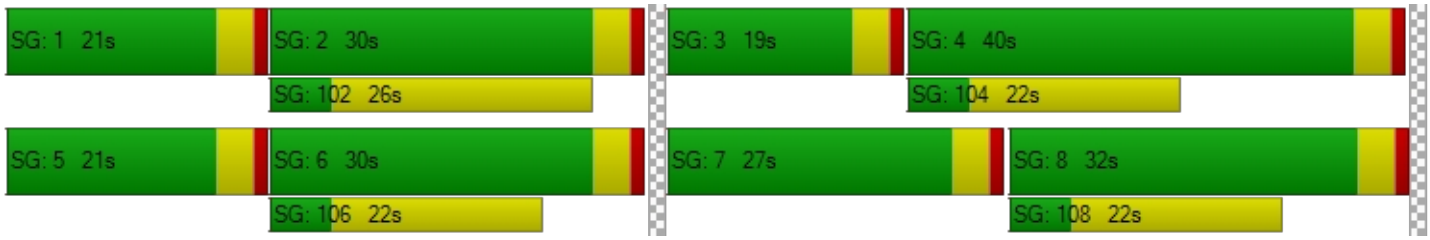
d_M, Delay for Movement [s/veh]	56.82	56.34	58.09	58.86	43.96	44.44	57.41	45.27	47.50	58.60	44.06	44.86
Movement LOS	E	E	E	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	56.94			48.84			47.55			47.71		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	49.82											
Intersection LOS	D											
Intersection V/C	0.897											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.39	46.39	46.39	46.39
l_p,int, Pedestrian LOS Score for Intersection	2.668	2.616	2.841	2.789
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	509	654
d_b, Bicycle Delay [s]	32.10	32.10	30.59	24.91
l_b,int, Bicycle LOS Score for Intersection	2.274	2.154	2.674	2.503
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	23.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	10	12	850	24	5	749
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	153	0	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	15	1242	31	6	1107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	4	311	8	2	277
Total Analysis Volume [veh/h]	13	15	1242	31	6	1107
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	23.54	14.81	0.00	0.00	11.52	0.00
Movement LOS	C	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	8.01	8.01	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	18.87		0.00		0.06	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	C					

ATTACHMENT 6

CUMULATIVE PLUS PROJECT

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\EACP AM.pdf
Scenario 7 EACP AM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	NB Right	0.992	53.6	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.144	26.9	D
3	Driveway #1/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Right	0.035	14.4	B
4	N Union Rd/Driveway #2	Two-way stop	HCM 7th Edition	WB Right	0.061	12.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	53.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.992

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	87	207	258	153	232	54	46	501	118	251	422	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	160	69	31	77	118	56	56	72	98	1	91	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	271	334	361	273	415	125	115	714	249	323	632	205
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	84	90	68	104	31	29	179	62	81	158	51
Total Analysis Volume [veh/h]	271	334	361	273	415	125	115	714	249	323	632	205
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	29	0	21	30	0	12	26	0	24	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	25	25	17	26	26	8	22	22	20	34	34
g / C, Green / Cycle	0.16	0.25	0.25	0.17	0.26	0.26	0.08	0.22	0.22	0.20	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.17	0.20	0.25	0.17	0.16	0.16	0.07	0.22	0.17	0.20	0.25	0.26
s, saturation flow rate [veh/h]	1629	1710	1454	1629	1710	1576	1629	3256	1454	1629	1710	1569
c, Capacity [veh/h]	261	430	366	277	447	412	131	711	317	326	578	530
d1, Uniform Delay [s]	42.02	34.82	37.28	41.40	32.63	32.65	45.53	39.12	36.90	39.94	29.44	29.47
k, delay calibration	0.12	0.50	0.50	0.13	0.50	0.50	0.11	0.11	0.14	0.20	0.27	0.27
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.39	12.86	43.88	23.94	6.52	7.09	16.51	16.85	5.34	29.70	5.00	5.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.78	0.99	0.99	0.63	0.63	0.88	1.00	0.78	0.99	0.75	0.76
d, Delay for Lane Group [s/veh]	80.41	47.68	81.15	65.34	39.16	39.74	62.04	55.97	42.24	69.64	34.43	34.99
Lane Group LOS	F	D	F	E	D	D	E	F	D	E	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	9.13	8.98	13.07	8.46	6.74	6.29	3.41	10.22	6.12	10.48	9.86	9.16
50th-Percentile Queue Length [ft/ln]	228.35	224.48	326.76	211.51	168.49	157.26	85.15	255.38	153.12	262.06	246.57	228.97
95th-Percentile Queue Length [veh/ln]	14.34	13.89	19.00	13.23	11.00	10.40	6.13	15.50	10.18	15.79	15.01	14.12
95th-Percentile Queue Length [ft/ln]	358.58	347.34	474.99	330.77	274.93	260.09	153.27	387.43	254.58	394.80	375.34	353.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	80.41	47.68	81.15	65.34	39.35	39.74	62.04	55.97	42.24	69.64	34.61	34.99
Movement LOS	F	D	F	E	D	D	E	F	D	E	C	C
d_A, Approach Delay [s/veh]	69.37			48.13			53.45			44.43		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	53.60											
Intersection LOS	D											
Intersection V/C	0.992											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.42	41.42	41.42	41.42
l_p,int, Pedestrian LOS Score for Intersection	2.687	2.593	2.802	2.796
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	520	440	680
d_b, Bicycle Delay [s]	28.14	27.40	30.44	21.80
l_b,int, Bicycle LOS Score for Intersection	2.357	2.230	2.449	2.517
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	26.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.144

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	22	12	897	23	5	778
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	160	0	0	127
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	15	1309	29	6	1124
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	4	327	7	2	281
Total Analysis Volume [veh/h]	28	15	1309	29	6	1124
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.04	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	26.86	17.22	0.00	0.00	11.90	0.00
Movement LOS	D	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.65	0.65	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	16.17	16.17	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	23.50		0.00		0.06	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.43					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: Driveway #1/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	0	0	920	0	0	806
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	146	34	0	127
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1325	34	0	1159
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	331	9	0	290
Total Analysis Volume [veh/h]	0	14	1325	34	0	1159
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	14.36	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.72	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.36		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: N Union Rd/Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	North Union Road		North Union Road		Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	North Union Road		North Union Road		Driveway #2	
Base Volume Input [veh/h]	552	0	0	601	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	227	15	0	217	0	33
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	934	15	0	987	0	33
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	234	4	0	247	0	8
Total Analysis Volume [veh/h]	934	15	0	987	0	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.07
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.85
d_A, Approach Delay [s/veh]	0.00		0.00		12.07	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	B					

Crossroads Plaza

Vistro File: C:\...\SEG23002 Vistro.vistro
Report File: C:\...\EACP PM.pdf
Scenario 8 EACP PM
12/14/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Union Rd/E Lathrop Rd	Signalized	HCM 7th Edition	NB Left	0.917	51.2	D
2	Arrowsmith Dr/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Left	0.064	24.1	C
3	Driveway #1/E Lathrop Rd	Two-way stop	HCM 7th Edition	NB Right	0.035	14.3	B
4	N Union Rd/Driveway #2	Two-way stop	HCM 7th Edition	WB Right	0.055	11.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: N Union Rd/E Lathrop Rd

Control Type:	Signalized	Delay (sec / veh):	51.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.917

Intersection Setup

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	North Union Road			North Union Road			East Lathrop Road			East Lathrop Road		
Base Volume Input [veh/h]	93	214	182	140	219	49	109	578	130	211	433	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	121	132	31	57	89	55	55	110	152	4	67	78
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	240	406	264	236	370	118	195	850	319	274	622	248
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	102	66	59	93	30	49	213	80	69	156	62
Total Analysis Volume [veh/h]	240	406	264	236	370	118	195	850	319	274	622	248
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	30	0	21	30	0	19	35	0	24	40	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	21	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	27	27	17	27	27	15	30	30	20	36	36
g / C, Green / Cycle	0.15	0.24	0.24	0.15	0.24	0.24	0.14	0.28	0.28	0.18	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.15	0.21	0.21	0.14	0.15	0.15	0.12	0.26	0.22	0.17	0.27	0.27
s, saturation flow rate [veh/h]	1629	1710	1488	1629	1710	1570	1629	3256	1454	1629	1710	1546
c, Capacity [veh/h]	252	413	359	252	413	379	222	900	402	296	551	498
d1, Uniform Delay [s]	46.12	40.07	40.07	45.98	37.19	37.23	46.68	39.01	36.93	44.29	34.48	34.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.29	0.17	0.32	0.32
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.62	21.09	23.58	14.84	6.69	7.36	10.73	5.96	9.17	16.87	9.08	10.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.87	0.87	0.94	0.61	0.62	0.88	0.94	0.79	0.92	0.83	0.83
d, Delay for Lane Group [s/veh]	63.73	61.15	63.66	60.82	43.88	44.59	57.41	44.97	46.11	61.15	43.56	44.65
Lane Group LOS	E	E	E	E	D	D	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.70	11.62	10.37	7.38	6.82	6.37	5.87	11.80	8.88	8.68	12.47	11.46
50th-Percentile Queue Length [ft/ln]	192.40	290.62	259.20	184.38	170.52	159.24	146.86	294.95	221.94	216.92	311.74	286.58
95th-Percentile Queue Length [veh/ln]	12.25	17.22	15.65	11.83	11.10	10.51	9.85	17.43	13.76	13.51	18.26	17.02
95th-Percentile Queue Length [ft/ln]	306.14	430.40	391.22	295.73	277.60	262.71	246.23	435.78	344.11	337.70	456.52	425.39

Movement, Approach, & Intersection Results

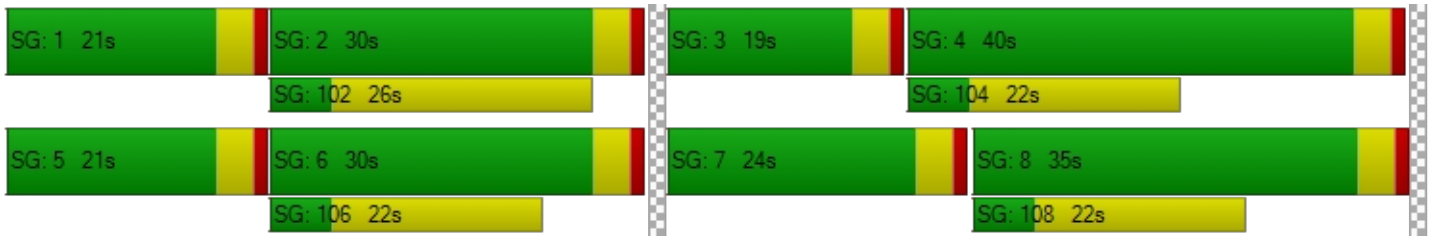
d_M, Delay for Movement [s/veh]	63.73	61.45	63.66	60.82	44.11	44.59	57.41	44.97	46.11	61.15	43.85	44.65
Movement LOS	E	E	E	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	62.69			49.63			47.02			48.17		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	51.24											
Intersection LOS	D											
Intersection V/C	0.917											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	46.39	46.39	46.39	46.39
l_p,int, Pedestrian LOS Score for Intersection	2.676	2.618	2.845	2.797
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	563	654
d_b, Bicycle Delay [s]	32.10	32.10	28.39	24.91
l_b,int, Bicycle LOS Score for Intersection	2.310	2.157	2.685	2.503
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Arrowsmith Dr/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	24.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.064

Intersection Setup

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Arrowsmith Drive		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	10	12	850	24	5	749
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	180	0	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	15	1269	31	6	1107
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	4	317	8	2	277
Total Analysis Volume [veh/h]	13	15	1269	31	6	1107
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	2	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.04	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	24.14	15.06	0.00	0.00	11.68	0.00
Movement LOS	C	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	8.25	8.25	0.00	0.00	0.25	0.13
d_A, Approach Delay [s/veh]	19.28		0.00		0.06	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Driveway #1/E Lathrop Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Driveway #1		East Lathrop Road		East Lathrop Road	
Base Volume Input [veh/h]	0	0	900	0	0	777
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	2.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	167	30	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1320	30	0	1143
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	330	8	0	286
Total Analysis Volume [veh/h]	0	14	1320	30	0	1143
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	14.30	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.71	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.30		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: N Union Rd/Driveway #2

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name	North Union Road		North Union Road		Driveway #2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	49.21	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	North Union Road		North Union Road		Driveway #2	
Base Volume Input [veh/h]	489	0	0	560	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	2.00	0.00	2.00	0.00
Growth Factor	1.2810	1.2810	1.2810	1.2810	1.2810	1.2810
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	252	13	0	245	0	31
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	878	13	0	962	0	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	220	3	0	241	0	8
Total Analysis Volume [veh/h]	878	13	0	962	0	31
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.01	0.00	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.73
Movement LOS	A	A		A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.17
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.34
d_A, Approach Delay [s/veh]	0.00		0.00		11.73	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	B					

ATTACHMENT 6

SALEM engineering group, inc.

4729 W. Jacquelyn Avenue
Fresno, California 93722
(559) 271-9700 Office
(559) 275-0827 Fax

March 10, 2023 **Job No. 4-423-0090**

Ms. Tenea Davis
Manteca 18, LLC
1925 Village Center Circle, Suite 150
Las Vegas, NV 89314

SUBJECT: **NOISE IMPACT STUDY**
Proposed Crossroads Plaza
2064 North Union Road
Manteca, California

Dear Ms. Davis:

A Noise Impact Study for the above-referenced project located at 2064 North Union Road in the City of Manteca, California (subject property) was conducted. The proposed project involves the construction of an approximately 5,200 square-foot convenience store with a 6-pump fueling dispensers, a 6,816 square-foot retail space and includes parking for 48 spaces.

The Noise Impact Study is an analysis of the proposed project's potential noise and vibration impacts associated with the construction of the project, as well as long-term noise impacts associated with the operation of the proposed project. The Noise Study was prepared utilizing the City of Manteca General Plan Safety Element, and Noise Ordinance from the Municipal Code.

Please refer to Section 7.0 Future Noise Environmental Impacts and Mitigation, and Section 8.0 Construction Noise Impacts for detailed information pertaining to the proposed project temporary construction noise impacts, as well as long-term operational noise impacts. However, based on the noise impact analysis, impacts associated with off-site traffic noise, on-site traffic noise, off-site receptors from stationary noise sources, and construction noise and vibration are not significant, and mitigation is not required.

We appreciate the opportunity to assist you with this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (909) 980-6455.

Respectfully submitted,

SALEM Engineering Group, Inc.

Maria G. Ruvalcaba, EP
Project Manager

ATTACHMENT 6

Crossroads Plaza
Noise Impact Study
City of Manteca, CA

Prepared for:

Ms. Maria Ruvalcaba
SALEM Engineering Group, Inc.
4729 W. Jacquelyn Avenue
Fresno, CA 93722

Prepared by:

MD Acoustics, LLC
Claire Pincock, INCE-USA
Rachel Edelman
1197 Los Angeles Ave, Ste C-256
Simi Valley, CA 93065

Date: 3/10/2023

MD ACOUSTICS
Sound Solutions for Planning and Design

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This noise assessment was prepared to evaluate the potential noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. The assessment was conducted and compared to the noise standards set-forth by the Federal, State and Local agencies. Consistent with the City's Noise Guidelines, the project must demonstrate compliance to the applicable noise criterion as outlined within the City of Manteca Noise Element and Municipal Code.

The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- A description of the local noise guidelines and standards;
- An analysis of traffic noise impacts to the sensitive receptors and the project site; and
- An analysis of construction noise impacts.

1.2 Site Location and Study Area

The Crossroads Plaza Commercial Development (Project) site is located at 2064 North Union Road in the City of Manteca, CA. See Exhibit A for the location. Land zoning directly surrounding the Project site include residential to the east, south, and southwest, commercial to the west, and Specific Plan to the north. W Lathrop Rd is to the north and North Union Rd is to the west.

1.3 Proposed Project Description

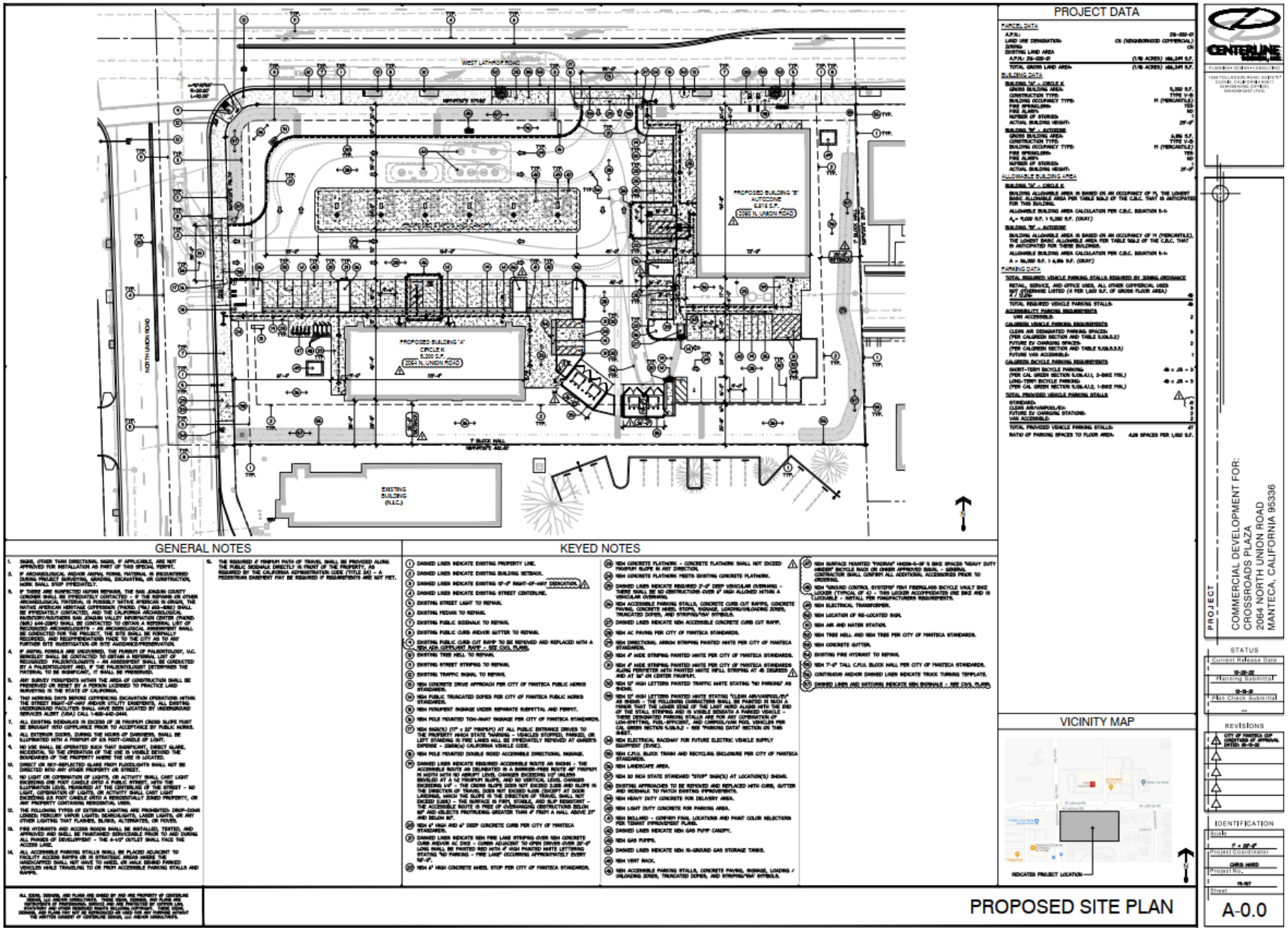
The proposed Project consists of the construction and operation of a commercial development. The Project proposes to construct a 5,200 square foot convenience store with 6-pump fueling dispensers, a 6,816 square foot retail space (AutoZone) and approximately 48 parking spaces on 1.98 acres. The site plan is shown in Exhibit B.

Exhibit A

Location Map

Exhibit B

Site Plan



2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

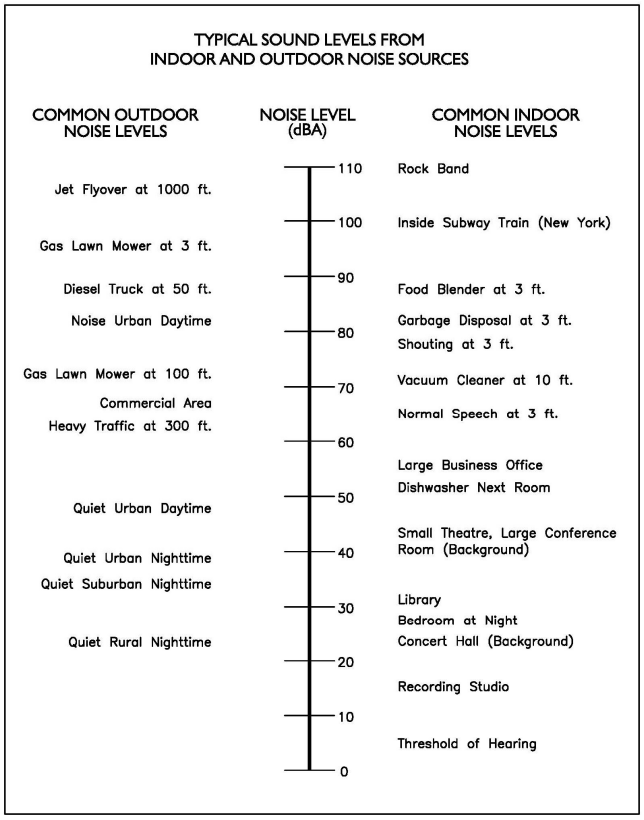
2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Sensitive Receptors

Noise-sensitive land uses include residential (single and multi-family dwellings, mobile home parks, dormitories, and similar uses); transient lodging (including hotels, motels, and similar uses); hospitals, nursing homes, convalescent hospitals, and other facilities for long-term medical care; public or private educational facilities, libraries, churches, and places of public assembly.

2.6 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Table 1: Decibel Changes and Loudness

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud
Source: https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm	

2.7 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00

PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly, L50, L90 and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.8 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2 axle) and heavy truck percentage (3 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.9 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

3.0 Ground-Bourne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation. As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Manteca and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement Codes and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan.

The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

4.3 City of Manteca Noise Regulations

The City of Manteca outlines their noise regulations and standards within the Safety Element from the General Plan and the Noise Ordinance from the Municipal Code.

City of Manteca General Plan

Applicable policies and standards governing environmental noise in the City of Manteca are set forth in the General Plan Safety Element. The land use compatibility guidelines are shown in Exhibit D.

Exhibit D: Land Use Compatibility Guidelines

Table S-1: Maximum Allowable Noise Exposure from Mobile Noise Sources

Land Use[1]	Outdoor Activity Areas[2,3]	Interior Spaces	
		Ldn/ CNEL, dBA	Leq, dBA[4]
Residential	60	45	-
Motels/Hotels	65	45	-
Mixed-Use	65	45	
Hospitals, Nursing Homes	60	45	-
Theaters, Auditoriums	-	-	35
Churches	60	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	70	-	45
Playgrounds, Neighborhood Parks	70	-	-
Industrial	75	-	45
Golf Courses, Water Recreation	70	-	-

[1]Where a proposed use is not specifically listed, the use shall comply with the standards for the most similar use as determined by the City.

[2]Outdoor activity areas for residential development are considered to be the back yard patios or decks of single family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise level standard, the standard will not be applied at patios or decks of individual units provided noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities; not all residential developments include outdoor activity areas.

[3]In areas where it is not possible to reduce exterior noise levels to achieve the outdoor activity area standard w using a practical application of the best noise-reduction technology, an increase of up to 5 Ldn over the standard will be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table

[4]Determined for a typical worst-case hour during periods of use.

In addition to the noise standards, the City has outlined goals, policies and implementation measures to reduce potential noise impacts and are presented below:

Goals, Policies, and Implementation Measures

The City utilizes the following General Plan Noise Element goal, policies and implementation measures to assess evaluate the project's suitability in light of noise impacts.

Goal S-6 Protect the quality of life by protecting the community from harmful and excessive noise.

Policies

S-6.3 Areas within Manteca exposed to existing or projected exterior noise levels from mobile noise sources exceeding the performance standards in Table S-1 (Exhibit D in this report) shall be designated as noise-impacted areas.

S-6.4 Require residential and other noise-sensitive development projects to satisfy the noise level criteria in Tables S-1 and S-2 (Table 2 in this report).

Table 2: Performance Standards for Stationary Noise Sources, Including Affected Projects

Noise Level Descriptor	Daytime 7 am to 10 pm	Nighttime 10 pm to 7 am
Hourly Leq, dBA	55	45

Notes:
1. Each of the noise levels specified above should be lowered by 5 dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered to be particularly annoying and are a primary source of noise complaints.

S-6.5 Require new stationary noise sources proposed adjacent to noise sensitive uses to incorporate noise-attenuating measures so as to not exceed the noise level performance standards in Table S-2, or a substantial increase in noise levels established through a detailed ambient noise survey.

S-6.6 Regulate construction-related noise to reduce impacts on adjacent uses to the criteria identified in Table S-2 or, if the criteria in Table S-2 cannot be met, to the maximum level feasible using best management practices and complying with the MMC Chapter 9.52.

S-6.7 Where the development of residential or other noise-sensitive land use is proposed for a noise-impacted area or where the development of a stationary noise source is proposed in the vicinity of noise sensitive uses, an acoustical analysis is required as part of the development review process so that noise mitigation may be considered in the project design. The acoustical analysis shall:

- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
- Estimate existing and projected (20 years) noise levels in terms of the standards of Table S-1 or Table S-2, and compare those levels to the adopted policies of the Noise Element.
- Recommend appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.
- Estimate noise exposure after the prescribed mitigation measures have been implemented.

S-6.8 Apply noise level criteria applied to land uses other than residential or other noise-sensitive uses consistent with noise performance levels of Table S-1 and Table S-2.

S-6.15 Recognizing that existing noise-sensitive uses may be exposed to increase noise levels due to circulation improvement projects associated with development under the General Plan and that it may not be feasible to reduce increased traffic noise levels to the criteria identified in Table S-1, the following criteria may be used to determine the significance of noise impacts associated with circulation improvement projects:

- Where existing traffic noise levels are less than 60 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +5 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant.

Implementation

S-6a Require an acoustical analysis that complies with the requirements of S-6.7 where:

- Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels exceeding the levels specified in Table S-1 or S-2.
- Proposed transportation projects are likely to produce noise levels exceeding the levels specified in Table S-1 or S-2 at existing or planned noise sensitive uses.

S-6c Update the City's Noise Ordinance (Chapter 9.52) to reflect the noise standards established in this Noise Safety Element and proactively enforce the City's Noise Ordinance, including requiring the following measures for construction:

- Restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction shall be permitted outside of these hours or on Sundays or federal holidays, without a specific exemption issued by the City. No exemption shall be issued for construction within 200 feet of residential uses.
- A Construction Noise Management Plan shall be submitted by the applicant for construction projects that exceed ambient noise levels by more than 12dBA or produce perceptible vibrations at any off-site structures. The Construction Noise Management Plan shall include proper posting of construction schedules, appointment of a noise disturbance coordinator, methods for assisting in noise reduction measures, and shall establish allowed truck routes to access the site that minimize exposure of residential areas to heavy truck traffic.
- Noise reduction measures shall include, but are not limited to, the following:
    a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible.
    b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. This muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available. This would achieve a reduction of up to 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
    c. Temporary power poles or zero-emission power sources shall be used instead of generators where feasible.

d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

f. Delivery of materials shall observe the hours of operation described above.

g. Truck traffic shall avoid residential areas to the greatest extent feasible.

S-6d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

Transportation Noise

- When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial;
- When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;
- When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

Non-Transportation Noise

- A 5 dB increase in noise will be considered substantial.

Construction Noise

- An increase in 12 dB in noise in noise will be considered substantial.

S-6e Control noise at the source through use of insulation, berms, building design and orientation, buffer space, staggered operating hours, and similar techniques. Where such techniques would not meet acceptable levels, use noise barriers to attenuate noise associated with new noise sources to acceptable levels.

S-6f Require that all noise-attenuating features, including soundwalls and quieter pavements, are designed to be attractive and to minimize maintenance.

City of Manteca Municipal Code

Section 17.58.050 and Chapter 9.52 of the City's Municipal Code outlines the City's exterior noise limits as it relates to stationary noise sources.

9.52.040. Specific prohibited noises.

J. Commercial Establishments Adjacent to Residential Property. Notwithstanding any provision of this code to the contrary, continuous, repeated or sustained noise from the premises of any commercial establishment which is adjacent to one or more residential dwelling units, including any outdoor area part of or under the control of the establishment, between the hours of ten p.m. and eight a.m. that is plainly audible from the residential dwelling unit's property line.

K. Construction Equipment. The use or operation of any construction equipment between the hours of eight p.m. and seven a.m. and is sufficiently loud as to be plainly audible at the property line of the property from which the sound is emanating.

17.58.050. Noise Standards.

B. Noise Standards. The maximum sound level generated by any use or activity as measured at the point of measurement shall not exceed the levels established in Table 17.58.050-1 (Table 3 in this report) based on the use that is receiving the noise (e.g., residential use receiving noise generated by an industrial use).

Table 3: Maximum Permissible Sound Pressure Levels

Receiving Land Use Category	Maximum Allowable Noise Levels (Ldn/CNEL, dB)	
	10 pm - 7 am	7 am - 10 pm
Single-Family and Limited Multiple-Family	50	60
Multiple-Family, Public Institution, and Neighborhood Commercial	55	60
Medium and Heavy Commercial	60	65
Light Industrial	70	70
Heavy Industrial	75	75

C. Calculation. Exterior noise levels shall be measured with a sound level meter and associated octave band analyzer meeting the American National Standards Institute's standards S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment that will provide equivalent data. When measuring the noise level, the corrections provided in Table 17.58.050-2 (Table 4 in this report) shall be applied.

Table 4: Noise Level Corrections

Category	Correction (dB)
Daytime operation only (7 a.m. - 7 p.m.)	+5
Noise source operates less than:	-
20% of any one-hour period	+5
5% of any one-hour period	+10
1% of any one-hour period	+15
Noise of impulsive character (e.g., hammering)	-5
Noise rising or falling in pitch or volume (e.g., hum, screech)	-5

E. Prohibited Activities. The following acts shall be a violation of this Chapter.

1. Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

2. Loading and Unloading Activities. Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects on private property between the hours of 10:00 p.m. and 7:00 a.m. in a manner to cause a noise disturbance.

3. Sweepers and Associated Equipment. Operating or allowing the operation of sweepers or associated sweeping equipment (e.g., blowers) on private property between the hours of 10:00 p.m. and 7:00 a.m. the following day in, or adjacent to, a Residential Zoning District.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to the Caltrans TeNS manual. All measurements equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). MD noise measurement procedures are presented below:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a wind screen was placed over the microphone
- Frequency weighting was set on “A” and slow response
- Results of the noise measurements were recorded on field data sheets
- During any short-term noise measurements any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Location

The noise monitoring location was selected to obtain a baseline of the existing noise environment. Two short-term noise measurement was conducted at the Project site. Appendix A includes photos, field sheet, and measured noise data. Exhibit E illustrates the location of the measurement.

5.3 SoundPLAN Noise Model (Operational Noise)

SoundPLAN acoustical modeling software was utilized to model project operational noise at nearby sensitive receptors. The SoundPLAN software utilizes algorithms (based on the inverse square law) to calculate noise level projections. It allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations. It also calculates noise level increases due to the reflection of noise from hard surfaces.

Measured and referenced sound level data was utilized to model the various stationary on-site noise sources associated with project operation, (i.e. idling trucks and parking movements).

Noise associated with proposed truck and automobile parking areas was modeled using the SoundPLAN parking tool. The AutoZone parking lot was modeled with a lot-wide average of 1 movement per space per hour. The pump and service station parking lot was modeled with a lot-wide average of 6 movements per space per hour. The model assumes that each building has a 12.5 ton HVAC rooftop unit. Modeling assumptions are summarized in Table 5. SoundPLAN noise modeling input and results are provided in Appendix B.

Table 5: SoundPLAN Modeling Assumptions

Noise Source	Source Type	Reference Level	Descriptor
Idling Truck	Point Source	74	Lp @ 10’
Car Start Up	Point Source	95	Lw
HVAC	Point Source	83	Lw
Pump/Service Station Parking	Area (Parking Tool)	6	Movements per hr
Auto Zone Parking	Area (Parking Tool)	1	Movements per hr
Source: See Appendix B.			

MD also calculated the impact of a backup beeper, assuming a beeper of 107 dBA Lw.

5.4 Traffic Noise Prediction Modeling

The FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) was utilized to model future traffic noise levels on the project site and existing and existing plus project traffic noise volumes along roadways affected by project generated vehicle traffic. The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL).

Project generated vehicle traffic will result in an incremental increase in ambient noise levels. To determine the project’s noise impact to the surrounding land uses, MD generated noise contours for existing ADT, and existing plus project conditions. Table 3 indicates the roadway parameters and vehicle distribution utilized for the modeling. Existing ADT data was taken from the Manteca General Plan November 2022 Environmental Impact Report from De Novo Planning Group. The existing traffic counts were provided by Fehr & Peers from 2020. Project ADT data was based on the CalEEMod prepared for this project. Noise contours are used to provide a characterization of sound levels experienced at a set distance from the centerline of a subject roadway. They are intended to represent a worst-case scenario and do not take into account structures, sound walls, topography, and/or other sound attenuating features which may further reduce the actual noise level. Noise contours are developed for comparative purposes and are used to demonstrate potential increases/decreases along subject roadways as a result of a project. The referenced traffic data and traffic noise calculation worksheets outputs are located in Appendix C.

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc.),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Speeds, Percentages of autos, medium and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Table 6: Roadway Parameters and Vehicle Distribution

Roadway	Existing ADT[1]	Existing + Project ADT[2]	Speed (MPH)	Site Conditions
Lathrop Ave west of Sherwood Ave	19,300	21,426	45	Hard
Union Rd north of Crom St	17,500	19,626	45	Hard
Motor-Vehicle Type[3]	**Daytime % (7 AM to 7 PM)**	**Evening % (7 PM to 10 PM)**	**Night % (10 PM to 7 AM)**	**Total % of Traffic Flow**
Automobiles	77.5	12.9	9.6	89.4
Medium Trucks	84.8	4.9	10.3	2
Heavy Trucks	86.5	2.7	10.8	8.6

Notes:
[1] 2020 Fehr & Peers traffic counts.
[2] Project trip generation from the CalEEMod prepared for the Project.
[3] https://dot.ca.gov/programs/traffic-operations/census

5.5 Construction Noise Modeling

Construction noise associated with the proposed project was calculated utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Construction activities are anticipated to include four phases site preparation, grading, building construction, and paving.

Construction noise levels were calculated for each phase based on CalEEMod Air Quality Model assumptions provided by the project proponent. All equipment was assumed to be situated at the edge of the Project site closest to the sensitive receptor. Construction equipment typically moves back and forth across the site, so this is a conservative assumption. Construction worksheets are provided in Appendix D.

6.0 Existing Noise Environment

Two (2) 15-minute noise measurements were conducted at the project site in order to document the existing noise environment. The measurements include the Leq, Lmin, Lmax and other statistical data (e.g. L2, L8). The results of the noise measurements are presented in Table 7. Noise measurement field sheets are provided in Appendix A.

Table 7: Short-Term Noise Measurement Data (dBA)[1]

Location	Start Time	Stop Time	L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
ST1	5:34 PM	5:49 PM	58.1	69.1	48.0	65.5	61.9	58.4	55.8	52.1
ST2	5:52 PM	6:07 PM	60.5	76.8	51.7	68.3	64.1	59.5	57.1	54.5

Notes:
[1.] Short-term noise monitoring locations are illustrated in Exhibit E.

The data presented in Table 7 and the field notes provided in Appendix A indicate that ambient noise levels in the project vicinity range 58 to 61 dBA Leq. The field data indicates that traffic on N Union Road and W Lathrop Road is the dominant source of noise.

Exhibit D

Measurement Locations

X = Measurement location

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to sensitive receptors and to the project and compares the results to the City's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadway sources. The City has established different significance thresholds for different types of noise impacts.

7.1 Off-Site Traffic Noise Impact

The potential off-site noise impacts caused by the increase in vehicular traffic as a result of the project were calculated at a distance of 40 feet from affected road segments. Lathrop Avenue and Union Road are anticipated to have the largest increase in traffic due to the project. The total number of project trips was added to each road segment to calculate the worst-case change in noise level. The noise level at 40 feet both with and without project generated vehicle traffic was compared and the increase calculated. The distance to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided for reference (Appendix C). Noise contours were calculated for the following scenarios and conditions:

- Existing Condition: This scenario refers to the existing traffic noise condition and is demonstrated in Table 8.
- Existing + Project Condition: This scenario refers to the existing plus project traffic noise condition and is demonstrated in Table 8.

As shown in Table 8, the addition of project generated vehicle traffic to Lathrop Avenue and Union Road would result in negligible increases in ambient noise levels and would not be significant.

Table 8: Change in Existing Noise Levels as a Result of Project Generated Traffic

Roadway	Segment	Modeled Noise Levels (dBA CNEL) at 40 feet from the Centerline			
		Existing without Project	Existing with Project	Change in Noise Level	Increase of 1.5 dB or more[2]
Lathrop Ave	West of Sherwood Ave	75.8	76.3	0.5	No
Union Rd	North of Crom St	75.2	75.7	0.5	No

Notes:
[1] FHWA roadway noise modeling worksheets provided in Appendix C.
[2] SP EIR significance threshold for existing levels greater than 65 dBA.

7.2 On-Site Traffic Noise Impact

Future noise levels associated with traffic were measured as shown in Table 8 in order to evaluate the project in light of the City's land use compatibility guidelines presented in Exhibit D of this report as they apply to future traffic noise impacts to the proposed project. The Project is currently within normally unacceptable for commercial uses. It will not change due to the increase in traffic levels due to the project. The proposed use is not noise sensitive as there are no proposed outdoor uses for employees or patrons. The impact is less than significant.

7.3 Noise Impacts to Off-Site Receptors Due to Stationary Noise Sources

Worst-case operational noise was modeled using SoundPLAN acoustical modeling software. Four (4) receptors representing adjacent residential uses and one (1) receptor representing commercial uses were modeled using the SoundPLAN noise model to evaluate the proposed project's operational impact. The model assumes that every fueling position is occupied with an idling truck. A receptor is denoted by a yellow dot. All yellow dots represent either an existing building, a property line, or a sensitive receptor. The results are in Table 9.

Project Operational Noise Levels

Worst-case "project only" exterior operational noise is presented on Exhibit F. Operational noise levels are expected to be 47 to 48 dBA at single-family residential receptors and will meet the City's 50 dBA nighttime noise limit (see Table 2). Operational noise levels at multiple-family residential receptors are expected to be 52 to 53 dBA and meets the City's 55 dBA nighttime noise limit. Noise levels are expected to be 60 dBA at the commercial receptor and will meet the City's nighttime noise standard of 60 dBA.

Project Plus Ambient Operational Noise Levels

Existing plus project noise level projections are anticipated to be 59 dBA Leq at multi-family residential receptors, 61 dBA at single-family residential receptors, and 62 dBA at the commercial receptor. Project generated operational noise is expected to result in a 1 dB increase in ambient noise levels at the south residential uses, a 0 dB increase at the east residential uses, and a 3 dB increase at the north commercial uses. A change in 1 dB is not perceptible, and a change of 3 dB is just perceptible (see Table 2). Thus, this impact would be less than significant. No mitigation is required.

Table 9: Operational Noise Levels (dBA Leq)

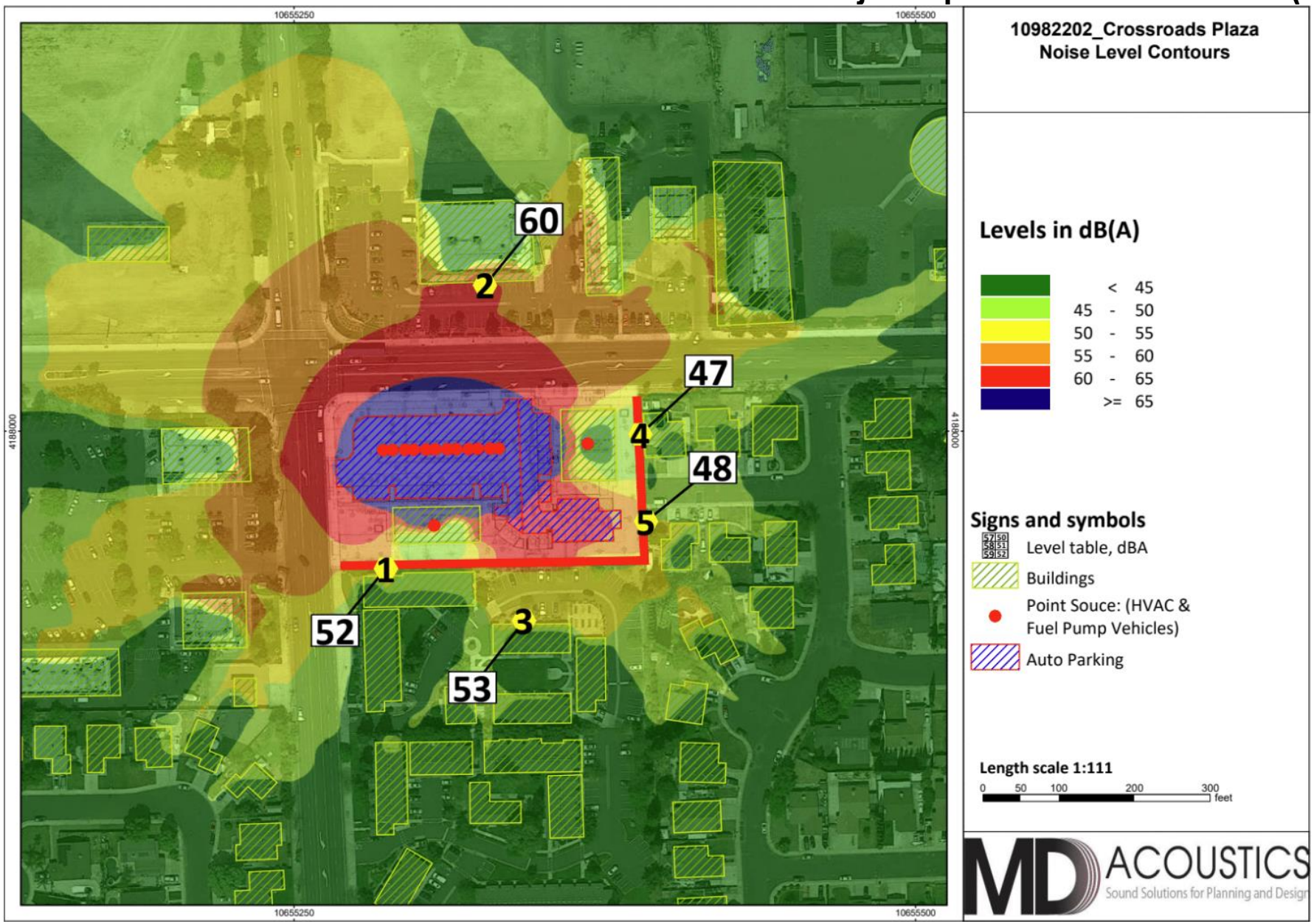
Receptor[1]	Existing Ambient Noise Level (dBA)[2]	Project Noise Level (dBA)[3]	Nighttime (10 p.m. - 7 a.m.) Non Transp. Noise Limit (dBA, Leq)	Total Combined Noise Level (dBA)	Change in Noise Level as Result of Project
R1	58	52	**55**	59	1
R2	61	60	**60**	64	3
R3	58	53	**55**	59	1
R4	61	47	**50**	61	0
R5	61	48	**50**	61	0

Notes:
[1.] Receptors 1 and 3 are single-family residential, Receptor 2 is commercial, and Receptors 4 and 5 are multiple-family residential.
[2.] See Appendix A for noise measurement field sheet.
[3.] See Exhibit F for the operational noise level projections at said receptors.

Loading and unloading activities can only take place during the day according to 17.58.050(E)(2) of the municipal code. Backup beepers will be less than 1% of an hour period. A backup beeper will have an Lmax level of 64 dBA, which is below the 75 dBA L1 limit for daytime residential uses.

Exhibit E

Project Operational Noise Levels (CNEL)



8.0 Construction Noise and Vibration Impacts

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Project construction will occur in five phases, site preparation, grading, building construction, paving, and architectural coating. This section summarizes discusses noise and ground-borne vibration modeling efforts, impact analysis, and mitigation, if necessary.

8.1 Construction Noise

Typical construction equipment noise levels are presented in Table 10.

Table 10: Typical Construction Equipment Noise Levels[1]

EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 – 86

IMPACT EQUIPMENT

Type	Noise Levels (dBA) at 50 Feet
Saws	71 - 82
Vibrators	68 - 82

Notes:
[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

Construction noise associated with each phase of the project was calculated at the residences to the south utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters

including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. Construction equipment typically moves back and forth across the site; and it is an industry standard to use the acoustical center of the site to model average construction noise levels.

Construction activities are anticipated to include five phases site preparation, grading, building construction, paving, and architectural coating. Noise levels associated with each phase are shown in Table 11. The construction noise calculation output worksheet is located in Appendix D.

Table 11: Construction Noise Level by Phase (dBA, Leq)

Activity	Noise Levels at Nearest Sensitive Receptor	
	Leq	Lmax
Site Preparation	77	93
Grading	78	93
Building Construction	75	92
Paving	76	98
Architectural Coating	66	86
Notes: Construction Modeling Worksheets are provided in Appendix D.		

As shown in Table 11, project construction noise will range between 66 to 78 dBA Leq and 86 to 98 dBA Lmax at the nearest sensitive receptor.

The Project will be required to adhere to the allowed times for construction outlined in the Municipal Code in Section 17.58.050(E)(1). This impact is less than significant. No mitigation is required.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bull dozer. A large bull dozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref} (100/D_{rec})^n$$

Where: PPV_{ref} = reference PPV at 100ft.
D_{rec} = distance from equipment to receiver in ft.
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 12 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 12: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 13 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 13: Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2018.

The nearest existing building is 20 feet east of the project site. At this distance, a large bulldozer would yield a worst-case 0.114 PPV (in/sec) which may be perceptible but will not result in architectural

damage. The impact is not significant and no mitigation is required. The ground-borne vibration worksheet is provided in Appendix E.

9.0 References

City of Manteca
2022 General Plan
2022 Municipal Code

California Department of Transportation (Caltrans)
2013 Transportation and Construction Induced Vibration Guidance Manual.
2018 Technical Noise Supplement to the Traffic Noise Analysis Protocol. Sept.

Federal Highway Administration (FHWA)
2010 Highway Traffic Noise Analysis and Abatement Policy and Guidance.
https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

Federal Transit Administration (FTA)
2018 Transit Noise and Vibration Impact Assessment Manual

Governor's Office of Planning and Research
State of California General Plan Guidelines, 1998

De Novo Planning Group
Environmental Impact Report – Volume IV

SoundPLAN International, LLC
2016 SoundPLAN Essential 4.0 Manual. May.

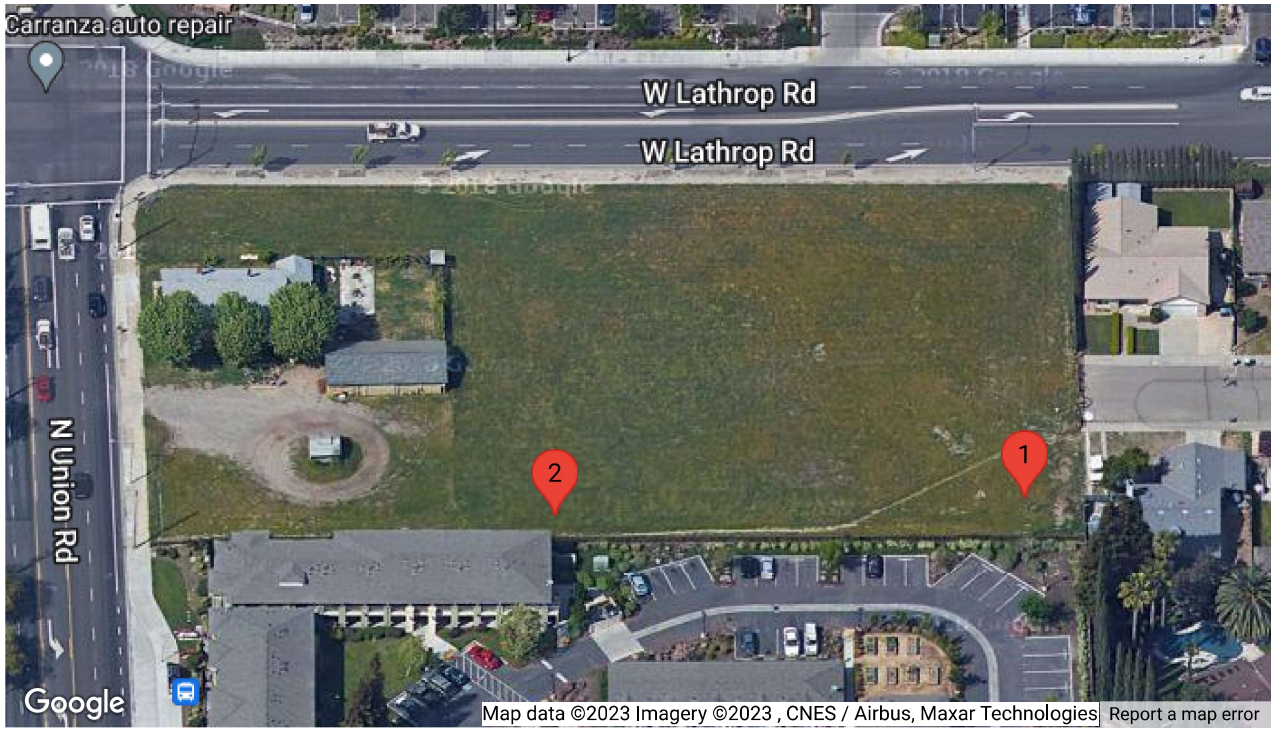
Appendix A:

Field Measurement Data

ATTACHMENT 6

15-Minute Continuous Noise Measurement Datasheet

Project Name:	Crossroads Plaza	**Site Observations:**	
Project: #/Name:	1098-2022-002	51°, winds 0 to 5 mph, partial clearing with clouds, moderate to heavy traffic	
Site Address/Location:	2064 North Union Road		
Date:	02/03/2023		
Field Tech/Engineer:	Dennis Jordan / Claire Pincock		
Sound Meter:	XL2, NTI	**SN:** A2A-05967-E0	
Settings:	A-weighted, slow, 1-sec, 15-minute interval		
Site Id:	ST-1, ST-2		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Crossroads Plaza

Site Address/Location: 2064 North Union Road

Site Id: ST-1, ST-2

Figure 1: ST-1 209 ft from Lathrop Rd

Figure 2: ST-2 232 ft from Lathrop Rd

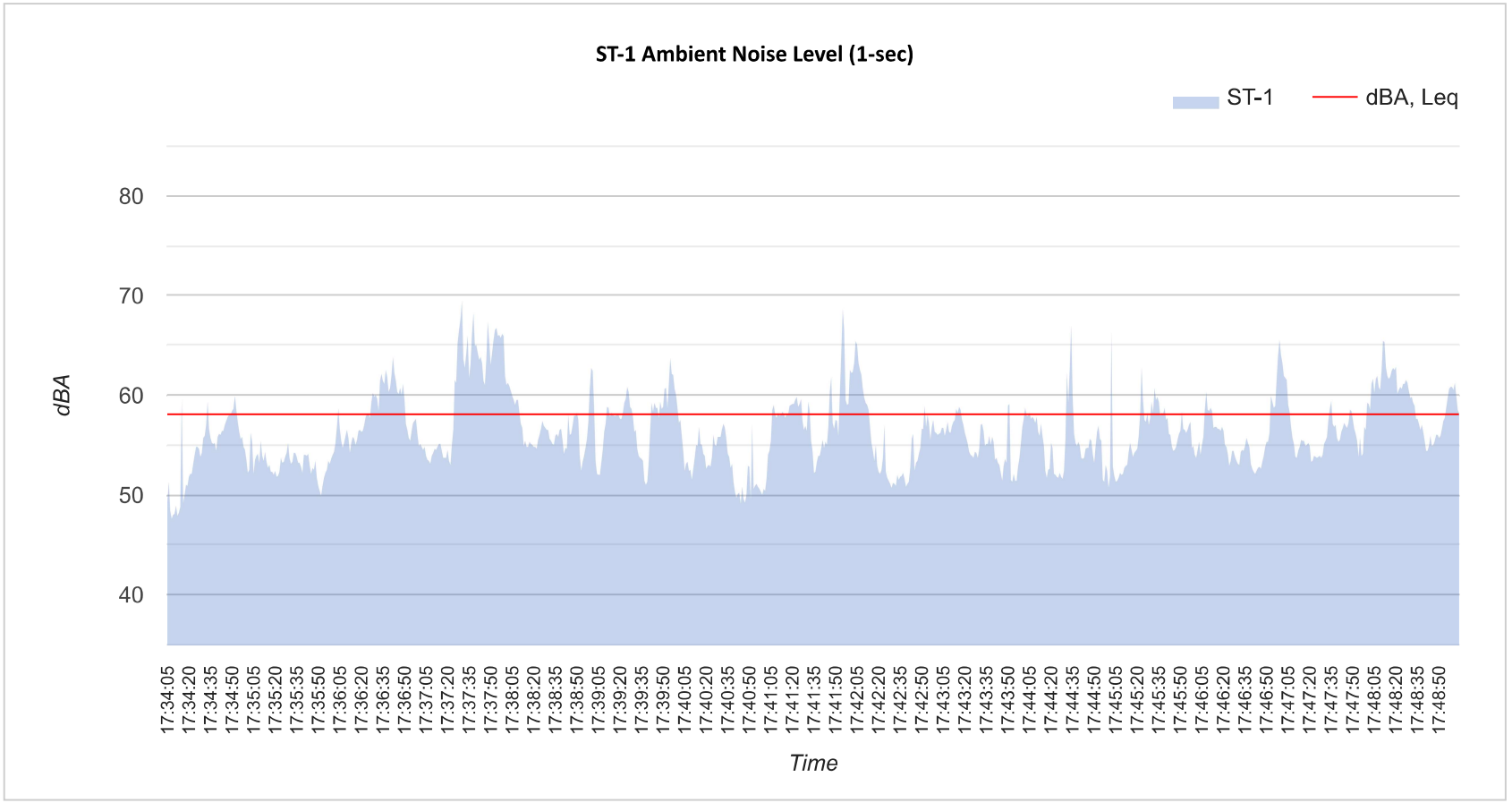
Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
ST-1	5:34 PM	5:49 PM	58.1	69.1	48.0	65.5	61.9	58.4	55.8	52.1
ST-2	5:52 PM	6:07 PM	60.5	76.8	51.7	68.3	64.1	59.5	57.1	54.5

ATTACHMENT 6

15-Minute Continuous Noise Measurement Datasheet - Cont.

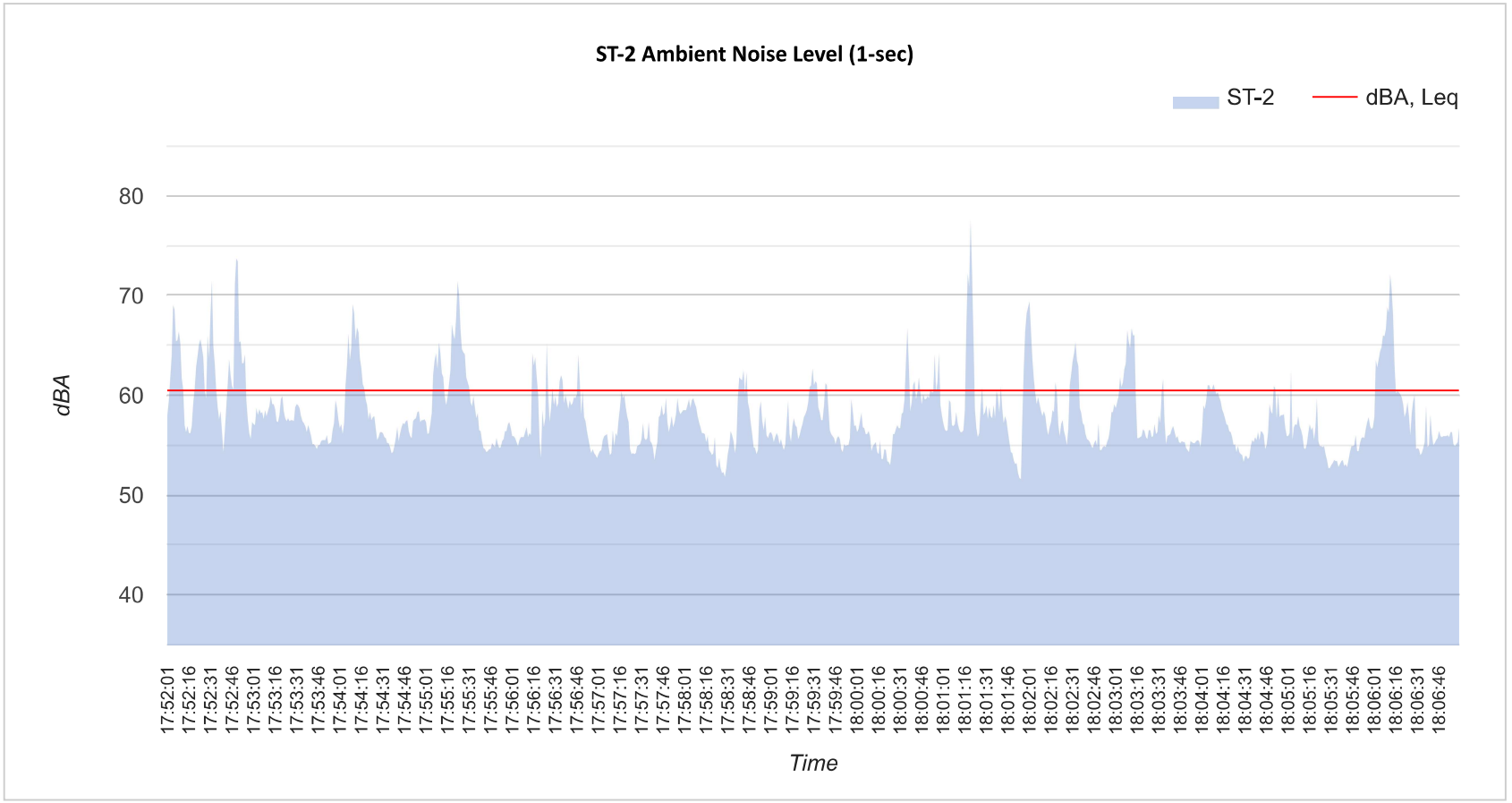
Project Name:	Crossroads Plaza	**Site Topo:**	Single/Two story housing	**Noise Source(s) w/ Distance:**	
Site Address/Location:	2064 North Union Road	**Meteorological Cond.:**	51°, winds 0 to 5 mph, partial clearing with clouds		Road Noise / 209 ft from Lathrop, 395 ft from Union Blvd
Site Id:	ST-1	**Ground Type:**	Housing, Dirt and Vegetation		



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Crossroads Plaza	**Site Topo:**	Housing 1 to 2 stories tall	**Noise Source(s) w/ Distance:**	
Site Address/Location:	2064 North Union Road	**Meteorological Cond.:**	51°, winds 0 to 5 mph, partial clearing with clouds		Road Noise / 232 ft from Lathrop, 186 ft from Union Blvd
Site Id:	ST-2	**Ground Type:**	Housing, Dirt and Vegetation		



Appendix B:

SoundPLAN Noise Modeling Data

Crossroads Plaza
Assessed receiver spectra in dB(A) - 001 - Crossroads Plaza: Outdoor SP

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Receiver 10655287,4187945 Fl GF Lr,lim dB(A) Leq,d 52.0 dB(A)									
Leq,d	40.5	48.3	39.9	43.3	43.3	43.2	38.7	26.4	-0.2
Receiver 10655327,4188059 Fl GF Lr,lim dB(A) Leq,d 60.2 dB(A)									
Leq,d	47.0	56.0	42.1	46.4	52.2	54.4	49.9	37.3	7.0
Receiver 10655342,4187924 Fl GF Lr,lim dB(A) Leq,d 52.3 dB(A)									
Leq,d	40.0	47.9	38.4	41.9	44.7	45.6	39.8	26.0	-3.1
Receiver 10655389,4187999 Fl GF Lr,lim dB(A) Leq,d 47.3 dB(A)									
Leq,d	37.4	44.3	33.7	36.6	38.6	37.9	30.9	17.7	-5.5
Receiver 10655392,4187964 Fl GF Lr,lim dB(A) Leq,d 48.4 dB(A)									
Leq,d	37.4	45.2	35.5	38.1	39.1	39.3	35.9	19.7	-9.7

Crossroads Plaza
Contribution level - 001 - Crossroads Plaza: Outdoor SP

Source	Source type	Tr. lane	Leq,d dB(A)	A dB
Receiver 10655287,4187945 Fl GF Lr,lim dB(A) Leq,d 52.0 dB(A)				
Auto Fuel Pump	Point		46.9	0.0
Auto Fuel Pump	Point		46.8	0.0
Auto Parking	PLot		41.4	0.0
HVAC	Point		38.6	0.0
Auto Fuel Pump	Point		37.4	0.0
Auto Fuel Pump	Point		37.1	0.0
Auto Fuel Pump	Point		36.5	0.0
Auto Fuel Pump	Point		36.4	0.0
Auto Fuel Pump	Point		36.1	0.0
Auto Fuel Pump	Point		35.9	0.0
Auto Fuel Pump	Point		35.7	0.0
Auto Fuel Pump	Point		35.5	0.0
Auto Fuel Pump	Point		34.8	0.0
Auto Fuel Pump	Point		34.5	0.0
Auto Parking	PLot		26.0	0.0
HVAC	Point		24.4	0.0
Receiver 10655327,4188059 Fl GF Lr,lim dB(A) Leq,d 60.2 dB(A)				
Auto Fuel Pump	Point		49.6	0.0
Auto Fuel Pump	Point		49.6	0.0
Auto Fuel Pump	Point		49.5	0.0
Auto Fuel Pump	Point		49.4	0.0
Auto Fuel Pump	Point		49.3	0.0
Auto Fuel Pump	Point		49.2	0.0
Auto Fuel Pump	Point		49.2	0.0
Auto Fuel Pump	Point		49.2	0.0
Auto Fuel Pump	Point		49.0	0.0
Auto Fuel Pump	Point		48.9	0.0
Auto Fuel Pump	Point		48.6	0.0
Auto Fuel Pump	Point		48.4	0.0
Auto Parking	PLot		47.3	0.0
Auto Parking	PLot		37.3	0.0
HVAC	Point		33.0	0.0
HVAC	Point		32.6	0.0
Receiver 10655342,4187924 Fl GF Lr,lim dB(A) Leq,d 52.3 dB(A)				
Auto Fuel Pump	Point		44.7	0.0
Auto Fuel Pump	Point		43.7	0.0
Auto Fuel Pump	Point		43.6	0.0
Auto Fuel Pump	Point		43.3	0.0
Auto Parking	PLot		40.1	0.0
Auto Fuel Pump	Point		39.3	0.0
Auto Fuel Pump	Point		38.7	0.0
Auto Fuel Pump	Point		38.2	0.0
Auto Fuel Pump	Point		37.8	0.0

Crossroads Plaza
Contribution level - 001 - Crossroads Plaza: Outdoor SP

Source	Source type	Tr. lane	Leq,d dB(A)	A dB	
Auto Fuel Pump	Point		37.7	0.0	
Auto Fuel Pump	Point		37.6	0.0	
Auto Fuel Pump	Point		37.5	0.0	
Auto Fuel Pump	Point		37.2	0.0	
HVAC	Point		36.7	0.0	
Auto Parking	PLot		36.3	0.0	
HVAC	Point		32.8	0.0	
Receiver 10655389,4187999 Fl GF Lr,lim dB(A) Leq,d 47.3 dB(A)					
HVAC	Point		37.1	0.0	
Auto Fuel Pump	Point		36.9	0.0	
Auto Fuel Pump	Point		36.7	0.0	
Auto Fuel Pump	Point		36.7	0.0	
Auto Fuel Pump	Point		36.2	0.0	
Auto Fuel Pump	Point		35.7	0.0	
Auto Fuel Pump	Point		35.6	0.0	
Auto Fuel Pump	Point		35.4	0.0	
Auto Fuel Pump	Point		35.1	0.0	
Auto Fuel Pump	Point		35.0	0.0	
Auto Fuel Pump	Point		34.8	0.0	
Auto Fuel Pump	Point		34.7	0.0	
Auto Fuel Pump	Point		34.7	0.0	
Auto Parking	PLot		34.2	0.0	
Auto Parking	PLot		31.8	0.0	
HVAC	Point		24.8	0.0	
Receiver 10655392,4187964 Fl GF Lr,lim dB(A) Leq,d 48.4 dB(A)					
Auto Fuel Pump	Point		38.6	0.0	
Auto Fuel Pump	Point		38.5	0.0	
Auto Fuel Pump	Point		38.4	0.0	
Auto Fuel Pump	Point		38.2	0.0	
Auto Fuel Pump	Point		37.5	0.0	
Auto Fuel Pump	Point		37.1	0.0	
Auto Fuel Pump	Point		36.4	0.0	
Auto Fuel Pump	Point		36.3	0.0	
Auto Fuel Pump	Point		35.6	0.0	
Auto Fuel Pump	Point		35.4	0.0	
Auto Parking	PLot		35.3	0.0	
Auto Fuel Pump	Point		35.1	0.0	
Auto Parking	PLot		35.0	0.0	
Auto Fuel Pump	Point		34.8	0.0	
HVAC	Point		31.3	0.0	
HVAC	Point		25.8	0.0	

Crossroads Plaza
Octave spectra of the sources in dB(A) - 001 - Crossroads Plaza: Outdoor SP

Name	Source type	I or A m,m²	Li dB(A)	R'w dB	L'w dB(A)	Lw dB(A)	KI dB	KT dB	LwMax dB(A)	DO-Wall dB	Time histogram	Emission spectrum	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	16kHz dB(A)
Auto Parking	PLot	989.37			54.3	84.2	0.0	0.0		0	100%/24h	Typical spectrum	67.6	79.2	71.7	76.2	76.3	76.7	74.0	67.8	55.0
Auto Parking	PLot	2385.62			51.5	85.3	0.0	0.0		0	6 events per hour	Typical spectrum	68.6	80.2	72.7	77.2	77.3	77.7	75.0	68.8	56.0
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
Auto Fuel Pump	Point				94.7	94.7	0.0	0.0		0	100%/24h	Car start up	78.0	89.6	82.1	86.6	86.7	87.1	84.4	78.2	65.4
HVAC	Point				83.0	83.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	60.1	68.6	71.0	75.3	77.6	77.2	74.2	69.3	57.0
HVAC	Point				83.0	83.0	0.0	0.0		0	100%/24h	HVAC: 67.7dB @ 3ft - Carrier 50TFQ0006 -	60.1	68.6	71.0	75.3	77.6	77.2	74.2	69.3	57.0

Appendix C:

FHWA Roadway Noise Modeling Worksheets

ATTACHMENT 6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	CROSSROADS PLAZA	JOB #:	1098-2022-002
ROADWAY:	LATHROP AVENUE - EXISTING	DATE:	########
LOCATION:	WEST OF SHERWOOD AVE	ENGINEER:	R.Edelman

NOISE INPUT DATA - EXISTING

ROADWAY CONDITIONS

ADT =	19,300	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DI	48	
ROAD ELEVATION =	0.0	
GRADE =	1.0	%
PK HR VOL =	1,930	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		40
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		40
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.8940
MEDIUM TRUCK	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0860

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	32.19	- -
MEDIUM TRUCKS	4.0	32.04	- -
HEAVY TRUCKS	8.0	32.10	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.7	69.8	68.1	62.0	70.6	71.2
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.6	62.8
HEAVY TRUCKS	74.4	72.9	63.9	65.2	73.5	73.6
NOISE LEVELS (dBA)	76.5	74.9	69.6	67.1	75.5	75.8

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.7	69.8	68.1	62.0	70.6	71.2
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.6	62.8
HEAVY TRUCKS	74.4	72.9	63.9	65.2	73.5	73.6
NOISE LEVELS (dBA)	76.5	74.9	69.6	67.1	75.5	75.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	153	484	1530	4840
LDN	143	452	1431	4525

ATTACHMENT 6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: CROSSROADS PLAZA
ROADWAY: LATHROP AVENUE - EXISTING + PROJECT
LOCATION: WEST OF SHERWOOD AVE

JOB #: 1098-2022-002
DATE: ########
ENGINEER: R.Edelman

NOISE INPUT DATA - EXISTING + PROJECT

ROADWAY CONDITIONS

ADT =	21,426	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DI	48	
ROAD ELEVATION =	0.0	
GRADE =	1.0	%
PK HR VOL =	2,143	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	40	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	40	
PAD ELEVATION =	0.5	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.8940
MEDIUM TRUCK	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0860

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	32.19	- -
MEDIUM TRUCKS	4.0	32.04	- -
HEAVY TRUCKS	8.0	32.10	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.2	70.3	68.5	62.5	71.1	71.7
MEDIUM TRUCKS	64.0	62.5	56.1	54.6	63.0	63.2
HEAVY TRUCKS	74.8	73.4	64.4	65.6	74.0	74.1
NOISE LEVELS (dBA)	76.9	75.3	70.1	67.5	76.0	76.3

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	72.2	70.3	68.5	62.5	71.1	71.7
MEDIUM TRUCKS	64.0	62.5	56.1	54.6	63.0	63.2
HEAVY TRUCKS	74.8	73.4	64.4	65.6	74.0	74.1
NOISE LEVELS (dBA)	76.9	75.3	70.1	67.5	76.0	76.3

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	170	537	1699	5373
LDN	159	502	1588	5023

ATTACHMENT 6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT:	CROSSROADS PLAZA	JOB #:	1098-2022-002
ROADWAY:	UNION RD - EXISTING	DATE:	########
LOCATION:	NORTH OF CROM STREET	ENGINEER:	R.Edelman

NOISE INPUT DATA - EXISTING

ROADWAY CONDITIONS

ADT =	17,500	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DI	44	
ROAD ELEVATION =	0.0	
GRADE =	1.0	%
PK HR VOL =	1,750	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	40	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	40	
PAD ELEVATION =	0.5	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.8940
MEDIUM TRUCK	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0860

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	33.59	- -
MEDIUM TRUCKS	4.0	33.44	- -
HEAVY TRUCKS	8.0	33.50	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.1	69.2	67.4	61.4	70.0	70.6
MEDIUM TRUCKS	62.9	61.4	55.0	53.5	62.0	62.2
HEAVY TRUCKS	73.7	72.3	63.3	64.5	72.9	73.0
NOISE LEVELS (dBA)	75.9	74.3	69.0	66.5	74.9	75.2

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.1	69.2	67.4	61.4	70.0	70.6
MEDIUM TRUCKS	62.9	61.4	55.0	53.5	62.0	62.2
HEAVY TRUCKS	73.7	72.3	63.3	64.5	72.9	73.0
NOISE LEVELS (dBA)	75.9	74.3	69.0	66.5	74.9	75.2

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	133	420	1330	4205
LDN	124	393	1243	3931

ATTACHMENT 6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: CROSSROADS PLAZA
ROADWAY: UNION RD - EXISTING + PROJECT
LOCATION: NORTH OF CROM STREET

JOB #: 1098-2022-002
DATE: ########
ENGINEER: R.Edelman

NOISE INPUT DATA - EXISTING + PROJECT

ROADWAY CONDITIONS

ADT =	19,626	
SPEED =	45	
PK HR % =	10	
NEAR LANE/FAR LANE DI	44	
ROAD ELEVATION =	0.0	
GRADE =	1.0	%
PK HR VOL =	1,963	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	40	
DIST C/L TO WALL =	0	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER	40	
PAD ELEVATION =	0.5	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.8940
MEDIUM TRUCK	0.848	0.049	0.103	0.0200
HEAVY TRUCKS	0.865	0.027	0.108	0.0860

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	33.59	- -
MEDIUM TRUCKS	4.0	33.44	- -
HEAVY TRUCKS	8.0	33.50	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.6	69.7	67.9	61.9	70.5	71.1
MEDIUM TRUCKS	63.4	61.9	55.5	54.0	62.4	62.7
HEAVY TRUCKS	74.2	72.8	63.8	65.0	73.4	73.5
NOISE LEVELS (dBA)	76.4	74.8	69.5	67.0	75.4	75.7

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.6	69.7	67.9	61.9	70.5	71.1
MEDIUM TRUCKS	63.4	61.9	55.5	54.0	62.4	62.7
HEAVY TRUCKS	74.2	72.8	63.8	65.0	73.4	73.5
NOISE LEVELS (dBA)	76.4	74.8	69.5	67.0	75.4	75.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	149	472	1491	4716
LDN	139	441	1394	4409

Appendix D:

Construction Noise Modeling Output

Receptor - Residences to the South

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
SITE PREP									
Tractor	1	84	25	100	40	0.66	0.40	92.0	72.0
Dozer	1	82	25	100	40	0.66	0.40	90.0	70.0
Grader	1	85	25	100	40	0.66	0.40	93.0	73.0
							Log Sum	93.0	76.6
GRADE									
Dozer	1	82	25	100	40	0.66	0.40	90.0	70.0
Grader	1	85	25	100	40	0.66	0.40	93.0	73.0
Tractor	2	84	25	100	40	0.66	0.40	92.0	72.0
								93.0	77.9
BUILD									
Crane	1	81	25	100	16	0.66	0.16	89.0	65.0
Man lift	1	75	25	100	20	0.66	0.20	83.0	60.0
Generator	1	81	25	100	50	0.66	0.50	89.0	70.0
Tractor	1	84	25	100	40	0.66	0.40	92.0	72.0
Welder/Torch	3	74	25	100	40	0.66	0.40	82.0	62.0
								92.0	75.4
PAVE									
Paver	1	77	25	100	50	0.66	0.50	85.0	66.0
Pavement Scarifier	1	90	25	100	20	0.66	0.20	98.0	75.0
Roller	1	80	25	100	20	0.66	0.20	88.0	65.0
Tractor	1	84	25	100	40	0.66	0.40	92.0	72.0
Concrete Mixer Truck	1	79	25	100	40	0.66	0.40	87.0	67.0
								98.0	76.4
ARCH COAT									
Compressor (air)	1	78	25	100	40	0.66	0.40	86.0	66.0
								86.0	66.0

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Appendix E:

Construction Vibration Modeling Output

ATTACHMENT 6

VIBRATION LEVEL IMPACT

Project:	Crossroads Plaxa	Date: 3/10/23
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	Adjacent residences	
Address:	2064 North Union Road	

PPV = PPVref(25/D)^n (in/sec)

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	20.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.114**	IN/SEC	OUTPUT IN RED

GEOTECHNICAL • ENVIRONMENTAL • GEOLOGY • MATERIALS TESTING & INSPECTION • FORENSIC • LABORATORY

SALEM
engineering group, inc.

AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

PROPOSED COMMERCIAL DEVELOPMENT
2064 NORTH UNION ROAD
MANTECA, CALIFORNIA

SALEM PROJECT NO. 4-423-0090
APRIL 6, 2023

PREPARED FOR:

MS. TENEA DAVIS
MANTECA 18, LLC
1925 VILLAGE CENTER CIRCLE, SUITE 150
LAS VEGAS, NEVADA 89314

PREPARED BY:

SALEM ENGINEERING GROUP, INC.
4729 W. JAQUELYN AVENUE
FRESNO, CA 93722
P: (559) 271-9700
F: (559) 275-0827
www.salem.net

TABLE OF CONTENTS

Job No. 4-423-0090

APPENDICES

SALEM engineering group, inc.

4729 West Jacquelyn Avenue
Fresno, California 93722
(559) 271-9700 Office
(559) 275-0827 Fax

April 6, 2023 **Job No. 4-423-0090**

AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

PROPOSED COMMERCIAL DEVELOPMENT
2064 NORTH UNION ROAD
MANTECA, CALIFORNIA

1.0 INTRODUCTON

This report presents an assessment of potential air quality and greenhouse gas (GHG) impacts associated with the proposed commercial development to be constructed at 2064 North Union Road in Manteca, California (subject property). The subject property consists of one rectangular-shaped parcel of vacant land (identified as San Joaquin County Assessor Parcel Number [APN] 216-020-01) totaling approximately 1.98 acres gross land area. According to SALEM's review of the Proposed Site Plan (Sheet A-0.0) prepared by Centerline Design, LLC., (Centerline), the following improvements are planned on the above-referenced parcel:

- One 5,200 square-foot convenience store with six (6) fuel dispensers,
- One 6,816 square-foot retail building,
- 48 parking stalls

Air quality and GHG impacts will be attributed to emissions associated with construction and operational emissions including traffic and energy use. This report presents an evaluation of existing conditions at the subject property, thresholds of significance, and potential air quality and GHG impacts associated with construction and operation of the project.

2.0 EXISTING CONDITIONS

2.1 Current Development

The subject property is currently undeveloped. Offsite and onsite improvements will be constructed to allow for vehicle and pedestrian access to the site.

2.2 Regulatory Setting

The United States Environmental Protection Agency (EPA) defines air quality by ambient air concentrations of specific pollutants that have been shown to be of concern with respect to health and welfare of the general public. The EPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated.

In response, the EPA established both primary and secondary standards for several pollutants (called "criteria" pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere.

The Federal CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. More stringent California Ambient Air Quality Standards

(CAAQS) have been adapted by the California Air Resources Board (ARB) for the six criteria pollutants through the California Clean Air Act of 1988 (CCAA). The CCAA also established California Ambient Air Quality Standards (CAAQS) for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles (see Table 1 for NAAQS and CAAQS.)

Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "Nonattainment Areas" for that pollutant. In September 1997, the EPA promulgated 8-hour O_3 and 24-hour and annual $PM_{2.5}$ national standards. As a result, this action has initiated a new planning process to monitor and evaluate emission control measures for these pollutants.

The California ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The ARB also reviews operations and programs of the local air districts and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS.

The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the local agency responsible for the administration and enforcement of air quality regulations.

Table 1 presents a summary of the ambient air quality standards adopted by the federal and California Clean Air Acts.

TABLE 1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS CONCENTRATION	CALIFORNIA STANDARDS METHODS	NATIONAL STANDARDS PRIMARY	NATIONAL STANDARDS SECONDARY	NATIONAL STANDARDS METHOD
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry			Ultraviolet Photometry
	8 hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m^3)	—	Non-Dispersive Infrared Spectroscopy (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 µg/m^3)	—	
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)		Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 µg/m^3)		0.100 ppm (188 µg/m^3)		
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence			Pararosaniline
	3 hours	--			0.5 ppm (1300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)		0.075 ppm (196 µg/m^3)		
	24 hours	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	150 µg/m^3	

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS CONCENTRATION	CALIFORNIA STANDARDS METHODS	NATIONAL STANDARDS PRIMARY	NATIONAL STANDARDS SECONDARY	NATIONAL STANDARDS METHOD
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3				Inertial Separation and Gravimetric Analysis
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	Inertial Separation and Gravimetric Analysis
	24 hours			35 µg/m^3		
Sulfates	24 hours	25 µg/m^3	Ion Chromatography	No National Standards		
Lead	30-day Average	1.5 µg/m^3	Atomic Absorption			Atomic Absorption
	Calendar Quarter			1.5 µg/m^3	1.5 µg/m^3	
	3-Month Rolling			0.15 µg/m^3	0.15 µg/m^3	
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	No National Standards		
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	Gas Chromatography	No National Standards		

ppm= parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3= milligrams per cubic meter Source: California Air Resources Board, www.arb.ca.gov, 2014

3.0 THRESHOLDS OF SIGNIFICANCE

The SJVAPCD has identified numerical emission thresholds for significance for construction and operation for a project. The project-level numerical thresholds are summarized in Table 2.

TABLE 2
SJVAPCD Significance Thresholds

POLLUTANT	CONSTRUCTION AND OPERATION	
	Annual Threshold (tons)	***Daily Threshold (pounds)***
NO_X	10	-
ROG (VOC)	10	-
PM_{10}	15	-
$PM_{2.5}$	15	-
SO_X	27	-
CO	100	-

TABLE 3
Construction Summary for Subject Property

AREA DISTURBED	CONSTRUCTION SUMMARY	PARKING SPACES	APPROXIMATE DURATION
5,200 square feet	Convenience Store with 16 pumps		8 Months
6,816 square feet	Retail Building	-	8 Months
0.43 ac	Parking Lot	48	1 Month

4.0 IMPACTS

The proposed commercial development to be constructed include both construction and operational impacts. Construction impacts include emissions associated with site grading/preparation, utilities installation, construction of a building, and paving. Operational impacts include emissions associated with the project, including traffic, at full build-out.

4.1 Construction

Emissions of pollutants such as fugitive dust that are generated during construction are generally highest near the construction site. Emissions from the construction phase of the project were estimated through the use of the CalEEMod Model (ENVIRON). It was assumed that the construction would be vary in timeline as stated in the above table and that heavy construction equipment would be operating at the site for eight hours per day, five days per week during project construction.

Tables 4 and 5 provide summaries of the emission estimates for construction and operation of all proposed site improvements. These projected emissions assume standard measures are implemented to reduce emissions, as calculated with the CalEEMod Model, and are compared to the regional and localized significance thresholds. The localized significance thresholds are applicable only to on-site emissions and do not consider emissions occurring on roadways during travel to and from the site. Refer to Appendix A for detailed model output files.

Table 5 includes projected emissions for all steps of construction, averaged over the project's projected construction duration. These steps include: Grading Site, Site Preparation, Building Construction, Paving, and Architectural Coatings. Note that projected emissions for all pollutants during construction are below both the MDAQMD's Air Quality Significance Thresholds.

Construction of the project would be short-term and temporary. Thus, the emissions associated with construction would not result in a significant impact on the ambient air quality. Because emissions are less than the significance levels, they would not conflict or obstruct the implementation of the AQMP or applicable portions of the SIP. Project construction would also not result in emission of any odor compounds that would cause a nuisance or significant impact to nearby receptors. The impacts associated with Project construction are therefore not considered significant.

TABLE 4
Estimated Construction Emissions
Tons/Year (unless otherwise shown)

EMISSION SOURCE	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Significance Criteria	10	10	100	27	15	15
Project Construction Emissions	0.06	0.28	0.31	0.0005	.02	.01
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

4.2 Operational Impacts

The main operational impacts associated with the Project would be impacts associated with traffic. Minor impacts would be associated with energy use and area sources.

The CalEEMod Model contains emission factors from the EMFAC model, which is the latest version of the Caltrans emission factor model for on-road traffic. Project-related traffic was assumed to be comprised of a mixture of vehicles in accordance with the CalEEMod Model default outputs for traffic. This assumption includes light duty autos and light duty trucks (i.e., small trucks, SUVs, and vans) as well as medium- and heavy-duty vehicles that may be traveling to the facility to make deliveries. For conservative

purposes, emission factors representing the vehicle mix for 2023 were used to estimate emissions as 2023 was assumed to be the first year of full operation; based on the results of the EMFAC model for subsequent years, emissions would decrease on an annual basis from 2023 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards that are taken into account in the EMFAC model. Emissions associated with area sources (energy use and landscaping activities) were also estimated using the default assumptions in the CalEEMod Model.

Table 5 below presents the results of the CalEEMod emission calculations in lbs./day for operations, as an annual average considering the project's design features. The calculation assumed that the project would be constructed to current Title 24 buildings standards and would use low flow plumbing fixtures.

TABLE 5
Estimated Operational Emissions, Tons/Year (unless otherwise shown)

EMISSION SOURCE	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Significance Criteria	10	10	100	27	15	15
Project Construction Emissions	0.64	0.64	3.39	.004	0.43	0.12
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

Based on the estimates of the emissions associated with project operations, the emissions are below the significance criteria. In addition, because the emissions are less than the significance levels, they would not conflict or obstruct the implementation of the AQMP or applicable portions of the SIP. It should be noted that the emissions from vehicles are projected to decrease with time due to phase-out of older, more polluting vehicles and increasingly stringent emissions standards.

Provide traffic study to confirm this.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." Based on the traffic recommendation to be implemented, it is not anticipated that the project would have a significant impact on traffic in the area, and no intersections would degrade to unacceptable levels. The intersections in the project area would therefore operate at an acceptable LOS and would not experience CO "hot spots" because traffic congestion would not result.

In reviewing the project data, location and area, a cumulatively increase in the surrounding emissions associated with the area would not result in a significant impact on the ambient air quality. In addition, because emissions are less than the significance levels, they do not expose sensitive receptors to substantial pollutant concentrations.

Based on the above project analyst of the operational phase, the project will not conflict or obstruct the implementation of the AQMP or applicable portions of the SIP.

4.3 Odors

Residential communities are sensitive receptors and they are adjacent to this site.

During construction, diesel equipment operating at the site may generate some nuisance odors; however, due to the fact that there are no sensitive receptors near the project site and the temporary nature of construction, odors associated with project construction would not be significant.

Land uses associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting activities, refineries, landfills, dairies, and fiberglass molding operations. These land uses are not proposed for the commercial development on the subject property. As such, odor impacts would not be significant.

4.4 Project's Contribution to Criteria Pollutants

Pursuant to the Sierra Club v. Friant Ranch Supreme Court Ruling (Case No. S219783, December 24, 2018), which found on page 6 of the ruling that EIRs need to "makes a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." Also, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

TABLE 6
Project's Contribution to Criteria Pollutants in the San Joaquin Valley Air Basin

Emissions Source	Maximum Daily Emissions					
	ROG	NOx	CO	SOx	PM10	PM2.5
Project Emissions (tons/year)[1]	0.64	0.64	3.39	.004	0.43	0.12
Total Emissions in Air Basin (lbs./day)	1,000,000	1,044,000	4,246,000	36,000	132,000	132,000
Project's Percent of Air Emissions	insignificant	insignificant	insignificant	insignificant	insignificant	insignificant

Notes:
1 From the project's total operational emissions.

5.0 GREENHOUSE GAS EVALUATION

According to the California Natural Resources Agency, "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis." According to Appendix G of the CEQA Guidelines, the following criteria may be considered to establish the significance of GHG emissions:

Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As discussed in Section 15064.4 of the CEQA Guidelines, the determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency, consistent with the provisions in Section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

- Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
- Rely on a qualitative analysis or performance-based standards.

Section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

1. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

Based on the results of the CalEEMod Model, the project would generate a total of 49.71 tons of CO_2e from construction and 487.46 tons of CO_2e emissions annually from operations.

6.0 CONCLUSIONS

The air quality and GHG analysis for the Proposed Commercial Development project in Manteca, CA evaluated emissions associated with both the construction and operation of the proposed project. Emissions associated with construction and operation were compared with significance thresholds developed by the SJVAPCD, which provide a conservative means of evaluating whether project emissions would cause a significant impact on the ambient air quality or whether further evaluation is warranted. Emissions associated with construction and operation are below the significance thresholds for all phases and pollutants. Thus, the emissions associated with construction and operation of the project would not result in a significant impact.

6.1 Impact Determinations and Recommended Mitigation

In accordance with CEQA, when a proposed project is consistent with a General Plan for which an EIR has been certified, the effects of that project are evaluated to determine if they will result in project-specific significant adverse impacts on the environment. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines and the General Plan EIR. Accordingly, air quality or greenhouse gas impacts resulting from the Proposed Project are considered significant if the Proposed Project would:

<u>Air Quality</u>

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
c) Expose sensitive receptors to substantial pollutant concentrations?
d) Result in other emissions such as those leading to odors adversely affecting a substantial number of people?

<u>Greenhouse Gas Emissions</u>

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

6.2 Air Quality

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

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. SJCOG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Madera General Plan. The Project is consistent with the currently adopted General Plan for the City and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

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

The San Joaquin County area is nonattainment for Federal and State air quality standards for ozone, in attainment of Federal standards and nonattainment for State standards for PM10, and nonattainment for Federal and State standards for PM2.5. The SJVAPCD has prepared the 2016 and 2013 Ozone Plans, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed above, the Project is consistent with the currently adopted General Plan for the City of Manteca and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2016 and 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

Project specific emissions that exceed the thresholds of significance for criteria pollutants would be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under applicable federal or state ambient air quality standards. It should be noted that a project is not characterized as cumulatively insignificant when project emissions fall below thresholds of significance. As discussed in Section 3.1, the SJVAPCD has established thresholds of significance for determining environmental significance which are provided in Table 6.

As discussed above, results of the analysis show that emissions generated from construction and operation of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. Therefore, no mitigation is needed.

c) ***Expose sensitive receptors to substantial pollutant concentrations***

There is a residential community adjacent to this site.

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, this Project may be required to provide a Health Risk Assessment per SJVAPCD requirements; that is beyond the scope of this analysis.

Provide Health Risk Assessment.

Short-Term Impacts: The annual emissions from the construction phase of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown above. Therefore, construction emissions associated with the Project are considered less than significant.

Long-Term Impacts: Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Table 8 summarizes the Project's operational impacts by pollutant. Results indicate that the annual operational emissions from the Project will be less than the SJVAPCD emission thresholds for criteria pollutants. Therefore, operational emissions associated with the Project are considered less than significant.

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

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. The Project will not generate odorous emissions given the nature or characteristics of the Project. Therefore, no mitigation is needed.

6.3 Greenhouse Gas Emissions

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

The SJVAPCD acknowledges the current absence of numerical thresholds and recommends a tiered approach to establish the significance of the GHG impacts on the environment:

i. If a project complies with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, then the project would be determined to have a less than significant individual and cumulative impact for GHG emissions;
ii. If a project does not comply with an approved GHG emission reduction plan or mitigation program, then it would be required to implement Best Performance Standards (BPS); and
iii. If a project is not implementing BPS, then it should demonstrate that its GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU).

In the event that a local air district's guidance for addressing GHG impacts does not use numerical GHG emissions thresholds, at the lead agency's discretion, a neighboring air district's GHG threshold may be used to determine impacts. In December 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 3,500 MTCO2eq./year for GHG for construction emissions amortized over a 30-year project lifetime, plus annual operation emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. The yearly GHG emissions generated by the Project as determined by the CalEEMod model are shown above, which is less than the threshold identified by the SCAQMD.

The resulting permanent greenhouse gas increases related to Project operations would be within the greenhouse gas increases analyzed in the City of Manteca General Plan EIR since the Project meets the

applicable zoning requirements. There would be no increase in severity to the greenhouse gas impacts, and implementation of the Project will not result in Project-specific or site-specific significant adverse impacts from greenhouse gas emissions within the Project study area. Therefore, no mitigation measures are needed.

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

California passed the California Global Warming Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. Under AB 32, CARB must adopt regulations by January 1, 2011, to achieve reductions in GHGs to meet the 1990 emission cap by 2020. On December 11, 2008, CARB adopted its initial Scoping Plan, which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan.

SB 375 requires MPOs to adopt a SCS or APS that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, has provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. For the SJCOG region, CARB set targets at five (5) percent per capita decrease in 2020 and a ten (10) percent per capita decrease in 2035 from a base year of 2005.

Executive Order B-30-15 establishes a California greenhouse gas reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. Executive Order B-30-15 requires MPO's to implement measures that will achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. SJCOG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. The applicable General Plan for the project is City of Manteca General Plan.

The Project is consistent with the currently adopted General Plan for the City and the adopted SJCOG RTP/SCS and is therefore consistent with the population growth and VMT applied in those plan documents. Therefore, the Project is consistent with the growth assumptions used in the applicable AQP. It should also be noted that yearly GHG emissions generated by the Project are less than the threshold identified by the SCAQMD (see the discussion for Impact 4.2.1 above).

CARB's 2017 Climate Change Scoping Plan builds on the efforts and plans encompassed in the initial Scoping Plan. The current plan has identified new policies and actions to accomplish the State's 2030 GHG limit. Below is a list of applicable strategies in the Scoping Plan and the Project's consistency with those strategies.

✓ California Light-Duty Vehicle GHG Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs for long-term climate change goals.

- The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is

implemented, standards would be applicable to light-duty vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

✓ Energy Efficiency – Pursuit of comparable investment in energy efficiency from all retail providers of electricity in California. Maximize energy efficiency building and appliance standards.

- The Project is consistent with this reduction measure. Though this measure applies to the State to increase its energy standards, the Project would comply with this measure through existing regulation. The Project would not conflict or obstruct this reduction measure.

✓ Low Carbon Fuel – Development and adoption of the low carbon fuel standard.

- The Project is consistent with this reduction measure. This measure cannot be implemented by a particular project or lead agency since it is a statewide measure. When this measure is implemented, standards would be applicable to the fuel used by vehicles that would access the Project. The Project would not conflict or obstruct this reduction measure.

Based on the assessment above, the Project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, any impacts would be less than significant.

7.0 REFERENCES

- Association of Environmental Professionals. 2007. *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*. June.
- California Air Pollution Control Officers Association. 2008. *CEQA and Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act.* January.
- California Air Resources Board. EMFAC Emissions Model.
- California Air Resources Board. 2008. *Climate Change Scoping Plan*. November.
- City of Manteca General Plan.
- ENVIRON. CalEEMod Model.
- San Joaquin Council of Governments RTP/SCS.
- U.S. EPA. 2006. *The U.S. Inventory of Greenhouse Gas Emissions and Sinks: Fast Facts.* www.epa.gov/climatechange/emissions/downloads06/06FastFacts.pdf.

We appreciate the opportunity to assist you with this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 271-9700.

Respectfully submitted,

SALEM Engineering Group, Inc.

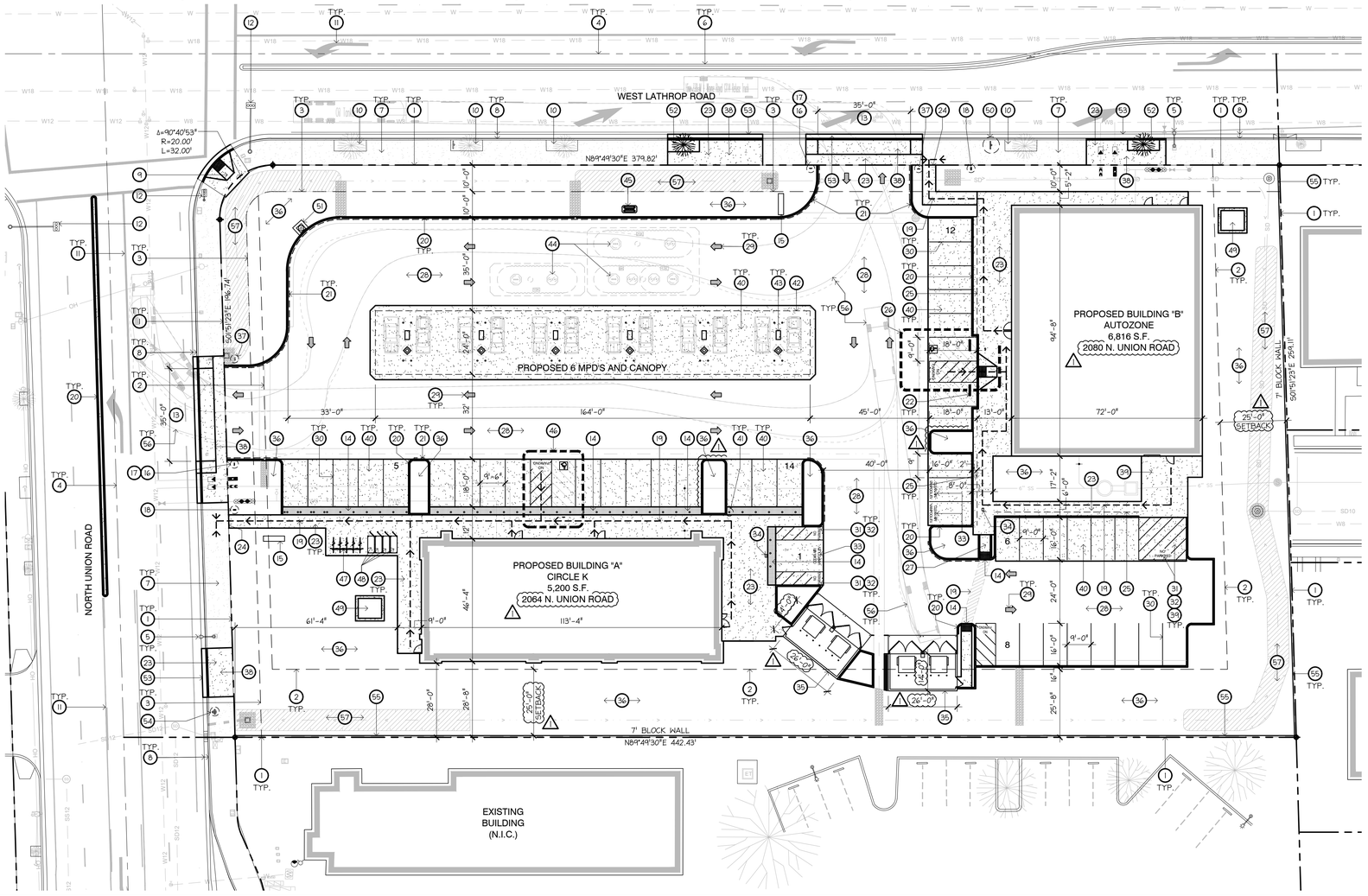
John Thomason

John Thomason, QSP/D/QISP, LEED AP
Air Quality/CEQA Associate

ATTACHMENT 6

APPENDIX

A



PROJECT DATA

PARCEL DATA

A.P.N.:	216-020-01
LAND USE DESIGNATION:	CN (NEIGHBORHOOD COMMERCIAL)
ZONING:	CN
EXISTING LAND AREA	
A.P.N.: 216-020-01	(1.98 ACRES) ±86,249 S.F.
TOTAL GROSS LAND AREA:	(1.98 ACRES) ±86,249 S.F.

BUILDING DATA

BUILDING "A" - CIRCLE K

GROSS BUILDING AREA:	5,200 S.F.
CONSTRUCTION TYPE:	TYPE V-B
BUILDING OCCUPANCY TYPE:	M (MERCANTILE)
FIRE SPRINKLERS:	YES
FIRE ALARM:	NO
NUMBER OF STORIES:	1
ACTUAL BUILDING HEIGHT:	23'-0"

BUILDING "B" - AUTOZONE

GROSS BUILDING AREA:	6,816 S.F.
CONSTRUCTION TYPE:	TYPE V-B
BUILDING OCCUPANCY TYPE:	M (MERCANTILE)
FIRE SPRINKLERS:	YES
FIRE ALARM:	NO
NUMBER OF STORIES:	1
ACTUAL BUILDING HEIGHT:	21'-0"

ALLOWABLE BUILDING AREA

BUILDING "A" - CIRCLE K

BUILDING ALLOWABLE AREA IS BASED ON AN OCCUPANCY OF M, THE LOWEST BASIC ALLOWABLE AREA PER TABLE 506.2 OF THE C.B.C. THAT IS ANTICIPATED FOR THIS BUILDING.

ALLOWABLE BUILDING AREA CALCULATION PER C.B.C. EQUATION 5-1:

A_a = 9,000 S.F. > 5,200 S.F. (OKAY)

BUILDING "B" - AUTOZONE

BUILDING ALLOWABLE AREA IS BASED ON AN OCCUPANCY OF M (MERCANTILE), THE LOWEST BASIC ALLOWABLE AREA PER TABLE 506.2 OF THE C.B.C. THAT IS ANTICIPATED FOR THESE BUILDINGS.

ALLOWABLE BUILDING AREA CALCULATION PER C.B.C. EQUATION 5-1:

A = 36,000 S.F. > 6,816 S.F. (OKAY)

PARKING DATA

TOTAL REQUIRED VEHICLE PARKING STALLS REQUIRED BY ZONING ORDINANCE

RETAIL, SERVICE, AND OFFICE USES, ALL OTHER COMMERCIAL USES NOT OTHERWISE LISTED (4 PER 1,000 S.F. OF GROSS FLOOR AREA) 4 / 12.016:	48
TOTAL REQUIRED VEHICLE PARKING STALLS:	48

ACCESSIBILITY PARKING REQUIREMENTS

VAN ACCESSIBLE:	2

CALGREEN VEHICLE PARKING REQUIREMENTS

CLEAN AIR DESIGNATED PARKING SPACES: (PER CALGREEN SECTION AND TABLE 5.106.5.2)	3
FUTURE EV CHARGING SPACES: (PER CALGREEN SECTION AND TABLE 5.106.5.3.3)	2
FUTURE VAN ACCESSIBLE:	1

CALGREEN BICYCLE PARKING REQUIREMENTS

SHORT-TERM BICYCLE PARKING: (PER CAL GREEN SECTION 5.106.4.1.1, 2-BIKE MIN.)	48 x .05 = 3
LONG-TERM BICYCLE PARKING: (PER CAL GREEN SECTION 5.106.4.1.2, 1-BIKE MIN.)	48 x .05 = 3

TOTAL PROVIDED VEHICLE PARKING STALLS

STANDARD:	41
CLEAN AIR/VANPOOL/EV:	3
FUTURE EV CHARGING STATIONS:	2
VAN ACCESSIBLE:	2
TOTAL PROVIDED VEHICLE PARKING STALLS:	47
RATIO OF PARKING SPACES TO FLOOR AREA:	4.08 SPACES PER 1,000 S.F.

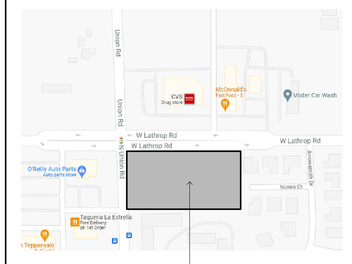
GENERAL NOTES

1. SIGNS, OTHER THAN DIRECTIONAL SIGNS, IF APPLICABLE, ARE NOT APPROVED FOR INSTALLATION AS PART OF THIS SPECIAL PERMIT.
2. IF ARCHAEOLOGICAL AND/OR ANIMAL FOSSIL MATERIAL IS ENCOUNTERED DURING PROJECT SURVEYING, GRADING, EXCAVATING, OR CONSTRUCTION, WORK SHALL STOP IMMEDIATELY.
3. IF THERE ARE SUSPECTED HUMAN REMAINS, THE SAN JOAQUIN COUNTY CORONER SHALL BE IMMEDIATELY CONTACTED - IF THE REMAINS OR OTHER ARCHAEOLOGICAL MATERIAL IS POSSIBLY NATIVE AMERICAN IN ORIGIN, THE NATIVE AMERICAN HERITAGE COMMISSION (PHONE: (916) 653-4082) SHALL BE IMMEDIATELY CONTACTED, AND THE CALIFORNIA ARCHAEOLOGICAL INVENTORY/SOUTHERN SAN JOAQUIN VALLEY INFORMATION CENTER (PHONE: (805) 644-2289) SHALL BE CONTACTED TO OBTAIN A REFERRAL LIST OF RECOGNIZED ARCHAEOLOGISTS - AN ARCHAEOLOGICAL ASSESSMENT SHALL BE CONDUCTED FOR THE PROJECT, THE SITE SHALL BE FORMALLY RECORDED, AND RECOMMENDATIONS MADE TO THE CITY AS TO ANY FURTHER SITE INVESTIGATION OR SITE AVOIDANCE/PRESERVATION.
4. IF ANIMAL FOSSILS ARE UNCOVERED, THE MUSEUM OF PALEONTOLOGY, U.C. BERKELEY SHALL BE CONTACTED TO OBTAIN A REFERRAL LIST OF RECOGNIZED PALEONTOLOGISTS - AN ASSESSMENT SHALL BE CONDUCTED BY A PALEONTOLOGIST AND, IF THE PALEONTOLOGIST DETERMINES THE MATERIAL TO BE SIGNIFICANT, IT SHALL BE PRESERVED.
5. ANY SURVEY MONUMENTS WITHIN THE AREA OF CONSTRUCTION SHALL BE PRESERVED OR RESET BY A PERSON LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF CALIFORNIA.
6. TWO WORKING DAYS BEFORE COMMENCING EXCAVATION OPERATIONS WITHIN THE STREET RIGHT-OF-WAY AND/OR UTILITY EASEMENTS, ALL EXISTING UNDERGROUND FACILITIES SHALL HAVE BEEN LOCATED BY UNDERGROUND SERVICES ALERT (USA) CALL 1-800-642-2444.
7. ALL EXISTING SIDEWALKS IN EXCESS OF 2% MAXIMUM CROSS SLOPE MUST BE BROUGHT INTO COMPLIANCE PRIOR TO ACCEPTANCE BY PUBLIC WORKS.
8. ALL EXTERIOR DOORS, DURING THE HOURS OF DARKNESS, SHALL BE ILLUMINATED WITH A MINIMUM OF 0.5 FOOT-CANDLE OF LIGHT.
9. NO USE SHALL BE OPERATED SUCH THAT SIGNIFICANT, DIRECT GLARE, INCIDENTAL TO THE OPERATION OF THE USE IS VISIBLE BEYOND THE BOUNDARIES OF THE PROPERTY WHERE THE USE IS LOCATED.
10. DIRECT OR SKY-REFLECTED GLARE FROM FLOODLIGHTS SHALL NOT BE DIRECTED INTO ANY OTHER PROPERTY OR STREET.
11. NO LIGHT OR COMBINATION OF LIGHTS, OR ACTIVITY SHALL CAST LIGHT EXCEEDING ONE FOOT CANDLE ONTO A PUBLIC STREET, WITH THE ILLUMINATION LEVEL MEASURED AT THE CENTERLINE OF THE STREET - NO LIGHT, COMBINATION OF LIGHTS, OR ACTIVITY SHALL CAST LIGHT EXCEEDING 0.5 FOOT CANDLE ONTO A RESIDENTIALLY ZONED PROPERTY, OR ANY PROPERTY CONTAINING RESIDENTIAL USES.
12. THE FOLLOWING TYPES OF EXTERIOR LIGHTING ARE PROHIBITED: DROP-DOWN LENSES; MERCURY VAPOR LIGHTS; SEARCHLIGHTS, LASER LIGHTS, OR ANY OTHER LIGHTING THAT FLASHES, BLINKS, ALTERNATES, OR MOVES.
13. FIRE HYDRANTS AND ACCESS ROADS SHALL BE INSTALLED, TESTED, AND APPROVED AND SHELL BE MAINTAINED SERVICEABLE PRIOR TO AND DURING ALL PHASES OF DEVELOPMENT - THE 4-1/2" OUTLET SHALL FACE THE ACCESS LANE.
14. ALL ACCESSIBLE PARKING STALLS SHALL BE PLACED ADJACENT TO FACILITY ACCESS RAMPS OR IN STRATEGIC AREAS WHERE THE HANDICAPPED SHALL NOT HAVE TO WHEEL OR WALK BEHIND PARKED VEHICLES WHILE TRAVELING TO OR FROM ACCESSIBLE PARKING STALLS AND RAMPS.
15. THE REQUIRED 4' MINIMUM PATH OF TRAVEL SHALL BE PROVIDED ALONG THE PUBLIC SIDEWALK DIRECTLY IN FRONT OF THE PROPERTY, AS REQUIRED BY THE CALIFORNIA ADMINISTRATION CODE (TITLE 24) - A PEDESTRIAN EASEMENT MAY BE REQUIRED IF REQUIREMENTS ARE NOT MET.

KEYED NOTES

1. DASHED LINES INDICATE EXISTING PROPERTY LINE.
2. DASHED LINES INDICATE EXISTING BUILDING SETBACK.
3. DASHED LINES INDICATE EXISTING 10'-0" RIGHT-OF-WAY DEDICATION. ⚠1
4. DASHED LINES INDICATE EXISTING STREET CENTERLINE.
5. EXISTING STREET LIGHT TO REMAIN.
6. EXISTING MEDIAN TO REMAIN.
7. EXISTING PUBLIC SIDEWALK TO REMAIN.
8. EXISTING PUBLIC CURB AND/OR GUTTER TO REMAIN.
9. EXISTING PUBLIC CURB CUT RAMP TO BE REMOVED AND REPLACED WITH A NEW ADA COMPLIANT RAMP - SEE CIVIL PLANS.
10. EXISTING TREE WELL TO REMAIN.
11. EXISTING STREET STRIPING TO REMAIN.
12. EXISTING TRAFFIC SIGNAL TO REMAIN.
13. NEW CONCRETE DRIVE APPROACH PER CITY OF MANTECA PUBLIC WORKS STANDARDS.
14. NEW PUBLIC TRUNCATED DOMES PER CITY OF MANTECA PUBLIC WORKS STANDARDS.
15. NEW MONUMENT SIGNAGE UNDER SEPARATE SUBMITTAL AND PERMIT.
16. NEW POLE MOUNTED TOW-AWAY SIGNAGE PER CITY OF MANTECA STANDARDS.
17. NEW SIGN(S) (17" x 22" MINIMUM) AT ALL PUBLIC ENTRANCE DRIVES TO THE PROPERTY WHICH STATE "WARNING - VEHICLES STOPPED, PARKED, OR LEFT STANDING IN FIRE LANES WILL BE IMMEDIATELY REMOVED AT OWNER'S EXPENSE - 22658(a) CALIFORNIA VEHICLE CODE.
18. NEW POLE MOUNTED DOUBLE SIDED ACCESSIBLE DIRECTIONAL SIGNAGE.
19. DASHED LINES INDICATE REQUIRED ACCESSIBLE ROUTE AS SHOWN - THE ACCESSIBLE ROUTE AS DELINEATED IS A BARRIER-FREE ROUTE 48" MINIMUM IN WIDTH WITH NO ABRUPT LEVEL CHANGES EXCEEDING 1/2" UNLESS BEVELED AT A 1:2 MAXIMUM SLOPE, AND NO VERTICAL LEVEL CHANGES EXCEEDING 1/4" - THE CROSS SLOPE DOES NOT EXCEED 2.00% AND SLOPE IN THE DIRECTION OF TRAVEL DOES NOT EXCEED 5.00% (EXCEPT AT DOOR LANDINGS, WHICH THE SLOPE IN THE DIRECTION OF TRAVEL SHALL NOT EXCEED 2.00%) - THE SURFACE IS FIRM, STABLE, AND SLIP RESISTANT - THE ACCESSIBLE ROUTE IS FREE OF OVERHANGING OBSTRUCTIONS BELOW 80" AND OBJECTS PROTRUDING GREATER THAN 4" FROM A WALL ABOVE 27" AND BELOW 80".
20. NEW 6" HIGH AND 6" DEEP CONCRETE CURB PER CITY OF MANTECA STANDARDS.
21. DASHED LINES INDICATE NEW FIRE LANE STRIPING OVER NEW CONCRETE CURB AND/OR AC DIKE - CURBS ADJACENT TO OPEN DRIVES OVER 20'-0" LONG SHALL BE PAINTED RED WITH 4" HIGH PAINTED WHITE LETTERING STATING "NO PARKING - FIRE LANE" OCCURRING APPROXIMATELY EVERY 50'-0".
22. NEW 6" HIGH CONCRETE WHEEL STOP PER CITY OF MANTECA STANDARDS.
23. NEW CONCRETE FLATWORK - CONCRETE FLATWORK SHALL NOT EXCEED MAXIMUM SLOPE IN ANY DIRECTION. ⚠1
24. NEW CONCRETE FLATWORK MEETS EXISTING CONCRETE FLATWORK.
25. DASHED LINES INDICATE REQUIRED 2'-0" DEEP VEHICULAR OVERHANG - THERE SHALL BE NO OBSTRUCTIONS OVER 6" HIGH ALLOWED WITHIN A VEHICULAR OVERHANG.
26. NEW ACCESSIBLE PARKING STALLS, CONCRETE CURB CUT RAMPS, CONCRETE PAVING, CONCRETE WHEEL STOPS, SIGNAGE, LOADING/UNLOADING ZONES, TRUNCATED DOMES, AND STRIPING/ISA' SYMBOLS.
27. DASHED LINES INDICATE NEW ACCESSIBLE CONCRETE CURB CUT RAMP.
28. NEW AC PAVING PER CITY OF MANTECA STANDARDS.
29. NEW DIRECTIONAL ARROW STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS.
30. NEW 4" WIDE STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS.
31. NEW 4" WIDE STRIPING PAINTED WHITE PER CITY OF MANTECA STANDARDS ALONG PERIMETER WITH PAINTED WHITE INFILL STRIPING AT 45 DEGREES AND AT 36" ON CENTER MAXIMUM. ⚠1
32. NEW 12" HIGH LETTERS PAINTED TRAFFIC WHITE STATING "NO PARKING" AS SHOWN.
33. NEW 12" HIGH LETTERS PAINTED WHITE STATING "CLEAN AIR/VANPOOL/EV" AS SHOWN - THE FOLLOWING CHARACTERS SHALL BE PAINTED IN SUCH A MANOR THAT THE LOWER EDGE OF THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED VEHICLE - THESE DESIGNATED PARKING STALLS ARE FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT, AND CARPOOL/VAN POOL VEHICLES PER CAL GREEN SECTION 5.106.5.2 - SEE "PARKING DATA" SECTION ON THIS SHEET.
34. NEW ELECTRICAL RACEWAY FOR FUTURE ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).
35. NEW C.M.U. BLOCK TRASH AND RECYCLING ENCLOSURE PER CITY OF MANTECA STANDARDS.
36. NEW LANDSCAPE AREA.
37. NEW 30 INCH STATE STANDARD "STOP" SIGN(S) AT LOCATION(S) SHOWN.
38. EXISTING APPROACHES TO BE REMOVED AND REPLACED WITH CURB, GUTTER AND SIDEWALK TO MATCH EXISTING IMPROVEMENTS.
39. NEW HEAVY DUTY CONCRETE FOR DELIVERY AREA.
40. NEW LIGHT DUTY CONCRETE FOR PARKING AREA.
41. NEW BOLLARD - CONFIRM FINAL LOCATIONS AND PAINT COLOR SELECTIONS PER TENANT IMPROVEMENT PLANS.
42. DASHED LINES INDICATE NEW GAS PUMP CANOPY.
43. NEW GAS PUMPS.
44. DASHED LINES INDICATE NEW IN-GROUND GAS STORAGE TANKS.
45. NEW VENT RACK.
46. NEW ACCESSIBLE PARKING STALLS, CONCRETE PAVING, SIGNAGE, LOADING / UNLOADING ZONES, TRUNCATED DOMES, AND STRIPING/ISA' SYMBOLS.
47. NEW SURFACE MOUNTED "MADRAX" HK238-5-SF 5 BIKE SPACES "HEAVY DUTY WINDER" BICYCLE RACK OR OWNER APPROVED EQUAL - GENERAL CONTRACTOR SHALL CONFIRM ALL ADDITIONAL ACCESSORIES PRIOR TO ORDERING.
48. NEW "GROUND CONTROL SYSTEMS" FBVI FIBERGLASS BICYCLE VAULT BIKE LOCKER (TYPICAL OF 4) - THIS LOCKER ACCOMMODATES ONE BIKE AND IS LOCKABLE - INSTALL PER MANUFACTURERS REQUIREMENTS.
49. NEW ELECTRICAL TRANSFORMER.
50. NEW LOCATION OF RE-LOCATED SIGN.
51. NEW AIR AND WATER STATION.
52. NEW TREE WELL AND NEW TREE PER CITY OF MANTECA STANDARDS.
53. NEW CONCRETE GUTTER.
54. EXISTING FIRE HYDRANT TO REMAIN.
55. NEW 7'-0" TALL C.M.U. BLOCK WALL PER CITY OF MANTECA STANDARDS.
56. CONTINUOUS AND/OR DASHED LINES INDICATE TRUCK TURNING TEMPLATE.
57. DASHED LINES AND HATCHING INDICATE NEW BIOSWALE - SEE CIVIL PLANS.

VICINITY MAP



ATTACHMENT 6
CENTERLINE DESIGN, LLC
PLANNING - DESIGN - CONSULTING
1508 TOLLHOUSE ROAD, SUITE 'C'
CLOVIS, CALIFORNIA 93611
559-298-3060 (OFFICE)
559-298-3267 (FAX)

PROJECT
COMMERCIAL DEVELOPMENT FOR:
CROSSROADS PLAZA
2064 NORTH UNION ROAD
MANTECA, CALIFORNIA 95336

STATUS

Current Release Date
10-20-22
Planning Submittal
12-13-21
Plan Check Submittal
--

REVISIONS

⚠1 CITY OF MANTECA CUP CONDITIONS OF APPROVAL DATED: 05-13-22
⚠2
⚠3
⚠4
⚠5

IDENTIFICATION

Scale	1" = 20'-0"
Project Coordinator	CHRIS WARD
Project No.	19-157
Sheet	A-0.0

PROPOSED SITE PLAN

ATTACHMENT 6

APPENDIX

B

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Manteca Commercial Development

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market with Gas Pumps	6.00	Pump	0.02	847.05	0
General Office Building	6.82	1000sqft	0.16	6,816.00	0
Parking Lot	48.00	Space	0.43	19,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - Low VOC paints.

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0291	0.2839	0.3170	5.6000e-004	0.0102	0.0137	0.0239	3.8600e-003	0.0127	0.0165	0.0000	49.2271	49.2271	0.0134	5.1000e-004	49.7144
2024	0.0684	0.0995	0.1228	2.1000e-004	1.9500e-003	4.5900e-003	6.5400e-003	5.3000e-004	4.2500e-003	4.7700e-003	0.0000	18.7760	18.7760	5.1400e-003	1.9000e-004	18.9605
Maximum	**0.0684**	**0.2839**	**0.3170**	**5.6000e-004**	**0.0102**	**0.0137**	**0.0239**	**3.8600e-003**	**0.0127**	**0.0165**	**0.0000**	**49.2271**	**49.2271**	**0.0134**	**5.1000e-004**	**49.7144**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0291	0.2839	0.3170	5.6000e-004	6.9200e-003	0.0137	0.0206	2.3100e-003	0.0127	0.0150	0.0000	49.2271	49.2271	0.0134	5.1000e-004	49.7144
2024	0.0684	0.0995	0.1228	2.1000e-004	1.9500e-003	4.5900e-003	6.5400e-003	5.3000e-004	4.2500e-003	4.7700e-003	0.0000	18.7760	18.7760	5.1400e-003	1.9000e-004	18.9605
Maximum	**0.0684**	**0.2839**	**0.3170**	**5.6000e-004**	**6.9200e-003**	**0.0137**	**0.0206**	**2.3100e-003**	**0.0127**	**0.0150**	**0.0000**	**49.2271**	**49.2271**	**0.0134**	**5.1000e-004**	**49.7144**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**27.24**	**0.00**	**10.90**	**35.31**	**0.00**	**7.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2023**	**11-30-2023**	0.2384	0.2384
2	**12-1-2023**	**2-29-2024**	0.2469	0.2469
		Highest	0.2469	0.2469

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0370	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Energy	5.2000e-004	4.7600e-003	4.0000e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	11.9963	11.9963	1.2000e-003	2.3000e-004	12.0945
Mobile	0.6082	0.6354	3.3929	4.9300e-003	0.4345	5.0200e-003	0.4395	0.1163	4.6900e-003	0.1210	0.0000	456.3314	456.3314	0.0524	0.0400	469.5466
Waste						0.0000	0.0000		0.0000	0.0000	1.2870	0.0000	1.2870	0.0761	0.0000	3.1884
Water						0.0000	0.0000		0.0000	0.0000	0.4045	0.8913	1.2958	0.0417	1.0000e-003	2.6355
Total	**0.6457**	**0.6401**	**3.3975**	**4.9600e-003**	**0.4345**	**5.3800e-003**	**0.4399**	**0.1163**	**5.0500e-003**	**0.1213**	**1.6914**	**469.2201**	**470.9115**	**0.1713**	**0.0412**	**487.4661**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0331	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Energy	5.2000e-004	4.7600e-003	4.0000e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	11.9963	11.9963	1.2000e-003	2.3000e-004	12.0945
Mobile	0.6082	0.6354	3.3929	4.9300e-003	0.4345	5.0200e-003	0.4395	0.1163	4.6900e-003	0.1210	0.0000	456.3314	456.3314	0.0524	0.0400	469.5466
Waste						0.0000	0.0000		0.0000	0.0000	1.2870	0.0000	1.2870	0.0761	0.0000	3.1884
Water						0.0000	0.0000		0.0000	0.0000	0.4045	0.8913	1.2958	0.0417	1.0000e-003	2.6355
Total	**0.6419**	**0.6401**	**3.3975**	**4.9600e-003**	**0.4345**	**5.3800e-003**	**0.4399**	**0.1163**	**5.0500e-003**	**0.1213**	**1.6914**	**469.2201**	**470.9115**	**0.1713**	**0.0412**	**487.4661**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.59**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2023	9/14/2023	5	10	
2	Site Preparation	Site Preparation	9/15/2023	9/15/2023	5	1	
3	Grading	Grading	9/16/2023	9/19/2023	5	2	

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	9/20/2023	2/6/2024	5	100	
5	Paving	Paving	2/7/2024	2/13/2024	5	5	
6	Architectural Coating	Architectural Coating	2/14/2024	2/20/2024	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,495; Non-Residential Outdoor: 3,832; Striped Parking Area: 1,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	11.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	**3.2300e-003**	**0.0289**	**0.0370**	**6.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**5.2091**	**5.2091**	**9.5000e-004**	**0.0000**	**5.2328**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3197	0.3197	1.0000e-005	1.0000e-005	0.3228
Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3197**	**0.3197**	**1.0000e-005**	**1.0000e-005**	**0.3228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	**3.2300e-003**	**0.0289**	**0.0370**	**6.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3500e-003**	**1.3500e-003**	**0.0000**	**5.2091**	**5.2091**	**9.5000e-004**	**0.0000**	**5.2328**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3197	0.3197	1.0000e-005	1.0000e-005	0.3228
Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3197**	**0.3197**	**1.0000e-005**	**1.0000e-005**	**0.3228**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	**2.7000e-004**	**3.0900e-003**	**1.9600e-003**	**0.0000**	**2.7000e-004**	**1.1000e-004**	**3.8000e-004**	**3.0000e-005**	**1.0000e-004**	**1.3000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4309**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0160	0.0160	0.0000	0.0000	0.0161
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**0.0000**	**0.0000**	**0.0161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1000e-004	0.0000	1.1000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	**2.7000e-004**	**3.0900e-003**	**1.9600e-003**	**0.0000**	**1.1000e-004**	**1.1000e-004**	**2.2000e-004**	**1.0000e-005**	**1.0000e-004**	**1.1000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4309**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0160	0.0160	0.0000	0.0000	0.0161
Total	**1.0000e-005**	**1.0000e-005**	**6.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0160**	**0.0160**	**0.0000**	**0.0000**	**0.0161**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**5.3100e-003**	**4.2000e-004**	**5.7300e-003**	**2.5700e-003**	**3.9000e-004**	**2.9600e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0516
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0516**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1500e-003	0.0000	2.1500e-003	1.0400e-003	0.0000	1.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**2.1500e-003**	**4.2000e-004**	**2.5700e-003**	**1.0400e-003**	**3.9000e-004**	**1.4300e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0512	0.0512	0.0000	0.0000	0.0516
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0512**	**0.0512**	**0.0000**	**0.0000**	**0.0516**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0231	0.2343	0.2590	4.2000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	36.5761	36.5761	0.0118	0.0000	36.8718
Total	**0.0231**	**0.2343**	**0.2590**	**4.2000e-004**		**0.0117**	**0.0117**		**0.0108**	**0.0108**	**0.0000**	**36.5761**	**36.5761**	**0.0118**	**0.0000**	**36.8718**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	6.4500e-003	1.9800e-003	3.0000e-005	9.7000e-004	4.0000e-005	1.0100e-003	2.8000e-004	4.0000e-005	3.2000e-004	0.0000	2.8224	2.8224	1.0000e-005	4.2000e-004	2.9486
Worker	1.2600e-003	8.5000e-004	9.9700e-003	3.0000e-005	3.2100e-003	2.0000e-005	3.2300e-003	8.5000e-004	2.0000e-005	8.7000e-004	0.0000	2.5671	2.5671	8.0000e-005	8.0000e-005	2.5917
Total	**1.4200e-003**	**7.3000e-003**	**0.0120**	**6.0000e-005**	**4.1800e-003**	**6.0000e-005**	**4.2400e-003**	**1.1300e-003**	**6.0000e-005**	**1.1900e-003**	**0.0000**	**5.3896**	**5.3896**	**9.0000e-005**	**5.0000e-004**	**5.5403**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0231	0.2343	0.2590	4.2000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	36.5760	36.5760	0.0118	0.0000	36.8718
Total	**0.0231**	**0.2343**	**0.2590**	**4.2000e-004**		**0.0117**	**0.0117**		**0.0108**	**0.0108**	**0.0000**	**36.5760**	**36.5760**	**0.0118**	**0.0000**	**36.8718**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-004	6.4500e-003	1.9800e-003	3.0000e-005	9.7000e-004	4.0000e-005	1.0100e-003	2.8000e-004	4.0000e-005	3.2000e-004	0.0000	2.8224	2.8224	1.0000e-005	4.2000e-004	2.9486
Worker	1.2600e-003	8.5000e-004	9.9700e-003	3.0000e-005	3.2100e-003	2.0000e-005	3.2300e-003	8.5000e-004	2.0000e-005	8.7000e-004	0.0000	2.5671	2.5671	8.0000e-005	8.0000e-005	2.5917
Total	**1.4200e-003**	**7.3000e-003**	**0.0120**	**6.0000e-005**	**4.1800e-003**	**6.0000e-005**	**4.2400e-003**	**1.1300e-003**	**6.0000e-005**	**1.1900e-003**	**0.0000**	**5.3896**	**5.3896**	**9.0000e-005**	**5.0000e-004**	**5.5403**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0300e-003	0.0807	0.0954	1.5000e-004		3.8100e-003	3.8100e-003		3.5100e-003	3.5100e-003	0.0000	13.5327	13.5327	4.3800e-003	0.0000	13.6421
Total	**8.0300e-003**	**0.0807**	**0.0954**	**1.5000e-004**		**3.8100e-003**	**3.8100e-003**		**3.5100e-003**	**3.5100e-003**	**0.0000**	**13.5327**	**13.5327**	**4.3800e-003**	**0.0000**	**13.6421**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.3900e-003	7.1000e-004	1.0000e-005	3.6000e-004	2.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.2000e-004	0.0000	1.0272	1.0272	0.0000	1.5000e-004	1.0731
Worker	4.3000e-004	2.8000e-004	3.4000e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9184	0.9184	3.0000e-005	3.0000e-005	0.9268
Total	**4.9000e-004**	**2.6700e-003**	**4.1100e-003**	**2.0000e-005**	**1.5500e-003**	**3.0000e-005**	**1.5600e-003**	**4.2000e-004**	**2.0000e-005**	**4.4000e-004**	**0.0000**	**1.9456**	**1.9456**	**3.0000e-005**	**1.8000e-004**	**1.9999**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0300e-003	0.0807	0.0954	1.5000e-004		3.8100e-003	3.8100e-003		3.5100e-003	3.5100e-003	0.0000	13.5327	13.5327	4.3800e-003	0.0000	13.6421
Total	**8.0300e-003**	**0.0807**	**0.0954**	**1.5000e-004**		**3.8100e-003**	**3.8100e-003**		**3.5100e-003**	**3.5100e-003**	**0.0000**	**13.5327**	**13.5327**	**4.3800e-003**	**0.0000**	**13.6421**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-005	2.3900e-003	7.1000e-004	1.0000e-005	3.6000e-004	2.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.2000e-004	0.0000	1.0272	1.0272	0.0000	1.5000e-004	1.0731
Worker	4.3000e-004	2.8000e-004	3.4000e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9184	0.9184	3.0000e-005	3.0000e-005	0.9268
Total	**4.9000e-004**	**2.6700e-003**	**4.1100e-003**	**2.0000e-005**	**1.5500e-003**	**3.0000e-005**	**1.5600e-003**	**4.2000e-004**	**2.0000e-005**	**4.4000e-004**	**0.0000**	**1.9456**	**1.9456**	**3.0000e-005**	**1.8000e-004**	**1.9999**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	5.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0400e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2783	0.2783	1.0000e-005	1.0000e-005	0.2808
Total	**1.3000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2783**	**0.2783**	**1.0000e-005**	**1.0000e-005**	**0.2808**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	5.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0400e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2783	0.2783	1.0000e-005	1.0000e-005	0.2808
Total	**1.3000e-004**	**8.0000e-005**	**1.0300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2783**	**0.2783**	**1.0000e-005**	**1.0000e-005**	**0.2808**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0577**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0309	0.0309	0.0000	0.0000	0.0312
Total	**1.0000e-005**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0309**	**0.0309**	**0.0000**	**0.0000**	**0.0312**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0573					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0577**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	1.1000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0309	0.0309	0.0000	0.0000	0.0312
Total	**1.0000e-005**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0309**	**0.0309**	**0.0000**	**0.0000**	**0.0312**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6082	0.6354	3.3929	4.9300e-003	0.4345	5.0200e-003	0.4395	0.1163	4.6900e-003	0.1210	0.0000	456.3314	456.3314	0.0524	0.0400	469.5466
Unmitigated	0.6082	0.6354	3.3929	4.9300e-003	0.4345	5.0200e-003	0.4395	0.1163	4.6900e-003	0.1210	0.0000	456.3314	456.3314	0.0524	0.0400	469.5466

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	1,935.00	1,935.00	1935.00	1,037,942	1,037,942
General Office Building	66.39	15.06	4.77	120,093	120,093
Parking Lot	0.00	0.00	0.00		
Total	2,001.39	1,950.06	1,939.77	1,158,035	1,158,035

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395
General Office Building	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Parking Lot	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.8173	6.8173	1.1000e-003	1.3000e-004	6.8848
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6.8173	6.8173	1.1000e-003	1.3000e-004	6.8848
NaturalGas Mitigated	5.2000e-004	4.7600e-003	4.0000e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1790	5.1790	1.0000e-004	9.0000e-005	5.2097
NaturalGas Unmitigated	5.2000e-004	4.7600e-003	4.0000e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1790	5.1790	1.0000e-004	9.0000e-005	5.2097

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market with Gas Pumps	8987.2	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4796	0.4796	1.0000e-005	1.0000e-005	0.4824
General Office Building	88062.7	4.7000e-004	4.3200e-003	3.6300e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	4.6994	4.6994	9.0000e-005	9.0000e-005	4.7273
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.2000e-004**	**4.7600e-003**	**4.0000e-003**	**3.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**5.1790**	**5.1790**	**1.0000e-004**	**1.0000e-004**	**5.2097**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market with Gas Pumps	8987.2	5.0000e-005	4.4000e-004	3.7000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4796	0.4796	1.0000e-005	1.0000e-005	0.4824
General Office Building	88062.7	4.7000e-004	4.3200e-003	3.6300e-003	3.0000e-005		3.3000e-004	3.3000e-004		3.3000e-004	3.3000e-004	0.0000	4.6994	4.6994	9.0000e-005	9.0000e-005	4.7273
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.2000e-004**	**4.7600e-003**	**4.0000e-003**	**3.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**	**0.0000**	**5.1790**	**5.1790**	**1.0000e-004**	**1.0000e-004**	**5.2097**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market with Gas Pumps	6708.64	0.6207	1.0000e-004	1.0000e-005	0.6269
General Office Building	60253.4	5.5749	9.0000e-004	1.1000e-004	5.6300
Parking Lot	6720	0.6218	1.0000e-004	1.0000e-005	0.6279
Total		**6.8174**	**1.1000e-003**	**1.3000e-004**	**6.8848**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market with Gas Pumps	6708.64	0.6207	1.0000e-004	1.0000e-005	0.6269
General Office Building	60253.4	5.5749	9.0000e-004	1.1000e-004	5.6300
Parking Lot	6720	0.6218	1.0000e-004	1.0000e-005	0.6279
Total		**6.8174**	**1.1000e-003**	**1.3000e-004**	**6.8848**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0331	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Unmitigated	0.0370	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Total	**0.0370**	**1.0000e-005**	**5.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0312					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.0000e-005	1.0000e-005	5.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0900e-003	1.0900e-003	0.0000	0.0000	1.1600e-003
Total	**0.0331**	**1.0000e-005**	**5.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0900e-003**	**1.0900e-003**	**0.0000**	**0.0000**	**1.1600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.2958	0.0417	1.0000e-003	2.6355
Unmitigated	1.2958	0.0417	1.0000e-003	2.6355

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.0627431 / 0.0384554	0.0638	2.0500e-003	5.0000e-005	0.1297
General Office Building	1.21214 / 0.742927	1.2320	0.0396	9.5000e-004	2.5057
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.2958**	**0.0417**	**1.0000e-003**	**2.6354**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market with Gas Pumps	0.0627431 / 0.0384554	0.0638	2.0500e-003	5.0000e-005	0.1297
General Office Building	1.21214 / 0.742927	1.2320	0.0396	9.5000e-004	2.5057
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.2958**	**0.0417**	**1.0000e-003**	**2.6354**

8.0 Waste Detail

8.1 Mitigation Measures Waste

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2870	0.0761	0.0000	3.1884
Unmitigated	1.2870	0.0761	0.0000	3.1884

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	6.34	1.2870	0.0761	0.0000	3.1884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2870**	**0.0761**	**0.0000**	**3.1884**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	6.34	1.2870	0.0761	0.0000	3.1884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.2870**	**0.0761**	**0.0000**	**3.1884**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Manteca Commercial Development

San Joaquin Valley Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market with Gas Pumps	6.00	Pump	0.02	847.05	0
General Office Building	6.82	1000sqft	0.16	6,816.00	0
Parking Lot	48.00	Space	0.43	19,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - Low VOC paints.

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.9626	10.1945	7.6794	0.0147	5.3777	0.4204	5.7981	2.5860	0.3868	2.9728	0.0000	1,426.0790	1,426.0790	0.4431	0.0149	1,437.6285
2024	23.1015	6.1621	7.5066	0.0130	0.1479	0.2840	0.4014	0.0392	0.2613	0.2931	0.0000	1,270.3059	1,270.3059	0.3598	0.0145	1,283.6339
Maximum	**23.1015**	**10.1945**	**7.6794**	**0.0147**	**5.3777**	**0.4204**	**5.7981**	**2.5860**	**0.3868**	**2.9728**	**0.0000**	**1,426.0790**	**1,426.0790**	**0.4431**	**0.0149**	**1,437.6285**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.9626	10.1945	7.6794	0.0147	2.2171	0.4204	2.6375	1.0577	0.3868	1.4445	0.0000	1,426.0790	1,426.0790	0.4431	0.0149	1,437.6285
2024	23.1015	6.1621	7.5066	0.0130	0.1479	0.2840	0.4014	0.0392	0.2613	0.2931	0.0000	1,270.3059	1,270.3059	0.3598	0.0145	1,283.6339
Maximum	**23.1015**	**10.1945**	**7.6794**	**0.0147**	**2.2171**	**0.4204**	**2.6375**	**1.0577**	**0.3868**	**1.4445**	**0.0000**	**1,426.0790**	**1,426.0790**	**0.4431**	**0.0149**	**1,437.6285**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	57.20	0.00	50.98	58.22	0.00	46.80	0.00	0.00	0.00	0.00	0.00	0.00

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2028	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Energy	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
Mobile	4.4330	3.3690	18.4403	0.0294	2.5339	0.0283	2.5621	0.6766	0.0265	0.7031		3,000.3550	3,000.3550	0.2875	0.2392	3,078.8297
Total	**4.6386**	**3.3951**	**18.4683**	**0.0296**	**2.5339**	**0.0303**	**2.5641**	**0.6766**	**0.0285**	**0.7051**		**3,031.6495**	**3,031.6495**	**0.2881**	**0.2398**	**3,110.3110**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1818	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Energy	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
Mobile	4.4330	3.3690	18.4403	0.0294	2.5339	0.0283	2.5621	0.6766	0.0265	0.7031		3,000.3550	3,000.3550	0.2875	0.2392	3,078.8297
Total	**4.6177**	**3.3951**	**18.4683**	**0.0296**	**2.5339**	**0.0303**	**2.5641**	**0.6766**	**0.0285**	**0.7051**		**3,031.6495**	**3,031.6495**	**0.2881**	**0.2398**	**3,110.3110**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2023	9/14/2023	5	10	
2	Site Preparation	Site Preparation	9/15/2023	9/15/2023	5	1	
3	Grading	Grading	9/16/2023	9/19/2023	5	2	
4	Building Construction	Building Construction	9/20/2023	2/6/2024	5	100	
5	Paving	Paving	2/7/2024	2/13/2024	5	5	
6	Architectural Coating	Architectural Coating	2/14/2024	2/20/2024	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,495; Non-Residential Outdoor: 3,832; Striped Parking Area: 1,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	11.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**		**0.2821**	**0.2821**		**0.2698**	**0.2698**		**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0363	0.0196	0.2867	7.6000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		76.6346	76.6346	2.1400e-003	1.9800e-003	77.2779
Total	**0.0363**	**0.0196**	**0.2867**	**7.6000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**76.6346**	**76.6346**	**2.1400e-003**	**1.9800e-003**	**77.2779**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**		**0.2821**	**0.2821**		**0.2698**	**0.2698**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0363	0.0196	0.2867	7.6000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		76.6346	76.6346	2.1400e-003	1.9800e-003	77.2779
Total	**0.0363**	**0.0196**	**0.2867**	**7.6000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**76.6346**	**76.6346**	**2.1400e-003**	**1.9800e-003**	**77.2779**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0181	9.7800e-003	0.1434	3.8000e-004	0.0411	2.1000e-004	0.0413	0.0109	1.9000e-004	0.0111		38.3173	38.3173	1.0700e-003	9.9000e-004	38.6389
Total	**0.0181**	**9.7800e-003**	**0.1434**	**3.8000e-004**	**0.0411**	**2.1000e-004**	**0.0413**	**0.0109**	**1.9000e-004**	**0.0111**		**38.3173**	**38.3173**	**1.0700e-003**	**9.9000e-004**	**38.6389**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2148	0.0000	0.2148	0.0232	0.0000	0.0232			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.2148**	**0.2266**	**0.4413**	**0.0232**	**0.2084**	**0.2316**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0181	9.7800e-003	0.1434	3.8000e-004	0.0411	2.1000e-004	0.0413	0.0109	1.9000e-004	0.0111		38.3173	38.3173	1.0700e-003	9.9000e-004	38.6389
Total	**0.0181**	**9.7800e-003**	**0.1434**	**3.8000e-004**	**0.0411**	**2.1000e-004**	**0.0413**	**0.0109**	**1.9000e-004**	**0.0111**		**38.3173**	**38.3173**	**1.0700e-003**	**9.9000e-004**	**38.6389**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**		**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0290	0.0157	0.2294	6.1000e-004	0.0657	3.4000e-004	0.0661	0.0174	3.1000e-004	0.0177		61.3077	61.3077	1.7100e-003	1.5800e-003	61.8223
Total	**0.0290**	**0.0157**	**0.2294**	**6.1000e-004**	**0.0657**	**3.4000e-004**	**0.0661**	**0.0174**	**3.1000e-004**	**0.0177**		**61.3077**	**61.3077**	**1.7100e-003**	**1.5800e-003**	**61.8223**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1513	0.0000	2.1513	1.0403	0.0000	1.0403			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**2.1513**	**0.4201**	**2.5714**	**1.0403**	**0.3865**	**1.4268**	**0.0000**	**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0290	0.0157	0.2294	6.1000e-004	0.0657	3.4000e-004	0.0661	0.0174	3.1000e-004	0.0177		61.3077	61.3077	1.7100e-003	1.5800e-003	61.8223
Total	**0.0290**	**0.0157**	**0.2294**	**6.1000e-004**	**0.0657**	**3.4000e-004**	**0.0661**	**0.0174**	**3.1000e-004**	**0.0177**		**61.3077**	**61.3077**	**1.7100e-003**	**1.5800e-003**	**61.8223**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946		1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**		**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5700e-003	0.1691	0.0534	8.1000e-004	0.0271	1.1400e-003	0.0283	7.8100e-003	1.0900e-003	8.9000e-003		85.1683	85.1683	3.7000e-004	0.0127	88.9728
Worker	0.0399	0.0215	0.3154	8.3000e-004	0.0904	4.6000e-004	0.0908	0.0240	4.3000e-004	0.0244		84.2981	84.2981	2.3500e-003	2.1800e-003	85.0057
Total	**0.0445**	**0.1906**	**0.3688**	**1.6400e-003**	**0.1175**	**1.6000e-003**	**0.1191**	**0.0318**	**1.5200e-003**	**0.0333**		**169.4664**	**169.4664**	**2.7200e-003**	**0.0149**	**173.9784**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946	0.0000	1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**	**0.0000**	**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5700e-003	0.1691	0.0534	8.1000e-004	0.0271	1.1400e-003	0.0283	7.8100e-003	1.0900e-003	8.9000e-003		85.1683	85.1683	3.7000e-004	0.0127	88.9728
Worker	0.0399	0.0215	0.3154	8.3000e-004	0.0904	4.6000e-004	0.0908	0.0240	4.3000e-004	0.0244		84.2981	84.2981	2.3500e-003	2.1800e-003	85.0057
Total	**0.0445**	**0.1906**	**0.3688**	**1.6400e-003**	**0.1175**	**1.6000e-003**	**0.1191**	**0.0318**	**1.5200e-003**	**0.0333**		**169.4664**	**169.4664**	**2.7200e-003**	**0.0149**	**173.9784**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4400e-003	0.1692	0.0521	7.9000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9100e-003		83.8071	83.8071	3.5000e-004	0.0125	87.5488
Worker	0.0367	0.0190	0.2904	8.1000e-004	0.0904	4.4000e-004	0.0908	0.0240	4.0000e-004	0.0244		81.5155	81.5155	2.1100e-003	2.0100e-003	82.1674
Total	**0.0412**	**0.1882**	**0.3425**	**1.6000e-003**	**0.1175**	**1.5900e-003**	**0.1191**	**0.0318**	**1.5000e-003**	**0.0333**		**165.3226**	**165.3226**	**2.4600e-003**	**0.0145**	**169.7162**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4400e-003	0.1692	0.0521	7.9000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9100e-003		83.8071	83.8071	3.5000e-004	0.0125	87.5488
Worker	0.0367	0.0190	0.2904	8.1000e-004	0.0904	4.4000e-004	0.0908	0.0240	4.0000e-004	0.0244		81.5155	81.5155	2.1100e-003	2.0100e-003	82.1674
Total	**0.0412**	**0.1882**	**0.3425**	**1.6000e-003**	**0.1175**	**1.5900e-003**	**0.1191**	**0.0318**	**1.5000e-003**	**0.0333**		**165.3226**	**165.3226**	**2.4600e-003**	**0.0145**	**169.7162**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.2253					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8157**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0601	0.0310	0.4752	1.3200e-003	0.1479	7.2000e-004	0.1486	0.0392	6.6000e-004	0.0399		133.3890	133.3890	3.4500e-003	3.2900e-003	134.4557
Total	**0.0601**	**0.0310**	**0.4752**	**1.3200e-003**	**0.1479**	**7.2000e-004**	**0.1486**	**0.0392**	**6.6000e-004**	**0.0399**		**133.3890**	**133.3890**	**3.4500e-003**	**3.2900e-003**	**134.4557**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.2253					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8157**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0601	0.0310	0.4752	1.3200e-003	0.1479	7.2000e-004	0.1486	0.0392	6.6000e-004	0.0399		133.3890	133.3890	3.4500e-003	3.2900e-003	134.4557
Total	**0.0601**	**0.0310**	**0.4752**	**1.3200e-003**	**0.1479**	**7.2000e-004**	**0.1486**	**0.0392**	**6.6000e-004**	**0.0399**		**133.3890**	**133.3890**	**3.4500e-003**	**3.2900e-003**	**134.4557**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.9141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**23.0948**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6800e-003	3.4500e-003	0.0528	1.5000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	7.0000e-005	4.4300e-003		14.8210	14.8210	3.8000e-004	3.7000e-004	14.9395
Total	**6.6800e-003**	**3.4500e-003**	**0.0528**	**1.5000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**7.0000e-005**	**4.4300e-003**		**14.8210**	**14.8210**	**3.8000e-004**	**3.7000e-004**	**14.9395**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.9141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**23.0948**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6800e-003	3.4500e-003	0.0528	1.5000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	7.0000e-005	4.4300e-003		14.8210	14.8210	3.8000e-004	3.7000e-004	14.9395
Total	**6.6800e-003**	**3.4500e-003**	**0.0528**	**1.5000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**7.0000e-005**	**4.4300e-003**		**14.8210**	**14.8210**	**3.8000e-004**	**3.7000e-004**	**14.9395**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.4330	3.3690	18.4403	0.0294	2.5339	0.0283	2.5621	0.6766	0.0265	0.7031		3,000.3550	3,000.3550	0.2875	0.2392	3,078.8297
Unmitigated	4.4330	3.3690	18.4403	0.0294	2.5339	0.0283	2.5621	0.6766	0.0265	0.7031		3,000.3550	3,000.3550	0.2875	0.2392	3,078.8297

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	1,935.00	1,935.00	1935.00	1,037,942	1,037,942
General Office Building	66.39	15.06	4.77	120,093	120,093
Parking Lot	0.00	0.00	0.00		
Total	2,001.39	1,950.06	1,939.77	1,158,035	1,158,035

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395
General Office Building	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395
Parking Lot	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
NaturalGas Unmitigated	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	24.6225	2.7000e-004	2.4100e-003	2.0300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8968	2.8968	6.0000e-005	5.0000e-005	2.9140
General Office Building	241.268	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003		28.3844	28.3844	5.4000e-004	5.2000e-004	28.5531
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8700e-003**	**0.0261**	**0.0219**	**1.5000e-004**		**1.9800e-003**	**1.9800e-003**		**1.9800e-003**	**1.9800e-003**		**31.2812**	**31.2812**	**6.0000e-004**	**5.7000e-004**	**31.4671**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	0.0246225	2.7000e-004	2.4100e-003	2.0300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8968	2.8968	6.0000e-005	5.0000e-005	2.9140
General Office Building	0.241268	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003		28.3844	28.3844	5.4000e-004	5.2000e-004	28.5531
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8700e-003**	**0.0261**	**0.0219**	**1.5000e-004**		**1.9800e-003**	**1.9800e-003**		**1.9800e-003**	**1.9800e-003**		**31.2812**	**31.2812**	**6.0000e-004**	**5.7000e-004**	**31.4671**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1818	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Unmitigated	0.2028	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Total	**0.2028**	**6.0000e-005**	**6.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**3.0000e-005**		**0.0142**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Total	**0.1818**	**6.0000e-005**	**6.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**3.0000e-005**		**0.0142**

7.0 Water Detail

7.1 Mitigation Measures Water

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Manteca Commercial Development

San Joaquin Valley Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Convenience Market with Gas Pumps	6.00	Pump	0.02	847.05	0
General Office Building	6.82	1000sqft	0.16	6,816.00	0
Parking Lot	48.00	Space	0.43	19,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Off-road Equipment Mitigation -

Area Mitigation - Low VOC paints.

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	150	50
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblAreaMitigation	UseLowVOCPaintParkingValue	150	50

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.9594	10.1973	7.6381	0.0146	5.3777	0.4204	5.7981	2.5860	0.3868	2.9728	0.0000	1,419.3236	1,419.3236	0.4433	0.0152	1,430.9331
2024	23.1008	6.1775	7.4400	0.0129	0.1479	0.2840	0.4014	0.0392	0.2613	0.2931	0.0000	1,261.5137	1,261.5137	0.3601	0.0148	1,274.9280
Maximum	**23.1008**	**10.1973**	**7.6381**	**0.0146**	**5.3777**	**0.4204**	**5.7981**	**2.5860**	**0.3868**	**2.9728**	**0.0000**	**1,419.3236**	**1,419.3236**	**0.4433**	**0.0152**	**1,430.9331**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.9594	10.1973	7.6381	0.0146	2.2171	0.4204	2.6375	1.0577	0.3868	1.4445	0.0000	1,419.3236	1,419.3236	0.4433	0.0152	1,430.9331
2024	23.1008	6.1775	7.4400	0.0129	0.1479	0.2840	0.4014	0.0392	0.2613	0.2931	0.0000	1,261.5137	1,261.5137	0.3601	0.0148	1,274.9280
Maximum	**23.1008**	**10.1973**	**7.6381**	**0.0146**	**2.2171**	**0.4204**	**2.6375**	**1.0577**	**0.3868**	**1.4445**	**0.0000**	**1,419.3236**	**1,419.3236**	**0.4433**	**0.0152**	**1,430.9331**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	57.20	0.00	50.98	58.22	0.00	46.80	0.00	0.00	0.00	0.00	0.00	0.00

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2028	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Energy	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
Mobile	3.0792	3.7660	21.1282	0.0274	2.5339	0.0284	2.5622	0.6766	0.0266	0.7032		2,798.2732	2,798.2732	0.3598	0.2581	2,884.1660
Total	**3.2848**	**3.7921**	**21.1563**	**0.0276**	**2.5339**	**0.0304**	**2.5642**	**0.6766**	**0.0286**	**0.7052**		**2,829.5677**	**2,829.5677**	**0.3604**	**0.2586**	**2,915.6473**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1818	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Energy	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
Mobile	3.0792	3.7660	21.1282	0.0274	2.5339	0.0284	2.5622	0.6766	0.0266	0.7032		2,798.2732	2,798.2732	0.3598	0.2581	2,884.1660
Total	**3.2638**	**3.7921**	**21.1563**	**0.0276**	**2.5339**	**0.0304**	**2.5642**	**0.6766**	**0.0286**	**0.7052**		**2,829.5677**	**2,829.5677**	**0.3604**	**0.2586**	**2,915.6473**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2023	9/14/2023	5	10	
2	Site Preparation	Site Preparation	9/15/2023	9/15/2023	5	1	
3	Grading	Grading	9/16/2023	9/19/2023	5	2	
4	Building Construction	Building Construction	9/20/2023	2/6/2024	5	100	
5	Paving	Paving	2/7/2024	2/13/2024	5	5	
6	Architectural Coating	Architectural Coating	2/14/2024	2/20/2024	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.43

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 11,495; Non-Residential Outdoor: 3,832; Striped Parking Area: 1,152 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	11.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**		**0.2821**	**0.2821**		**0.2698**	**0.2698**		**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0324	0.0231	0.2454	6.7000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		68.1903	68.1903	2.3800e-003	2.2100e-003	68.9086
Total	**0.0324**	**0.0231**	**0.2454**	**6.7000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**68.1903**	**68.1903**	**2.3800e-003**	**2.2100e-003**	**68.9086**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**		**0.2821**	**0.2821**		**0.2698**	**0.2698**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0324	0.0231	0.2454	6.7000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		68.1903	68.1903	2.3800e-003	2.2100e-003	68.9086
Total	**0.0324**	**0.0231**	**0.2454**	**6.7000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**68.1903**	**68.1903**	**2.3800e-003**	**2.2100e-003**	**68.9086**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0162	0.0116	0.1227	3.4000e-004	0.0411	2.1000e-004	0.0413	0.0109	1.9000e-004	0.0111		34.0952	34.0952	1.1900e-003	1.1100e-003	34.4543
Total	**0.0162**	**0.0116**	**0.1227**	**3.4000e-004**	**0.0411**	**2.1000e-004**	**0.0413**	**0.0109**	**1.9000e-004**	**0.0111**		**34.0952**	**34.0952**	**1.1900e-003**	**1.1100e-003**	**34.4543**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2148	0.0000	0.2148	0.0232	0.0000	0.0232			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.2148**	**0.2266**	**0.4413**	**0.0232**	**0.2084**	**0.2316**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0162	0.0116	0.1227	3.4000e-004	0.0411	2.1000e-004	0.0413	0.0109	1.9000e-004	0.0111		34.0952	34.0952	1.1900e-003	1.1100e-003	34.4543
Total	**0.0162**	**0.0116**	**0.1227**	**3.4000e-004**	**0.0411**	**2.1000e-004**	**0.0413**	**0.0109**	**1.9000e-004**	**0.0111**		**34.0952**	**34.0952**	**1.1900e-003**	**1.1100e-003**	**34.4543**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**		**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0259	0.0185	0.1964	5.4000e-004	0.0657	3.4000e-004	0.0661	0.0174	3.1000e-004	0.0177		54.5522	54.5522	1.9000e-003	1.7700e-003	55.1269
Total	**0.0259**	**0.0185**	**0.1964**	**5.4000e-004**	**0.0657**	**3.4000e-004**	**0.0661**	**0.0174**	**3.1000e-004**	**0.0177**		**54.5522**	**54.5522**	**1.9000e-003**	**1.7700e-003**	**55.1269**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1513	0.0000	2.1513	1.0403	0.0000	1.0403			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**2.1513**	**0.4201**	**2.5714**	**1.0403**	**0.3865**	**1.4268**	**0.0000**	**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0259	0.0185	0.1964	5.4000e-004	0.0657	3.4000e-004	0.0661	0.0174	3.1000e-004	0.0177		54.5522	54.5522	1.9000e-003	1.7700e-003	55.1269
Total	**0.0259**	**0.0185**	**0.1964**	**5.4000e-004**	**0.0657**	**3.4000e-004**	**0.0661**	**0.0174**	**3.1000e-004**	**0.0177**		**54.5522**	**54.5522**	**1.9000e-003**	**1.7700e-003**	**55.1269**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946		1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**		**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1811	0.0552	8.1000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9000e-003		85.3349	85.3349	3.6000e-004	0.0128	89.1502
Worker	0.0356	0.0254	0.2700	7.4000e-004	0.0904	4.6000e-004	0.0908	0.0240	4.3000e-004	0.0244		75.0093	75.0093	2.6100e-003	2.4300e-003	75.7995
Total	**0.0399**	**0.2065**	**0.3252**	**1.5500e-003**	**0.1175**	**1.6100e-003**	**0.1191**	**0.0318**	**1.5300e-003**	**0.0333**		**160.3442**	**160.3442**	**2.9700e-003**	**0.0152**	**164.9496**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946	0.0000	1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**	**0.0000**	**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2900e-003	0.1811	0.0552	8.1000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9000e-003		85.3349	85.3349	3.6000e-004	0.0128	89.1502
Worker	0.0356	0.0254	0.2700	7.4000e-004	0.0904	4.6000e-004	0.0908	0.0240	4.3000e-004	0.0244		75.0093	75.0093	2.6100e-003	2.4300e-003	75.7995
Total	**0.0399**	**0.2065**	**0.3252**	**1.5500e-003**	**0.1175**	**1.6100e-003**	**0.1191**	**0.0318**	**1.5300e-003**	**0.0333**		**160.3442**	**160.3442**	**2.9700e-003**	**0.0152**	**164.9496**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1700e-003	0.1812	0.0539	7.9000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9100e-003		83.9719	83.9719	3.4000e-004	0.0126	87.7239
Worker	0.0329	0.0224	0.2497	7.2000e-004	0.0904	4.4000e-004	0.0908	0.0240	4.0000e-004	0.0244		72.5584	72.5584	2.3600e-003	2.2500e-003	73.2863
Total	**0.0370**	**0.2036**	**0.3035**	**1.5100e-003**	**0.1175**	**1.5900e-003**	**0.1191**	**0.0318**	**1.5000e-003**	**0.0333**		**156.5303**	**156.5303**	**2.7000e-003**	**0.0148**	**161.0102**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1700e-003	0.1812	0.0539	7.9000e-004	0.0271	1.1500e-003	0.0283	7.8100e-003	1.1000e-003	8.9100e-003		83.9719	83.9719	3.4000e-004	0.0126	87.7239
Worker	0.0329	0.0224	0.2497	7.2000e-004	0.0904	4.4000e-004	0.0908	0.0240	4.0000e-004	0.0244		72.5584	72.5584	2.3600e-003	2.2500e-003	73.2863
Total	**0.0370**	**0.2036**	**0.3035**	**1.5100e-003**	**0.1175**	**1.5900e-003**	**0.1191**	**0.0318**	**1.5000e-003**	**0.0333**		**156.5303**	**156.5303**	**2.7000e-003**	**0.0148**	**161.0102**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.2253					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8157**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0538	0.0366	0.4086	1.1700e-003	0.1479	7.2000e-004	0.1486	0.0392	6.6000e-004	0.0399		118.7319	118.7319	3.8500e-003	3.6700e-003	119.9230
Total	**0.0538**	**0.0366**	**0.4086**	**1.1700e-003**	**0.1479**	**7.2000e-004**	**0.1486**	**0.0392**	**6.6000e-004**	**0.0399**		**118.7319**	**118.7319**	**3.8500e-003**	**3.6700e-003**	**119.9230**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	0.2253					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8157**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0538	0.0366	0.4086	1.1700e-003	0.1479	7.2000e-004	0.1486	0.0392	6.6000e-004	0.0399		118.7319	118.7319	3.8500e-003	3.6700e-003	119.9230
Total	**0.0538**	**0.0366**	**0.4086**	**1.1700e-003**	**0.1479**	**7.2000e-004**	**0.1486**	**0.0392**	**6.6000e-004**	**0.0399**		**118.7319**	**118.7319**	**3.8500e-003**	**3.6700e-003**	**119.9230**

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.9141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**23.0948**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9700e-003	4.0700e-003	0.0454	1.3000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	7.0000e-005	4.4300e-003		13.1924	13.1924	4.3000e-004	4.1000e-004	13.3248
Total	**5.9700e-003**	**4.0700e-003**	**0.0454**	**1.3000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**7.0000e-005**	**4.4300e-003**		**13.1924**	**13.1924**	**4.3000e-004**	**4.1000e-004**	**13.3248**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.9141					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**23.0948**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9700e-003	4.0700e-003	0.0454	1.3000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	7.0000e-005	4.4300e-003		13.1924	13.1924	4.3000e-004	4.1000e-004	13.3248
Total	**5.9700e-003**	**4.0700e-003**	**0.0454**	**1.3000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**7.0000e-005**	**4.4300e-003**		**13.1924**	**13.1924**	**4.3000e-004**	**4.1000e-004**	**13.3248**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0792	3.7660	21.1282	0.0274	2.5339	0.0284	2.5622	0.6766	0.0266	0.7032		2,798.2732	2,798.2732	0.3598	0.2581	2,884.1660
Unmitigated	3.0792	3.7660	21.1282	0.0274	2.5339	0.0284	2.5622	0.6766	0.0266	0.7032		2,798.2732	2,798.2732	0.3598	0.2581	2,884.1660

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market with Gas Pumps	1,935.00	1,935.00	1935.00	1,037,942	1,037,942
General Office Building	66.39	15.06	4.77	120,093	120,093
Parking Lot	0.00	0.00	0.00		
Total	2,001.39	1,950.06	1,939.77	1,158,035	1,158,035

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market with Gas	9.50	7.30	7.30	0.80	80.20	19.00	14	21	65
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market with Gas Pumps	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395
General Office Building	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395
Parking Lot	0.517111	0.052324	0.170980	0.155671	0.027786	0.007423	0.013424	0.026160	0.000649	0.000313	0.023324	0.001439	0.003395

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671
NaturalGas Unmitigated	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003		31.2812	31.2812	6.0000e-004	5.7000e-004	31.4671

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	24.6225	2.7000e-004	2.4100e-003	2.0300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8968	2.8968	6.0000e-005	5.0000e-005	2.9140
General Office Building	241.268	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003		28.3844	28.3844	5.4000e-004	5.2000e-004	28.5531
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8700e-003**	**0.0261**	**0.0219**	**1.5000e-004**		**1.9800e-003**	**1.9800e-003**		**1.9800e-003**	**1.9800e-003**		**31.2812**	**31.2812**	**6.0000e-004**	**5.7000e-004**	**31.4671**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market with Gas Pumps	0.0246225	2.7000e-004	2.4100e-003	2.0300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004		2.8968	2.8968	6.0000e-005	5.0000e-005	2.9140
General Office Building	0.241268	2.6000e-003	0.0237	0.0199	1.4000e-004		1.8000e-003	1.8000e-003		1.8000e-003	1.8000e-003		28.3844	28.3844	5.4000e-004	5.2000e-004	28.5531
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8700e-003**	**0.0261**	**0.0219**	**1.5000e-004**		**1.9800e-003**	**1.9800e-003**		**1.9800e-003**	**1.9800e-003**		**31.2812**	**31.2812**	**6.0000e-004**	**5.7000e-004**	**31.4671**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1818	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Unmitigated	0.2028	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0314					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Total	**0.2028**	**6.0000e-005**	**6.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**3.0000e-005**		**0.0142**

ATTACHMENT 6

Manteca Commercial Development - San Joaquin Valley Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0105					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1708					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.7000e-004	6.0000e-005	6.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005		0.0133	0.0133	3.0000e-005		0.0142
Total	**0.1818**	**6.0000e-005**	**6.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**		**0.0133**	**0.0133**	**3.0000e-005**		**0.0142**

7.0 Water Detail

7.1 Mitigation Measures Water

ATTACHMENT 6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

ATTACHMENT 6

APPENDIX

C

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

San Joaquin Valley Unified APCD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	4	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	2	No Change	0.00
Graders	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	1	No Change	0.00
Rollers	Diesel	No Change	0	1	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	2	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	7	No Change	0.00

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	4.50000E-004	3.05000E-003	4.53000E-003	1.00000E-005	1.50000E-004	1.50000E-004	0.00000E+000	6.38310E-001	6.38310E-001	4.00000E-005	0.00000E+000	6.39210E-001
Cement and Mortar Mixers	4.40000E-004	2.76000E-003	2.31000E-003	1.00000E-005	1.10000E-004	1.10000E-004	0.00000E+000	3.43710E-001	3.43710E-001	4.00000E-005	0.00000E+000	3.44600E-001
Concrete/Industrial Saws	1.67000E-003	1.29200E-002	1.82900E-002	3.00000E-005	6.40000E-004	6.40000E-004	0.00000E+000	2.68829E+000	2.68829E+000	1.30000E-004	0.00000E+000	2.69160E+000
Cranes	8.65000E-003	9.32900E-002	4.54600E-002	1.40000E-004	3.89000E-003	3.58000E-003	0.00000E+000	1.26737E+001	1.26737E+001	4.10000E-003	0.00000E+000	1.27762E+001
Forklifts	7.52000E-003	7.04300E-002	8.57500E-002	1.10000E-004	4.28000E-003	3.94000E-003	0.00000E+000	1.00719E+001	1.00719E+001	3.26000E-003	0.00000E+000	1.01533E+001
Graders	4.80000E-004	5.82000E-003	2.12000E-003	1.00000E-005	1.90000E-004	1.70000E-004	0.00000E+000	7.26720E-001	7.26720E-001	2.40000E-004	0.00000E+000	7.32590E-001
Pavers	4.00000E-004	3.81000E-003	6.33000E-003	1.00000E-005	1.80000E-004	1.60000E-004	0.00000E+000	9.03250E-001	9.03250E-001	2.90000E-004	0.00000E+000	9.10560E-001
Rollers	3.20000E-004	3.33000E-003	4.05000E-003	1.00000E-005	1.80000E-004	1.60000E-004	0.00000E+000	5.04340E-001	5.04340E-001	1.60000E-004	0.00000E+000	5.08420E-001
Rubber Tired Dozers	9.40000E-004	9.80000E-003	4.27000E-003	1.00000E-005	4.40000E-004	4.10000E-004	0.00000E+000	1.03158E+000	1.03158E+000	3.30000E-004	0.00000E+000	1.03992E+000
Tractors/Loaders/Backhoes	1.65900E-002	1.68000E-001	2.47940E-001	3.50000E-004	8.15000E-003	7.50000E-003	0.00000E+000	3.03901E+001	3.03901E+001	9.83000E-003	0.00000E+000	3.06359E+001

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	4.50000E-004	3.05000E-003	4.53000E-003	1.00000E-005	1.50000E-004	1.50000E-004	0.00000E+000	6.38310E-001	6.38310E-001	4.00000E-005	0.00000E+000	6.39210E-001
Cement and Mortar Mixers	4.40000E-004	2.76000E-003	2.31000E-003	1.00000E-005	1.10000E-004	1.10000E-004	0.00000E+000	3.43710E-001	3.43710E-001	4.00000E-005	0.00000E+000	3.44600E-001
Concrete/Industrial Saws	1.67000E-003	1.29200E-002	1.82900E-002	3.00000E-005	6.40000E-004	6.40000E-004	0.00000E+000	2.68828E+000	2.68828E+000	1.30000E-004	0.00000E+000	2.69159E+000
Cranes	8.65000E-003	9.32900E-002	4.54600E-002	1.40000E-004	3.89000E-003	3.58000E-003	0.00000E+000	1.26737E+001	1.26737E+001	4.10000E-003	0.00000E+000	1.27762E+001
Forklifts	7.52000E-003	7.04300E-002	8.57500E-002	1.10000E-004	4.28000E-003	3.94000E-003	0.00000E+000	1.00718E+001	1.00718E+001	3.26000E-003	0.00000E+000	1.01533E+001
Graders	4.80000E-004	5.82000E-003	2.12000E-003	1.00000E-005	1.90000E-004	1.70000E-004	0.00000E+000	7.26720E-001	7.26720E-001	2.40000E-004	0.00000E+000	7.32590E-001
Pavers	4.00000E-004	3.81000E-003	6.33000E-003	1.00000E-005	1.80000E-004	1.60000E-004	0.00000E+000	9.03250E-001	9.03250E-001	2.90000E-004	0.00000E+000	9.10560E-001
Rollers	3.20000E-004	3.33000E-003	4.05000E-003	1.00000E-005	1.80000E-004	1.60000E-004	0.00000E+000	5.04340E-001	5.04340E-001	1.60000E-004	0.00000E+000	5.08420E-001
Rubber Tired Dozers	9.40000E-004	9.80000E-003	4.27000E-003	1.00000E-005	4.40000E-004	4.10000E-004	0.00000E+000	1.03158E+000	1.03158E+000	3.30000E-004	0.00000E+000	1.03992E+000
Tractors/Loaders/Backhoes	1.65900E-002	1.68000E-001	2.47940E-001	3.50000E-004	8.15000E-003	7.50000E-003	0.00000E+000	3.03901E+001	3.03901E+001	9.83000E-003	0.00000E+000	3.06358E+001

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.71984E-006	3.71984E-006	0.00000E+000	0.00000E+000	3.71526E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.89034E-007	7.89034E-007	0.00000E+000	0.00000E+000	1.56541E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	9.92866E-007	9.92866E-007	0.00000E+000	0.00000E+000	9.84903E-007
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.31622E-006	1.31622E-006	0.00000E+000	0.00000E+000	1.30566E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
Yes	Soil Stabilizer for unpaved Roads	PM10 Reduction	15.00	PM2.5 Reduction	15.00		
Yes	Replace Ground Cover of Area Disturbed	PM10 Reduction	10.00	PM2.5 Reduction	10.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.01	0.00	0.00	0.00	0.60	0.60
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.59	0.67
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	66.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.11	0.33		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	150.00
No	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	50.00
Yes	Use Low VOC Paint (Non-residential Exterior)	50.00
Yes	Use Low VOC Paint (Parking)	50.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Manteca Commercial Development

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

ATTACHMENT 6

Crossroads Plaza

2064 North Union Road

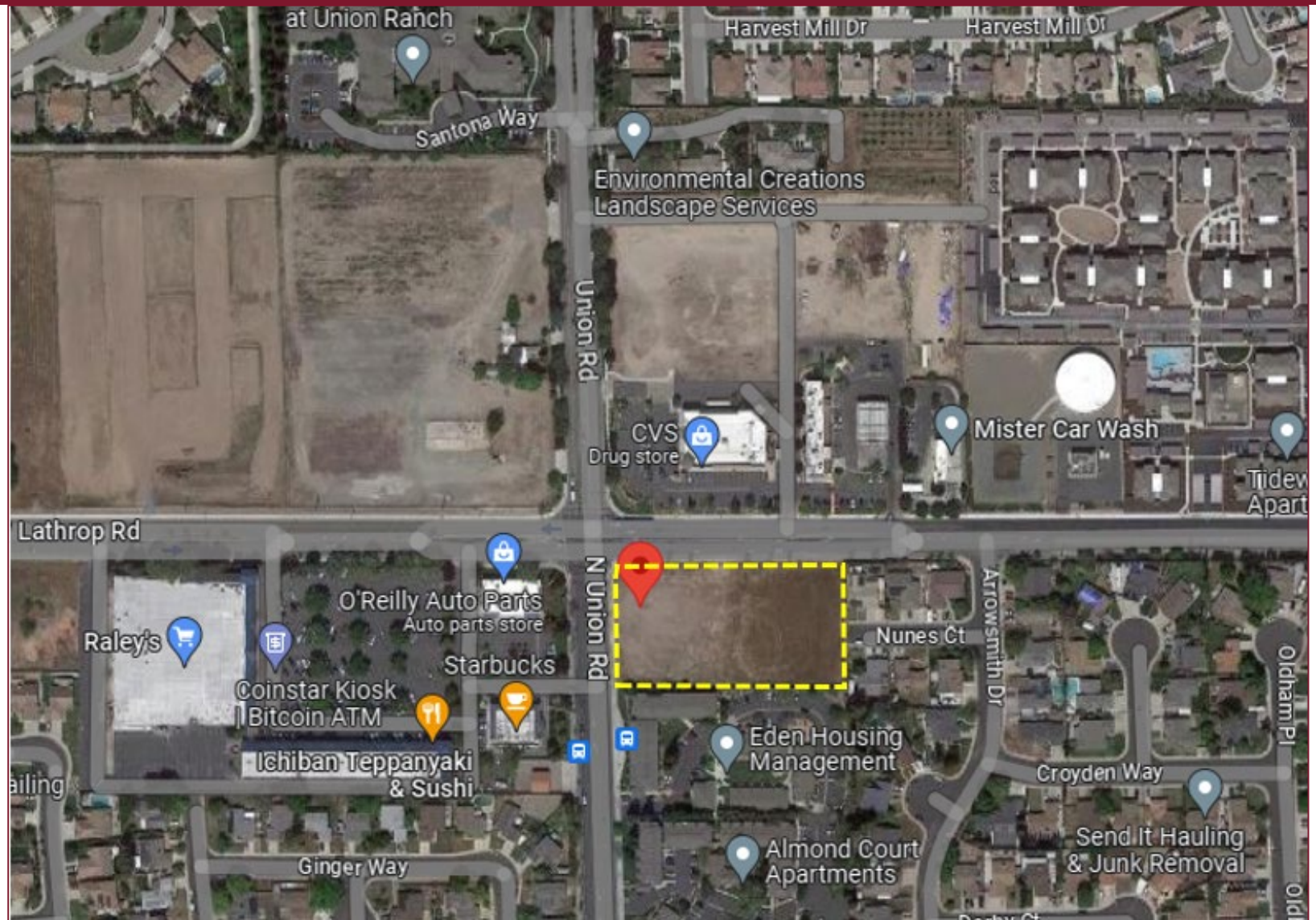
General Plan Amendment, Rezone,
Site Plan & Design Review, and Minor Use Permit

March 21, 2024

City of Manteca Planning Commission Public Hearing

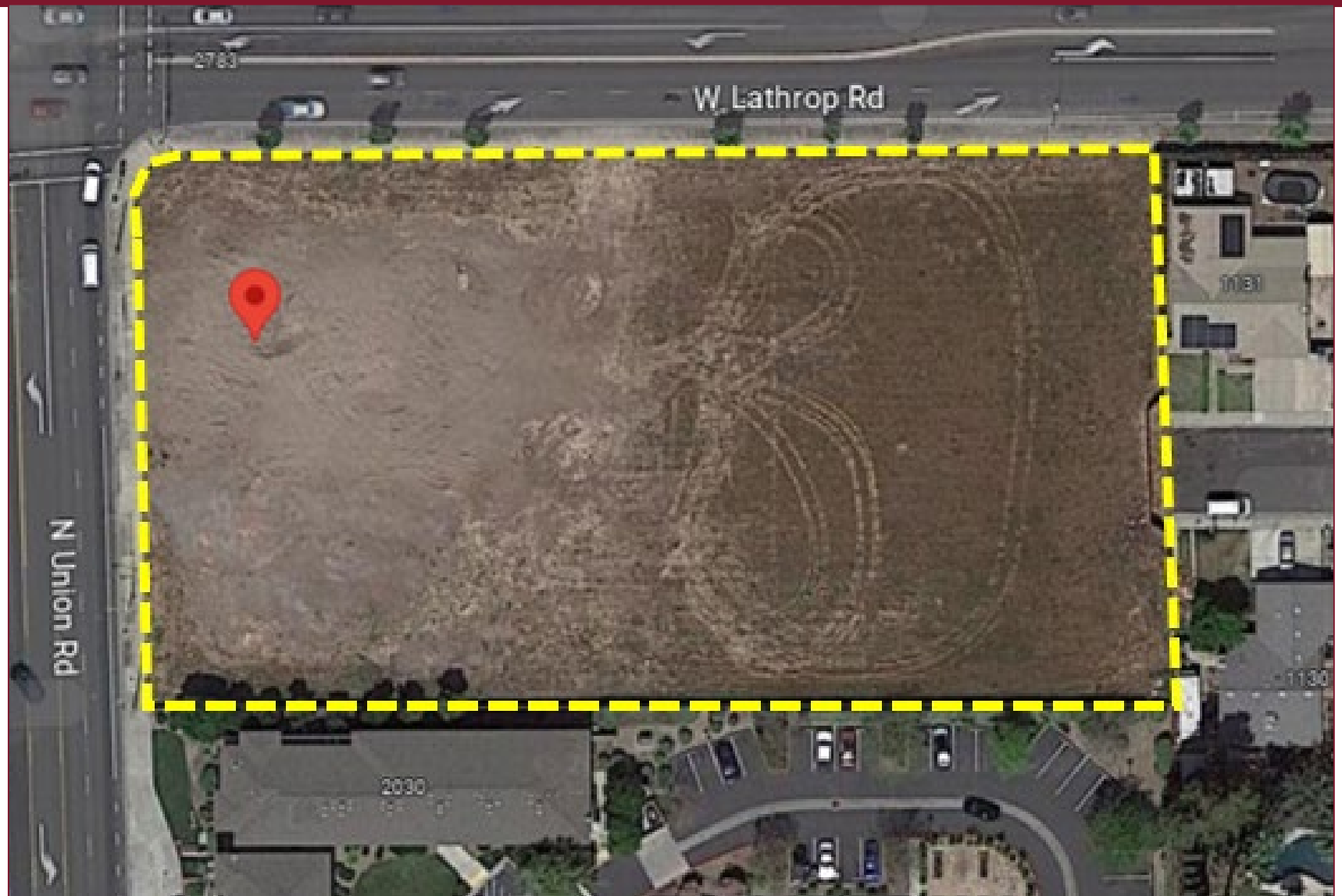
ATTACHMENT 6

SITE VICINITY AND ADJACENT USES

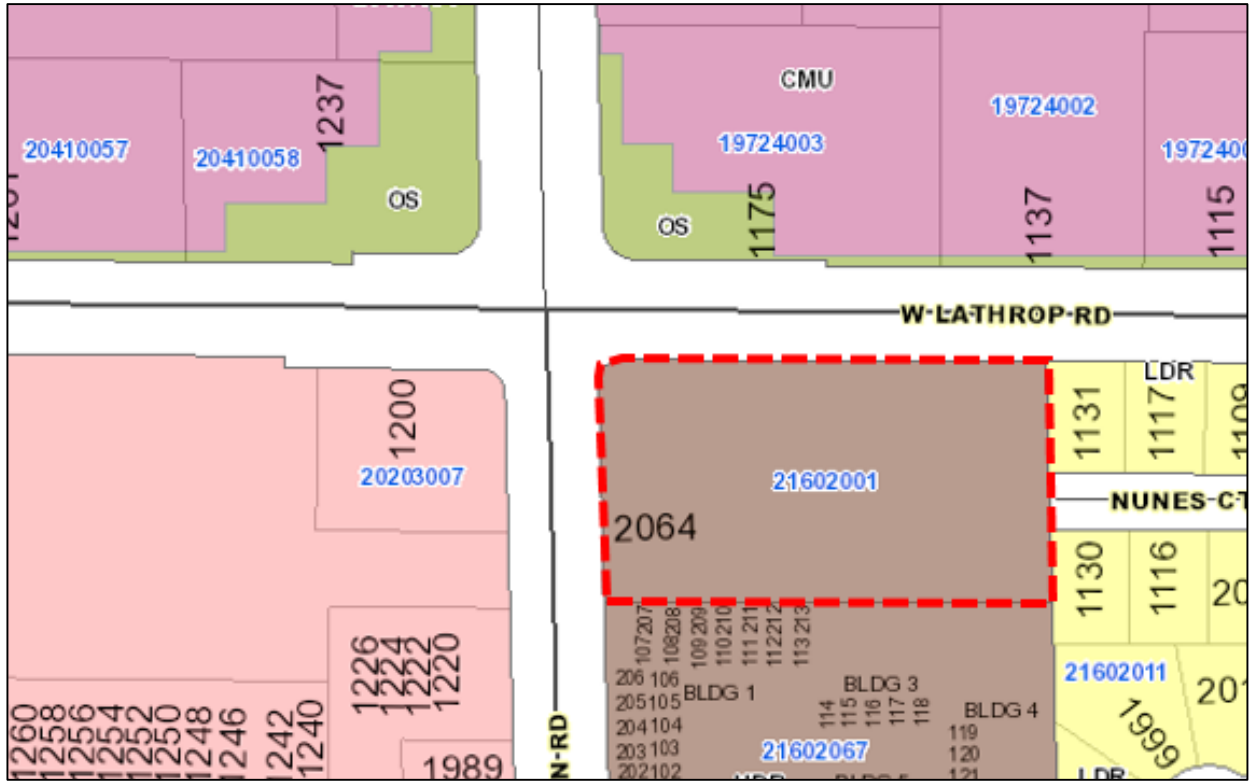


ATTACHMENT 6

Site Location – 2064 N. Union Road



CURRENT GENERAL PLAN LAND USE & ZONING



Current General Plan Land Use Designation:
High Density Residential (HDR)

Current Zone:
Multiple-Family Dwelling (R-3)

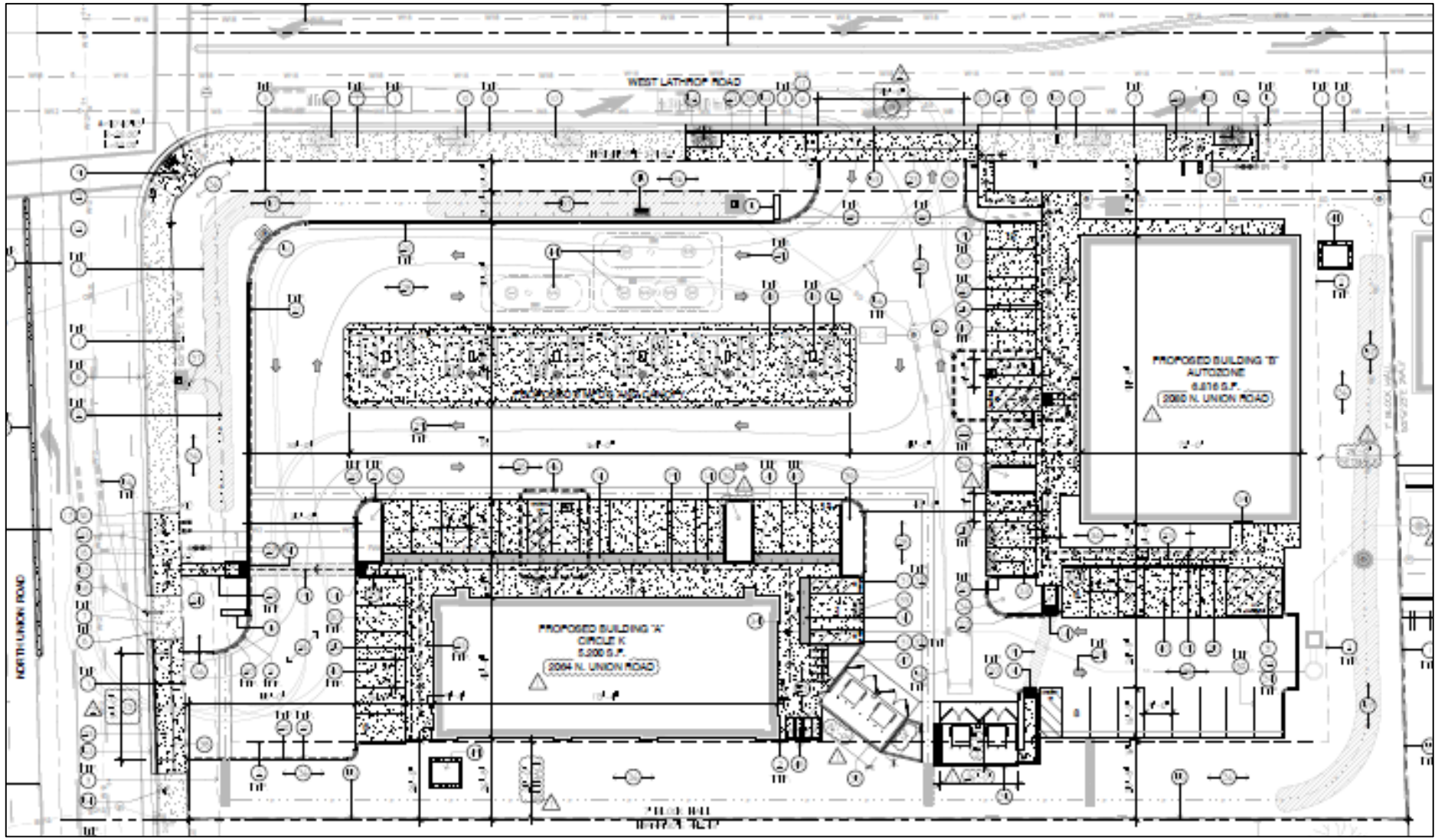
ATTACHMENT 6

New General Plan Land Use

General Plan Update Map

ATTACHMENT 6

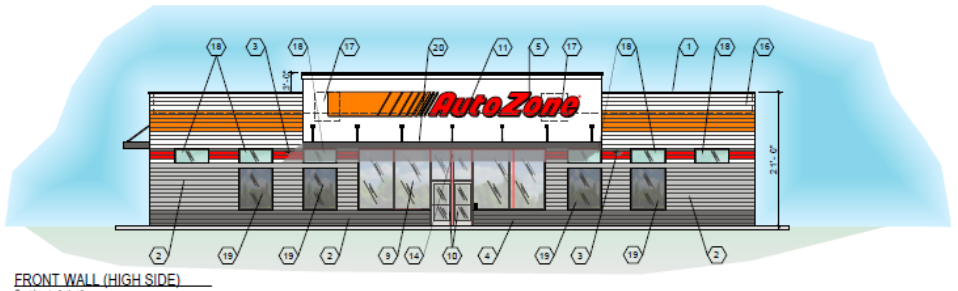
SITE PLAN



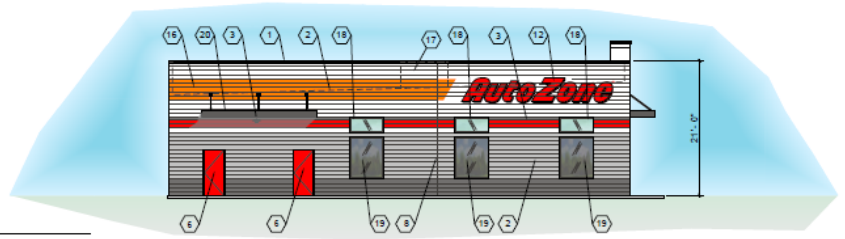
ARCHITECTURAL ELEVATIONS

AUTO ZONE AUTO PARTS STORE

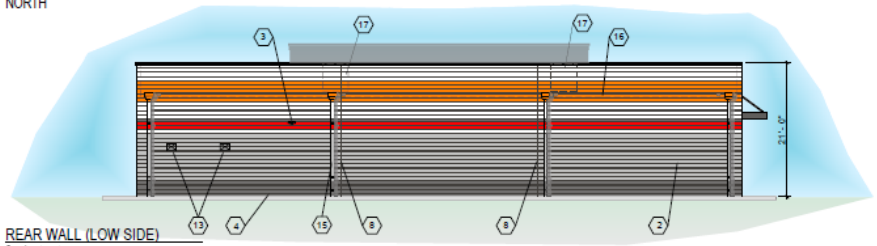
ATTACHMENT 6



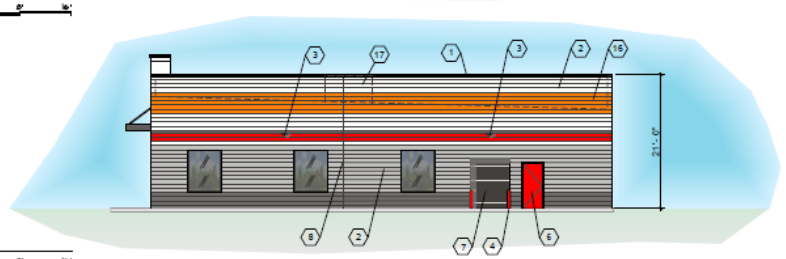
FRONT WALL (HIGH SIDE)
WEST



LEFT SIDE WALL
NORTH



REAR WALL (LOW SIDE)
EAST

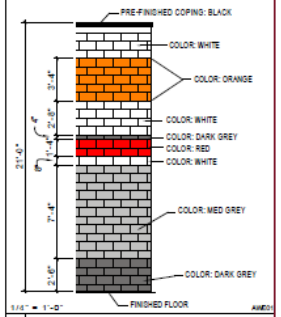


RIGHT SIDE WALL
SOUTH

2 SMOOTH FACE CONCRETE MASONRY UNITS SEE PAINT DETAIL SCHEME THIS SHEET
3 WALL MOUNTED LIGHT FIXTURE. MOUNT AT 11'-10 T.O.F.
4 PIPE GUARD WITH RED SLEEVE
5 EXTERIOR INSULATED FINISH, PAINT: SW6091 RELIABLE WHITE
6 PAINT MAN DOOR RED & METAL FRAMES BLACK
7 DO NOT PAINT OVERHEAD DOOR. PAINT ANGLES BLACK
8 EXPANSION JOINT
9 ALUMINUM STOREFRONT - RED KYNAR FINISH
10 GLASS AND ALUMINUM DOORS - CLEAR ANODIZED FINISH
11 FRONT WALL SIGN - 44" Channel Letters - LEFT STRIPED
12 LEFT WALL SIGN - 44" Channel Letters - AZ ONLY
13 TOILET WALL VENTS PAINT TO MATCH WALL
14 STORE ADDRESS - 6" WHITE REFLECTIVE NUMBERS
15 SCUPPERS AND DOWNSPOUTS. PAINTED TO MATCH BACKGROUND WALL COLOR. ADJACENT 4" H. X 6" W. OVERFLOW SCUPPER. FLOWLINE 2" ABOVE ROOF.
16 BOND BEAM AT ROOF LINE
17 HVAC UNITS SCREENED BY PARAPETS
18 CLERESTORY WINDOW - EVERGREEN GLASS
19 FAUX WINDOW - OPAQUE BLACK GLASS
20 4' METAL AWNING - COLOR BLACK

2 ELEVATION KEY NOTES

NOTE: CENTER ALL WALL SIGNAGE VERTICALLY ON THE PAINTED ORANGE STRIPE OR THE TOP TWO BRICK SOLDIER COURSES. PAINT ORANGE STRIPE TO WITHIN 2' OF WALL SIGN. DO NOT PAINT ORANGE STRIPE BEHIND SIGN. CONTINUE ORANGE STRIPE ON E.I.F.S. ABOVE STOREFRONT.



1/16" = 1'-0"

3 EXTERIOR WALL COLOR SCHEME

ARCHITECTURAL ELEVATIONS
CIRCLE K CONVENIENCE STORE

ATTACHMENT 6

ARCHITECTURAL ELEVATIONS
CIRCLE K FUEL CANOPY

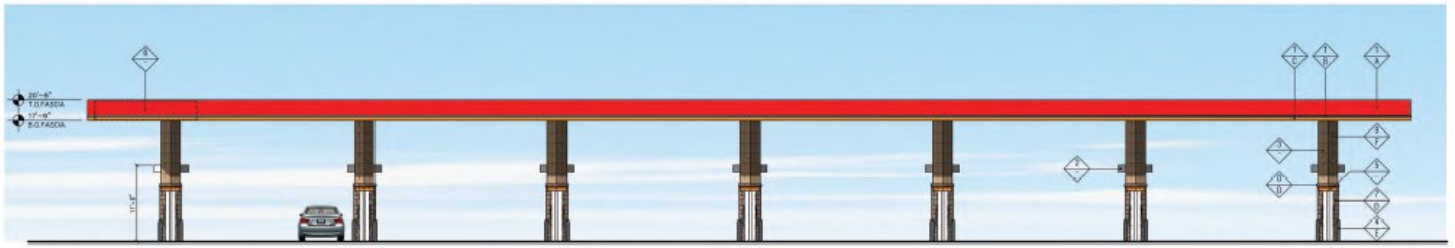
ATTACHMENT 6

3 "SIDE" ELEVATION (WEST)
SCALE: 1/8" = 1'-0"

4 "SIDE" ELEVATION (EAST)
SCALE: 1/8" = 1'-0"

FINISH SCHEDULE	
	FINISH MATERIAL
1	ACM PANEL
2	COLUMN FLASH BY SIGNAGE VENDOR
3	LINE OF STEEL COLUMN WITHIN
4	6" Ø BOLLARD, 36" HIGH
5	FUEL PUMP
6	POTENTIAL SIGN LOCATION (UNDER SEPARATE PERMIT)
7	4000KH CMU VENEER, SPLIT FACE, GROUTED TO MATCH CMU C
8	4000B SOLID CMU CAP, INSTALL PER MFR. SPECS.
9	NICHIHA FIBER CEMENT WALL PANEL SYSTEM
10	6" DEEP X 3" HIGH, 0.40 ALUM. LED HOOD
	FINISH COLOR
A	CIRCLE K RED #PMS 485
B	CIRCLE K WHITE
C	CIRCLE K ORANGE #PMS 144
D	SUPERLITE BLOCK SPLIT FACE CMU - "BOOT BROWN"
E	PVC BOLLARD SLEEVE "DARK GRAY"
F	NICHIHA TUFF BLOCK - COLOR TO MATCH SHERWIN WILLIAMS

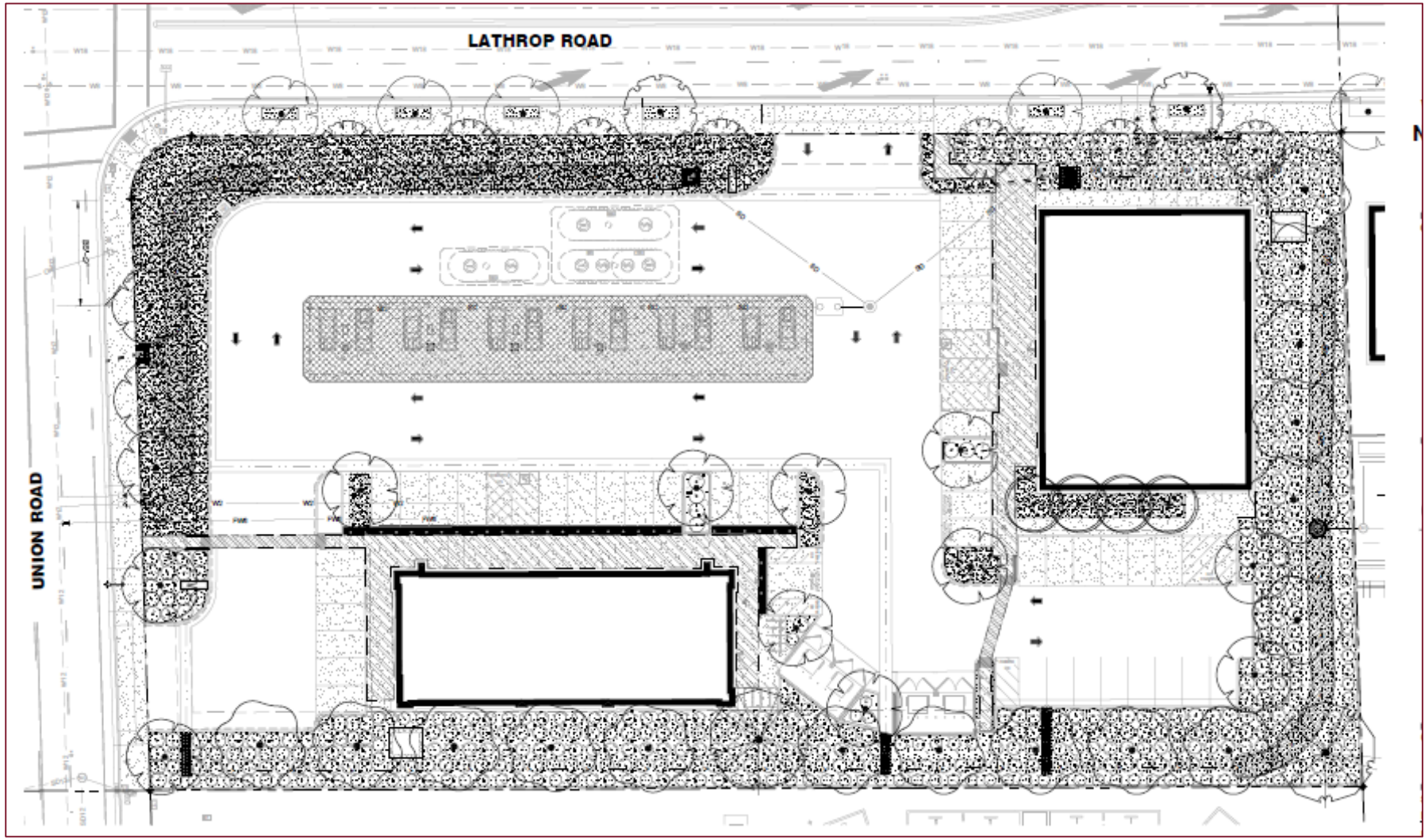
Notes:
1. Colors shown on these elevations are for illustration purposes only. For actual colors
2. The fascia panels are pre-finished by signage vendor
3. All signs require a separate submittal.
4. All lighting on canopy to be flush mounted with fascia



2 "FRONT" ELEVATION (NORTH)
SCALE: 1/8" = 1'-0"

ATTACHMENT 6

LANDSCAPING



SUMMARY

- Consistent with General Plan and Zoning
- Meets required Findings for:
  - General Plan Amendment
  - Rezone
  - Site Plan & Design Review
  - Minor Use Permit
- Consistent with the Climate Action Plan
- CEQA Exempt: Section 15332 – *In-Fill Development Projects*

RECOMMENDATION

Adopt the following for Crossroads Plaza:

- Resolution No. 1651 recommending approval to the City Council for:
  - A General Plan Amendment, Rezone, Site Plan & Design Review, and Minor Use Permit for a 6,816-square-foot Auto Zone auto parts store and a 5,200-square-foot Circle K convenience store with a 12-pump gas station with on a 1.98-acre site at 2064 North Union Road

Thank you

March 21, 2024

City of Manteca Planning Commission Public Hearing