Sutter County
Initial Study

1. Project title:	Project #U-19-014 (Sangha)
2. Lead agency name and address:	Sutter County Development Services Department Planning Division 1130 Civic Center Boulevard Yuba City, CA 95993
3. Contact person and phone number:	Casey Murray, Associate Planner 530-822-7400
4. Project sponsor's name and address:	Applicant/Owner: Jaskaran Sangha 390 Allaire Circle Sacramento, CA 95835 Engineer/Surveyor: John Mallen MHM, Inc. 1204 E Street Marysville, CA 95901
5. Project Location & APN:	909 and 1055 Oswald Road, 3971 Railroad Avenue, Yuba City, CA 95991; located on the northwest corner of Oswald Road and Railroad Avenue, east of State Highway 99; APN: 23-072-034, 23-072-035, and 23-072-039
6. General Plan Designation:	I/C (Industrial/Commercial)
7. Zoning Classification:	M-1 (Light Industrial) District, GC (General Commercial) District

8. Description of project: The proposed project is a rezone of two parcels, which are both two acres in size from GC (General Commercial) to M-1 (Light Industrial) and design review for the construction and operational use of a four-acre parking area located directly east of the existing Sangha Truck and Trailer Repair site to expand its vehicle parking capacity. The proposed rezoning to M-1 (Light Industrial) is compatible with the existing I/C (Industrial/Commercial) General Plan designation so a General Plan amendment is not required. The proposed site is located at 3971 Railroad Avenue (APN 23-072-034) and 909 Oswald Road (APN 23-072-035), while the existing six-acre semi-truck and trailer repair and storage site operates at 1055 Oswald Road (APN 23-072-039).

The existing truck yard site, located immediately west of the proposed project, is zoned M-1 (Light Industrial), and received approval of a design review (Project #15-019) on May 18, 2016. The existing operation includes a 6,500 square foot truck and trailer repair shop building. A 740-square-foot space within the building consists of an office, a reception area, and restrooms, with an additional 740 square feet of light storage directly above the office. Two roll up doors are located on both the north and south side of the building and three roll up doors are located on the east and west side of the building. The building has forest green walls with white trim around the windows and doors, a blue awning above the office and restroom area, and a metal room. The existing truck and trailer repair shop performs oil changes, engine repairs, clean idle upgrades, tire installation and repair, body repair, and painting. All repairs performed on trucks and trailers are done inside the existing shop building. All materials are also stored in this existing shop. A total of eight trucks can be worked on simultaneously at the existing shop. The floor of the building has a floor drain system for oil collection that goes to an existing oil collection tank with a protective traffic cover on the north side of the building.

The existing site includes 46 truck and trailer parking spaces and eight paved automobile parking spaces, which includes two ADA accessible spaces. Approximately 1.3 acres of the six-acre site is paved on the east side while the remainder of the site to the west is surfaced with gravel. Access to the site is provided from Oswald Road. A 70-foot-wide paved driveway on the east side of the site provides access to the shop area. A 50-foot-wide driveway with a paved encroachment on the west side of the site provides access to the gravel surfaced truck and trailer storage area. A trash enclosure area is located at the northeast corner of the site. A fire protection rated water well is located on the east side of the site and is protected by bollards. Two septic tanks with protective traffic covers are located at the northwest corner of the shop building. A leach field area is located along the north side of the site. The property is surrounded by six-foot tall chain link fencing with green privacy slats having a 90 percent screening ability. Six-inch concrete curbing is located adjacent to the fencing inside the yard. Common hackberry trees, oleander, and other low-lying shrubs are planted on the south side of the fence along Oswald Road and on the east side of the site. Oleander is planted on the north side of the fence on the north side of the site and around the leach field area. Planters along Oswald Road are contained by wooden header board.

The site has four light poles located along the northern boundary and three light poles along the southern boundary. The shop building has three lights on its east and west side and two lights on its north and south side. The lights are angled so that light is directed onto the site.

Stormwater drainage infrastructure within the existing site includes a concrete pad located in the middle of the site starting at the maintenance area and extending west to a retention basin on a fenced-in portion of the site. The retention basin in the western portion of the site is the stormwater discharge point. In addition, there is a storm drain located in the center of the site, west of the maintenance building. The driveway on the southern side of the maintenance area slopes downward towards Oswald Road, so that stormwater in this area drains into ditches along Oswald Road. Furthermore, additional storm drains and ditches run through the center of the truck parking lot.

The proposed project will establish an additional parking area east of the existing operation including 60 graveled truck and trailer parking spaces. Forty paved automobile parking spaces are proposed with 25 of these spaces being located within the paved area on the existing site and 15 of these spaces being located on the east side of expanded site. The parking area will be used to store trucks and trailers that are serviced by the applicant's existing operation. The entire circulation area of the parking area will be surfaced with four inches of gravel except for the proposed paved parking area. The proposed parking area will connect to the existing facility by connecting to the east side of the existing site and will utilize the existing 70-foot-wide paved driveway on Oswald Road. An existing six-foot tall chain link fence with privacy slats located between the existing site and proposed site will be removed. A new paved 45-foot-wide driveway is proposed on Railroad Avenue. The applicant will be required to obtain an encroachment permit to improve this new driveway to the County's commercial driveway standard. The driveway will be required to be paved with asphalt or concrete from Railroad Avenue to the right-of-way line. This requirement will be incorporated as a project condition.

The proposed parking area is located at the northwest corner of Oswald Road and Railroad Avenue. The northern two-acre parcel contains an existing unoccupied 7,500 square foot commercial building at its eastern end, and the southern two-acre parcel contains an unoccupied 2,000 square foot residence at its eastern end, which are proposed to be removed. No new building construction is proposed by this project.

The proposed parking area will be operated in the same manner as the existing shop area. The hours of operation are 8:00 a.m. to 5:30 p.m. Monday through Friday, 8:00 a.m. to 1:30 p.m. on Saturdays, and closed on Sundays. No increase in the number of the employees is proposed. The maximum number of employees on site will remain at five. The applicant has existing private security that is on site seven days a week outside the hours of operation. Restrooms are available for use in the existing shop during business hours. The security guard has a key to access the restrooms for themselves as well as any truck drivers that arrive outside of normal hours of operation.

Today, trucks and trailers waiting for repair are currently stored in the existing fenced area west of the existing shop building and are now also proposed to be stored in the storage area to the east. The trucks and trailers that are stored on-site and those that are waiting for repair are charged a storage fee for the time they are stored on-site.

The proposed drainage for the new parking area will be connected to the existing onsite drainage system on the existing developed site. A V-Ditch/Valley Gutter on-site will direct stormwater into a storm drain. Trucks will be monitored on a monthly check in basis and those that are red tagged at scales for oil or other leaks will be worked on first to limit spills and contamination on site. The proposed run of the driveways from the new and existing paved parking lot is over 65 feet, which will prevent any tracking of dirt onto Oswald Road and Railroad Avenue.

There will be a maximum of 20 transport refrigeration units (TRUs), or "reefers" stored at the proposed site. Of these 20 TRUs, only five will be running for up to two hours a day during the summer. The TRUs are required to be California Air Resources Board (CARB) compliant, which shows they meet Ultra-Low-Emission TRU in-use standards. The TRUs will be parked in a designed area along the north side of the proposed parking area expansion so that the sound is minimized before it reaches a proposed solid wall along the south side of the site. The applicant states that sound produced from trucks parked in the proposed storage area will be roughly 60 decibels, which is equivalent to a home dishwashing machine. As proposed by the applicant, all trucks that will be parked in the proposed parking area and existing parking area will be 2017 or newer. These are designated by the California Air Resource Board as Low-Emission Trucks.

Surface Transportation Assistance Act (STAA) trucks will be stored on site. The main route that the trucks will use is Railroad Avenue and Oswald Road leading to State Highway 99. On the existing site dust has been mitigated to a minimum through the use of grindings on the surface, minimizing speeds in the yard, and watering when necessary and the proposed area will use the same practices.

The proposed screening of the new parking area includes six-foot-tall chain link fencing with privacy slats having a 90 percent screening ability along the north side of the site and along the east side of the site along Railroad Avenue. A 45-foot-wide chain link sliding gate with privacy slats is proposed at the new driveway setback 65 feet from Railroad Avenue. Six-inch concrete curbing is proposed adjacent to the fencing on the inside of the yard. A six-foot-tall superior ledge stone solid wall is proposed along the south side of the site along Oswald Road. To mitigate noise impacts, this wall will be required to be at least eight feet in height (Mitigation Measure 10).

A landscape and irrigation plan proposes landscaping for the proposed expansion. A five-foot-wide planter is proposed on the north side of the fence along the north side of the site. This planter will include photinia spaced at six feet on center. A ten-foot-wide planter is proposed on the east side of the fence along the east side of the site. This planter will include oleander spaced at 20 feet on center, photinia spaced at six feet on center, and California bay trees spaced at 20 feet on center. A ten-foot-wide planter is proposed on the south side of the solid wall along the south side of the site. This planter will include oleander spaced at 20 feet on center and California bay trees spaced at 20 feet on center. All planters will have bark mulch as ground cover. Planters adjacent to Oswald Road and Railroad Avenue will be contained by wooden header board. Landscape planter islands are proposed adjacent to the paved automobile parking areas. Planters will include either California bay trees or common hackberry trees spaced at 30 feet on center and California lilac spaced at five-foot intervals between the trees. All landscape planter islands will have bark mulch for ground cover and are proposed to be surrounded by six-inch concrete curbing.

Pole mounted LED light fixtures are proposed around the perimeter of the new parking area with four fixtures along the north side, two fixtures on the east side, two fixtures on the west side, and three fixtures on the south side. One light fixture is also proposed on the existing site located west of the eastern driveway. Eight of the LED lights are proposed to be mounted at 18 feet and four are proposed to be mounted at approximately 15 feet with fixtures angled inward toward the project site. All lights are proposed to be motion activated and have shields meeting the County lighting requirements.

9. Surrounding land uses and setting: The proposed project expansion area consists of two parcels, which are each two acres in size. The site currently consists mostly of weeds. An unoccupied 7,500 square foot commercial building and an unoccupied 2,000 square foot residence are located at the eastern end. Approximately one acre of the eastern side of the site was utilized by an existing residence and commercial building and the remaining three acres of the site have historically been used agriculturally. The site is located at the northwest corner of Oswald Road and Railroad Avenue, approximately one quarter mile east of State Highway 99. Overhead electrical distribution lines run along Oswald Road and Railroad Avenue adjacent to the site. The proposed California bay trees for the site will not conflict with the distribution lines as they will have a mature height of 25 feet, which meets PG&E planting guidelines. The site is generally level. The County has a shallow drainage cut along the north side of Oswald Road that drains to the west. Gilsizer Slough lies approximately 4,000 feet west of the site. There are no rivers or streams in the immediate vicinity. The Feather River lies approximately one mile east of the site.

The surrounding area is largely rural. The Legend Transportation truck yard (1235 Oswald Road) is located on M-1 (Light Industrial) zoned property to the west of the existing site. A walnut and peach orchard and the Northern Carriers truck yard (3865 Railroad Avenue) are located on EC (Employment Corridor) zoned land to the north. A wireless tower and the SD Parking, LLC truck yards (3894, 3936 Railroad Avenue) are located on M-1 (Light Industrial) zoned property to the east on the east side of Railroad Avenue. Residential uses are located on R-1 (Single Family Residential) zoned property to the south on the south side of Oswald Road. Also, south of the project site on the south side of Oswald Road is a property zoned AG (Agriculture), which is used residentially and has been paved for a wholesale nursery use and removing it from productive agricultural use. South of the existing Sangha Truck and Trailer Repair site on the south side of Oswald Road is the Kaur truck yard (1186 Oswald Road) and Nar Heer truck yard (1104 Oswald Road), which are located on M-1 (Light Industrial) zoned property. Between these yards is a property zoned GC (General Commercial) that has an existing mini market. In addition, several residences are located on AG zoned parcels starting at approximately 900 feet south of the project site along Orchard Avenue, which is a privately maintained road.

North: walnut and peach orchard, truck yard (Northern Carriers); South: Oswald Road, residential, general truck yard (Kaur), mini market, general truck yard (Nar Heer #2); East: Railroad Avenue, wireless tower, general truck yard (SD Parking, LLC); West: general truck yard (Legend Transportation).

10. Other public agencies whose approval is required: None

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? The County initiated Assembly Bill 52 (AB 52) consultation through distribution of letters to the Native American tribes provided by the Native American Heritage Commission (NAHC). No requests for consultation or comments were received from any of the Native American tribes during the review period.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ **I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.**

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Applicant Mitigation Agreement:
CEQA allows a project proponent to make revisions to a project, and/or to agree and comply with, mitigation measures that reduce the project impacts such that the project will not have a significant effect on the environment. CEQA Guidelines Section 15064.

As the applicant/representative for this proposed project, I hereby agree to implement the proposed mitigation measures and mitigation monitoring program identified within this document.

Jesteven Sangha — 11-23-2021

Signature of Applicant/Representative — Date

Casey Murray Digitally signed by Casey Murray Date: 2021.11.23 12:15:42 -08'00' — 11-23-2021

Casey Murray, Associate Planner — Date

Doug Libby Digitally signed by Doug Libby Date: 2021.11.23 13:45:07 -08'00' — 11-23-2021

Doug Libby, Designee — Date
Neal Hay, Director of Development Services
Environmental Control Officer

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

Responses:

a) **Less than significant impact.** This project will not have a substantial adverse effect on a scenic vista. The General Plan does not inventory any scenic vista on the subject property and there are no scenic vistas proximate to the project site. The General Plan Technical Background Report identifies geographic features such as the Sutter Buttes, Feather River, Sacramento River, and Bear River as scenic resources within the County, which contribute to the County's character. This project is not located within the Sutter Buttes Overlay Zone and is not located in the immediate vicinity of the Bear River, Feather River, or Sacramento River. As a result, this project will not substantially alter any scenic vista and a less than significant impact is anticipated.

b) **No impact.** This project will not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway because there are no state scenic highway designations in Sutter County. As there are no scenic highways located in Sutter County, no impact is anticipated.

c) **Less than significant impact.** The proposed project is located in a non-urbanized transitional area and will not substantially degrade the existing visual character or quality of public views of the site and its surroundings. The surrounding area is largely rural but has transitioned into an industrial truck parking area over the last 17 years. The Legend Transportation truck yard is located on M-1 (Light Industrial) zoned property to the west of the existing Sangha site. A walnut and peach orchard and the Northern Carriers truck yard are located on EC (Employment Corridor) zoned land to the north. A wireless tower and the SD Parking, LLC truck yards are located on M-1 (Light Industrial) zoned property to the east on the east side of Railroad Avenue. Residential uses are located on R-1 (Single Family Residential) zoned property to the south on the south side of Oswald Road. Also, south of the project site on the south side of Oswald Road is a property zoned AG (Agriculture), which is used residentially and has been largely paved over for use as a proposed wholesale nursery thereby removing it from productive agricultural use. South of the existing Sangha Truck and Trailer Repair site on the south side of Oswald Road is the Kaur truck yard and Nar Heer truck yard, which are located on M-1 (Light Industrial) zoned property. Between these yards is a property zoned GC (General Commercial) that has an existing mini market. In addition, several residences are located on AG zoned parcels starting at approximately 900 feet south of the project site along Orchard Avenue, which is a privately maintained road.

The existing Sangha Truck and Trailer Repair site, which is zoned M-1 (Light Industrial), received approval of a design review (Project #15-019) on May 18, 2016. The proposed project is an expansion of this existing use to the east to allow for additional parking for trucks and trailers and automobiles. No new building construction is proposed. This project will remove an existing unoccupied 7,500 square foot commercial building and an unoccupied 2,000 square foot residence, which have been unoccupied for at least eight years. The proposed rezoning to M-1 (Light Industrial) for the expanded parking area is compatible with the existing I/C (Industrial/Commercial) General Plan designation; therefore, a General Plan amendment is not required. The visual character of the proposed project will be consistent with the existing truck yard facility and other truck yard facilities in the area.

As per Zoning Code Section 1500-01-030 G, applications deemed complete before the effective date of the Zoning Code, or any amendment hereto, shall comply with the provisions of the Zoning Code in effect on the date that the application was deemed complete. When this application was deemed complete on July 10, 2019, the Zoning Code permitted the proposed project as a permitted use in the M-1 (Light Industrial) District subject to design review approval. As a result, this application pre-dates the newer trucking standards adopted by the Board of Supervisors.

The screening to be provided for the proposed new parking area includes six-foot-tall chain link fencing with privacy slats having a 90 percent screening ability along the north side of the site and along the east side of the site along Railroad Avenue. This fencing will match and be identical to the existing fencing with green privacy slats at the applicant's existing facility. A six-foot-tall superior ledge stone solid wall is proposed along the south side of the site along Oswald Road. As discussed in the noise section and as per the noise analysis completed for this project, this wall is required to be at least eight feet tall (Mitigation Measure 10).

The County's Commercial and Employment Districts contain specific design requirements for landscaping, which are designed in part to improve the appearance of a site and create a cohesive look (Zoning Code Section 1500-07-050 E). As part of the design review component of the application, the applicant has submitted a landscape and irrigation plan, which demonstrates compliance with Zoning Code requirements for landscaping. A five-foot-wide planter is proposed on the north side of the fence on the north side of the site. This planter will include photinia spaced at six feet on center. A ten-foot-wide planter is proposed on the east side of the fence along the east side of the site. This planter will include oleander spaced at 20 feet on center, photinia spaced at six feet on center, and California bay trees spaced at 20 feet on center. A ten-foot-wide planter is proposed on the south side of the solid wall along the south side of the site. This planter will include oleander spaced at 20 feet on center and California bay trees spaced at 20 feet on center. All planters will have bark mulch as ground cover. Planters adjacent to Oswald Road and Railroad Avenue will be contained by wooden header board. Landscape planter islands are proposed adjacent to the paved automobile parking areas. Planters will include either California bay trees or common hackberry trees spaced at 30 feet on center and California lilac spaced at five-foot intervals between the trees. All landscape planter islands will have bark mulch for ground cover and are proposed to be surrounded by six-inch concrete curbing.

All landscaping was selected from the County's Preferred Landscape Plant Materials List. Landscaping is required to be installed in accordance with the landscape and irrigation plan prior to use of the site for truck and trailer and vehicle parking and shall be continuously maintained, which will be included as a proposed project condition. As this project complies with the design requirements of the Zoning Code Design Checklist, is an expansion of the existing use, and is consistent with the General Plan designation of the property, this project is not anticipated to substantially degrade the existing visual character or quality of the site or its surroundings and a less than significant impact is anticipated.

d) **Less than significant impact.** This project will not create a new source of substantial light or glare which will adversely affect day or nighttime views in the area. The area of the project has moderate levels of ambient lighting predominately from the existing Sangha Truck and Trailer Repair site, other truck yards, rural residential uses, and vehicle headlights on County roads and State Highway 99.

The County's Commercial and Employment Districts contain specific design requirements for development projects, which include requirements for lighting (Zoning Code Section 1500-07-050 E). These requirements specify that parking lot lighting shall not exceed 20 feet in total height, is oriented and shielded to direct the light downward onto the property and not spill onto adjacent properties or road rights-of-way. The requirements also specify illumination requirements for parking lots, driveways, trash enclosures, exterior doors, and pedestrian walkways and require that a point-by-point exterior lighting (photometric) plan be submitted to demonstrate compliance with the lighting standards. The applicant has submitted an exterior lighting (photometric) plan, demonstrating compliance with this design requirement.

Pole mounted LED light fixtures are proposed around the perimeter of the new parking area with four fixtures along the north side, two fixtures on the east side, two fixtures on the west side, and three fixtures on the south side. One light fixture is also proposed on the existing site located west of the eastern driveway. Eight of the LED lights are proposed to be mounted at 18 feet and four are proposed to be mounted at approximately 15 feet with fixtures angled inward toward the project site. All new lighting proposed will be motion activated and have shields meeting the County lighting requirements. Outdoor lighting is required to be installed in accordance with the lighting plan prior to use of the site for truck/trailer and vehicle parking, which will be included as a proposed project condition. As a result, it is not anticipated this project will create a new source of substantial light or glare in this area. A less than significant impact is anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)
(County of Sutter, Zoning Code. 2019)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Responses:

a) **Less than significant impact**. This project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to a non-agricultural use. As shown on the 2018 Sutter County Important Farmland map, the entire project site is designated as "Other Land" and "Urban and Built-Up Land." As the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, no impact is anticipated.

b) **Less than significant impact**. This project will not conflict with existing zoning for agricultural uses or a Williamson Act contract. The project site and all adjacent properties are not zoned agriculturally and are not encumbered by a Williamson Act contract. One parcel located south of the project site on the south side of Oswald Road is zoned AG (Agriculture); however, the parcel has been paved and is no longer used agriculturally. The Sutter County Agricultural Commissioner has stated that an agricultural buffer is not needed between the project site and this parcel (Lisa Herbert, email to planning staff, 6/25/2019). Conflicts between the proposed project and agricultural uses in the vicinity are not anticipated. A less than significant impact is anticipated.

c) **No impact.** This project does not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)), because the project site and surrounding area does not contain forest land. The project site is not zoned for forest land or timberland nor is it adjacent to land that is zoned for forest land or timberland. This project is located in the Sacramento Valley, a non-forested region. No impact is anticipated.

d) **No Impact.** This project will not result in the loss of forest land or conversion of forest land to a non-forest use because of its location within Sutter County. Sutter County is located on the valley floor of California's Central Valley, and, as such, does not contain forest land. No impact is anticipated.

e) **Less than significant impact.** This project will not involve other changes to the existing environment which could result in the conversion of farmland to a non-agricultural use or conversion of forest land to a non-forest use. This project proposes to expand an existing general truck yard. This project does not include land being converted from farmland to a non-agricultural use or forest land to non-forest use. Agricultural uses in the vicinity will continue. Therefore, a less than significant impact is anticipated.

(California Dept. of Conservation, Farmland Mapping and Monitoring Program. 2018)

III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

Responses:

a) **Less than significant impact.** This project will not conflict with or obstruct implementation of an applicable air quality plan. To determine air quality impacts resulting from the proposed project, the applicant hired Environmental Science Associates (ESA) to prepare an air quality analysis. A copy of this analysis is included as an attachment to this initial study. This analysis is included in a technical report, which also details the potential impacts to health risk, greenhouse gas emissions, and noise from the proposed project. The technical report also includes a traffic study conducted by Fehr & Peers, which is included as a separate appendix. The air quality analysis describes existing air quality in the project area and surrounding region, details the associated regulatory setting, and presents an analysis of potential impacts of project construction and operations activities on air quality. There have been modifications to the project description since the technical report was completed, which include the following: the proposed paved automobile parking area is now located on the east side of the site instead of the northwest corner, trucks/trailers will be parked on the expanded site along the south and north sides of the site and will no longer be parked in the middle of the property, trucks/trailers with TRUs will be parked exclusively along the north side of the site, and a new 45-foot wide driveway is now proposed on Railroad Avenue. As a result of these modifications, ESA prepared a letter, which provides a qualitative assessment of these changes relative to the analyses conducted in the technical report. A copy of this letter is included as an attachment to this initial study. As stated in the letter, ESA came to the conclusion that the changes will not affect the conclusions of the technical report for the following reasons:

- There will be no increase in emissions associated with relocating parking to the east side of the site.
- There are no sensitive receptors to the north and east of the site. Because of this, a) relocation of the TRUs to the north side of the site will not increase any air quality or noise impacts to sensitive receptors, and b) construction of the asphalt driveway on the east side of the site will not increase air quality or noise impacts to sensitive receptors.
- Although there will be some increase in criteria pollutant and greenhouse gas emissions associated with construction of the asphalt driveway, the increase is not expected in an amount that will exceed the Feather River Air Quality Management District (FRAQMD) significance thresholds. The original analysis showed emissions from the original design to be well below the thresholds.
- The number of vehicles accessing the site will not increase, so there will not be a change to the operational impacts to air quality, greenhouse gas emissions, or noise.

ESA concluded in their letter that the design changes to the proposed expansion will not lead to additional, potentially significant impacts to air quality, health risk, greenhouse gases, or noise.

As discussed, starting on page 1-4 of the air quality analysis, the national ambient air quality standards (NAAQS) are intended to protect public health and welfare and specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects.

Under the 1990 federal Clean Air Act (CAA) Amendments, the U.S. EPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The CAA Amendments define “unclassified” as any area that cannot be classified, based on available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. Table 1-2 on page 1-5 of the air quality analysis presents the current NAAQS and briefly describes the principal sources for each pollutant. Table 1-3 on page 1-5 of the air quality analysis shows the Sutter

County attainment status for both the NAAQS and the California ambient air quality standards (CAAQS).

At the state level, CARB oversees California air quality policies and regulations. California had adopted its own air quality standards (California Ambient Air Quality Standards, or CAAQS) as shown in Table 1-2. Most of the California ambient standards tend to be at least as protective as NAAQS and are often more stringent.

In 1988, California passed the California Clean Air Act (CCAA) (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or non-attainment, but based on state ambient air quality standards rather than the federal standards. If an air basin (or portion thereof) exceeds the CAAQS for a particular criteria air pollutant, it is considered to be non-attainment of that criteria air pollutant until the area can demonstrate compliance. As indicated in Table 1-3, the FRAQMD is classified as nonattainment for the 8-hour ozone, 1-hour ozone and PM10 state standards; and portions of the FRAQMD are classified as non-attainment for the federal 8-hour ozone standard.

As discussed, starting on page 1-10 of the air quality analysis, the federal CAA and California CAA require any air district that has been designated as a nonattainment area relative to the NAAQS and CAAQS for ozone, carbon monoxide (CO), sulfur dioxide (SO_2), or nitrogen dioxide (NO_2) to prepare and submit a plan for attaining and maintaining the standards. The district also must review its progress made toward attaining the standards and update the plan regularly.

Together, the air pollution control districts and air quality management districts for the counties in the northern Sacramento Valley form the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA districts are designated as nonattainment for the State ozone standard and have jointly prepared an air quality attainment plan, updated every three years. The 2018 update to the NSVPA Air Quality Attainment Plan assesses the progress made in implementing the previous triennial update and proposes modifications to the strategies necessary to attain the CAAQS as soon as possible (SVAQEEP, 2018).

FRAQMD has not published guidance for assessing a project or plan relative to the applicable clean air plan (currently, the 2018 NSVPA Air Quality Attainment Plan). However, construction and operation of the project will result in a minimal increase in traffic levels along local roadways compared to existing conditions.

One of the measures of consistency with clean-air planning is growth inducement and an increase in regional traffic patterns. The proposed project will not result in growth-inducing effects or in long-term increases in population or vehicle miles traveled that will lead to increased emissions levels. Therefore, as determined by the air quality analysis, the proposed project will not conflict with or obstruct implementation of the 2018 NSVPA Air Quality Attainment Plan and a less than significant impact will result.

b) **Less than significant with mitigation incorporated.** This project will not result in a net increase of any criteria pollutant. The air quality analysis takes into consideration both short-term construction and long-term operational impacts from increases in emissions of criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard. The focus of the analysis is related to the ground-level ozone precursors oxides of nitrogen (NO_X), reactive organic gases (ROG), and particulate matter that is 10 microns or less in diameter (PM_{10}) for which the Sacramento Valley Air Basin (SVAB) is in non-attainment. $PM_{2.5}$, CO, and SO_2 were not a component of the analysis since FRAQMD does not have numerical thresholds of significance for these pollutants. This project's cumulative impacts regarding air quality are discussed below in the Mandatory Findings of Significance Section (Section 21b).

Short-Term Construction Impacts

As discussed in the air quality analysis, construction activities for the proposed project will emit criteria air pollutants from a variety of activities including operation of heavy equipment, as well as use of worker vehicles, vendor trucks, and hauling trucks. The proposed project will involve the demolition of 9,500 square feet of existing buildings and the construction of an asphalt parking lot for automobiles as well as a graveled parking lot for truck and trailer parking.

Emissions of ozone precursors (ROG and NO_X) are primarily generated by mobile sources and largely vary as a function of vehicle trips per day and the type, quantity, intensity, and frequency of heavy-duty, off-road equipment used. Typically, a large portion of construction-related ROG emissions results from the application of asphalt on to parking areas, and the application of architectural coatings.

Construction-related fugitive dust emissions of PM_{10} will vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. Project construction activities could result in dust adversely affecting local visibility and PM_{10} concentrations on a temporary and intermittent basis. Construction activities that generate NO_x, ROG, and PM_{10} also generate $PM_{2.5}$, CO, and SO_2, that is, construction equipment and vehicle exhaust. For CO and SO_2, most air districts do not have thresholds of significance because these are no longer pollutants of concern. Most air basins in the state are out of attainment with ozone (NO_x and ROG as precursors) and particulate standards.

Construction emissions were estimated for the proposed project using both the California Emissions Estimate Model (CalEEMod) computer model Version 2016.3.2 and CARB's EMFAC2017 database. Estimated construction emissions for the proposed project are reported and compared to the FRAQMD thresholds of significance in Table 1-5 on page 1-11 of the air quality analysis and as shown below.

TABLE 1-5
UNMITIGATED PROJECT CONSTRUCTION EMISSIONS[a]

Construction Year	NO_X (ppd)[b]	NOx (tpy)	ROG (ppd)[b]	ROG (tpy)	PM_{10} (ppd)[c]
2021	8.62	0.41	2.60	0.084	7.85
FRAQMD Thresholds	25	4.5	25	4.5	80
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable FRAQMD significance threshold.
b average daily emissions
c maximum daily emissions

SOURCES: ESA, 2020.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

As shown in Table 1-5 above, emissions of NO_x, ROG, and PM_{10} generated during construction of the proposed project will not exceed FRAQMD thresholds of significance. Therefore, construction of the proposed project will have a less than significant impact to air quality during construction.

Long-Term Operational Impacts

As discussed in the air quality analysis, the proposed project will result in long-term operational emissions, as expansion of the parking areas will generate an increase in the number of trucks that will be repaired at the existing maintenance shop. TRU operations and associated emissions will also increase. The CalEEMod computer model and CARB's EMFAC2017 and OFFROAD-ORION models were used to estimate operational emissions of ROG, NO_x, and PM_{10}; the results of this analysis are summarized and compared to the FRAQMD operational thresholds of significance in Table 1-6 in the air quality analysis on page 1-12 and as shown below.

TABLE 1-6
OPERATIONAL EMISSIONS[a]

	NO_X (ppd)[b]	ROG (ppd)[b]	PM_{10} (ppd)[b]
Annual Emissions	5.68	0.80	2.6
FRAQMD Thresholds[3]	25	25	80
Exceeds Threshold?	**No**	**No**	**No**

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable FRAQMD significance threshold.
b maximum daily emissions
SOURCES: ESA, 2020.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

As shown in Table 1-6 above, the project will not exceed the FRAQMD thresholds of significance for emissions of ROG, NO_x, or PM_{10}. Therefore, the proposed project's operational emissions will not result in a significant adverse impact to air quality.

Since the proposed project has an operational phase, the project is characterized by FRAQMD as a Type 1 project. According to the FRAQMD indirect source review guidelines, if operational emissions of a Type 1 project do not exceed the thresholds of significance, it is recommended that the project proponent implement the Standard Mitigation Measures. The project will implement Mitigation Measure No. 1, discussed below. Neither construction, nor operation of the proposed project will generate emissions that will exceed the FRAQMD thresholds of significance, and the project will implement the FRAQMD recommended Standard Mitigation Measures. Therefore, the project will have a less than significant impact and will not result in a significant net increase of criteria air pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Mitigation Measure No. 1 (Air Quality): IMPLEMENT FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT (FRAQMD) STANDARD MITIGATION MEASURES. The project applicant shall implement the following FRAQMD-recommended Standard Mitigation Measures for projects that do not exceed construction or operational thresholds of significance.

- Implement the Fugitive Dust Control Plan prior to any on-site grading, landscaping, or construction activities. The applicant shall submit the fugitive dust control plan to the FRAQMD for review and approval. A copy of the approved plan shall be submitted to the Development Services Department.

- Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringlemann 2.0).

- The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.

- Limit idling time to 5 minutes – saves fuel and reduces emissions in accordance with 13 California Code of Regulations (CCR) Chapter 10 Section 2485 and 13 CCR Chapter 9 Article 4.8 Section 2449.

- Utilize existing power sources or clean fuel generators rather than temporary power generators.

- Develop traffic plans to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.

- Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultation with CARB or FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.

The proposed project is located within the Northern Sacramento Valley Air Basin (NSVAB) and the jurisdiction of FRAQMD. Air quality standards are set at both the federal and state levels. FRAQMD is responsible for the planning and maintenance/attainment of these standards at the local level. FRAQMD sets operational rules and limitations for businesses that emit significant amounts of criteria pollutants.

According to the FRAQMD 2010 Indirect Source Review Guidelines, Significant Impact Thresholds are triggered by the construction of 130 new single-family residences, 225,000 square feet of new light industrial space, or 130,000 gross square feet of new office space. This project will not trigger this threshold of significance and as such, will have a less than significant impact upon air quality.

On the existing site, dust issues are mitigated to a less than significant impact through the use of asphalt grindings on the surface, minimizing speeds in the yard, and watering when necessary and the proposed area will use the same practices. The proposed project was circulated to FRAQMD for review. They have stated the facility must prevent fugitive dust from leaving the site and have provided the following mitigation measure for dust control.

> **Mitigation Measure No. 2 (Air Quality):** To mitigate long term dust issues in the outdoor storage areas, the applicant shall apply a suppressant compound acceptable to FRAQMD or reapply gravel on a regular basis as needed to maintain a minimum of four inches of gravel.

This project requires the removal of an existing unoccupied residence and an existing unoccupied commercial building. A demolition permit is required by the Development Services Department for the removal of these structures. FRAQMD states that prior to demolition of the existing structures, an asbestos evaluation must be completed in accordance with the Asbestos National Emission Standard for Hazardous Air Pollutants regulations section 61.145. This requirement will be included as a proposed project condition to be completed prior to issuance of a demolition permit for the existing structures.

All new residential, commercial, and industrial land uses in Yuba and Sutter counties are subject to the Indirect Source Fee collected by FRAQMD. These fees are collected by FRAQMD to offset FRAQMD's costs reviewing projects under CEQA and to mitigate air quality impacts of new development. Projects are subject to the Indirect Source Fee at the time of building permit issuance. FRAQMD has stated this project will not be required to pay the Indirect Source Fee as this project does not propose any new buildings. Because this project will not generate emissions above FRAQMD's thresholds of significance for construction and operational activities, will not be subject to the Indirect Source Fee, and will implement the relevant mitigation listed above, a less than significant impact is anticipated.

c) **Less than significant impact.** This project will not expose sensitive receptors to substantial pollutant concentrations. As stated in the air quality analysis, exposure of sensitive receptors to substantial pollutant concentrations is evaluated based on the modeled health risks from proposed project diesel particulate matter (DPM) emissions during construction and operation.

As discussed, starting on page 1-8 in the air quality analysis, the primary toxic air contaminants (TAC) emitted during construction of the proposed project will be DPM from construction equipment exhaust, and heavy-duty truck trips and TRU use during proposed project operation. The health risk resulting from exposure to DPM emissions from construction and operation was evaluated using air emission and dispersion modeling software. A health risk assessment (HRA) was conducted that evaluated the risks to nearby residences (sensitive receptors) along Railroad Avenue, Oswald Road, and Sawtelle Avenue (State Route 99) from exposure to TACs associated with the proposed project. The HRA uses conservative assumptions to provide an analysis that is most protective of human health. If predicted risks are found to be less than significance thresholds for these closest sensitive receptors, risks at other sensitive receptors farther from the proposed project site (e.g., Barry Elementary School) would be even lower and also less than significance thresholds.

As discussed above, DPM emissions would be generated by the operation of off-road construction equipment (e.g., excavators, loaders, cranes, graders) and on-road diesel heavy duty vehicles and TRUs. The inhalation pathway is the dominant exposure pathway from DPM for both cancer risk and chronic non-cancer health effects. Consequently, the HRA prepared for the proposed project only evaluates the inhalation cancer and chronic non-cancer effects of DPM inhalation.

A three-step process was used to estimate cancer risks and chronic health hazards of DPM exposure. The first step involved using the CalEEMod software program to estimate average annual diesel exhaust emissions.

The second step involved using the EPA-approved AERMOD (version 19191) dispersion model to calculate annual average ground-level concentrations of DPM at the sensitive receptor locations. AERMOD is a regulatory dispersion model developed by the American Meteorological Society and EPA for evaluation of pollutant concentrations from a variety of source types. This is described further, below.

AERMOD was used to estimate proposed project DPM concentrations, in micrograms per cubic meter (μg/m3), from the construction and operational sources discussed above. Model inputs include source sizes, locations, and operating activity, sensitive receptor locations, terrain elevations, and local, monitored meteorological data.

For this project, two sources were used to represent the construction and haul truck activities:

- A conservative representation of the on-site construction equipment within the project site modeled as a rectangular area source.
- A conservative representation of off-site haul trucks transporting delivering import material including gravel and asphalt, modeled as a series of areas sources along Oswald Road, from Railroad Avenue to the Highway 99 and Oswald Road intersection.

The above sources were modeled with an emission rate of one gram per second to determine the dispersion factor (unit concentration) occurring at the nearest residences, which are across Oswald Avenue between Orchard and Railroad Avenues, and one residence on the corner of Oswald Road and Railroad Avenue. Additional locations were modeled in case there could be a sensitive receptor present (other locations along Oswald Road). The DPM concentration was calculated using this dispersion factor and annual DPM average emissions from CalEEMod.

The third step in evaluation of health risk used the calculated DPM concentration together with health risk factors and equations developed by the Office of Environmental Health Hazard Assessment (OEHHA). The OEHHA methodologies4 are used to calculate the potential cancer risk and chronic health hazard from the project's construction and operational activities over a 30-year period. Modeling assumptions and output, OEHHA equations, and the health impact calculations are detailed in Appendix A of the air quality analysis.

Construction sources of DPM will include heavy-duty equipment and haul trucks, while operational sources of DPM will include additional trucks being serviced at the facility and associated TRUs. Health risks include increased cancer probability (expressed as chances per million) and chronic health hazard index. Health risks were evaluated starting with the construction period and extending to 30 years of operations, as health risk accumulate over the period of exposure to pollutants. The FRAQMD threshold for increase cancer probability is 10 in one million, and the threshold for chronic health hazard index is 1.

Table 1-7 on page 1-14 in the air quality analysis and as shown below identifies the increase in cancer risk per million and chronic hazard index for the maximally exposed individual residence (sensitive receptor) to the south of Oswald Road, at Orchard Avenue. For cancer and chronic exposures, the cancer risk to residences from DPM emissions for construction and operation of the proposed project are below the FRAQMD thresholds. This represents a less-than-significant impact with respect to health risk during construction.

TABLE 1-7
MAXIMUM INCREASE IN CANCER RISK AND AZARD NDEX FOR NEARBY SENSITIVE RECEPTORS

Sensitive Receptor	Maximum Cancer Risk (in one million)	Chronic Hazard Index
Residence South of Oswald Road at Orchard Avenue	5.6	0.03
Maximum Individual Cancer Risk Threshold	10	1.0
Exceeds Threshold?	No	No

NOTES: See Appendix A for the Health Risk Assessment calculations.

As summarized in the air quality analysis, construction and operational emissions from the proposed project will not generate substantial DPM emissions and associated health risks to nearby residences (sensitive receptors). Therefore, the project will not expose sensitive receptors to substantial pollutant concentrations and the impact is considered less than significant.

d) **Less than significant impact.** This project will not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. As stated in the air quality analysis, FRAQMD has identified various types of facilities that are known sources of odors including wastewater treatment plants, sanitary landfills, painting/coating operations, food processing facilities, and green waste and recycling operations. The proposed project will not include operation of any of the types of odor-generating facilities identified by FRAQMD, therefore, the project will not be anticipated to generate odors that will affect a substantial number of people, and the impact will be less than significant.

(ESA, Sangha Trucking Facility Expansion, Sutter County, California. September 2020)
(Feather River Air Quality Management District, Indirect Source Review Guidelines. 2010)
(County of Sutter, General Plan 2030. 2011)

IV. BIOLOGICAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Responses:

a) **Less than significant impact.** This project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS). The California Natural Diversity Database (CNDDB) is a positive-sighting database managed by CDFW. According to the CNDDB, there are no candidate, sensitive, or special status species identified as potentially occurring onsite or in the immediate area. The nearest species identified are located adjacent to the Feather River approximately one mile east of the site. This project was circulated to CDFW for review, and they did not provide any comments. In addition, the following records were searched, and no special status species have been identified within the project site:

- U.S. Fish and Wildlife Service (USFWS) Critical Habitat Mapper
- California Native Plant Society (CNPS) Electronic Inventory

The project site consists of two parcels, which are both two acres in size and are located adjacent to the existing Sangha Truck and Trailer Repair site. These parcels are located at the northwest corner of Oswald Road and Railroad Avenue. These parcels have been used agriculturally in the past. The northern parcel contains an existing unoccupied 7,500 square foot commercial building and the southern parcel contains an unoccupied 2,000 square foot residence. Sites that have been used agriculturally and that were previously developed are generally of limited use to wildlife due to the level of disturbance and are typically devoid of native plant species or habitat. There are no waterways in the project vicinity that may provide connectivity for listed species. The uses occurring in the area are not conducive for wildlife to locate within the project site and none have been inventoried. Therefore, a less than significant impact is anticipated.

b) **Less than significant impact.** This project will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS. There are no streams or rivers in the immediate vicinity. No riparian habitat or other sensitive natural community exists onsite or near the property. Therefore, a less than significant impact is anticipated.

c) **Less than significant impact.** This project will not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means because there are no known wetlands located within the project site or vicinity. In addition, no wetlands are located at the project site according to the National Wetlands Inventory of the U.S. Fish and Wildlife Service. A less than significant impact is anticipated.

d) **Less than significant impact.** This project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of a native wildlife nursery site because the area is predominately developed. The project is not anticipated to significantly interfere with wildlife movement due to the fact that the site is bound by Oswald Road to the south, Railroad Avenue to the east, the existing Sangha Truck and Trailer Repair site to the west, and a walnut orchard and truck yard to the north. The property is not located near any rivers or streams. A less than significant impact is anticipated.

e) **No impact.** This project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance because Sutter County has not adopted such an ordinance. There are no oak trees located on the property, so no impact is anticipated.

f) **No impact.** The proposed project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan because a plan has not been adopted that affects this project site. As a result, not impacts are anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)
(California Department of Fish and Wildlife, California Natural Diversity Database)
(U.S. Fish and Wildlife Service, National Wetlands Inventory, 2021)

V. CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Responses:

a-c) **Less than significant with mitigation incorporated.** The proposed project will not cause a substantial adverse change in the significance of a historical resource or archaeological resource pursuant to §15064.5. Also, this project will not disturb any human remains, including those interred outside of dedicated cemeteries. In Section 4.6 of the General Plan Technical Background Report, Figure 4.6-1 does not list the property as being a historic site. The site is not listed on the National Register of Historic Places. There are no unique features or historical resources located on the project site and the property is not located near a cemetery. The project site is not located within the vicinity of the Bear River, Sacramento River, or Feather River. There is no evidence on the project site indicating that historical or archaeological resources exist.

The project site consists of two parcels, which are both two acres in size and are located adjacent to the existing Sangha Truck and Trailer Repair site. These parcels have been used agriculturally in the past. The northern parcel contains an existing unoccupied 7,500 square foot commercial building and the southern parcel contains an unoccupied 2,000 square foot residence. The property has been extensively disturbed to varying depths due to past agricultural uses and development. A less than significant impact to cultural resources is anticipated.

California Health and Safety Code §7050.5 states that when human remains are discovered, no further site disturbance can occur until the County Coroner has made the necessary findings as to the origin of the remains and their disposition pursuant to Public Resources Code Section 5097.98. If the remains are recognized to be those of a Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.

Public Resources Code §5097.98 states that whenever the NAHC receives notification of a discovery of Native American human remains from a county coroner, it shall immediately notify the most likely descendent from the deceased Native American. The descendants may inspect the site and recommend to the property owner a means for treating or disposing the human remains. If the Commission cannot identify a descendent, or the descendent identified fails to make a recommendation, or the landowner rejects the recommendation of the descendent, the landowner shall rebury the human remains on the property in a location not subject to further disturbance.

To mitigate potential impacts, a mitigation measure is proposed to protect possible disturbance of human remains should they be encountered.

> **Mitigation Measure No. 3 (Cultural Resources):** California Health and Safety Code §7050.5 states that when human remains are discovered, no further site disturbance can occur until the County Coroner has made the necessary findings as to the origin of the remains and their disposition pursuant to Public Resources Code §5097.98. If the remains are recognized to be those of a Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.

(County of Sutter, General Plan Technical Background Report. 2008)
(National Park Service, National Register of Historic Places. 2021)

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

Responses:

a-b) **Less than significant impact.** The proposed project will not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This project proposes the construction and operational use of a four-acre parking area adjacent to the existing Sangha Truck and Trailer Repair site. The site will provide additional truck and trailer and automobile parking. No new buildings are proposed.

Overall, the construction and operation of this project will not require the creation of a new source of energy generation. Construction of the parking area will require the consumption of diesel and gasoline to power construction equipment and delivery trucks. ESA was able to quantify the gallons of diesel and gasoline consumed during project construction based on CO_2 output from CalEEMod and some conversion factors as shown in the table below.

Diesel and Gasoline Use Calculations

Diesel Sources - Construction		
TOTAL Diesel Sources =	53.54	MT of CO_2
Convert to kilograms	5.35E+04	kg of CO_2
CO_2 from diesel fuel combustion[a]	10.21	kg of CO_2/gallon of diesel
Diesel Use over construction period =	**5244.15**	**gallons of diesel**

Gasoline Sources - Construction		
Construction workers	2.93	MT of CO_2
Convert to kilograms	2.93E+03	kg of CO_2
CO_2 from gasoline fuel combustion[a]	8.78	kg of CO_2/gallon of gasoline
Gasoline Use over construction period =	**333.39**	**gallons of gasoline**

Notes:

[a] Emissions factors per The Climate Registry 2019 Default Emission Factors (Table 2.1 - US Default Factors for Calculating CO_2 Emissions from Combustion of Transport Fuels)

Source: ESA, 2021

As stated in the GHG analysis completed for this project, the parking facility will take less than three months to construct and will consume minor amounts of fuel compared to the total consumption within Sutter County. As such, the proposed project construction will have a nominal effect on local and regional energy supplies. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and required recycling of construction debris, will further reduce the amount of transportation fuel demand during project construction. For these reasons, it is expected that construction fuel consumption associated with project construction will not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature within Sutter County. There are no unusual project characteristics or construction processes that will require the use of equipment that will be more energy intensive than is used for comparable activities or use of equipment that will not conform to current emissions standards and related fuel efficiencies.

Future outdoor lighting construction at the site is required to comply with the energy requirements of the State Building Codes, including the California Energy Code (Part 6 of Title 24) related to lighting design and installation, luminaries, and lighting controls, and will not result in a wasteful, inefficient, or unnecessary consumption of energy resources because the energy efficiency standards of the State of California are some of the most stringent codes in the nation. The California Energy Code does not apply to paving, landscaping, sound wall installation, or other components of this project. This project does not require and will not utilize a substantial amount of energy due to proposed activities and the limited use of the site (i.e. it is a parking area for trucks and trailers and automobile parking with no other uses proposed). As a result, a less than significant impact is anticipated.

VII. GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Responses:

a) **Less than significant impact.** This project will not directly or indirectly cause potential substantial adverse effects from rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides because the subject property is not located in an Alquist-Priolo Earthquake Fault Zone and will involve minor grading activities that will not exacerbate existing seismic hazards in the region. Figure 5.1-1 in the General Plan Technical Background Report does not identify any active earthquake faults in Sutter County as defined by the California Mining and Geology Board. The faults identified in Sutter County include the Quaternary Faults, located in the northern section of the County within the Sutter Buttes, and the Pre-Quaternary Fault, located in the southeastern corner of the County, just east of where Highway 70 enters the County (Figure 5.1-1 of the General Plan Technical Background Report). Both faults are listed as non-active faults but have the potential for seismic activity. The project site is relatively level with no significant slope. Therefore, the potential for earthquakes, liquefaction, or landslides is unlikely and a less than significant impact is anticipated.

b) **Less than significant with mitigation incorporated.** This project will not result in substantial soil erosion or the loss of topsoil. According to the USDA Soil Conservation Service Soil Survey of the County, on-site soils consist of Marcum-Gridley clay loams, 0 to 1 percent slopes and Conejo-Tisdale complex, 0 to 2 percent slopes. These soils are unlikely to cause erosion because runoff is very slow with only a slight hazard of water erosion. The General Plan Technical Background Report indicates that soils with a 0 to 9 percent slope have slight erodibility.

Subsequent site grading has the potential to result in soil erosion. Since the project size is more than one acre, the applicant is required to prepare a Storm Water Pollution Prevention Plan (SWPPP) and obtain a National Pollution Discharge Elimination System (NPDES) General Construction Permit through the Regional Water Quality Control Board (RWQCB) to ensure that soil is not released in storm water from the project site. To ensure that a less than significant impact occurs, the following mitigation measure is included.

> **Mitigation Measure No. 4 (Geology and Soils):** SWPPP & NPDES GENERAL CONSTRUCTION PERMIT. The applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the State Water Resources Control Board to obtain coverage under the California State Water Resources – General Construction Activity Storm Water Permit. The applicant shall provide the WDID number for the project to the County.

c) **Less than significant impact.** This project is not located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. As stated above in b), soils at the site have a 0 to 2 percent slope with only a slight hazard of water erosion. The General Plan Technical Background Report indicates that soils with a 0 to 9 percent slope have slight erodibility. In addition, the project is not located in the Sutter Buttes, the only area identified by the General Plan Technical Background Report as having landslide potential. A less than significant impact is anticipated.

d) **Less than significant impact.** This project is not located on expansive soils creating substantial direct or indirect risks to life or property. The soil types on the project site, as stated above in b), have a low to high shrink-swell potential. All future construction is required to comply with the adopted California Building Code, specifically Chapter 18 for soils conditions and foundation systems, to address potential expansive soils that may require special foundation design, a geotechnical survey, and engineering for foundation design. The Building Inspection Division will implement these standards as part of any future building permit process. A less than significant impact is anticipated.

e) **Less than significant impact.** This project does not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater. Properties in the area of the project rely on the use of onsite septic tanks and leach field systems for the disposal of wastewater, as there is no sewer system available in the area.

This project proposes the construction and operational use of a four-acre parking area adjacent to the existing Sangha Truck and Trailer Repair site. The site will provide additional truck and trailer and automobile parking for the existing business. The existing developed site to the west has an existing septic tank and leach field, which were put in place for the previous project. No additional on-site sewage systems are needed or proposed for this project. The Development Services Environmental Health Division reviewed this project and stated the existing on-site sewage system has been evaluated by a qualified consultant to ensure that the quantity and quality of wastewater proposed can be adequately treated and disposed of on-site. If development is proposed in the future that generates sewage or wastewater, it will be required to meet the local and state requirements for sewage or wastewater disposal in effect at the time of development. A less than significant impact is anticipated.

f) **Less than significant impact.** The proposed project will not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. There are no known unique paleontological resources or unique geologic features located in the vicinity of the project. A less than significant impact is anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)
(USDA Soil Conservation Service, Sutter County Soil Survey. 1988)

VIII. GREENHOUSE GAS EMISSIONS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

Responses:

a) **Less than significant impact.** This project will not generate additional greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. The Sutter County Climate Action Plan (CAP) was prepared and adopted in 2010 as part of the General Plan to ensure compliance with AB 32, also known as the Global Warming Solutions Act. Sutter County's CAP includes a GHG inventory, an emission reduction target, and reduction measures to reach the target. The CAP also includes screening tables used to assign points for GHG mitigation measures. Projects that achieve 100 points or more do not need to quantify GHG emissions and are assumed to have a less than significant impact.

Sutter County's screening tables apply to all project sizes. Small projects with little or no proposed development and minor levels of GHG emissions typically cannot achieve the 100-point threshold and therefore must quantify GHG emission impacts using other methods, an approach that consumes time and resources with no substantive contribution to achieving the CAP reduction target.

Since the adoption of the CAP, further analysis to determine if a project can be too small to provide the level of GHG emissions reductions expected from the screening tables or alternative emissions analysis methods has been performed. In that study, emissions were estimated for each project within the Governor's Office of Planning and Research (OPR) database. The analysis found that 90 percent of carbon dioxide equivalent (CO_2e) emissions are from CEQA projects that exceed 3,000 metric tons CO_2e per year. Both cumulatively and individually, projects that generate less than 3,000 metric tons CO_2e per year have a negligible contribution to overall emissions.

Sutter County has concluded that projects generating less than 3,000 metric tons of CO_2e per year are not required to be evaluated using Sutter County's screening tables (Greenhouse Gas Pre-Screening Measures for Sutter County, 2016). Such projects require no further GHG emissions analysis and are assumed to have a less than significant impact.

In June 2016, Sutter County adopted new GHG Pre-Screening Measures to be applied to new projects. Based on these Pre-Screening Measures, the general truck yard use type must be analyzed using the County's adopted Climate Action Plan. As a result, the applicant provided a GHG Emissions Analysis to determine whether or not the project complies with the Sutter County CAP and the 3,000-metric-ton Tier 1 screening threshold for CO_2e.

To address GHG impacts from the proposed project, the applicant hired ESA to prepare a GHG analysis. A copy of this analysis is included as an attachment to this initial study. This analysis is included in a technical report, which also details the potential impacts to air quality, health risk, and noise from the proposed project. The technical report also includes a traffic study conducted by Fehr & Peers, which is included as a separate appendix. The GHG analysis describes the environmental setting, details the associated regulatory framework, and assesses the potential GHG emissions and climate change impacts from construction and operation of the proposed project. As discussed previously in the Air Quality Section (Section 3a) above, there have been modifications to the project description since the technical report was completed. As a result of these modifications, ESA prepared a letter, which provides a qualitative assessment of these changes relative to the analyses conducted in the technical report. A copy of this letter is included as an attachment to this initial study. ESA concluded in their letter that the design changes to the proposed expansion will not lead to additional, potentially significant impacts to air quality, health risk, greenhouse gases, or noise.

The GHG analysis calculated construction and operational emissions on site using California Emissions Estimator Model (CalEEMod) Version 2016.3.2, which is a computer program that can be used to estimate anticipated emissions associated with land development projects in California, with separate databases for specific counties and air districts. The Sutter County database was used for this project.

Construction

During construction, the proposed project will generate GHG emissions from the use of heavy-duty construction equipment, and from use of employee vehicles, vendor trucks, and haul trucks. In the GHG analysis, construction of this project was anticipated to being in March 2021 and conclude in mid-May 2021 (less than three months). Total construction emissions that will result from the proposed project are presented in Table 2-2 on page 2-7 of the GHG analysis and as shown below.

TABLE 2-2
CONSTRUCTION-RELATED GHG EMISSIONS[a]

Construction Year	MT CO2e
2021	58.3
Sutter County Threshold	3,000
Exceeds Threshold?	No

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable Sutter County threshold.

SOURCES: ESA, 2020.
Sutter County, 2011. *Greenhouse Gas Emissions Screening Tables.* April 2011. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Greenhouse_Gas_Screening_Tables.pdf. Accessed September 3, 2020.

As shown in Table 2-2, construction of this project will generate approximately 58.3 metric tons of CO_2e in the assumed construction year in 2021 and will not exceed the County's significance threshold of 3,000 metric tons of CO_2e per year, specified in the Sutter County 2016 Greenhouse Gas Pre-Screening Measures supplement to the CAP.

Operations

During operation, this project will generate GHG emissions from the use of employee vehicles, trucks, and TRUs. Total operational emissions that will result from the proposed project are presented in Table 2-3 on page 2-8 in the GHG analysis and as shown below.

TABLE 2-3
Operational GHG EMISSIONS[a]

	MT CO2e
Annual Operational Emissions	358
Sutter County Threshold	3,000
Exceeds Threshold?	No

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable Sutter County threshold.

SOURCES: ESA, 2020.
Sutter County, 2011. *Greenhouse Gas Emissions Screening Tables.* April 2011. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Greenhouse_Gas_Screening_Tables.pdf. Accessed September 3, 2020.

As shown in Table 2-3, operational emissions will be approximately 358 metric tons of CO_2e per year, and will not exceed the threshold of 3,000 metric tons of CO_2e per year, as specified in the 2016 Greenhouse Gas Pre-Screening Measures supplement to the County CAP.

As discussed, this project will generate emissions that will not exceed the County GHG threshold of 3,000 metric tons of CO_2e per year discussed in the County's 2016 Greenhouse Gas Pre-Screening Measures supplement to the CAP. Therefore, the proposed project will be consistent with the County CAP. This project will therefore result in a negligible contribution to overall GHG emissions in the County and a less than significant impact is anticipated based on the results of the GHG analysis.

b) **Less than significant impact**. This project will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. The project is within the boundaries of FRAQMD, which has not individually adopted any plans or regulations for reducing greenhouse gas emissions. However, FRAQMD adopted a document on August 7, 2015, through the Northern Sacramento Valley Planning Area and in collaboration with Butte County AQMD, Colusa County Air Pollution Control District (APCD), Glenn County APCD, Shasta County AQMD, and Tehama County APCD, titled the 2015 Triennial Air Quality Attainment Plan. This document provides thresholds given by some of the AQMDs and APCDs, and the thresholds given by FRAQMD from 2010, which are described and analyzed in the Air Quality impact section, still apply to Sutter County. This project will generate emissions that will not exceed the County GHG threshold of 3,000 metric tons of CO_2e per year discussed in the County's 2016 Greenhouse Gas Pre-Screening Measures supplement to the CAP. Therefore, this project will be consistent with the County CAP as discussed in Section a) above so a less than significant impact is anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)
(County of Sutter, General Plan 2030 Climate Action Plan. 2011)
(County of Sutter, Greenhouse Gas Pre-Screening Measures for Sutter County. June 28, 2016.)
(Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP), Northern Sacramento Valley Planning Area 2015 Triennial Air Quality Attainment Plan. 2015)
(ESA, Sangha Trucking Facility Expansion, Sutter County, California. September 2020)

IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Responses:

a-b) **Less than significant impact.** This project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The Development Services Environmental Health Division is the Certified Unified Program Agency (CUPA) for Sutter County with responsibility for the administration of the "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). Elements of this program include hazardous waste generators and hazardous waste on-site treatment, underground storage tanks, above-ground storage tanks, hazardous material release response plans and inventories, risk management and prevention program, and Uniform Fire Code hazardous materials management plans and inventories. All uses involving the storage and handling of hazardous materials are monitored by CUPA.

Any business that uses, generates, processes, produces, treats, stores, emits, or discharges a hazardous material in quantities at or exceeding 55 gallons, 500 pounds, or 200 cubic feet (compressed gas) at any one time in the course of a year are required to submit a Hazardous Materials Business Plan (HMBP). The primary purpose of the HMBP is to provide readily available information regarding the location, type, and health risks of hazardous materials to emergency response personnel, authorized government officials, and the public. The existing truck and trailer repair shop has an existing HMBP on file and is entered into the California Environmental Reporting System (CERS). Among other information, an emergency response/contingency plan, employee training plan, hazardous material inventory, site map, and facility information are included in CERS.

CUPA has stated the existing facility is in compliance with the CUPA program at this time. According to CERS, there is no recent enforcement activity or violations for this property; therefore, the applicant is in good standing with CUPA.

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; State regulations are contained in Title 26 of the California Code of Regulations (CCR). State agencies with primary responsibility for enforcing State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

All activities and uses must comply with State and County laws and regulations pertaining to the handling and disposal of all hazardous or acutely hazardous materials. The discharge of fuels, oils, other petroleum products, detergents, cleaners, chemicals, or compost materials to the surface of the ground or to drainage ways on or adjacent to the site is prohibited. As part of compliance with the CUPA program, the facility will undergo periodic inspections during which it will be verified that waste oil, anti-freeze, batteries, tires, and other materials are being handled, stored, and disposed of properly.

This project is to provide for additional truck and trailer and automobile parking and does not propose the use or storage of any new hazardous materials. No new building construction is proposed. Trucks are monitored on a monthly check in basis and those that are red tagged at scales for oil or other leaks are worked on first. This will limit spills and contamination on site. In turn, this will also limit contamination to the groundwater when the runoff from the area is collected in the retention pond. All repairs performed on trucks and trailers will be done inside the existing shop building. All materials will be stored in the existing shop. A less than significant impact is anticipated.

c) **No impact.** This project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. There are no existing or proposed schools within one-quarter mile of the project site. The closest existing school is Barry Elementary School located approximately 0.5 miles northwest of the project site; therefore, no impact is anticipated.

d) **No impact.** This project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5. As a result, the project will not create a hazard to the public or the environment; therefore, no impact is anticipated.

e) **Less than significant impact**. This project is not located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport; therefore, this project will not result in a safety hazard or excessive noise for people residing or working in the project area. The nearest public airport is the Yuba County Airport, which is located over three miles northeast of the project site. Due to the project's distance from these facilities, a less than significant impact is anticipated.

f) **Less than significant impact.** This project will not impact the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan because the project site has adequate frontage on Oswald Road and Railroad Avenue, which are of sufficient size to not impede any necessary emergency responses. This proposed project does not pose a unique or unusual use or activity that would impair the effective and efficient implementation of an adopted emergency response or evacuation plan. A less than significant impact is anticipated.

g) **Less than significant impact.** This project will not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. The General Plan indicates the Sutter Buttes and the “river bottoms,” or those areas along the Sacramento, Feather, and Bear Rivers within the levee system, are susceptible to wildfires since much of the areas inside the levees are left in a natural state, thereby allowing combustible fuels to accumulate over long periods of time. Parcels in the area are developed and the area has existing fire protection services. Since this property is not located in the Sutter Buttes or “river bottom” areas, a significant risk of loss, injury, or death associated with wildland fires as a result of the proposed project is not anticipated and is considered less than significant.

(County of Sutter, General Plan Technical Background Report. 2008)
(California Department of Toxic Substances Control, Hazardous Waste and Substances Site List - Site Cleanup (Cortese List). 2019)

X. HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☒	☐	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☒	☐	☐
iv) Impede or redirect flood flows?	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Responses:

a) **Less than significant impact.** This project will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. This project proposes the construction and operational use of a four-acre parking area adjacent to the existing Sangha Truck and Trailer Repair site. The site will provide additional truck and trailer and automobile parking for the existing business. The existing developed site to the west has an existing septic tank and leach field, which were put in place for the previous project. No additional on-site sewage systems are needed or proposed for this project. The Development Services Environmental Health Division reviewed this project and stated the existing on-site sewage system has been evaluated by a qualified consultant to ensure that the quantity and quality of wastewater proposed can be adequately treated and disposed of on-site. If development is proposed in the future that generates sewage or wastewater, it will be required to meet the local and state requirements for sewage or wastewater disposal in effect at the time of development.

Since the total land area of the project will exceed one acre, the applicant is required to obtain coverage under the State Construction General Permit, under the National Pollutant Discharge Elimination System (NPDES) program (Mitigation Measure 4). This program requires implementation of erosion control measures designed to avoid significant erosion. The NPDES construction permit requires implementation of a Storm Water Pollution Prevention Program (SWPPP) that includes storm water best management practices to control runoff, erosion, and sedimentation from the site.

No new building construction is proposed. Trucks are monitored on a monthly check in basis and those that are red tagged at scales for oil or other leaks are worked on first. This will limit spills and contamination on site. In turn, this will also limit contamination to the groundwater when the runoff from the area is collected in the retention pond. All repairs performed on trucks and trailers will be done inside the existing shop building. All materials will be stored in the existing shop.

The Industrial General Permit regulates industrial storm water discharges and authorized non-storm water discharges from industrial facilities in California. The Industrial General Permit is called a general permit because many industrial facilities are covered by the same permit but comply with its requirements at their individual industrial facilities. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (collectively, the Water Boards) implement and enforce the Industrial General Permit. As the existing site has a truck and trailer maintenance shop, the site requires coverage under the Industrial Storm Water Permit. The applicant has been notified of this requirement and is working on obtaining coverage.

This project is not expected to violate water quality standards or waste discharge requirements. Compliance with applicable requirements and water quality standards will minimize the project's impact to water quality. No additional mitigation is necessary, and a less than significant impact is anticipated.

b) **Less than significant impact.** This project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. The General Plan Technical Background Report indicates the property is provided with groundwater by the Sutter Subbasin. Water levels in the Sutter Subbasin have remained approximately 10 feet below ground surface and California's Groundwater Bulletin 118 prepared by the California Department of Water Resources indicates municipal and irrigation wells withdraw groundwater at a rate of 500-2000 gallons per minute.

The project site is not located in an area that is served by a public water provider. Water is provided by an existing fire protection rated water well with water tank located on the eastern boundary of the existing truck and trailer repair site. The Development Services Environmental Health Division reviewed this project and stated the existing well will not serve more than 25 persons a day at least 60 days per year; therefore, water will be supplied by the private well and not be considered a Public Water System. The existing septic system was designed to handle 200 gallons per day. According to the project engineer (MHM, Inc.), this project will not have any greater impact on the septic system as there will not be an increase in employees. The existing septic system was not required to be resized for this project; therefore, the amount of water going into the system will not substantially change. Water is not and will not be utilized for washing vehicles at the site. No additional wells are proposed as part of this project; however, any future wells established on the property will be required to obtain permits from the Environmental Health Division. Water necessary for project construction will be delivered to the project site via water truck.

This project is not anticipated to substantially increase the amount of water used onsite beyond what is currently used at the existing truck and trailer repair site. The amount of water used at the project site is anticipated to be less than historical uses at the site, which consisted of a residence, a restaurant, and field crops. The proposed landscape plan for this project has demonstrated compliance with the State’s current Model Water Efficient Landscaping Ordinance prepared by the California Department of Water Resources. Aside from photinia, all proposed landscaping consists of low water use plants and native plants. Water use for the proposed project is minimal and will not adversely affect groundwater recharge or groundwater supplies. Design of the project site has provided for minimal impervious area which allows stormwater runoff to infiltrate within the project site. The existing retention pond is designed to hold stormwater until it infiltrates or evaporates. As a result, a less than significant impact is anticipated.

c) **Less than significant with mitigation incorporated**. This project will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site or substantially increase the rate or amount of surface runoff in a manner resulting in flooding on or off-site. This project will also not contribute runoff water which will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or impede or redirect flood flows.

Stormwater drainage infrastructure within the existing developed site includes a concrete pad located in the middle of the site starting at the maintenance area and extending west to a retention basin on a fenced-in portion of the site. The retention basin in the western portion of the site is the stormwater discharge point. In addition, there is a storm drain located in the center of the site, west of the maintenance building. The driveway on the southern side of the maintenance area slopes downward towards Oswald Road, so that stormwater in this area drains into ditches along Oswald Road. Furthermore, additional storm drains and ditches run through the center of the truck parking lot.

There are no streams or rivers on or in the immediate vicinity of the project site that could be altered by this project. The project site is generally level and stormwater generally drains to the west. The County has a shallow drainage cut along the north side of Oswald Road that drains to the west. The proposed drainage for the new parking area will be connected to the existing onsite drainage system on the existing developed site. A V-Ditch/Valley Gutter on-site will direct stormwater into a storm drain.

The Development Services Engineering Division has reviewed this proposed project and has provided comments regarding the drainage of this project. Based on these comments, the following mitigation measures are recommended:

Mitigation Measure No. 5 (Hydrology and Water Quality): FAIR SHARE CONTRIBUTION FOR DRAINAGE IMPROVEMENTS. The applicant shall calculate and pay the project's fair share contribution for future Drainage Improvements needed to connect Oswald Road to Gilsizer Drainage District if and when this area is annexed to the Gilsizer District. The applicant shall join the Gilsizer Drainage District once facilities are made available.

Mitigation Measure No. 6 (Hydrology and Water Quality): DRAINAGE STUDY. Prior to issuance of a grading permit, the applicant shall obtain approval from the Director of a final drainage study that reflects final design conditions for the proposed project per County Standards. The Drainage Study shall be completed and stamped by a Professional Engineer and determined by the County to be comprehensive, accurate, and adequate.

Mitigation Measure No. 7 (Hydrology and Water Quality): PRIVATE DRAINAGE IMPROVEMENTS. Prior to commercial use of the site, the applicant shall construct private onsite drainage ditches/basins that provide storm water detention/retention. The drainage improvements shall be sized based on the recommendations of an approved drainage study for this project in compliance with County standards. The drainage ditches/basins shall not be connected to the roadside swales. The applicant must obtain a grading permit from the County prior to any grading for storm water retention ditches/basins.

Mitigation Measure No. 8 (Hydrology and Water Quality): PRIVATE DRAINAGE FACILITIES MAINTENANCE AGREEMENT. The property owner shall enter into a Private Drainage Facilities Maintenance Agreement with Sutter County committing the property owners and all successors in interest to maintain the private drainage facilities associated with this project to ensure peak 10- and 100-year storm capacity per the approved drainage study for the project.

Mitigation Measure No. 9 (Hydrology and Water Quality): DRAINAGE, GRADING, AND CONSTRUCTION. All impacts to the site must be mitigated in the project area or lands acquired for mitigation by the project. Any Grading or Site Improvements shall be done per an approved plan and in accordance with Sutter County Development Standards. Plans shall be reviewed and approved for construction by the Director of Development Services prior to the start of construction.

The applicant will be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) as a component of the General Construction Permit for storm water discharges (Mitigation Measure 4). This plan will be implemented during the construction phase of the project and will reduce erosion and stormwater pollution.

The project site is located within Flood Zone “A” according to Flood Insurance Rate Map (FIRM) No. 0603940600E, dated December 1, 2008, issued by the Federal Emergency Management Agency (FEMA). Flood Zone “A” is one of the Special Flood Hazard Areas (SFHAs) and consists of areas subject to inundation by the 1-percent-annual-chance flood event. Sutter County has adopted a new Local Flood Hazard Area (LFHA) map for the Yuba City Basin Area effective as of October 4, 2021. The Base Flood Elevation (BFE) was set at ground surface/grade for this area. If a new building was proposed with this project, it would be required to be elevated one foot above grade; however, no building construction is proposed. The applicant shall comply with all provisions of the Sutter County – Floodplain Management Ordinance and FEMA regulations, which will be included as a proposed project condition. FEMA does not restrict parking of trucks or vehicles in special flood hazard areas. However, the applicant will be required to notify tenants who intend to use the site for truck/vehicle parking of the potential flood depths that may cause flood damage to their trucks/vehicles and this will be implemented as a project condition. A less than significant impact is anticipated with the proposed mitigation measures incorporated into the project.

d) **Less than significant impact.** This project will not risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones. The proposed parking area for trucks and trailers and automobiles is not anticipated to risk the release of pollutants due to project inundation in a flood hazard area. No new building construction is proposed. Trucks are monitored on a monthly check in basis and those that are red tagged at scales for oil or other leaks are repaired first. This minimizes spills and contamination on and off site. Additionally, this minimizes contamination to groundwater when the runoff from the area is collected in the retention pond. All repairs performed on trucks and trailers will be done inside the existing shop building. All materials will be stored in the existing shop. There is no anticipated impact to this project site resulting from tsunamis and seiches because the land is not located adjacent to or near any water bodies of sufficient size to create such situations. A less than significant impact is anticipated.

e) **No Impact.** This project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. There are no currently adopted water quality control plans or sustainable groundwater management plans for the subject area. No impact is anticipated.

(California Department of Water Resources (DWR), California's Groundwater – Bulletin 118 (Update 2003). 2003)
(County of Sutter, General Plan Technical Background Report. 2008)
(Federal Emergency Management Agency, Flood Insurance Rate Map. 2008)
(ESA, Sutter County Truck Yard Study Technical Report. May 2021)

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

Responses:

a) **No impact.** This project will not physically divide an established community because the project is located outside the Live Oak and Yuba City spheres of influence and the County's recognized rural communities. This project will not result in a physical barrier that will divide a community, so no impact is anticipated.

b) **Less than significant impact.** This project will not conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect because the General Plan does not consider the site to be within a hazardous or biologically sensitive area. As per Zoning Code Section 1500-01-030 G, applications deemed complete before the effective date of the Zoning Code, or any amendment, shall comply with the provisions of the Zoning Code in effect on the date that the application was deemed complete. This application was deemed complete on July 10, 2019, and at that time, the Zoning Code permitted the proposed project in the M-1 (Light Industrial) District, as a permitted use, subject to design review approval. The requirements to establish such a facility are being followed. The County has not adopted any land use plan, policy, or regulation for the purpose of avoiding or mitigating a specific environmental effect that affects this project. Where necessary, mitigation has been incorporated into the project and no additional mitigation measures are necessary. A less than significant impact is anticipated.

(County of Sutter, General Plan 2030. 2011)
(County of Sutter, General Plan Technical Background Report. 2008)
(County of Sutter, Zoning Code. 2019)

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

Responses:

a-b) **No impact.** This project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The General Plan and State of California Division of Mines and Geology Special Publication 132 do not list the site as having any substantial mineral deposits of a significant or substantial nature, nor is the site located in the vicinity of any existing surface mines. No impact is anticipated.

(California Department of Conservation, Division of Mines and Geology, Special Report 132: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City-Marysville Production-Consumption Region. 1988)
(County of Sutter, General Plan Technical Background Report. 2008)

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

Responses:

a) **Less than significant with mitigation incorporated.** This project will not result in a substantial temporary or permanent increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinances, or applicable standards of other agencies. To determine noise and vibration impacts from the proposed project, the applicant hired ESA to prepare a noise analysis. A copy of this analysis is included as an attachment to this initial study. This analysis is included in a technical report, which also details the potential impacts to air quality, health risk, and greenhouse gas emissions from the proposed project. The technical report also includes a traffic study conducted by Fehr & Peers, which is included as a separate appendix. The noise analysis describes characteristics of noise and vibration, the environmental setting including the existing noise in the project area and surrounding region, details the associated regulatory setting, and presents an analysis of potential noise and vibration impacts from project construction and operation activities. As discussed previously in the Air Quality Section (Section 3a) above, there have been modifications to the project description since the technical report was completed. As a result of these modifications, ESA prepared a letter, which provides a qualitative assessment of these revisions relative to the analyses conducted in the technical report. A copy of this letter is included as an attachment to this initial study. ESA concluded in their letter that the design changes to the proposed expansion will not lead to additional, potentially significant impacts to air quality, health risk, greenhouse gases, or noise.

<u>Stationary Noise Sources</u>

As discussed in the noise analysis, operation of the proposed project will increase ambient noise levels in the immediate vicinity primarily through the on-site movement of trucks and trailers and the occasional operation of TRUs.

Table 3-10 on page 3-16 of the noise analysis shows noise levels associated with semi-truck and trailer maneuvering including operation of TRUs. As shown in this table, the highest noise levels generated during a semi-truck and trailer operation will be 63 dBA at 100 feet, as it maneuvers into a parking stall which will be the approximate closest distance of the expanded yard to the nearest receptor, across Oswald Road. Once a truck is parked, the TRU could continue to operate, generating noise levels of 57 dBA at a distance of 100 feet.

This project proposes the construction of a solid six-foot-high stone wall along the southern property line. As stated in the noise analysis, the sound reduction potential associated with this wall was estimated using the Barrier Performance Model of the Department of Housing and Urban Development. However, applying a standard composite source height for trucks of eight feet (engine and exhaust stack/TRU), a six-foot tall barrier will be insufficient to break the line-of-sight between the receptor and the source and noise reduction will be minimal. The predicted noise level will remain at approximately 57 dBA during TRU operations, which will exceed the General Plan daytime noise standard of 55 dBA, Leq. Additionally, the potential will exist for multiple TRU operations to occur simultaneously. Consequently, the following mitigation measure has been identified in the noise analysis to increase the height of the proposed wall along the southern property line of the project site to reduce the daytime noise levels at the closest receptors consistent with County standards.

Mitigation Measure No. 10 (Noise): INCREASE PROPOSED WALL HEIGHT. Prior to use of the site for truck/trailer and vehicle parking, the project applicant shall obtain a building permit and ensure that the proposed solid wall along the southern property line will be no less than eight feet in height from the eastern property border of the project site for a length of 500 feet extending westward along the south side of the project. The wall shall be of solid construction with no visible gaps. An acoustical study shall be prepared by a qualified acoustical engineer after final construction to verify compliance with a performance standard of 55 dBA at the nearest receptors.

<u>Project-Generated Traffic Noise</u>

Vehicle trips generated by this project will generate roadway noise in the project vicinity. The significance of traffic noise levels is determined by comparing the increase in noise levels (from the traffic contribution only) to increments recognized as significant.

As discussed in the noise analysis, traffic noise levels were determined based on the transportation analysis, and assessed for the following scenarios:

1. Existing traffic conditions during the weekday peak commute hour, as estimated based on average daily traffic (using data generated for the project's transportation analysis); and
2. Existing plus proposed project during the weekday peak commute hour.

All traffic volumes provided in the project's transportation analysis and used in the noise analysis were provided by Fehr & Peers Transportation Consultants. Modeled weekday noise level estimates for the most highly affected roadway segments near the project site are presented in Table 3-11 on page 3-17 in the noise analysis and as shown below.

TABLE 3-11
TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing	Applicable Increase Threshold (dB)	Existing plus Project	dBA Difference	Significant Increase?
Weekday Peak-Hour Noise Levels					
Railroad Avenue from Oswald Road to Barry Road	54.9	5	56.7	1.8	No
Oswald Road from Railroad Avenue to SR 99	53.2	5	55.2	2.0	No
Oswald Road from SR 99 to South Walton Road	57.4	5	57.4	0.0	No
SR 99 from Oswald Road to Barry Road	72.8	1.5	72.8	0.0	No
SR 99 from Oswald Road to Messick Road	73.0	1.5	73.0	0.0	No

NOTES: dB = decibels; dBA = A-weighted decibels; NA = not applicable

SOURCES: Traffic data compiled by Fehr & Peers in 2019 and 2020, and modeling performed by Environmental Science Associates in 2020. Applicable increase threshold (dB) from Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

As indicated in the table, increase in traffic noise will be less than the applicable significance criteria and the impact of increases in roadway noise will be less than significant. This increase in noise levels will be below what is typically perceptible to the human ear (3 dB).

<u>Construction Noise</u>

Construction of the proposed project will require demolition of existing structures. However, no buildings are proposed to be erected and only fine grading and construction of minimal hardscape will be required. Truck parking areas will be surfaced with gravel and only the eastern side of the site will be paved with asphalt. Table 3-12 as presented in the noise analysis on page 3-18, and as shown below, shows typical noise levels associated with various types of standard construction equipment.

TABLE 3-12
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{max} at 50 feet)
Backhoe	78
Excavator	81
Compactor	83
Air Compressor	78
Dozer	82
Grader	85
Paver	77
Roller	80
Front-End Loader	79
Truck	76

NOTES: dBA = A-weighted decibels; Lmax = maximum, instantaneous noise level experienced during a given period of time

These are maximum field measured values at 50 feet as reported from multiple samples.

SOURCE: Federal Highway Administration, Roadway Construction Noise Model User Guide, 2006.

Sutter County does not establish quantitative noise limits for demolition or construction activities occurring in the County. During project construction, exterior noise levels could affect the nearby existing sensitive receptor in the vicinity. The nearest sensitive receptor to the project site is a residence located approximately 70 feet south of the project site boundary.

Consistent with the general assessment methodology of the Federal Transit Administration (FTA), the two noisiest pieces of construction equipment (grader and dozer) listed in Table 3-12 in the noise analysis were assumed to operate simultaneously. The noise analysis used the Roadway Construction Noise Model of the Federal Highway Administration and found that the resultant noise level at the nearest receptor would be 72 dBA. The combined noise level at existing offsite receptors will not exceed the FTA's criterion of 90 dBA at residential sensitive receptor locations.

Per Policy N 1.6 of the County's General Plan, all project related noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) is limited to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibited on Sundays and holidays unless permission for the latter has been applied for and granted by the County. The proposed project will result in temporary site construction noise associated with proposed and required improvements. To ensure compliance with General Plan Policy N 1.6, the following mitigation measure is proposed:

> **Mitigation Measure No. 11 (Noise):** All project related noise-generating construction activities shall be limited to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibited on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

This project will be required to adhere to General Plan Policy N 1.6. Therefore, since construction noise is temporary, intermittent, and limited to the daytime hours shown above, the impact is considered to be less than significant with mitigation incorporated.

b) **Less than significant impact.** This project will also not result in excessive groundborne vibration or groundborne noise levels. The noise analysis prepared by ESA addresses vibration impacts generated by construction activities at existing off-site buildings. Equipment or activities that typically generate continuous vibration include but are not limited to excavation equipment, impact pile drivers, static compaction equipment, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. Of these equipment types, only a vibratory roller will likely be used in the paving of the northwest corner of the project.

General Plan Policy N 1.7 requires new development to minimize impacts of continuous vibration on adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or buildings that are documented to be structurally weakened, a continuous vibration limit of 0.08 in/sec peak particle velocity (PPV) is the standard applied to minimize the potential for cosmetic damage to a building. A continuous vibration limit of 0.20 in/sec PPV is applied to minimize the potential for cosmetic damage at buildings of normal conventional construction.

An estimate of construction-related vibration levels is presented in Table 3-13 on page 3-19 in the noise analysis. As can be seen from this table, predicted vibration levels are below the criteria established by General Plan Policy N 1.7 for human annoyance. These predicted levels are also below the 100 VdB commonly associated with the risk of building damage (FTA, 2018). Therefore, vibration impacts from project construction will be less than significant.

c) **Less than significant impact.** This project is not located within the vicinity of a private airstrip, public airport, or public use airport; therefore, it will not result in excessive noise levels for people residing or working in the project area. The nearest public airport is the Yuba County Airport, which is located over three miles northeast of the project site. There are no private airstrips within two miles of the project site. Due to the project's distance from these facilities, a less than significant impact is anticipated.

(County of Sutter, General Plan 2030. 2011)
(County of Sutter, General Plan Technical Background Report. 2008)
(ESA, Sangha Trucking Facility Expansion, Sutter County, California. September 2020)

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

Responses:

a) **Less than significant impact.** This project will not induce substantial unplanned population growth in an area, directly or indirectly. According to the applicant, a maximum of five employees work at the existing site and this project does not propose to increase this number. No residential use is proposed with this project. As a result, the amount of population growth in the area will be negligible and a less than significant impact is anticipated.

b) **Less than significant impact.** This project will not displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere. The proposed project will not expand beyond the property boundaries and will not displace any housing or people. One dilapidated and uninhabited dwelling resides on the project site that is proposed to be removed. A less than significant impact is anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)

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

Responses:

i) **Less than significant impact.** This project location is provided fire protection by Sutter County and is located in County Service Area (CSA) F. The nearest fire station is Oswald-Tudor (Station 8), located at 1280 Barry Road, which is at the southeast corner of State Highway 99 and Barry Road and approximately one-half mile northwest of the project site. Response time will not be affected by the proposed project. Existing County roads will provide adequate transportation routes to reach the project site in the event of a fire. No new buildings are proposed with the proposed project and the construction of new fire facilities will not be required as a result of this project. No comments were provided by Fire Services indicating this project will result in a significant impact. As a result, a less than significant impact is anticipated.

ii) **Less than significant impact.** This project will not have a significant impact on police protection. Law enforcement for unincorporated portions of Sutter County is provided by the Sutter County Sheriff's Department and traffic investigation services by the California Highway Patrol. Response time will not be affected by the proposed project. Existing State Highways or County roads will provide adequate transportation routes to reach the project site in the event of an emergency. The Sheriff's Department has reviewed this project and had concerns regarding additional traffic on State Highway 99. Traffic impacts have been analyzed and are discussed in the transportation section of this initial study. No new buildings are proposed with this project and the construction of new sheriff facilities will not be required as a result of this project. A less than significant impact is anticipated.

iii) **Less than significant impact.** This project will not have a significant impact on schools because this project will not generate additional demand for school services. No new buildings or residences are proposed with this project. No comments were provided by the Yuba City Unified

School District indicating this project will result in a significant impact. A less than significant impact is anticipated.

iv) **Less than significant impact.** This project will not have a significant impact upon parks because it will not generate a need for additional park land or create an additional impact upon existing parks in the region. This project will not have a significant impact on parks countywide. This project will not result in any new residences which require park services; therefore, a less than significant impact is anticipated.

v) **Less than significant impact.** This project is not anticipated to impact other public facilities because the project will not result in the need for additional or new public facilities. No new buildings are proposed with this project. A less than significant impact is anticipated.

(County of Sutter, Zoning Code. 2019)
(County of Sutter, General Plan Technical Background Report. 2008)

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

Responses:

a-b) **No impact.** This project will not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility will occur or be accelerated nor will the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. This project will not result in residential development. There are no existing neighborhood or regional parks in the project vicinity and this project does not propose recreational facilities or require the expansion of existing recreational facilities; therefore, no impacts are anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)

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

Responses:

a) **Less than significant with mitigation incorporated.** This project will not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This property is located in a rural area approximately 1.2 miles south of the southernmost incorporated limits of Yuba City and its sphere of influence. The project area is not served by mass transit or bicycle paths. Given the rural nature of the area, in general, personal vehicles will be the most likely form of transportation.

The project site has adequate frontage on Oswald Road and Railroad Avenue, which are both County maintained roads. The project site is accessed by Oswald Road, which is a two-lane rural road that runs in a straight east-west direction along the front of the property. A 70-foot-wide paved driveway on the east side of the existing developed site provides access to the shop area from Oswald Road. A 50-foot-wide driveway with a paved encroachment on the west side of the existing developed site provides access to the gravel surfaced truck and trailer storage area from Oswald Road. The proposed parking area will connect to the existing facility by connecting to the east side of the existing site and will utilize the existing 70-foot-wide paved driveway on Oswald Road. A new paved 45-foot-wide driveway is proposed on Railroad Avenue. The applicant will be required to obtain an encroachment permit to improve the driveway to a County standard. The driveway will be required to be paved with asphalt or concrete from Railroad Avenue to the right-of-way line. This requirement will be included as a proposed project condition.

The portion of Oswald Road from State Highway 99 easterly to Railroad Avenue and then north on Railroad Avenue for approximately 620 feet to 3865 Railroad Avenue is signed and designated as a Surface Transportation Assistance Act (STAA) truck terminal route. This STAA route was established in conjunction with the approval of Project #05-089 on September 19, 2006. Caltrans approved and installed all signs associated with this STAA route on March 23, 2015. Since Oswald Road and Railroad Avenue adjacent to the project site is a STAA truck route, the project site will continue to accommodate STAA trucks. STAA trucks will be stored on site. The main route that the trucks will use will be Oswald Road leading to State Highway 99.

The project application was circulated to Caltrans for review and comment since the subject property is located east of State Highway 99 and the site is proposed to be accessed from State Highway 99. Caltrans provided no comments regarding the proposed project; however, they may comment on the draft of this document when it is circulated for review.

To determine traffic impacts from the proposed project, a traffic study was conducted by Fehr & Peers and is included as a stand-alone technical memorandum in Appendix C of the technical report prepared by ESA. A copy of this analysis is included as an attachment to this initial study. The traffic study documents key findings, the regulatory setting, the existing traffic setting, project travel characteristics, the existing plus project conditions, an assessment of potential off-site impacts, an analysis of project access, and a vehicle miles traveled (VMT) transportation assessment.

There have been modifications to the project description since the traffic study was completed, which include the following: the proposed paved automobile parking area is now located on the east side of the site instead of the northwest corner, trucks/trailers will be parked on the expanded site along the south and north sides of the site and will no longer be parked in the middle, trucks/trailers with TRUs will be parked exclusively along the north side of the site, and a new 45-foot wide driveway is now proposed on Railroad Avenue. An email was received on September 21, 2021 from Senior Transportation Engineer David Manciati from Fehr & Peers, which provided a response to these changes relative to the analyses conducted in the traffic study. Fehr & Peers stated that since the project's trip generation will not change, the VMT assessment conclusions will not change. It was also stated that the new driveway on the east side of the site will cause a greater portion of project traffic to use the Oswald Road/Railroad Avenue intersection; however, based on the trip generation estimate and traffic volumes presented in the traffic study, this volume shift will be minor and will result in no change to level of service (LOS) conclusions. It was also stated that the traffic study evaluated bicycle access on Oswald Road between SR 99 and Railroad Avenue, and directed the County to work with the applicant to condition the project consistent with Implementation Program M 5-C of the Sutter County General Plan, which is in place to “condition new development to construct bicycle and pedestrian lanes/trails and associated facilities in and supporting the development project in accordance to the County’s Bikeway and Pedestrian Master Plan and County improvement standards; and to the extent possible, connect these facilities to existing and planned bicycle lanes/trails.” In light of the proposed changes, the above direction also applies to Railroad Avenue north of Oswald Road, which is planned to be a future rural minor collector with a planned Class III bikeway in the vicinity of the project’s new driveway on the east side of the site. This planned Class III bikeway will connect to the planned Class III bikeway on Oswald Road west of Railroad Avenue.

Some of the key findings as listed in the traffic study are presented below, which apply to this section. The different sections in the traffic study provide additional analysis detail to support these key findings.

- The existing cross section on Oswald Road is consistent with Sutter County Standard Drawing H-3 for a rural local road. In addition, the Sangha driveways on Oswald Road are set back to provide future right-of-way for a 60-foot urban major collector street per Sutter County Standard Drawing H-5, providing compliance with the Implementation Program M 2-B in the Sutter County General Plan. The County will work with the applicant to condition the project consistent with Implementation Program M 2-E in the Sutter County General Plan.

- According to the *American Association of State Highway and Transportation Officials (AASHTO) Green Book 6th Edition* (2011), Oswald Road does not need to be widened to accept the truck traffic between the project site and SR 99. If the ADT on Oswald Road increases above 2,000 vehicles per day, AASHTO recommends widening the traveled way to 24 feet. The existing traveled way width of Oswald Road is 22 feet and the daily traffic on Oswald Road is approximately 1,680 vehicles.

- Regarding bicycle and pedestrian facilities, the County will work with the applicant to condition the project consistent with Implementation Program M 5-C in the Sutter County General Plan.

The Sutter County General Plan establishes the County's LOS policy for county roads. Policy M 2.5 is to develop and manage the County roadway segments and intersections to maintain LOS D or better during peak hours, and LOS C or better at all other times. These standards apply to all County roadway segments and intersections, unless otherwise addressed in an adopted specific plan or community plan. Trucks and trailers from the proposed site are proposed to use Railroad Avenue and Oswald Road leading to State Highway 99.

As shown in the traffic study, the Railroad Avenue/Oswald Road intersection, which is an all-way stop controlled 3-way intersection, is said to have a current traffic volume of 56 vehicles, a control delay of seven seconds per vehicle, and LOS A during the AM peak hour and a traffic volume of 58 vehicles, a control delay of seven seconds per vehicle, and LOS A during the PM peak hour. A trip generation estimate from the proposed project is included on page 13 in the traffic study. The proposed project is estimated to generate about 9 AM peak hour and 13 PM peak hour vehicle trips. While some of these trips will utilize the new driveway on Railroad Avenue and go through the Railroad Avenue/Oswald Road intersection, this increase in trips during peak hours will not change the current LOS of this intersection. A daily traffic volume of 7,200 vehicles is necessary for Railroad Avenue to be classified as LOS C. This intersection will continue to operate at LOS D or better during peak hours, and LOS C or better at all other times; therefore, it will operate consistent with General Plan Policy M 2.5.

As shown in the traffic study, the SR 99/Oswald Road intersection, which is a side-street stop controlled intersection, is said to have a current traffic volume of 1,615 vehicles, a control delay of 29 second per vehicle, and LOS D during the AM peak hour and a current traffic volume of 2,068 vehicles, a control delay of 105 seconds per vehicle, and LOS F during the PM peak hour. The majority of this traffic during the peak hours is from vehicles traveling north and south along State Highway 99 with the deficient movement occurring from Oswald Road. As stated in the traffic study, the proposed project is estimated to generate about 9 AM peak hour and 13 PM peak hour vehicle trips. While the proposed project will utilize the SR 99/Oswald Road intersection, this increase in trips during peak hours will not change the current LOS of this intersection and this is illustrated in Table 5 of the traffic study.

As referenced in the traffic study, the State Route 99 and Oswald Road Intersection Improvements report shows that traffic signal warrants 1 and 7 (Interruption of Continuous Traffic and Crash Warrant) are met at SR 99/Oswald Road under existing conditions. That report also presents signalization and roundabout installation as two intersection improvement alternatives. Table 7 in the traffic study shows existing-plus-project intersection operations with implementation of each of these two alternatives at SR 99/Oswald Road. Both a traffic signal and roundabout control would improve intersection operations at SR 99/Oswald Road to LOS A under existing-plus-proposed conditions. The alternatives would improve LOS to acceptable levels (i.e., LOS D or better) during the AM and PM peak hours. As explained below, Mitigation Measure No. 12

requires the applicant to calculate and pay the project's fair share contribution for future intersection improvements at Oswald Road/SR 99.

Currently, there are no bicycle or pedestrian facilities at the proposed project frontage. The traffic study evaluated bicycle access on Oswald Road between SR 99 and Railroad Avenue, and directed the County to work with the applicant to condition the project consistent with Implementation Program M 5-C of the Sutter County General Plan, which is in place to "condition new development to construct bicycle and pedestrian lanes/trails and associated facilities in and supporting the development project in accordance to the County's Bikeway and Pedestrian Master Plan and County improvement standards; and to the extent possible, connect these facilities to existing and planned bicycle lanes/trails." The above direction also applies to Railroad Avenue north of Oswald Road, which is planned to be a future rural minor collector with a planned Class III bikeway in the vicinity of the project's new driveway on the east side of the site. This planned Class III bikeway will connect to the planned Class III bikeway on Oswald Road west of Railroad Avenue. Mitigation Measure No. 13 as discussed below requires public road improvements, which includes bicycle lanes, on Oswald Road and Railroad Avenue.

The Development Services Engineering Division reviewed this project, including the traffic study, and determined that no additional land dedications are required. They have provided comments regarding transportation of this project. Based on these comments, the following mitigation measures are recommended:

> **Mitigation Measure No. 12 (Transportation):** FAIR SHARE CONTRIBUTION FOR INTERSECTION IMPROVEMENTS. The applicant shall calculate and pay the project's fair share contribution for future intersection improvements at Oswald Road/SR 99. The calculation shall be determined by a licensed Traffic Engineer based on the project's contribution to the cumulative traffic impact of Oswald Road and Railroad Avenue on SR99 and shall be subject to acceptance by the Director of Development Services. The fair share contribution shall be deposited into a County reserve account.
>
> **Mitigation Measure No. 13 (Transportation):** PUBLIC ROAD IMPROVEMENTS. Upon sixty days written notice being provided by the County and upon the County providing a copy of Engineered Improvement Plans for Oswald Road and Railroad Avenue to the applicant/property owner, the applicant/property owner shall submit to County their fair-share costs for improvements to Oswald Road and Railroad Avenue as specified in Deferred Improvement Agreement 2013-0014435. Improvements shall include, but are not limited to, the full half-width of street adjacent to the parcel and shall meet current County Development Standards for the roadway classification to include at a minimum street paving, curb, gutter, sidewalk, handicap ramp, street lighting, bicycle lanes, drainage inlets, drainage manholes, drainage pipe laterals, and a trunk drain line.

Mitigation Measure No. 12 will be required to be completed prior to commercial use of the site and Mitigation Measure No. 13 will be required upon sixty days written notice from the County of the start of construction for Oswald Road and Railroad Avenue improvements. These mitigation measures will reduce potential transportation impacts to a less than significant level.

The property owner(s) are required to enter into a utilities agreement with the County. The agreement will run with the land and be binding on all successors in interest and shall provide for establishment of a financing mechanism to pay the continuing operations and maintenance of future street lighting. The agreement will require the property owner(s) to vote to join a streetlight maintenance district once formed. This requirement for a utilities agreement will be included as a proposed project condition. Based on the findings of the traffic study and with the proposed mitigation measures incorporated into the project, a less than significant impact is anticipated.

b) **Less than significant impact.** This project will not conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b). This section of CEQA states that vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. This section also states VMT exceeding an applicable threshold of significance may indicate a significant impact.

The County has not adopted a threshold of significance for VMT. The traffic study prepared by Fehr & Peers includes a VMT impact assessment and uses the guidance in the Governor's Office of Planning and Research's (OPR's) Technical Advisory for the assessment.

CEQA Guidelines Section 15064.3 defines VMT as the “amount and distance of automobile travel attributable to a project.” The Technical Advisory further clarifies that “the term ‘automobile’ refers to on-road passenger vehicles, specifically cars and light trucks.” “Heavy duty truck VMT could be included for modeling convenience and ease of calculation,” though the guidelines do not currently require it. The Technical Advisory specifically requires passenger vehicle VMT and not heavy-duty truck VMT.

Senate Bill (SB) 743 governs the application of new CEQA guidelines for addressing transportation impacts based on VMT. Because Sutter County has not yet adopted guidelines or policies for dealing with VMT, guidance from OPR's Technical Advisory was employed to evaluate VMT impacts. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact. Of these screening criteria, "small projects" applies to the proposed project.

- Small projects
- Projects near transit stations
- Affordable residential development
- Local-serving retail
- Projects in low VMT areas

As stated in the assessment, the probable total daily project trip generation is expected to be less than 80 trips, which does not include traffic from current site operations. This trip generation is based on published trip rates for the automobile care center Institute of Transportation Engineer's (ITE) land use category and based on information provided by the applicant.

As stated in this assessment, the estimated daily trip generation of the proposed project is less than 110 trips. This estimate is conservative as it comprises of both passenger vehicle and heavy-duty truck traffic, though heavy-duty truck VMT is not required by CEQA. Based on OPR's Technical Advisory "small projects" screening criteria, this project's VMT impact is concluded to be less than significant.

c-d) **Less than significant impact.** This project will not substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) nor will it result in inadequate emergency access. The project site has adequate frontage on Oswald Road and Railroad Avenue, which are both County maintained roads. The project site is accessed by Oswald Road, which runs in a straight east-west direction along the front of the property. A 70-foot-wide paved driveway on the east side of the existing developed site provides access to the shop area from Oswald Road. A 50-foot-wide driveway with a paved encroachment on the west side of the existing developed site provides access to the gravel surfaced truck and trailer storage area from Oswald Road. The proposed parking area will connect to the existing facility by connecting to the east side of the existing site and will utilize the existing 70-foot-wide paved driveway on Oswald Road. A new paved 45-foot-wide driveway is proposed on Railroad Avenue. The applicant will be required to obtain an encroachment permit to improve the driveway to a County standard. The driveway will be required to be paved with asphalt or concrete from Railroad Avenue to the right-of-way line. This requirement will be included as a proposed project condition. The Fire Services Division has reviewed this project and has stated that the new access gate will need to meet the Commercial Occupancy Fire Access standards for the County and have a Knox lock system installed. This requirement will be included as a proposed project condition.

Site access on Oswald Road was evaluated in the traffic study. The study showed that the existing plus project traffic volume on Oswald Road does not justify widening of the County road to provide separate left turn lanes. The sight distance evaluation showed that the driveways maintain adequate sight distance to approaching vehicles under existing-plus-project conditions. Due to the width of the two existing driveways into the site and the distance of the driveways from State Highway 99, there will not be access issues for this project. As indicated by the traffic study, site access modification or other mitigation is not required to address access issues.

No impacts have been identified by the traffic study or by the Development Services Engineering Division or Fire Services indicating an increased hazard will result. As stated previously, the portion of Oswald Road from State Highway 99 easterly to Railroad Avenue and then north on Railroad Avenue for approximately 620 feet to 3865 Railroad Avenue is signed and designated as a STAA truck terminal route. This STAA route was established in conjunction with the approval of Project #05-089 on September 19, 2006. Since Oswald Road and Railroad Avenue adjacent to the project site is a STAA truck route, the project site will continue to accommodate STAA trucks. This project will be required to comply with all County roadway safety, emergency access, and design standards, and any associated General Plan policies. A less than significant impact is anticipated with the previously listed mitigation measures in place.

(County of Sutter, General Plan Technical Background Report. 2008)
(County of Sutter, General Plan 2030. 2011)
(Fehr & Peers, Sangha Truck & Trailer Repair Expansion – Traffic Study. September 2020)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES.				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Responses:

i-ii) **Less than significant impact.** In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the Public Resources Code regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. The County initiated AB 52 consultation through distribution of letters to the Native American tribes provided by the Native American Heritage Commission (NAHC). No requests for consultation or comments were received from any of the Native American tribes during the review period.

The project site consists of two parcels, which are each two acres in size and are located adjacent to the existing Sangha Truck and Trailer Repair site. These parcels are located at the northwest corner of Oswald Road and Railroad Avenue. These parcels have been used agriculturally in the past. The northern parcel contains an unoccupied 7,500 square foot restaurant building and the southern parcel contains an unoccupied 2,000 square foot residence. The site has been extensively disturbed due to past agricultural operations and development. The project site is not located within the vicinity of the Bear River, Sacramento River, or Feather River. There is no evidence on the project site indicating that tribal cultural resources exist. Mitigation Measure No. 3 is proposed in the cultural resources section to protect possible disturbance of human remains should they be encountered. With this mitigation measure in place, no additional mitigation is necessary. A less than significant impact to tribal cultural resources as a result of this project is anticipated.

XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Responses:

a) **Less than significant impact.** This project will not require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. This project will require no new water service, wastewater treatment service, electric power, natural gas, or telecommunications facilities. Any additional utility needs will tie into existing utilities being provided at the site. Private drainage improvements will be required for the site as discussed previously in the Hydrology and Water Quality section. The environmental impacts of the construction of these onsite drainage improvements are addressed in this environmental document. The applicant is required to obtain coverage under the State Construction General Permit, under the National Pollutant Discharge Elimination System (NPDES) program (Mitigation Measure 4). This program requires implementation of erosion control measures designed to avoid significant erosion. The NPDES construction permit requires implementation of a Storm Water Pollution Prevention Program (SWPPP) that includes storm water best management practices to control runoff, erosion, and sedimentation from the site. No additional mitigation is needed, and a less than significant impact is anticipated.

b) **Less than significant impact.** This project will have sufficient water supplies available to serve the project and reasonably foreseeable future development. The proposed project is not located in an area that is served by a public water provider. Water is provided by an on-site well that is assumed to be sufficient to serve this project. As stated above in the Hydrology and Water Quality section (Section 10b), this project is not anticipated to substantially increase the amount of water used onsite beyond what is currently used at the existing truck and trailer repair site. The amount of water used at the project site is anticipated to be less than historical uses at the site, which consisted of a residence, a restaurant, and field crops. A less than significant impact is anticipated.

c) **No impact.** This project will not result in a determination by a wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's

projected demand in addition to the provider's existing commitments. This project is not located in an area that is served by a wastewater treatment provider. Individual sewage disposal systems are currently the only method of providing sewage disposal for the project area. Therefore, a demand will not be placed on a local sanitary sewer system and no impact is anticipated.
d-e) **Less than significant impact.** This project will have a less than significant impact on solid waste. Solid waste from this project will be disposed of through the local waste disposal company in a sanitary landfill in Yuba County which has sufficient capacity to serve this project. Project disposal of solid waste into that facility will comply with all federal, state, and local statutes and regulations related to solid waste. As a result, a less than significant impact is anticipated.

(County of Sutter, General Plan Technical Background Report. 2008)

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

Responses:

a-d) **No impact.** The subject property is not located in or near state responsibility areas or lands classified as very high fire hazard severity zones; therefore, no impacts are anticipated.

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

Responses:

a) **Less than significant impact.** No environmental effects were identified in the initial study which indicate this project will have the ability to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Mitigation Measure No. 3 is proposed in the cultural resources section to protect possible disturbance of human remains should they be encountered.

b) **Less than significant impact.** This project will not result in impacts that are individually limited, but cumulatively considerable. There are ten existing truck yard facilities located primarily along the State Highway 99 corridor south of Yuba City and these include yards along Oswald Road and Railroad Avenue. The County is currently processing the application for the currently proposed project and expansion of one other existing truck yard facility on Oswald Road. A previous application to establish a truck yard at the southeast corner of Walnut Avenue and State Highway 99 was denied by the Board of Supervisors on August 10, 2021. On March 10, 2020, the Board of Supervisors, approved entering into a consultant agreement with Environmental Science Associates (ESA) to prepare a cumulative analysis report to help the County better understand effects of operation of the existing ten truck yards, and to determine potential cumulative effects of operation of existing and proposed trucks yards on air quality, health risk, hydrology, lighting, noise, and traffic conditions in the area. A copy of the final cumulative analysis report is included as an attachment to this initial study.

On June 22, 2021, the Sutter County Board of Supervisors received the final cumulative analysis report for truck yard operations within the study area and directed staff to complete site inspections of each permitted facility in the study area and initiate code enforcement action for deficiencies identified together with any deficiencies identified by the cumulative analysis report. Site inspections have been completed at each permitted facility and enforcement action is in process.

The completed cumulative analysis report, attached to this initial study, was prepared to assess the existing truck yard operations as well as analyze cumulative conditions that would result from the approval of three pending truck yard applications. As stated previously, an application from HSD Trucking to establish a truck yard at the southeast corner of Walnut Avenue and State Highway 99 was denied by the Board of Supervisors on August 10, 2021. The HSD Trucking site was included in the cumulative analysis report at the time it was prepared as the application was still pending at that time. A summary of the findings is included below. Prepared technical analyses evaluates air quality, health risk, hydrology, lighting, noise, and traffic impacts resulting from these truck yard operations and to determine whether the truck yards are in compliance with existing operating permits, and to ascertain whether approval of the pending yards would result in cumulative environmental impacts.

Air Quality

In terms of air quality impacts, the existing truck yards generate emissions of criteria pollutant emissions and toxic air contaminants (TACs) during operations from vehicle trips, truck trips, and operation of trucks equipped with transportation refrigeration units (TRUs). Emissions of nitrogen oxides (NO_x) from three of the existing yards currently exceed FRAQMD thresholds of significance, as identified in the FRAQMD Indirect Source Review Guidelines (Guidelines) for the California Environmental Quality Act (CEQA). While none of the existing yards exceed the thresholds for reactive organic gases (ROG) or particulate matter less than 10 microns in diameter (PM_{10}), operation of Legend Transportation, Sangha Trucking, and Parm Bain's Highway 99 Travel Center truck yards exceed the threshold of significance for operational NO_x emissions. Emissions that would be generated from construction and operation of each of the proposed truck yards were also calculated to determine if they would exceed the FRAQMD thresholds of significance upon project approval. Construction emissions would not exceed the FRAQMD thresholds of significance for any of the criteria air pollutants; however, it was found that emissions of NO_x from the proposed Legend Transportation Expansion project would exceed the FRAQMD thresholds of significance for operations. None of the proposed yards would exceed the FRAQMD CEQA operational thresholds of significance for either ROG or PM_{10}.

Health Risk Assessment

Exposure of sensitive receptors to potential health risks were analyzed based on TAC emissions, specifically diesel particulate matter (DPM) emissions, that are generated from operation of existing truck yards, and would be generated during construction and operation of proposed truck yards. Health risks include increased cancer probability (excess cancer risk per million) and chronic health hazard index, which is a measure of long-term, non-cancer health effects. Health risks were evaluated starting with the construction period for the proposed truck yards and extending to 30 years of operations, as health risk accumulates over the period of exposure to pollutants. The modeling for the operation of the existing ten truck yards calculated that the cancer risk at the maximally exposed individual resident (MEIR) is 101.4 in one million. The FRAQMD Guidelines do not currently include thresholds of significance with which to evaluate health risk impacts; therefore, this analysis used the health risk thresholds of significance established by the

Bay Area Air Quality Management District (BAAQMD). The MEIR for the existing truck yard operations exceeds the cumulative BAAQMD CEQA threshold of 100 in one million. However, the chronic hazard index that would result from the existing truck yards would not exceed the hazard index threshold established by the BAAQMD. Similarly, health risk that would result from construction of the three proposed new and expanded yards would generate cancer risk that would exceed the BAAQMD project-level thresholds of significance for cancer risk (i.e. 10 in one million), when added to existing risk, but would not exceed the project-level threshold of significance for chronic hazard index. Finally, the maximum increase in cancer risk at the MEIR under the cumulative scenario considering both existing and proposed truck yards would exceed the BAAQMD cumulative cancer risk threshold at 108.6 in one million but would not exceed the chronic hazard index. It was determined that the project-level threshold of ten per million is the most appropriate standard for County use in determining the health risk of new yards, and yard expansions, on the surrounding community.

Hydrologic Assessment

Hydrologic conditions in the area were assessed during site visits that were completed during the dry season in August 2020. Based on information collected during this analysis it was determined that the truck yards are not in compliance with the State of California's Industrial Stormwater Permit Program. While the yards may be in non-compliance with State regulatory requirements, none of the existing truck yards showed obvious signs of poor stormwater drainage, and most of the sites have hydrologic infrastructure to direct runoff into drains, ditches, and culverts to avoid flooding. In addition, the proposed yards would include drainage infrastructure that would likely avoid flooding or ponding on-site. Most of the existing truck yard sites did not show signs of pollutant discharge that could negatively affect water quality and groundwater resources. However, during the site visits at Sangha Trucking (1055 Oswald Road) and Nar Heer #2 (1104 Oswald Road) sites, ground discoloration was observed, indicating that oil may have leaked from trucks or employee automobiles. While the approval of the proposed Legend Transportation (1235 Oswald Road) and Sangha Trucking (909 Oswald Road/3971 Railroad Avenue) expansion projects would increase the number of trucks onsite, proper maintenance of these vehicles would not result in oil leaks that could contribute to surface or groundwater pollutants.

Lighting Assessment

Lighting observations made during the August 2020 site visits indicated that some of the truck yards, including Sangha Trucking and Parm Bains, include bright stadium lighting that does not necessarily fit in with the character of the surrounding land uses. Additionally, some of the existing truck yards are operating in violation of their permit conditions to include shielding on light fixtures. None of the existing truck yards generate light that spills over into adjacent properties. The Sangha Trucking Expansion and Legend Transportation Expansion projects are likely to include installation of additional light sources; however, consideration of proper angling and installation of shielding on light fixtures would mitigate impacts. Enforcement action is in process to require the applicant to install shielding on existing light fixtures at the existing Sangha Truck and Trailer Repair site. The proposed project incorporates proper angling and installation of shielding on proposed light fixtures.

Noise Assessment

Long-term noise level measurements were conducted throughout the study area in August 2020 to establish existing ambient noise concentrations in proximity of the noise-sensitive land uses in the area such as residences and schools. The proposed new and expanded truck yards were then evaluated to determine whether they would result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of applicable standards, and whether they would generate excessive groundborne vibration or groundborne noise levels. The analysis found that the construction of the proposed yards would not likely result in impacts from construction noise or vibration. Furthermore, operational noise from proposed new and expanded truck yards could result from truck maneuvering and operation of TRUs; however, these impacts could be reduced through a combination of measures including designation TRU operational areas at each site, and/or construction of noise barriers sufficient to block the line of sight between truck yards and receptors. Operational roadway noise from the cumulative operation of existing and proposed truck yards would not significantly increase noise levels along local roadways.

Traffic Study

A traffic study was prepared to analyze existing level of service (LOS) at six study intersections and three roadway segments in the vicinity of the truck yard sites, as well as queue lengths at the same six study intersections. In addition, the study calculated trip generation estimates for the three proposed new and expanded truck yards; and used the trip generation estimates to determine operating conditions at the six intersections and three roadways segments under a cumulative scenario that accounted for existing plus proposed truck yard operation. The study yielded the following conclusions related to LOS, queuing, and vehicle miles traveled (VMT). Three study intersections (SR 99/Reed Road, SR 99/Walnut Avenue, and SR 99/Oswald Road) currently operating below Sutter County's adopted LOS threshold would experience a vehicle delay increase with the proposed projects. In contrast, study roadway segments would continue to operate at LOS C or better, and average maximum vehicle queues would be less than corresponding storage lengths under existing-plus-proposed conditions. HSD Trucking is currently exceeding its truck limit and is contributing to unacceptable traffic operations at three study intersections (SR 99 /Reed Road, SR99/Walnut Avenue, and SR99/Oswald Road). Lastly, while the HSD Trucking and Sangha Expansion projects would meet CEQA's significance criteria for VMT, the office component of the Legend Transportation Expansion project would result in workplace VMT per job that does not meet the criteria.

Table ES-1 Recommendations

Table ES-1 in the attached cumulative analysis report presents recommendations identified to reduce air quality, health risk, hydrology, lighting, noise, and traffic impacts that could result from the existing and proposed truck yards. These recommendations are not intended to be implemented for every future new truck yard and existing truck yard expansion but are suggested as options to reduce risk. Each individual application and project will have different challenges and individual opportunities for which a different suite of these recommendations can be considered and implemented.

Air Quality

Rec-Air-1: Prepare Air Quality Technical Report with Health Risk Assessment. For all proposed new yards and expansions, prepare an air quality technical report that compares project-level health risks to the BAAQMD thresholds of 10 cancers per million and chronic hazard index of 1.0. If projects exceed the thresholds, implement the following recommended measures, where feasible, to reduce health risk below the BAAQMD recommended thresholds of significance.

An air quality technical report with health risk assessment was prepared for the proposed project and found that it would not exceed a threshold of 10 cancers per million and chronic hazard index of 1.0; therefore, implementing the recommended measures is not necessary. In addition, the proposed project complies with the recommended measure stated below.

Rec-Air-1f: Require model year 2014 or newer heavy-duty trucks. The proposed project complies with this air quality recommendation. As part of this proposed project, all trucks that will be parked in the proposed parking area and existing parking area will be 2017 or newer; therefore, the project as proposed complies with this recommended mitigation measure from the cumulative analysis report. These are designated by the California Air Resource Board as Low-Emission Trucks.

Hydrology

Rec-Hydro-2: Further analysis of industrial stormwater compliance. The existing Sangha Truck and Trailer Repair site gained appropriate coverage under a Construction General Permit during construction. Coverage under a Construction General Permit will also be required for construction of the proposed project. As the existing site has a truck and trailer maintenance shop, the site requires coverage under the Industrial Storm Water Permit. The applicant has been notified of this requirement and is working on obtaining coverage.

Lighting

Rec-Light-1: Enforce lighting standards at existing yards. Enforcement action is in process to require the installation of shielding on the lights at the existing developed site.

Rec-Light-2: Implement lighting-related conditions of approval at future yards. As stated in the Aesthetics Section (Section 1), the applicant has submitted an exterior lighting (photometric) plan for lighting at the proposed site, demonstrating compliance with the design requirement for lighting. Eight of the LED lights are proposed to be mounted at 18 feet and four are proposed to be mounted at approximately 15 feet with fixtures titled toward the project site. All lights are proposed to be motion activated and have shields meeting the County lighting requirements. Outdoor lighting will be required to be installed in accordance with the lighting plan prior to use of the site for truck/trailer and vehicle parking, which will be included as a proposed project condition.

Noise

Rec-Noise-1: Designate TRU operational areas. There will be a maximum of 20 TRUs on the proposed site. Of these 20 TRUs, only five will be running for up to two hours a day during the summer. The TRUs will be CARB compliant, which shows they meet Ultra-Low-Emission TRU in-use standards. The TRUs will be parked in a designed area at the north side of the proposed parking area so that the sound is dissipated before it reaches a proposed solid wall along the south side of the site.

Rec-Noise-2: Provide sound barriers on property lines adjacent to noise-sensitive land uses. Mitigation Measure No. 10 requires the proposed solid wall on the south side of the project site to be no less than eight feet in height such that the line-of-sight is broken between the receptor and TRUs.

Transportation

Rec-Traffic-1: Improve traffic operations at SR 99/Oswald Road intersection. Mitigation Measure No. 12 requires the applicant to calculate and pay the project's fair share contribution for future intersection improvements at Oswald Road/SR 99.

Based on the analysis conducted in the cumulative analysis report and with the mitigation measures proposed for this project, this project's contribution to cumulative impacts is anticipated to be less than significant.

c) **Less than significant impact**. No environmental effects which will cause substantial adverse effects on human beings either directly or indirectly were identified in the initial study.

(ESA, Sutter County Truck Yard Study Technical Report. May 2021)

MITIGATION MONITORING PROGRAM – Project #U-19-014 (Sangha)

Mitigation Measure	Timing	Monitoring Agency
Mitigation Measure No. 1 (Air Quality): IMPLEMENT FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT (FRAQMD) STANDARD MITIGATION MEASURES. The project applicant shall implement the following FRAQMD-recommended Standard Mitigation Measures for projects that do not exceed construction or operational thresholds of significance. • Implement the Fugitive Dust Control Plan prior to any on-site grading, landscaping, or construction activities. The applicant shall submit the fugitive dust control plan to FRAQMD for review and approval. A copy of the approved plan shall be submitted to the Development Services Department. • Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringlemann 2.0). • The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation. • Limit idling time to 5 minutes – saves fuel and reduces emissions in accordance with 13 California Code of Regulations (CCR) Chapter 10 Section 2485 and 13 CCR Chapter 9 Article 4.8 Section 2449. • Utilize existing power sources or clean fuel generators rather than temporary power generators.	Prior to construction activities/Ongoing	FRAQMD / Development Services

Mitigation Measure	Timing	Monitoring Agency
• Develop traffic plans to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites. • Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultation with CARB or FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.		
Mitigation Measure No. 2 (Air Quality): To mitigate long term dust issues in the outdoor storage areas, the applicant shall apply a suppressant compound acceptable to FRAQMD or reapply gravel on a regular basis as needed to maintain a minimum of four inches of gravel.	Ongoing	FRAQMD / Development Services
Mitigation Measure No. 3 (Cultural Resources): California Health and Safety Code §7050.5 states that when human remains are discovered, no further site disturbance can occur until the County Coroner has made the necessary findings as to the origin of the remains and their disposition pursuant to Public Resources Code §5097.98. If the remains are recognized to be those of a Native American, the coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours.	During construction activities	Construction personnel
Mitigation Measure No. 4 (Geology and Soils): SWPPP & NPDES GENERAL CONSTRUCTION PERMIT. The applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) with the State Water Resources Control Board to obtain coverage under the California State Water Resources – General Construction Activity Storm Water Permit. The applicant shall provide the WDID number for the project to the County.	During and prior to completion of the project	RWQCB / Development Services Engineering Division
Mitigation Measure No. 5 (Hydrology and Water Quality): FAIR SHARE CONTRIBUTION FOR DRAINAGE IMPROVEMENTS. The applicant shall calculate and pay the project's fair share contribution for future Drainage Improvements needed to connect Oswald Road to Gilsizer Drainage District if and when this area is annexed to the	Prior to commercial use of the site	Development Services Engineering Division

Mitigation Measure	Timing	Monitoring Agency
Gilsizer District. The applicant shall join the Gilsizer Drainage District once facilities are made available.		
Mitigation Measure No. 6 (Hydrology and Water Quality): DRAINAGE STUDY. Prior to issuance of a grading permit, the applicant shall obtain approval from the Director of a final drainage study that reflects final design conditions for the proposed project per County Standards. The Drainage Study shall be completed and stamped by a Professional Engineer and determined by the County to be comprehensive, accurate, and adequate.	Prior to issuance of a grading permit	Development Services Engineering Division
Mitigation Measure No. 7 (Hydrology and Water Quality): PRIVATE DRAINAGE IMPROVEMENTS. Prior to commercial use of the site, the applicant shall construct private onsite drainage ditches/basins that provide storm water detention/retention. The drainage improvements shall be sized based on the recommendations of an approved drainage study for this project in compliance with County standards. The drainage ditches/basins shall not be connected to the roadside swales. The applicant must obtain a grading permit from the County prior to any grading for storm water retention ditches/basins.	Prior to commercial use of the site	Development Services Engineering Division
Mitigation Measure No. 8 (Hydrology and Water Quality): PRIVATE DRAINAGE FACILITIES MAINTENANCE AGREEMENT. The property owner shall enter into a Private Drainage Facilities Maintenance Agreement with Sutter County committing the property owners and all successors in interest to maintain the private drainage facilities associated with this project to ensure peak 10- and 100-year storm capacity per the approved drainage study for the project.	Prior to commercial use of the site	Development Services Engineering Division
Mitigation Measure No. 9 (Hydrology and Water Quality): DRAINAGE, GRADING, AND CONSTRUCTION. All impacts to the site must be mitigated in the project area or lands acquired for mitigation by the project. Any Grading or Site Improvements shall be done per an approved plan and in accordance with Sutter County Development Standards. Plans shall be reviewed and approved for construction by the Director of Development Services prior to the start of construction.	During and prior to completion of the project	Development Services Engineering Division
Mitigation Measure No. 10 (Noise): INCREASE PROPOSED WALL HEIGHT. Prior to use of the site for truck/trailer and vehicle parking, the project applicant shall obtain a building permit and ensure that the proposed solid wall along the southern property line will be no less than eight feet in height from the eastern property border of the project site for a length of 500 feet extending westward along the south side of the project. The wall shall be of solid construction	Prior to commercial use of the site	Development Services

Mitigation Measure	Timing	Monitoring Agency
with no visible gaps. An acoustical study shall be prepared by a qualified acoustical engineer after final construction to verify compliance with a performance standard of 55 dBA at the nearest receptors.		
Mitigation Measure No. 11 (Noise): All project related noise-generating construction activities shall be limited to daytime hours between 7:00 a.m. and 6:00 p.m. on weekdays, 8:00 a.m. and 5:00 p.m. on Saturdays, and prohibited on Sundays and holidays unless permission for the latter has been applied for and granted by the County.	During construction activities	Development Services
Mitigation Measure No. 12 (Transportation): FAIR SHARE CONTRIBUTION FOR INTERSECTION IMPROVEMENTS. The applicant shall calculate and pay the project's fair share contribution for future intersection improvements at Oswald Road/SR 99. The calculation shall be determined by a licensed Traffic Engineer based on the project's contribution to the cumulative traffic impact of Oswald Road and Railroad Avenue on SR99 and shall be subject to acceptance by the Director of Development Services. The fair share contribution shall be deposited into a County reserve account.	Prior to commercial use of the site	Development Services Engineering Division
Mitigation Measure No. 13 (Transportation): PUBLIC ROAD IMPROVEMENTS. Upon sixty days written notice being provided by the County and upon the County providing a copy of Engineered Improvement Plans for Oswald Road and Railroad Avenue to the applicant/property owner, the applicant/property owner shall submit to County their fair-share costs for improvements to Oswald Road and Railroad Avenue as specified in Deferred Improvement Agreement 2013-0014435. Improvements shall include, but are not limited to, the full half-width of street adjacent to the parcel and shall meet current County Development Standards for the roadway classification to include at a minimum street paving, curb, gutter, sidewalk, handicap ramp, street lighting, bicycle lanes, drainage inlets, drainage manholes, drainage pipe laterals, and a trunk drain line.	Upon sixty days written notice from the County of the start of construction for Oswald Road and Railroad Avenue improvements	Development Services Engineering Division

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<u>Attachments:</u>

1. ESA Letter to County 9-22-2021
2. ESA Sangha Trucking Facility Expansion Technical Report
3. ESA Sutter County Truck Yard Study Technical Report

ATTACHMENT 1

ESA Letter to County 9-22-2021

ESA

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esassoc.com

September 22, 2021

Doug Libby
Sutter County Development Services Department
1130 Civic Center Blvd., Suite A
Yuba City, CA 95993

Subject: Sangha Trucking Proposed Expansion Revised Site Plan

Dear Mr. Libby:

It has come to our attention that there have been modifications to the Sangha Trucking Proposed Expansion project description since our technical report analyzing the project was completed in September 2020. ESA understands that the following design changes to the Sangha Trucking expansion project have been proposed:

1. The proposed paved automobile parking area is now located on the east side of the site instead of the northwest corner.
2. Trucks/trailers will be parked on the expanded site along the south and north sides of the site and will no longer be parked in the middle.
3. Trucks and trailers with TRUs will be parked exclusively along the north side of the site.
4. A new 40-foot wide driveway is proposed on Railroad Avenue.

It is also important to note that the number of automobile and truck/trailer parking areas shown on the new site plan match the number shown on the previous site plan; therefore, there is no change in the number of vehicles proposed.

As mentioned above, ESA prepared a technical report detailing the potential impacts to air quality, health risk assessment, greenhouse gas emissions, and noise from the proposed truck yard expansion, as designed in September 2020. This letter provides a qualitative assessment of these changes relative to the analyses conducted in the September 2020 technical report.

After analysis, ESA has come to the conclusion that the changes listed above would not affect the conclusions of the technical report, most recently updated in May 2021, for the following reasons:

- There would be no increase in emissions associated with relocating parking to the east side of the site.

- There are no sensitive receptors to the north and east of the site. Because of this, a) relocation of the TRUs to the north side of the site would not increase any air quality or noise impacts to sensitive receptors, and b) construction of the asphalt driveway on the east side of the site would not increase air quality or noise impacts to sensitive receptors.

- Although there would be some increase in criteria pollutant and greenhouse gas emissions associated with construction of the asphalt driveway, the increase is not expected in an amount that would exceed the Feather River Air Quality Management District significance thresholds. The original analysis showed emissions from the original design to be well below the thresholds.

- The number of vehicles accessing the site would not increase, so there would not be a change to operational impacts to air quality or greenhouse gas emissions or noise.

Based on the above reasons, it is ESA's conclusion that the design changes to the proposed expansion would not lead to additional, potentially significant impacts to air quality, health risk, greenhouse gases, or noise.

Sincerely,

Cheri Velzy

Cheri Velzy
Senior Managing Associate

Cc: Casey Murray (Sutter County)
Chris Easter (ESA)

ATTACHMENT 2

ESA Sangha Trucking Facility Expansion Technical Report

SANGHA TRUCKING FACILITY EXPANSION, SUTTER COUNTY, CALIFORNIA

Air Quality, Greenhouse Gas, Noise, and Traffic Technical Report

Prepared for
Sangha Truck and Trailer Repair

September 2020

ESA

SANGHA TRUCKING FACILITY EXPANSION, SUTTER COUNTY, CALIFORNIA

Air Quality, Greenhouse Gas, Noise, and Traffic Technical Report

Prepared for
Sangha Truck and Trailer Repair

September 2020

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EXECUTIVE SUMMARY

ESA conducted an analysis of potential impacts to Air Quality, Greenhouse Gases, Noise, and Traffic from the Sangha Truck and Trailer Repair expansion project. This analysis was prepared for submittal to the Sutter County Development Services Department for the land use application process. This information is available to be included in a California Environmental Quality Act (CEQA) document prepared by Sutter County. This technical report includes the details of the environmental impact analysis as required by CEQA. The traffic study was conducted by Fehr & Peers and is included as a stand-alone technical memorandum in Appendix C of this technical report.

The proposed project includes construction and operational use of a four-acre parking area adjacent to the existing Sangha Truck and Trailer Repair site. The proposed site is located at 3971 Railroad Avenue and 909 Oswald Road, while the existing yard operates at 1055 Oswald Road in Sutter County, California (**Figure 1**). The site would serve as a truck storage area for trucks being serviced by the Sangha Truck and Trailer Repair shop which performs oil changes, engine repairs, clean idle upgrades, tire installation and repair, body repair, and painting. The site would also provide some automobile parking spaces for employee and truck driver's personal vehicles. The proposed project site would serve a maximum of twenty transportation refrigeration units (TRUs), only five of which would be running for up to two hours per day during the summer months.

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CHAPTER 1
Air Quality and HRA Technical Report

1.1 Introduction

This section describes existing air quality in the project area and surrounding region, details the associated regulatory setting, and presents an analysis of potential impacts of project construction and operations activities on air quality.

1.2 Environmental Setting

Existing air quality conditions in the project area are influenced by topography, meteorology, and climate, in addition to the types and quantities of emissions released by air pollutant sources both locally and regionally.

1.2.1 Climate and Topography

The proposed project site is located in Sutter County, which is within the boundaries of the Sacramento Valley Air Basin (SVAB). Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. These mountain ranges channel winds through the air basin and act as barriers that inhibit the dispersion of pollutant emissions. In the winter, temperatures average in the low 50s during the day and the upper 30s at night. During winter, north winds become more frequent, but winds from the south predominate. Rainfall occurs mainly from late October to early May, averaging approximately 20 inches per year, but varies substantially each year.[1]

In addition to the prevailing wind patterns that influence the rate at which local pollutant emissions disperse, Yuba and Sutter Counties experience two types of inversions that affect air quality. The first type of inversion layer contributes to photochemical smog conditions by confining pollution to a shallow layer near the ground. This condition occurs in the summer when sinking air forms a "lid" over the region. The second type of inversion occurs when the air near the ground cools while the air aloft remains warm. These inversions occur during winter nights and can cause localized air pollution "hot spots" near emission sources because of poor dispersion.[2]

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1 Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land use Projects Under the California Environmental Quality Act.* June 7, 2010. Available at https://www.fraqmd.org/ceqa-planning. Accessed May 29, 2020.

2 Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land use Projects Under the California Environmental Quality Act.* June 7, 2010. Available at https://www.fraqmd.org/ceqa-planning. Accessed May 29, 2020.

1.2.2 Air Pollutants of Concern

As required by the federal Clean Air Act of 1970, the U.S. Environmental Protection Agency (EPA) has identified six criteria air pollutants that are pervasive in urban environments and for which national and state health-based ambient air quality standards have been established. EPA calls these pollutants “criteria air pollutants” because the agency has regulated them by developing specific public health– and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead are the six criteria air pollutants identified by EPA.

1.2.3 Existing Air Quality Conditions

Existing Ambient Air Quality

CARB operates two monitoring sites within the jurisdictional area of the Feather River Air Quality Management District (FRAQMD). One site, located on Almond Street in Yuba City, can be considered indicative of air quality levels in the Yuba City–Marysville area. The second monitoring site is located on top of the South Butte in the Sutter Buttes mountain range, approximately 2,000 feet above the valley floor. This site is a special-purpose monitoring site, designed to record the transport of ozone from populated areas into the northern Sacramento Valley.

The Yuba City monitoring station is located at 1275 Walnut Avenue in Yuba City. The Yuba City monitoring station monitors ozone, NO_2, PM_{10}, and $PM_{2.5}$, which are the air pollutants of concern for the proposed project. **Table 1-1** shows a three-year summary of monitoring data (2016-2018) for these pollutants from the Yuba City monitoring station.

TABLE 1-1
AIR QUALITY DATA SUMMARY (2016–2018) FOR THE YUBA CITY MONITORING STATION

Pollutant	Standard[a]	Monitoring Data by Year[b]		
		2016	2017	2018
Ozone				
Highest 1-Hour Average (ppm)	0.090 ppm	0.075	0.085	0.086
State Standard Exceedance Days		0	0	0
Highest 8-Hour Average (ppm)	0.070 ppm	0.065	0.074	0.072
State Standard Exceedance Days		0	2	1
National Standard Exceedance Days		0	2	1
NO_2				
Highest Hourly Average (ppm)	0.18 ppm	0.040	0.049	0.051
Measured Days over State Standard		0	0	0

TABLE 1-1 (CONTINUED)
AIR QUALITY DATA SUMMARY (2016–2018) FOR THE YUBA CITY MONITORING STATION

Pollutant	Standard[a]	Monitoring Data by Year[b]		
		2016	2017	2018
PM_{10}				
Highest 24-Hour Average (μg/m^3)		51.7	145.5	339.6
Measured Days over National Standard	150 μg/m^3	0	0	8
Measured Days over State Standard	50 μg/m^3	1	19	40
State Annual Average (μg/m^3)	20 μg/m^3	20.4	21.8	–
$PM_{2.5}$				
Highest 24-Hour Average (μg/m^3)	35 μg/m^3	40.1	47.2	285.0
Measured Days over National Standard		1	2	8
State Annual Average (μg/m^3)	12 μg/m^3	11.4	11.9	18.1
National Annual Average (μg/m^3)	12 μg/m^3	8.1	9.2	10.2

NOTES: μg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; ppm = parts per million

a Generally, State standards and national standards are not to be exceeded more than once per year.
b "—" indicates that data are not available.

SOURCE: California Air Resources Board (CARB), 2019. *iAdam: Air Quality Data Statistics: Top 4 Summary*. Available at https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed May 29, 2020.

Sensitive Receptors

Degraded air quality does not affect every individual or group in the population in the same way. Some groups are more sensitive than others to adverse health effects caused by exposure to air pollutants including the elderly, children, and those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease. Land uses such as schools, day care centers, hospitals, and nursing and convalescent homes are more sensitive than the general public to poor air quality because the population groups associated with these uses are more susceptible to respiratory distress. In addition, residential areas are more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods of time at home than elsewhere, with associated greater exposure to ambient air quality conditions.

Sensitive land uses near the proposed project site include several residences located at 990 Oswald Road, 1000I Oswald Road, and 980 Oswald Road, which are 70 feet, 75 feet, and 90 feet from the boundary of the proposed site, respectively. Other sensitive land uses in the vicinity of the proposed project site include Barry Elementary School, located one-half mile northwest of the project site. **Figure 2** shows the locations of the closest residences (sensitive receptors).

1.3 Regulatory Setting

1.3.1 Federal

National Ambient Air Quality Standards

The national ambient air quality standards (NAAQS) are intended to protect public health and welfare and specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects.

Under the 1990 federal CAA Amendments, the U.S. EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The CAA Amendments define "unclassified" as any area that cannot be classified, based on available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. **Table 1-2** presents the current NAAQS and briefly describes the principal sources for each pollutant. **Table 1-3** shows the Sutter County attainment status for both the NAAQS and the CAAQS.

1.3.2 State

California Ambient Air Quality Standards

At the state level, CARB oversees California air quality policies and regulations. California had adopted its own air quality standards (California Ambient Air Quality Standards, or CAAQS) as shown in Table 1-2. Most of the California ambient standards tend to be at least as protective as NAAQS and are often more stringent.

In 1988, California passed the California Clean Air Act (CCAA) (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or non-attainment, but based on state ambient air quality standards rather than the federal standards. If an air basin (or portion thereof) exceeds the CAAQS for a particular criteria air pollutant, it is considered to be non-attainment of that criteria air pollutant until the area can demonstrate compliance. As indicated in Table 1-3, the FRAQMD is classified as non-attainment for the 8-hour ozone, 1-hour ozone and PM_{10} state standards; and portions of the FRAQMD are classified as non-attainment for the federal 8-hour ozone standard.

TABLE 1-2
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS AND MAJOR SOURCES

Pollutant	Averaging Time	National Standard	State Standard	Major Pollutant Sources
Ozone	1 hour	–	0.09 ppm	On-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
	8 hours	0.070 ppm	0.070 ppm	
NO_2	1 hour	100 ppb	0.18 ppm	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual average	0.053 ppm	0.030 ppm	
PM_{10}	24 hours	150 $\mu g/m^3$	50 $\mu g/m^3$	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual average	–	20 $\mu g/m^3$	
$PM_{2.5}$	24 hours	35 $\mu g/m^3$	–	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; also formed from photochemical reactions of other pollutants, including NO_X, SO_X, and organics.
	Annual average	12.0 $\mu g/m^3$	12 $\mu g/m^3$	

NOTES: $\mu g/m^3$ = micrograms per cubic meter; CO = carbon monoxide; km = kilometer; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; ppb = parts per billion; ppm = parts per million; ROG = reactive organic gases; SO_2 = sulfur dioxide; SO_X = oxides of sulfur.

a A more stringent 8-hour CO state standard exists around Lake Tahoe (6 ppm).
b Secondary national standard.

SOURCES: CARB, 2009, 2016

TABLE 1-3
CRITERIA POLLUTANT ATTAINMENT STATUS FOR THE PROJECT AREA

Pollutant and Averaging Time	Designation/Classification	
	Federal Standards	State Standards
Ozone (1-hour)	--	Nonattainment
Ozone (8-hour)	Moderate Nonattainment (South Sutter); Marginal Nonattainment (Sutter Buttes); Attainment (remainder of FRAQMD)	Nonattainment
NO_2	Attainment	Attainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Maintenance (Yuba City-Marysville NAA); Attainment (Remainder of Yuba County)	Attainment

NOTES: CO = carbon monoxide; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; SO_2 = sulfur dioxide

SOURCE: FRAQMD, 2019.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects, either injury or illness. TACs include both organic and inorganic chemical substances. They may be emitted by a variety of common sources: gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated differently than criteria air pollutants at both the federal and State levels. At the federal level, these pollutants are called “hazardous air pollutants.” California’s list of TACs identifies 243 substances and the federal list of hazardous air pollutants identifies 189 substances.

The California Air Resources Board (CARB) identified diesel particulate matter (DPM) as a TAC in 1998, based primarily on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic and carcinogenic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and DPM concentrations are higher near heavily traveled highways and rail lines with diesel locomotive operations. The risk from DPM, as determined by CARB, declined from 750 in one million in 1990 to 540 in one million in 2000, but still remains the highest risk TAC to California’s ambient air quality. In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Further regulations of diesel emissions by the CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-road Diesel Vehicle Regulation, and the New Off-road Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment.

In 2004, CARB adopted a measure to limit idling of diesel-fueled commercial motor vehicles. Heavy-duty diesel vehicles with a Gross Vehicle Weight Rating of 10,000 pounds or heavier are prohibited from idling for more than 5 minutes within California’s borders. Exceptions to the rule apply for certain circumstances.

1.3.3 Local

Feather River Air Quality Management District Guidelines

FRAQMD is the regional agency tasked with regulating the air quality of Sutter and Yuba Counties through federal, State, and local air quality management programs. Specifically, FRAQMD conducts monitoring, evaluation, and education programs; implements control measures to reduce emissions from stationary sources; issues permits to operate for stationary sources and inspects emissions sources; enforces air quality regulations; and supports and to a lesser degree, implements measures to reduce emissions from motor vehicles.

1.4 Analysis, Impacts, and Mitigation

1.4.1 Significance Criteria

For the purposes of this analysis, consistent with the criteria presented in Appendix G of the State CEQA Guidelines, impacts related to air quality are considered significant if the proposed project would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading odors) adversely affecting a substantial number of people.

The FRAQMD has developed significance thresholds to help lead agencies determine whether a project may have a significant air quality impact. Projects with emissions that would exceed the significance thresholds would have a potentially significant adverse impact on air quality. **Table 1-4** presents the applicable FRAQMD thresholds of significance.

TABLE 1-4
FRAQMD THRESHOLDS OF SIGNIFICANCE

	NO_x	ROG	PM_{10}
Construction	25ppd, not to exceed 4.5tpy[a]	25ppd, not to exceed 4.5tpy[a]	80ppd
Operation	25ppd	25ppd	80ppd

NOTES: a NOx and ROG construction emissions may be averaged over the life of the project, but may not exceed 4.5 tpy.
tpy=tons per year; ppd=pounds per day

SOURCE: Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines; Chapter 3: Thresholds of Significance*. June 7, 2020. Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

1.4.2 Methodology and Assumptions

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operations. First, during project construction (short-term), the proposed project would generate ozone precursors and affect local particulate concentrations primarily due to fugitive dust and diesel exhaust emissions from construction equipment. During operation, the proposed project would generate emissions from mobile sources associated with increased employees and trucks traveling to the trucking facility, as well as from area sources including use of landscaping equipment. In addition, operation of the proposed project would generate emissions from the use of approximately five TRUs running two hours per day during the summer.

Mass Emissions Estimates

Construction

Construction-related on-site and off-site fugitive dust emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. Off-site exhaust emissions, during construction, were calculated using EMFAC2017 emission factors. CalEEMod inputs included size of the project site and expected project schedule; where project-specific information was not available, CalEEMod defaults were used. To estimate on-road mobile exhaust emissions, CalEEMod version 2016.3.2 uses vehicle emission factors from an outdated version of CARB's EMFAC model (2014). These outdated CalEEMod construction "off-site" vehicle exhaust emissions estimates were not used in this analysis. Instead, the proposed project's on-road vehicle exhaust emissions were estimated outside of CalEEMod using emissions factors obtained from the latest version of the EMFAC model, most recently updated in 2017. -Calculated emissions from the CalEEMod- and EMFAC2017 models were summed and then compared to FRAQMD's applicable regional significance thresholds. Detailed CalEEMod and EMFAC2017 assumptions and output are included in **Appendix A.**

Operation

Operational emissions were also estimated using CalEEMod, EMFAC2017, and CARB's OFFROAD-ORION emissions models and compared to FRAQMD's thresholds of significance for operational emissions, as specified in Table 1-4 above. Modeling inputs included the number of additional vehicle and truck trips to the project site that would be generated by the expansion, average trip length, and average number of TRUs operating on-site. TRU emissions were estimated using the OFFROAD-ORION model and based on hours of use. Traffic information was obtained from the traffic report prepared by Fehr & Peers (**Appendix C**), while TRU information was provided by the facility operator. In addition to off-site on-road emissions, on-site on-road emissions were calculated using EMFAC2017 emission factors and AP-42 emission factors to determine emissions associated with trucks traveling within the project site at low speeds.[3]

Health Risk Assessment

The primary TAC emitted during construction of the proposed project would be DPM from construction equipment exhaust, and heavy-duty truck trips and TRU use during proposed project operation. The health risk resulting from exposure to DPM emissions from construction and operation was evaluated using air emission and dispersion modeling software. A health risk assessment (HRA) was conducted that evaluated the risks to nearby residences (sensitive receptors) along Railroad Avenue, Oswald Road, and Sawtelle Avenue (State Route 99) from exposure to TACs associated with the proposed project. The HRA uses conservative assumptions to provide an analysis that is most protective of human health. If predicted risks are found to be less than significance thresholds for these closest sensitive receptors, risks at other sensitive

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[3] EPA 1995, updated 2006, AP-42: Compilation of Air Emissions Factors, Chapter 13, available at *https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors*. Accessed September 2020.

receptors farther from the proposed project site (e.g. Barry Elementary School) would be even lower and also less than significance thresholds.

As discussed above, DPM emissions would be generated by the operation of off-road construction equipment (e.g., excavators, loaders, cranes, graders) and on-road diesel heavy-duty vehicles and TRUs. The inhalation pathway is the dominant exposure pathway from DPM for both cancer risk and chronic non-cancer health effects. Consequently, the HRA prepared for the proposed project only evaluates the inhalation cancer and chronic non-cancer effects of DPM inhalation.

A three-step process was used to estimate cancer risks and chronic health hazards of DPM exposure. The first step involved using the CalEEMod software program to estimate average annual diesel exhaust emissions.

The second step involved using the EPA-approved AERMOD (version 19191) dispersion model to calculate annual average ground-level concentrations of DPM at the sensitive receptor locations. AERMOD is a regulatory dispersion model developed by the American Meteorological Society and EPA for evaluation of pollutant concentrations from a variety of source types. This is described further, below.

AERMOD was used to estimate proposed project DPM concentrations, in micrograms per cubic meter ($\mu g/m^3$), from the construction and operational sources discussed above. Model inputs include source sizes, locations, and operating activity, sensitive receptor locations, terrain elevations, and local, monitored meteorological data.

For this project, two sources were used to represent the construction and haul truck activities:

- A conservative representation of the on-site construction equipment within the project site modeled as a rectangular area source.
- A conservative representation of off-site haul trucks transporting delivering import material including gravel and asphalt, modeled as a series of areas sources along Oswald Road, from Railroad Avenue to the Highway 99 and Oswald Road intersection.

The above sources were modeled with an emission rate of one gram per second to determine the dispersion factor (unit concentration) occurring at the nearest residences, which are across Oswald Avenue between Orchard and Railroad Avenues, and one residence on the corner of Oswald Road and Railroad Avenue. Additional locations were modeled in case there could be a sensitive receptor present (other locations along Oswald Road). The DPM concentration was calculated using this dispersion factor and annual DPM average emissions from CalEEMod.

The third step in evaluation of health risk used the calculated DPM concentration together with health risk factors and equations developed by the Office of Environmental Health Hazard Assessment (OEHHA). The OEHHA methodologies[4] are used to calculate the potential cancer

4 Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program – Risk Assessment Guidelines*, February 2015.

risk and chronic health hazard from the project's construction and operational activities over a 30-year period. Modeling assumptions and output, OEHHA equations, and the health impact calculations are detailed in Appendix A.

1.4.3 Impact Analysis

a) Implementation of the proposed project could conflict with or obstruct the implementation of an applicable air quality plan.

The federal CAA and California CAA require any air district that has been designated as a nonattainment area relative to the NAAQS and CAAQS for ozone, CO, SO_2, or NO_2 to prepare and submit a plan for attaining and maintaining the standards. The district also must review its progress made toward attaining the standards and update the plan regularly.

Together, the air pollution control districts and air quality management districts for the counties in the northern Sacramento Valley form the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA districts are designated as nonattainment for the State ozone standard and have jointly prepared an air quality attainment plan, updated every three years. The 2018 update to the NSVPA Air Quality Attainment Plan assesses the progress made in implementing the previous triennial update, and proposes modifications to the strategies necessary to attain the CAAQS as soon as possible (SVAQEEP, 2018).

FRAQMD has not published guidance for assessing a project or plan relative to the applicable clean air plan (currently, the 2018 NSVPA Air Quality Attainment Plan). However, construction and operation of the project would result in a minimal increase in traffic levels along local roadways compared to existing conditions.

One of the measures of consistency with clean-air planning is growth inducement and an increase in regional traffic patterns. The proposed project would not result in growth-inducing effects or in long-term increases in population or vehicle miles traveled that would lead to increased emissions levels. Therefore, the proposed project would not conflict with or obstruct implementation of the 2018 NSVPA Air Quality Attainment Plan. This impact would be less than significant.

b) Implementation of the proposed project could result in a net increase of criteria air pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

This impact analysis takes into consideration both short-term construction and long-term operational impacts from increases in emissions of criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard. The focus of this analysis is related to the ground-level ozone precursors NO_x and ROG, and PM_{10}, for which the SVAB is in non-attainment.

Short-Term Construction Impacts

As discussed above, construction activities for the proposed project would emit criteria air pollutants from a variety of activities including operation of heavy equipment, as well as use of worker vehicles, vendor trucks, and hauling trucks. The proposed project would involve the demolition of 9,500 square feet of existing buildings and the construction of an asphalt parking lot for employee vehicles as well as a graveled parking lot for truck parking. Construction is expected to begin in mid-March of 2021 and is expected to conclude in mid-May of that same year.

Emissions of ozone precursors (ROG and NO_x) are primarily generated by mobile sources and largely vary as a function of vehicle trips per day and the type, quantity, intensity, and frequency of heavy-duty, off-road equipment used. Typically, a large portion of construction-related ROG emissions results from the application of asphalt on to parking areas, and the application of architectural coatings.

Construction-related fugitive dust emissions of PM_{10} would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. Project construction activities could result in dust adversely affecting local visibility and PM_{10} concentrations on a temporary and intermittent basis.

Construction emissions were estimated for the proposed project using both the CalEEMod computer model and CARBs EMFAC2017 database. Estimated construction emissions for the proposed project are reported and compared to the FRAQMD thresholds of significance in **Table 1-5,** below.

TABLE 1-5
UNMITIGATED PROJECT CONSTRUCTION EMISSIONS[a]

Construction Year	NO_X (ppd)[b]	NOx (tpy)	ROG (ppd)[b]	ROG (tpy)	PM_{10} (ppd)[c]
2021	8.62	0.41	2.60	0.084	7.85
FRAQMD Thresholds	25	4.5	25	4.5	80
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable SMAQMD significance threshold.
b average daily emissions
c maximum daily emissions

SOURCES: ESA, 2020.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

As shown in Table 1-5, emissions of NOx, ROG, and PM_{10} generated during construction of the proposed project would not exceed the FRAQMD thresholds of significance. Therefore, construction of the proposed project would have a less than significant impact to air quality during construction.

Long-Term Operational Impacts

The proposed project would result in long-term operational emissions, as expansion of the parking areas would generate an increase in the number of employees working at the facility, and an increase in the number of trucks that would be able to be repaired at the existing maintenance shop. TRU operations and associated emissions would also increase as described above. The CalEEMod computer model and CARB's EMFAC2017 and OFFROAD-ORION models were used to estimate operational emissions of ROG, NO_x, and PM_{10}; the results of this analysis are summarized and compared to the FRAQMD operational thresholds of significance in **Table 1-6.**

TABLE 1-6
OPERATIONAL EMISSIONS[a]

	NO_X (ppd)[b]	ROG (ppd)[b]	PM_{10} (ppd)[b]
Annual Emissions	5.68	0.80	2.6
FRAQMD Thresholds[3]	25	25	80
Exceeds Threshold?	**No**	**No**	**No**

NOTES: ppd = pounds per day; tpy = tons per year

a Values in **bold** are in excess of the applicable SMAQMD significance threshold.
b maximum daily emissions

SOURCES: ESA, 2020.

Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

As shown in Table 1-6, the project would not exceed the FRAQMD thresholds of significance for emissions of ROG, NOx or PM_{10}. Therefore, the projects operational emissions would not result in a significant adverse impact to air quality.

Summary

Since the proposed project has an operational phase, the project is characterized by the FRAQMD as a Type 1 project. According to the FRAQMD indirect source review guidelines, if operational emissions of a Type 1 project do not exceed the thresholds of significance, it is recommended that the project proponent implement the Standard Mitigation Measures. The project would implement Mitigation Measure AQ-1: FRAQMD Standard Mitigation Measures, discussed below. Neither construction, nor operation of the proposed project would generate emissions that would exceed the FRAQMD thresholds of significance, and the project would implement the FRAQMD recommended Standard Mitigation Measures. Therefore, the project would have a less than significant impact and would not result in a significant net increase of criteria air pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

<u>Mitigation Measures</u>

Mitigation Measure AQ-1: Implement FRAQMD Standard Mitigation Measures

The project applicant will implement the following FRAQMD-recommended Standard Mitigation Measures for projects that do not exceed construction or operational thresholds of significance.

- Implement the Fugitive Dust Control Plan.
- Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringlemann 2.0).
- The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
- Limit idling time to 5 minutes – saves fuel and reduces emissions in accordance with 13 CCR Chapter 10 Section 2485 and 13 CCR Chapter 9 Article 4.8 Section 2449.
- Utilize existing power sources or clean fuel generators rather than temporary power generators.
- Develop traffic plans to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
- Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultation with CARB or the District to determine registration and permitting requirement s prior to equipment operation at the site.

c) Construction and operation of the proposed project could expose sensitive receptors to substantial pollutant concentrations.

Exposure of sensitive receptors to substantial pollutant concentrations is evaluated based on the modeled health risks from proposed project DPM emissions during construction and operation. Construction sources of DPM would include heavy equipment and haul trucks, while operational sources of DPM would include additional trucks being serviced at the facility and associated TRUs. Health risks include increased cancer probability (expressed as chances per million) and chronic health hazard index. Health risks were evaluated starting with the construction period and extending to 30 years of operations, as health risk accumulate over the period of exposure to pollutants. The FRAQMD threshold for increase cancer probability is 10 in one million, and the threshold for chronic health hazard index is 1.

Table 1-7 identifies the increase in cancer risk per million and chronic hazard index for the maximally exposed individual residence (sensitive receptor) to the south of Oswald Road, at Orchard Avenues. For cancer and chronic exposures, the cancer risk to residences from DPM emissions for construction and operation of the proposed project are below the FRAQMD thresholds. This represents a less-than-significant impact with respect to health risk during construction.

TABLE 1-7
MAXIMUM INCREASE IN CANCER RISK AND HAZARD INDEX FOR NEARBY SENSITIVE RECEPTORS

Sensitive Receptor	Maximum Cancer Risk (in one million)	Chronic Hazard Index
Residence South of Oswald Road at Orchard Aven	5.6	0.03
Maximum Individual Cancer Risk Threshold	10	1.0
Exceeds Threshold?	No	No
NOTES: See Appendix A for the Health Risk Assessment calculations.		

Summary

As discussed above, construction and operational emissions from the proposed project would not generate substantial DPM emissions and associated health risks to nearby residences (sensitive receptors). Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations and the impact would be considered **less than significant.**

d) Construction or operation of the project could result in odorous emissions affecting a substantial number of people.

The FRAQMD has identified various types of facilities that are known sources of odors including wastewater treatment plants, sanitary landfills, painting/coating operations, food processing facilities, and green waste and recycling operations. The proposed project would not include operation of any of the types of odor-generating facilities identified by the FRAQMD, therefore, the project would not be anticipated to generate odors that would affect a substantial number of people, and the impact would be **less than significant.**

CHAPTER 2
Greenhouse Gas Technical Report

2.1 Introduction

This Greenhouse Gas Technical Report assesses the potential greenhouse gas (GHG) emissions and climate change impacts from construction and operation of the proposed project and identifies potentially feasible mitigation measures where appropriate.

2.2 Environmental Setting

"Global warming" and "climate change" are common terms used to describe the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th Century. GHGs in the atmosphere naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space – a phenomenon sometimes referred to as the "greenhouse effect." Some GHGs occur naturally and are necessary for keeping the Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have trapped solar radiation and decreased the amount that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature. Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) are the principal GHGs.

CO_2 is the reference gas for climate change, as it is the predominant GHG associated with fossil fuel combustion, and is the GHG emitted in the highest volume. The effect that each of the GHGs have on global warming is the product of the mass of their emissions and their global warming potential (GWP). GWP indicates how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. For example, CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of approximately 30 and approximately 275 times that of CO_2, which has a GWP of 1.[5]

In emissions inventories, GHG emissions are typically reported as metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in higher quantities and it accounts for the majority of GHG emissions in CO_2e, both from developments and human activity in general.

5 U.S. Environmental Protection Agency. *Understanding Global Warming Potentials*. Available: https://www.epa.gov/ghgemissions/understanding-global-warming-potentials. Accessed April 8, 2020.

2.2.1 Greenhouse Gas Emissions Estimates

Sutter County Greenhouse Gas Emissions

The *2010 Sutter County Climate Action Plan* (CAP) includes GHG inventories for the years 1990 and 2008. According to the CAP, the County generated approximately 1.2 MMT CO_2e in the year 2008, with the majority of emissions (65.9 percent) resulting from the agricultural sector. Other sources of GHG emissions within the County include transportation (20.8 percent of total County GHG emissions), energy (13.0 percent), solid waste (2.3 percent), and landscape emissions (less than 0.01 percent). Sutter County GHG emissions from 1990 and 2008 are summarized in **Table 2-1**, below.

TABLE 2-1
SUTTER COUNTY GREENHOUSE GAS EMISSIONS ($MTCO_2E$)

Sector	1990	2008
Energy	146,001	158,627
Solid Waste	8,938	2,750
Landscape Emissions	27	32
Agriculture	956,315	805,005
Transportation	226,910	254,610
Total Emissions	**1,338,192**	**1,221,024**

SOURCE: Sutter County, 2010. *Sutter County Climate Action Plan.* July, 2010. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Climate_Action_plan_.pdf. Accessed June 2020.

2.3 Regulatory Framework

2.3.1 State

In California, the legal framework for GHG emission reduction has come about through an incremental set of Governors' Executive Orders, legislation, and regulations put in place since 2002. The major components of California's climate change initiative are identified below.

Global Warming Solutions Act and the Climate Change Scoping Plan

Assembly Bill 32

In 2006, the California legislature passed AB 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq.), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipated that the GHG reduction goals will be met, in part, through local government actions. CARB identified a GHG reduction target of 15 percent from current levels for local governments (municipal and community-wide) and noted that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. The AB 32 emissions reduction limit was achieved in 2017, 3 years prior to the 2020 goal.

Senate Bill 32 and Assembly Bill 197

Signed into law on September 8, 2016, SB 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amended HSC Division 25.5 and codifies the 2030 target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the legislature to continue to reduce GHGs for the protection of all areas of the state and especially the state's most disadvantaged communities, which are disproportionately impacted by the deleterious effects of climate change on public health. The law amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030, while AB 197 included provisions to ensure the benefits of State climate policies include disadvantaged communities.

Scoping Plan Provisions

Pursuant to AB 32, CARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by CARB on August 24, 2011) outlining measures to meet the 2020 GHG reduction goals.[6] In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan relied on the requirements of SB 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

The Scoping Plan is required by AB 32 to be updated at least every 5 years. The *First Update to the Climate Change Scoping Plan* describes progress made to meet near-term emissions goals of AB 32, defines California's climate change priorities and activities for the next few years, and describes the issues facing the State as it establishes a framework for achieving air quality and climate goals beyond the year 2020. On December 14, 2017, CARB approved the final version of California's *2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels.[7] The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. The CARB determined that the target Statewide 2030 emissions limit is 260 million metric tons of CO_2e ($MMTCO_2e$), and that further commitments will need to be made to achieve an additional reduction of 50 $MMTCO_2e$ beyond current policies and programs. The cornerstone of the 2017

6 California Air Resources Board, 2008. *Climate Change Scoping Plan*. Adopted December 11, 2008, re-approved by CARB August 24, 2011. pp. ES-1 and 17.

7 California Air Resources Board, 2017. *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*, November 2017.

Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal represented by SB 32 and ensure achievement of the 2050 limit set forth by EO B-30-15.

2.3.2 Local

Sutter County General Plan

The Sutter County General Plan (2030) (Sutter County, 2011) includes goals and policies that are intended to encourage energy conservation, protect air quality, and control GHG emissions. Applicable General Plan goals and policies related to climate change include the following:

Goal LU 1: Promote the efficient and sensitive use of lands to protect and enhance Sutter County's quality of life and meet the needs of existing and future residents and businesses.

> ***Policy LU 1.12: Climate Action Plan.*** Require new development to demonstrate consistency with the County's Climate Action Plan to reduce greenhouse gas emissions.
>
> ***Policy LU 1.13: Landscape Design.*** Implement reduction measures in the Climate Action Plan, where appropriate, to help reduce greenhouse gas emissions through landscape design. These reduction measures can include: expanding tree planting within the County; and strategically planting trees and other landscaping to create shade and to reduce the heat island effect.

Goal M 3: Promote a safe and efficient transit system to reduce congestion and provide viable alternatives to automobile use.

> ***Policy M 3.4: Reduce Vehicle Miles Traveled.*** Implement, as appropriate, reduction measures in the Climate Action Plan targeted to facilitate the reduction in vehicle miles traveled and help to reduce greenhouse gas emissions. Such measures include implementing the conceptual transit plan for the Sutter Pointe Specific Plan area, which provides phased transit service.

Goal M 7: Employ strategies that reduce the use of fossil fuels, reduce greenhouse gas emissions caused by transportation, and improve air quality.

> ***Policy M 7.3: Regional Objectives.*** Support regional air quality and greenhouse gas reduction goals through effective management of the Sutter County's transportation system to reduce congestion and maintain a high level of service.

Sutter County Climate Action Plan

To achieve the Sutter County General Plan's goals and provide a more livable, equitable, and economically vibrant community, the County prepared and has implemented the Sutter County CAP. The CAP was adopted in July 2010 as part of the County's efforts to reduce GHG emissions in coordination with its land use decisions. The Sutter County CAP lists specific actions to reduce GHG emissions attributable to Sutter County to levels consistent with the AB 32 targets. In addition, the CAP serves as a qualified GHG emissions reduction plan from which the county's future development can tier, thereby streamlining environmental analyses under CEQA. The CAP aims to minimize impacts of development on air quality, promote energy conservation, and ensure that the County's land use decisions and internal operations are consistent with adopted State legislation (Sutter County, 2010).

Feather River Air Quality Management District

The Feather River Air Quality Management District (FRAQMD) is a regional agency tasked with regulating the air quality of Sutter and Yuba Counties. FRAQMD accomplishes this goal through monitoring, evaluation, education, control measures to reduce stationary-source emissions, permitting and inspection of pollution sources, enforcement of air quality regulations, and measures to reduce motor vehicle emissions.

FRAQMD has not established guidance or significance thresholds for the evaluation of GHGs or the establishment of a CAP, opting instead to recommend the use of existing methodologies. FRAQMD specifically cites the California Air Pollution Control Officers Association and California Natural Resources Agency's Climate Change Portal, and the Office of the Attorney General, among others, for assistance in evaluating GHG emissions.

2.4 Analysis, Impacts, and Mitigation

2.4.1 Significance Criteria

For the purposes of this analysis, consistent with the criteria presented in Appendix G of the State CEQA Guidelines, impacts related to GHGs are considered significant if the proposed project would:

- Generate(s) GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with and applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

2.4.2 Methods of Analysis

Project-related GHG emissions fall into two categories: short-term emissions due to construction, and long-term, on-going emissions due to operations. GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. During construction, the proposed project would generate GHG emissions from the use of heavy duty construction equipment, and from use of employee vehicles, vendor trucks, and haul trucks. Then, during operation, the project would generate GHG emissions from the use of employee vehicles, trucks, and TRUs. Estimated construction- and operation-related emissions are presented below in **Table 2-2** and **Table 2-3,** respectively.

In the absence of FRAQMD thresholds or guidance, the analysis was based on guidance from Sutter County. The proposed project was evaluated for consistency with the Sutter County CAP, which is consistent with AB 32 goals and sets longer-term goals to achieve GHG reductions beyond the 2020 target. Achieving the emission levels described in the County CAP would ensure that GHG emissions from activities identified in the County CAP would not have a significant impact on the environment. In addition, the proposed project was analyzed for consistency with SACOG's MTP/SCS, which establishes GHG reduction targets consistent with AB 32 and SB 32. Impacts and Mitigation Measures

2.4.3 Impact Analysis

a) The project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and

b) The project would not conflict with an applicable plan, policy, or regulation of an agency, adopted for the purpose of reducing emissions of greenhouse gases.

Sutter County Climate Action Plan

The County CAP was adopted in 2010 and established a GHG emissions reduction target of 15 percent below baseline emission levels by the year 2020, consistent with the AB 32 Scoping Plan. In addition, the CAP sets the County on-course to achieve emissions reductions beyond 2020; projects that are consistent with the CAP would not be considered cumulatively considerable.

Section 7, of the County CAP describes methodology for determining project consistency with the CAP. According to the CAP, the County ensures implementation of GHG reduction measures through the use of a screening table, which provides a menu of reduction options. Projects that obtain 100 points from the screening table would implement pertinent reduction measures, would meet the goals of the CAP, and would be considered less than significant.[8]

Recognizing that small projects with relatively low levels GHG emissions typically are unable to achieve the 100-point screening threshold described in the CAP, in 2016 the County published the Greenhouse Gas Pre-Screening Measures for Sutter County, which provides a two-tier screening procedure. The two-tier screening procedure uses a threshold of 3,000 metric tons of CO2e per year, based on a San Bernardino County statewide study that determined that projects that generate less than 3,000 metric tons CO2e per year have a negligible contribution to overall emissions. The Greenhouse Gas Pre-Screening Measures for Sutter County state that projects can be screened out based on project type (Tier 1) or project size (Tier 2). Projects that meet the criteria of Tier 1 or Tier 2 would not have the potential to exceed 3,000 metric tons CO2e per year. This level can be considered an emissions threshold such that if the project meets the Tier 1 or Tier 2 criteria, it would not have a significant impact on the environment, according to checklist item (a).

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8 Sutter County, 2011. *Greenhouse Gas Emissions Screening Tables.* April 2011. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Greenhouse_Gas_Screening_Tables.pdf. Accessed September 3, 2020.

The most appropriate land use type in the screening table that can be applied to the proposed project is General Truck Yard, which cannot be screened out by either Tier 1 nor Tier 2 pre-screening. However, the proposed project does not include construction of any structures, and many of the GHG reduction measures described in the CAP screening tables are not applicable to the proposed project. Therefore, since the County considers projects that generate less than 3,000 MT CO2e per year to have a negligible contribution to overall emissions, project-related GHG emissions were quantified using the CalEEMod computer model and compared to the Sutter County threshold of 3,000 MT CO2e.

Construction

Construction of the proposed project is anticipated to begin in March 2021, and would conclude in mid-May 2021. GHG emissions during construction would be generated from a variety of sources including construction equipment use and vehicle use. Total construction emissions that would result from the proposed project are presented in **Table 2-2.**

TABLE 2-2
CONSTRUCTION-RELATED GHG EMISSIONS[a]

Construction Year	MT CO2e
2021	58.3
Sutter County Threshold	3,000
Exceeds Threshold?	No

NOTES: ppd = pounds per day; tpy = tons per year
a Values in **bold** are in excess of the applicable Sutter County threshold.

SOURCES: ESA, 2020.
Sutter County, 2011. *Greenhouse Gas Emissions Screening Tables.* April 2011. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Greenhouse_Gas_Screening_Tables.pdf. Accessed September 3, 2020.

As shown in Table 2-2, construction of the proposed project would generate approximately 58.3 MT CO2e in 2021 and would not exceed the County's significance threshold of 3,000 MT CO2e per year, specified in the Sutter County 2016 Greenhouse Gas Pre-Screening Measures supplement to the CAP.

Operations

Operation of the proposed project would generate GHG emissions from area sources (i.e. landscaping activities), mobile sources (employees traveling to and from the site, as well as trucks traveling to and from the site), and other sources such as operation of TRUs on some of the trucks. Total operational emissions that would result from the proposed project are presented in **Table 2-3.**

TABLE 2-3
OPERATIONAL GHG EMISSIONS[a]

	MT CO2e
Annual Operational Emissions	358
Sutter County Threshold	3,000
Exceeds Threshold?	No

NOTES: ppd = pounds per day; tpy = tons per year
a. Values in **bold** are in excess of the applicable Sutter County threshold.

SOURCES: ESA, 2020.
Sutter County, 2011. *Greenhouse Gas Emissions Screening Tables.* April 2011. Available at https://www.suttercounty.org/assets/pdf/cs/ps/Greenhouse_Gas_Screening_Tables.pdf. Accessed September 3, 2020.

As shown in Table 2-3, operational emissions would be approximately 358 MT CO2e per year, and would not exceed to the threshold of 3,000 MT CO2e per year, as specified in the 2016 Greenhouse Gas Pre-Screening Measures supplement to the County CAP.

Metropolitan Transportation Plan/Sustainable Communities Strategy

Under SB 375, discussed in the Regulatory Setting section, above, the SACOG is required to implement the MTP/SCS to meet GHG emission reduction targets set by CARB. The SACOG MTP/SCS was adopted on November 18, 2019 and includes a 19 percent GHG reduction target for passenger vehicles per capita by 2035, compared to 2005. As shown in Table 2-3, the majority of GHG emissions that would result from operation of the proposed project are from mobile sources, and therefore analysis of the proposed project's conformity with SACOG's MTP/SCS is an appropriate indicator of whether the proposed project would conform with the GHG reduction goals included in the MTP/SCS.

The MTP/SCS designates some areas of Sutter County as "established communities" within which urban development is predicted by SACOG. The proposed project's development within this area is consistent with the plans in the MTC/SCS, and therefore, regional emissions within the vicinity of the project site are expected to decrease with continued implementation of the MTP/SCS.

The proposed project would not conflict with or obstruct the implementation of the MTP/SCS; therefore, the project would be considered consistent with the goals of the MTP/SCS.

Conclusion

As discussed above, the proposed project would generate emissions that would not exceed the County GHG threshold of 3,000 MT CO2e per year discussed in the County's 2016 Greenhouse Gas Pre-Screening Measures supplement to the CAP. Therefore, the proposed project would be consistent with the County CAP. Furthermore, the proposed project would be consistent with the goals of SACOG's MTP/SCS GHG reduction goals. Therefore, the project would not generate emissions, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for reducing emissions of GHGs. The project would have a **less-than-significant** impact with respect to GHG emissions.

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CHAPTER 3
Noise Technical Report

3.1 Introduction

This technical report has been prepared to assess the potential noise and vibration impacts associated with the proposed expansion of the Sangha Truck Facility (project) as a resource document to inform the preparation of environmental documentation pursuant to the California Environmental Quality Act (CEQA).

3.1.1 Project Location

The project site consists of an approximately four-acre parcel in unincorporated Sutter County, California (**Figure 1**). The proposed site is located at 3971 Railroad Avenue and 909 Oswald Road, while an existing yard operated by the project applicant is located at the adjacent parcel to the west at 1055 Oswald Road in Sutter County, CA.

3.3 Characteristics of Noise and Vibration

3.3.1 Noise Principles and Descriptors

Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. All noise levels presented in this report are A-weighted unless otherwise stated.

3.3.2 Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The following are the most frequently used noise descriptors:

- **L_{eq}:** The equivalent-continuous sound level, used to describe noise over a specified period of time in terms of a single numerical value. The L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. May also be referred to as the "average sound level."
- **L_{max}:** The maximum, instantaneous noise level experienced during a given period of time.
- **L_{min}:** The minimum, instantaneous noise level experienced during a given period of time.
- **L_{dn}:** The average A-weighted noise level during a 24-hour day, obtained after 10 dB are added to noise levels measured between 10 p.m. and 7 a.m. to account for nighttime noise sensitivity. Also referred to as the "day-night average noise level" (DNL). The L_{dn} is the metric used by the Noise Element of the *Envision San José General Plan* (General Plan) for assessing the land use compatibility of non-aviation sources.
- **CNEL:** The community noise equivalent level. This is the average A-weighted noise level during a 24-hour day that is obtained after 5 dB are added to measured noise levels between 7 p.m. and 10 p.m. and 10 dB are added to noise levels between 10 p.m. and 7 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The CNEL is the metric generally used for assessment of aircraft noise. The result is normally about 0.5 dBA higher than L_{dn} using the same 24-hour data.[9]

[9] California Department of Transportation, *Technical Noise Supplement*, September 2013

Noise Attenuation

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dB for hard sites and 7.5 dB for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dB (per doubling distance) is normally assumed for soft sites. "Line" sources (such as traffic noise from vehicles) attenuate at a rate between 3 dB for hard sites and 4.5 dB for soft sites for each doubling of distance from the reference measurement (Caltrans, 2013a).

3.3.3 Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startle response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur (Caltrans, 2013a):

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived;
- Outside of the laboratory, a 3 dB change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dB is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dB is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Since the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dB, the combined sound level would be 53 dB, not 100 dB.

3.3.4 Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA, 2018), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2018). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA, 2018).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA, 2018).

3.4 Environmental Setting

3.4.1 Existing Ambient Noise Levels

The project site is within an area of unincorporated Sutter County developed with mixed rural residential uses, agriculture and industrial trucking yards. Environmental noise in the vicinity of the project site is dominated by vehicle traffic on roadways such as the adjacent Railroad Avenue and Oswald Road. There are existing trucking facilities along the eastern side of Railroad Avenue as well as the existing Sangha trucking facility on the adjacent parcel to the west. The existing orchard to the north would only be expected to generate occasional modest levels of noise from harvesting and maintenance activities, which occur seasonally. Notwithstanding its name, there are no active rail lines in the vicinity of Railroad Avenue.

Long-term noise level measurements were conducted in the project vicinity in August of 2020 to establish existing ambient noise conditions. Noise measurements were taken in proximity of the residential uses located to the north and south of the project site. The noise survey was conducted using a Larson Davis Model LxT2 sound level meter that was calibrated before use and operated according to the manufacturer’s written specifications. These measurements logged hourly average noise levels over a 24-hour weekday period from August 2nd to August 3rd, 2020. The measured average noise level (L_{eq}) during different averaging periods are shown in **Table 3-1**. The measurement locations are identified on **Figure 2**.

TABLE 3-1
EXISTING NOISE ENVIRONMENTS IN THE PROJECT VICINITY

Long-Term (LT) Noise Monitoring Location	Noise Levels (dBA)				Primary Noise Sources
	Day-Night Noise Level (Ldn)	24-Hour L_{eq}	Daytime[a] Hourly Average L_{eq}	Nighttime[b] Hourly Average L_{eq}	
LT-A: Southwest corner of Oswald Road and Railroad Avenue	63	59	61	54	Traffic on Railroad Avenue and operations of Trucking facilities east of Railroad Avenue
LT-B: Southwest corner of Oswald Road and SR 99	79	73	74	72	Traffic on SR 99
LT-C: Orchard Avenue 1400 feet south of Oswald Road	56	50	51	49	Distant shielded traffic on SR 99

NOTES: dBA = A-weighted decibels; L_{dn} = Day-night noise level; L_{eq} = equivalent-continuous sound level; SR = State Route; UPRR = Union Pacific Railroad

a Daytime hours are considered to be 7 a.m. to 10 p.m.
b Nighttime hours are considered to be 10 p.m. to 7 a.m.

SOURCE: Environmental Science Associates in 2020.

Existing roadside noise levels along roadway segments near the project site were modeled to provide existing weekday noise level estimates for the roadway segments near the project site. The existing roadside noise levels are presented in **Table 3-2** during the weekday peak commute hour[10]. These modeled noise levels reflect only the noise generated by traffic on the identified roadway segments; they do not include other sources in the area, such as rail and highway noise where these other sources are nearby.

TABLE 3-2
EXISTING TRAFFIC NOISE ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing Hourly (dBA)
Weekday Peak-Hour Noise Levels	
Railroad Avenue from Oswald Road to Barry Road	58.1
Oswald Road from Railroad Avenue to SR 99	56.4
Oswald Road from SR 99 to South Walton Avenue	60.6
SR 99 from Oswald Road to Barry Road	76.0
SR 99 from Oswald Road to Messick Road	76.1

NOTE: dBA = A-weighted decibels

SOURCES: Traffic data compiled by Fehr & Peers in 2020 and noise modeling performed by Environmental Science Associates in 2020.

10 Existing and future traffic volumes provided by the transportation analysis were in the average daily trip metric for weekdays. These values were adjusted to reflect a peak-traffic-hour volume percentage of 5 percent.

3.4.2 Existing Groundborne Vibration Levels

The only sources of groundborne vibration in the project site vicinity are heavy-duty vehicular travel (e.g., refuse trucks, haul trucks) on local roadways. Trucks traveling at a distance of 50 feet typically generate groundborne vibration velocity levels of around 63 VdB (approximately 0.006 in/sec PPV), and these levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over discontinuities in the roadway (FTA, 2018).

3.4.3 Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, and auditoriums generally are more sensitive to noise than are commercial and industrial land uses. Sensitive receptors in the study area are residential uses on the 4000 block of Railroad Avenue and the 900 block of Oswald (**Figure 3**). The setback of these uses are 150 and 75 feet from the proposed expanded truck yard, respectively.

3.4.4 Regulatory Setting

Federal Noise Standards

The primary federal noise standards that directly regulate noise related to the operation of the proposed project are with regard to noise exposure and workers. The U.S. Occupational Safety and Health Administration (OSHA) enforces regulations to safeguard the hearing of workers exposed to occupational noise. OSHA has established worker noise exposure limits that vary with the duration of the exposure and requires implementation of a hearing conservation program if employees are exposed to noise levels in excess of 85 dBA.

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

Federal Transit Authority Vibration Standards

FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by FTA are shown in **Table 3-3**.

TABLE 3-3
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

NOTES: in/sec = inches per second; PPV = peak particle velocity
SOURCE: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

In addition, the FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories:

- **Category 1—High Sensitivity:** Buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes.
- **Category 2—Residential:** All residential land uses and any buildings where people sleep, such as hotels and hospitals.
- **Category 3—Institutional:** Land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.[11] Under conditions where there are an occasional number of events per day, FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.[12] No thresholds have been adopted or recommended for commercial and office uses.

California Department of Public Health Noise Standards

The California Department of Public Health has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines

[11] "Infrequent events" is defined by FTA as being fewer than 30 vibration events of the same kind per day.
[12] "Occasional events" is defined by FTA as between 30 and 70 vibration events of the same source per day.

for land use and noise exposure compatibility are shown in **Table 3-4**. In addition, Section 65302(f) of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

TABLE 3-4
COMMUNITY NOISE EXPOSURE (DNL OR CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-Family Homes, Duplexes, Mobile Homes	50–60	55–70	70–75	above 75
Multifamily Homes	50–65	60–70	70–75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	above 80
Transient Lodging—Motels, Hotels	50–65	60–70	70–80	above 75
Auditoriums, Concert Halls, Amphitheaters	—	50–70	—	above 70
Sports Arenas, Outdoor Spectator Sports	—	50–75	—	above 75
Playgrounds, Neighborhood Parks	50–70	—	67–75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–75	—	70–80	above 80
Office Buildings, Business and Professional, Commercial	50–70	67–77	above 75	—
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	above 75	—

NOTES: CNEL = community noise equivalent level; DNL = day-night average noise level

a Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
b Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
c Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
d Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: Governor's Office of Planning and Research, *State of California General Plan Guidelines*, Appendix D, 2017.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

California Building Code

The California Building Code requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a *Sound Transmission Class* (STC)[13] of 50 dB for all common interior walls and floor/ceiling assemblies between adjacent dwelling units or between dwelling units and adjacent public area for multifamily units and transient lodging. The code specifies a maximum interior performance standard of 45 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The state has also established noise insulation standards for new multifamily residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dB CNEL in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dB CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Sutter County General Plan Noise Element

The purpose of the Sutter County General Plan Noise Element contains policies and programs that are intended to protect Sutter County residents, businesses, and visitors by establishing maximum allowable interior and exterior noise levels, as well as maximum noise standards from stationary sources and vibration activities. The General Plan policies most applicable to the proposed Project are identified below.

Policy N 1.2: Exterior Incremental Environmental Noise Standards. Require new development to mitigate noise impacts on noise sensitive uses where the projected increases in exterior noise levels exceed those shown in **Table 3-5**, below.

TABLE 3-5
EXTERIOR INCREMENTAL ENVIRONMENTAL NOISE STANDARDS FOR NOISE-SENSITIVE USES (dBA)

Residences and Buildings Where People Normally Sleep [a]		Institutional Land Uses with Primarily Daytime and Evening Uses [b]	
Existing L_{dn}	Allowable Noise Increment	Existing Peak Hour L_{eq}	Allowable Noise Increment
45	8	45	**12**
50	5	50	**9**
55	3	55	**6**
60	2	60	**5**
65	1	65	**3**
70	1	70	**3**
75	0	75	**1**
80	**0**	**80**	**0**

[13] The STC is used as a measure of a materials ability to reduce sound. The STC is equal to the number of decibels a sound is reduced as it passes through a material.

Policy N 1.3: Interior Noise Standards. Require new development to mitigate noise impacts to ensure acceptable interior noise levels appropriate to the land use type as shown in **Table 3-6**, below.

TABLE 3-6
MAXIMUM ALLOWABLE ENVIRONMENTAL NOISE STANDARDS

Land Use	Exterior Noise Level Standard for Outdoor Activity Areas [a]		Interior Noise Level Standard
	L_{dn}/CNEL, dB	L_{dn}/CNEL, dB	L_{eq}, dB [b]
Residential (Low Density Residential, Duplex, Mobile Homes)	60[c]	45	**N/A**
Residential (Multi Family)	65[d]	45	**N/A**
Transient Lodging (Motels/Hotels)	65[d]	45	**N/A**
Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums	70	45	**N/A**
Theaters, Auditoriums	70	N/A	**35**
Playgrounds, Neighborhood Parks	70	N/A	**N/A**
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	**N/A**
Office Buildings, Business Commercial and Professional	70	N/A	**45**
Industrial, Manufacturing, Utilities, and Agriculture	75	N/A	**45**

NOTES:
a Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multi-family development. Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas. Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.
b As determined for a typical worst-case hour during periods of use.
c Where it is not possible to reduce noise in outdoor activity areas to 60 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 65 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

Where it is not possible to reduce noise in outdoor activity areas to 65 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-1.

Policy N 1.4: New Stationary Noise Sources. Require new stationary noise sources to mitigate noise impacts on noise-sensitive uses wherever the noise from that source alone exceeds the exterior levels specified in **Table 3-7**, below.

TABLE 3-7
NOISE LEVEL STANDARDS FROM STATIONARY SOURCES

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly Leq, dB	55	45
Maximum level, dB	70	65

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-3.

Policy N 1.5: Frequent, High-Noise Events. Require development of noise sensitive uses subject to a discretionary permit and proposed in areas subject to frequent, high- noise events (such as aircraft over flights, or train and truck pass-by events) to adequately evaluate and mitigate the potential for noise-related impacts to ensure that noise- related annoyance, sleep disruption, speech interference, and other similar effects are minimized using metrics and methodologies appropriate to the effect(s) to be assessed and avoided.

Policy N 1.6: Construction Noise. Require discretionary projects to limit noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays, 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibit construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

Policy N 1.7: Vibration Standards. Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in **Table 3-8**, below.

TABLE 3-8
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

	Impact Levels (VdB)		
Land Use Category	**Frequent Events [a]**	**Occasional Events [b]**	**Infrequent Events [c]**
Category 1: Buildings where vibration would interfere with interior operations	65	65	**65**
Category 2: Residences and buildings where people normally sleep	72	75	**80**
Category 3: Institutional land uses with primarily daytime uses	75	78	**83**

NOTES:
a “Frequent Events” is defined as more than 70 vibration events of the same source per day.
b “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day.
c “Infrequent Events” is defined as fewer than 30 vibration events of the same source per day.

This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-4.

Sutter County Code

Article 21.5 the Sutter County Code establishes exterior noise standards that apply to all noise sensitive exterior areas within Sutter County. These codified standards are the same as those presented in Table 3-7 above relative to Policy N 1.4 of the County General Plan.

3.5 Impacts and Mitigation Measures

This section describes the impact analysis relating to noise and vibration for the proposed project. It describes the methods used to determine the impacts of the proposed project and lists the thresholds used to conclude whether an impact would be significant.

3.5.1 Thresholds of Significance

Based on the CEQA Guidelines, an impact related to noise and/or groundborne vibration project would be significant if implementing the proposed project would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generate excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels.

3.5.2 Methodology

Following is a description of the methodology used to evaluate the impacts of project site development relative to each of the significance thresholds cited above.

Substantial Increase in Noise

The first threshold of significance examines whether project construction and/or operations would generate noise in excess of established noise standards which are different for stationary, mobile, and construction noise sources.

Evaluation of the proposed project relative to this threshold under Impact 1 focuses on operational increases in ambient noise level from stationary sources, while Impact 2 focuses on the project's contribution to localized increases is traffic-generated noise along roadways, and Impact 3 focuses on construction-related noise generated by the project.

Stationary-Source Noise

The proposed expansion of the trucking facility under the proposed project could substantially increase noise levels at noise-sensitive land uses or could expose sensitive receptors to noise levels exceeding standards established by Policy N 1.4 of the County General Plan.

The site would serve as a truck storage area for trucks being serviced by the adjacent Sangha Truck and Trailer Repair shop which performs oil changes, engine repairs, clean idle upgrades, tire installation and repair, body repair, and painting. Truck maneuvering and operation of transportation refrigeration units (TRUs) would be the sources of on-site stationary noise to be evaluated. The project proposes operations to occur 8am-5:30pm Mon-Friday; 8am-1:30pm Saturday; and closed Sundays. Therefore, only the daytime standards are used in this analysis.

Project-Generated Traffic Noise

Guidance on the significance of changes in ambient noise levels from transportation is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels caused by aircraft operations (FICON, 1992). The recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. The term "annoyance" summarizes the general adverse reaction of people to noise that interferes with speech, disturbs sleep, or interferes with the desire for a tranquil environment. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, they apply to all sources of transportation noise described in terms of cumulative noise exposure metrics such as the DNL. The measures of a substantial increase in transportation noise exposure as recommended by FICON are presented in **Table 3-9**.

TABLE 3-9
MEASURES OF A SUBSTANTIAL INCREASE IN TRANSPORTATION NOISE EXPOSURE

Ambient Noise Level without Project (DNL)	Significant Impact Assumed to Occur if Project Site Development Increases Ambient Noise Levels by:
<60 dB	+ 5.0 dB or more
60–65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more[a]

NOTES: dB = decibels; DNL = day-night average noise level

a According to the Federal Interagency Committee on Noise report, the 1.5 A-weighted decibel (dBA) increase in environments that exceed 65 dBA is not necessarily a significant increase but, rather, an increase warranting further investigation.

SOURCE: Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

The rationale for the Table 3-9 criteria is that, as ambient noise levels increase, a small increase in decibel levels is sufficient to cause significant annoyance. The quieter the ambient noise level is, the more the noise can increase (in decibels) before it causes significant annoyance. The 5-dBA and 3 dBA noise level increases presented in Table 3-8 also correlate directly with noise level increases that Caltrans consider to represent "readily perceivable" and "barely perceivable," respectively, for short-term noise increases.

Traffic noise levels were modeled using the algorithms of the Federal Highway Administration's Traffic Noise Model for the existing and existing plus project scenarios. The resulting noise levels were then compared to existing modeled or monitored conditions, depending on the contribution of other noise sources in the local environment, to determine significance.

Construction Noise

Sutter County General Plan Policy N 1.6 restricts noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays 8:00

A.M. and 5:00 P.M. on Saturdays, and prohibits construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

This analysis assesses the potential for construction-related noise to cause a substantial temporary or periodic increase in ambient noise levels at the closest existing offsite noise-sensitive receptors, future onsite sensitive receptors, and planned offsite sensitive receptors using FTA methodology for general quantitative noise assessment.[14] The FTA methodology calls for estimating a combined noise level from the simultaneous operation of the two noisiest pieces of equipment expected to be used in each construction phase. This method applies usage factors to each piece of equipment analyzed to account for the time that the equipment is in use over the specified time period. Project construction noise impacts are evaluated at sensitive receptor locations to determine whether the proposed project would result in an exceedance of FTA criterion for residential uses of 90 dBA daytime Leq. If these quantitative criteria are exceeded, the evaluation then considers the duration and severity of the exceedance to determine whether the project would result in a substantial temporary increase in noise levels.

Groundborne Vibration

Impacts from groundborne vibration during project site construction are assessed in Impact 2, using vibration damage threshold criteria expressed in PPV for architectural damage. Equipment or activities that typically generate continuous vibration include but are not limited to: excavation equipment; static compaction equipment; and vibratory compaction equipment. General Plan Policy N 1.7 requires new development to minimize continuous vibration impacts on adjacent uses during demolition and construction and established standards, as indicated in Table 3-8 above. For short-term construction, the infrequent criterion is applied.

With respect to building damage, Caltrans's measure of the threshold of architectural damage for conventional sensitive structures is 0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings (Caltrans, 2013b).

Vibration impacts were estimated using reference vibration levels for construction equipment in concert with vibration propagation equations published by FTA, and estimating the potential for resultant vibration levels in excess of the General Plan standards.

Exposure of People to Excessive Noise Levels

The project site is not located within an airport land use plan area, within two miles of a public airport, or within the vicinity of a private airstrip. Therefore, there would be no impact with respect to exposure of people residing or working in the area to excessive noise levels from an airport or airfield and this topic is not discussed further.

[14] U.S. DOT, FTA, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Section 7, Quantitative Noise Assessment, pp. 172–179, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed January 25, 2019.

3.5.3 Project Impacts

Impact 1: Would the project result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or other land use plan?

Stationary Noise Sources

Operation of the proposed project would increase ambient noise levels in the immediate vicinity primarily through the on-site movement of trucks and the occasional operation of TRUs.

Table 3-10 shows noise levels associated with semi-trailer truck maneuvering including operation of transportation refrigeration units.[15] The transportation analysis for the proposed project indicates that as shown in the table, the highest noise levels generated during a semi-trailer truck operation would be 63 dBA at 100 feet, as it maneuvers into a loading dock which would be the approximate closest distance of the expanded yard to the nearest receptor, across Oswald Road. Once a truck is parked, the TRU could continue to operate, generating noise level of 57 dBA at a distance of 100 feet.

The project application indicates a solid 6-foot stone wall would be constructed along the southern property line. The sound reduction potential associated with this wall was estimated using the Barrier Performance Model of the Department of Housing and Urban Development. However, applying a standard composite source height for trucks of 8 feet (engine and exhaust stack/TRU), a 6-foot barrier would be insufficient to break the line-of-sight between the receptor and the source and noise reduction would be minimal and the predicted noise level would remain at approximately 57 dBA during TRU operations which would exceed the daytime standard of 55 dBA, Leq. Additionally, the potential would exist for multiple TRU operations to occur simultaneously. Consequently, a mitigation measure is identified to increase the height of the proposed wall along the southern property line of the expansion parcel to reduce the daytime noise levels at the closest receptors.

TABLE 3-10
SEMI-TRAILER TRUCK OPERATIONS AND DELIVERY

Noise Levels	Equivalent Continuous Noise Level (Leq), in dBA	
Scenario	**50 Feet**	**100 Feet**
Truck Maneuvering into Loading Area with Operating Transportation Refrigeration Unit	65.9	63.2
Transportation Refrigeration Unit On with Engine at Idle	65.5	59.3
Transportation Refrigeration Unit On with Engine Off	61.7	57.2
Sutter County Daytime Noise Standard	55	55

NOTES: dBA = A-weighted decibels
SOURCE: Environmental Science Associates, *Fresh and Easy Distribution Truck Noise Study*, December 3, 2008

[15] Environmental Science Associates, *Fresh and Easy Distribution Truck Noise Study*, December 3, 2008.

Mitigation Measure NO-1a: Increase Proposed Wall Height

Prior to the issuance of any occupancy permit, the project applicant shall ensure that the proposed solid wall along the southern property line shall be no less than eight feet in height from the eastern property border of the project site for a length of 500 feet. The wall must be of solid construction with no visible gaps. An acoustical study shall be prepared by a qualified acoustical engineer after final construction to verify compliance with a performance standard of 55 dBA at the nearest receptors.

Project-Generated Traffic Noise

Vehicle trips generated by the project would generate roadway noise in the project vicinity. The significance of traffic noise levels is determined by comparing the increase in noise levels (from the traffic contribution only) to increments recognized as significant.

Traffic noise levels were determined based on the transportation analysis, and assessed in this section for the following scenarios:

1. Existing traffic conditions during the weekday peak commute hour, as estimated based on average daily traffic (using data generated for the project's transportation analysis); and
2. Existing plus proposed project during the weekday peak commute hour.

All traffic volumes provided in the project's transportation analysis and used in this roadway noise analysis were provided by Fehr & Peers Transportation Consultants. Modeled weekday noise level estimates for the most highly affected roadway segments near the project site are presented in **Table 3-11.** As indicated in the table, increase in traffic noise would be less than the applicable significance criteria and the impact of increases in roadway noise would be less than significant.

TABLE 3-11
TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing	Applicable Increase Threshold (dB)	Existing plus Project	dBA Difference	Significant Increase?
Weekday Peak-Hour Noise Levels					
Railroad Avenue from Oswald Road to Barry Road	54.9	5	56.7	1.8	No
Oswald Road from Railroad Avenue to SR 99	53.2	5	55.2	2.0	No
Oswald Road from SR 99 to South Walton Road	57.4	5	57.4	0.0	**No**
SR 99 from Oswald Road to Barry Road	72.8	1.5	72.8	0.0	No
SR 99 from Oswald Road to Messick Road	73.0	1.5	73.0	0.0	No

NOTES: dB = decibels; dBA = A-weighted decibels; NA = not applicable

SOURCES: Traffic data compiled by Fehr & Peers in 2019 and 2020, and modeling performed by Environmental Science Associates in 2020.

Construction Noise

Construction of the project would require demolition of existing structures. However, no structures are proposed to be erected and only fine grading and construction of minimal hardscape would be required. Truck parking areas would be coated with gravel and only the northwest corner of the site would be paved with asphalt. **Table 3-12** shows typical noise levels associated with various types of standard construction equipment.

TABLE 3-12
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{max} at 50 feet)
Backhoe	78
Excavator	81
Compactor	83
Air Compressor	78
Dozer	82
Grader	85
Paver	77
Roller	80
Front-End Loader	79
Truck	76

NOTES: dBA = A-weighted decibels; L_{max} = maximum, instantaneous noise level experienced during a given period of time

These are maximum field measured values at 50 feet as reported from multiple samples.

SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User Guide*, 2006.

Sutter County does not establish quantitative noise limits for demolition or construction activities occurring in the county. During Project construction, exterior noise levels could affect the nearby existing sensitive receptor in the vicinity. The nearest sensitive receptor to the Project site is a residence located approximately 180 feet south of the center of the Project site.

Consistent with the general assessment methodology of the FTA, the two noisiest pieces of construction equipment (grader and dozer) listed in Table 3-12 were assumed to operate simultaneously. Using the Roadway Construction Noise Model of the Federal Highway Administration, the resultant noise level at the nearest receptor would be 72 dBA. The combined noise level at existing offsite receptors would not exceed the FTA's criterion of 90 dBA at residential sensitive receptor locations.

Per Policy N 1.6 of the County's General Plan, noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) is limited to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays, 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibited construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County. The proposed Project would be required to adhere to General Plan Policy N 1.6. Therefore, since construction noise is temporary, intermittent, and limited to the daytime hours shown above, the impact would be less than significant.

Impact 2: Would the project expose people to or generate excessive groundborne vibration or groundborne noise levels during construction or operation?

This analysis addresses vibration impacts generated by construction activities at existing off-site buildings. Equipment or activities that typically generate continuous vibration include but are not limited to: excavation equipment; impact pile drivers; static compaction equipment; vibratory pile drivers; pile-extraction equipment and vibratory compaction equipment. Of these equipment types only a vibratory roller would be likely to be used in the paving of the northwest corner of the project.

General Plan Policy EC-2.3 requires new development to minimize impacts of continuous vibration on adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or buildings that are documented to be structurally weakened, a continuous vibration limit of 0.08 in/sec PPV is the standard applied to minimize the potential for cosmetic damage to a building. A continuous vibration limit of 0.20 in/sec PPV is applied to minimize the potential for cosmetic damage at buildings of normal conventional construction.

Policy N 1.7 requires new development to minimize continuous vibration impacts on adjacent uses during demolition and construction, as indicated in Table 3-8 above. An estimate of construction-related vibration levels is presented in **Table 3-13**, below. As can be seen from this table, predicted vibration levels are below the criteria established by Policy N 1.7 for human annoyance. These predicted levels are also below the 100 VdB commonly associated with the risk of building damage (FTA, 2018). Therefore, vibration impacts from project construction would be less than significant.

TABLE 3-13
VIBRATION LEVELS FOR CONSTRUCTION ACTIVITY

Equipment	Vibration at 25 Feet (reference)	Distance to nearest Receptor (feet)	Vibration at Receptor	Threshold	Significant?
Loaded Trucks	86	85	72	80	No
Large Bulldozer	87	85	73	80	No
Vibratory Roller	94	250	64	80	No

SOURCES: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013.
Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

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CHAPTER 4
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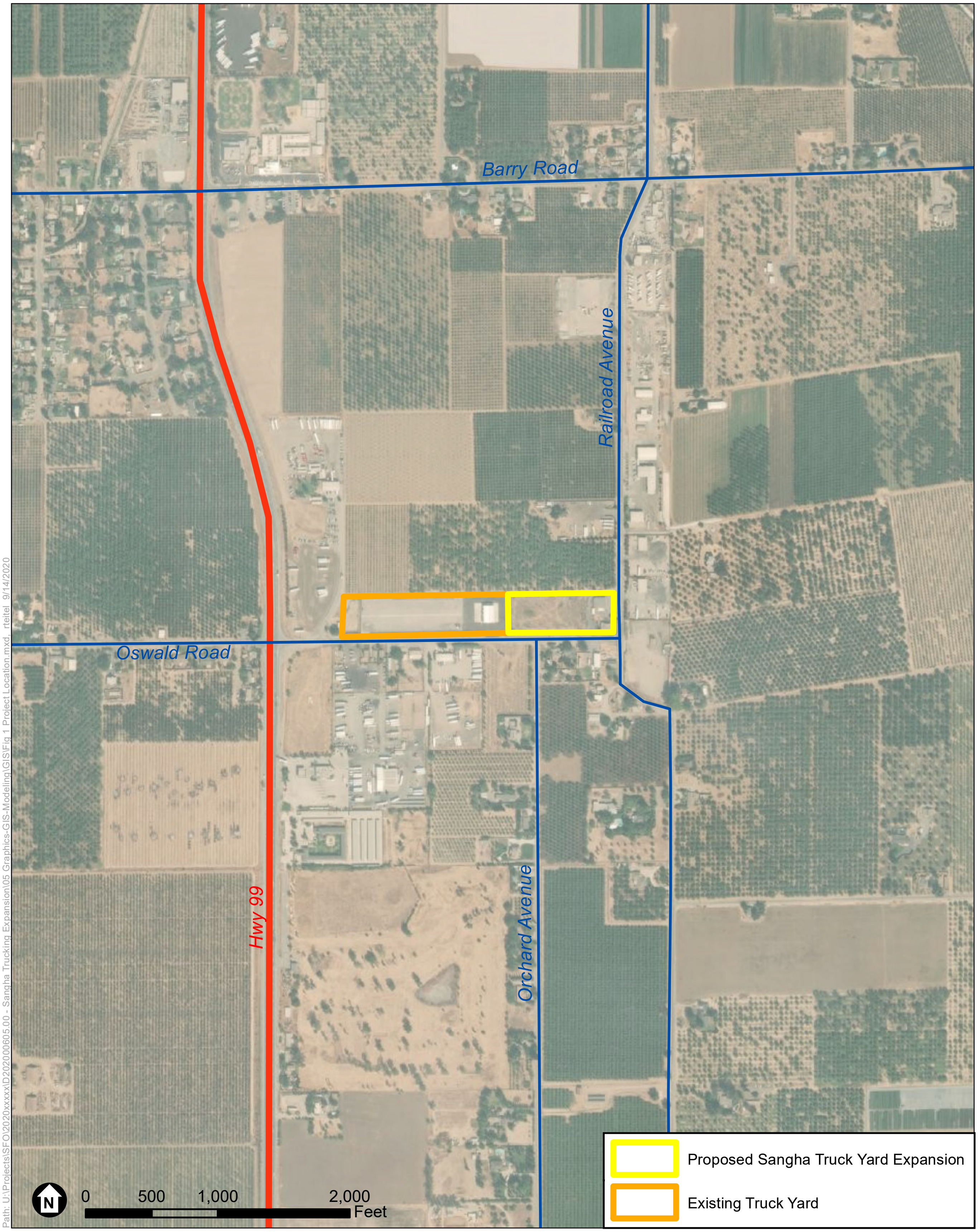
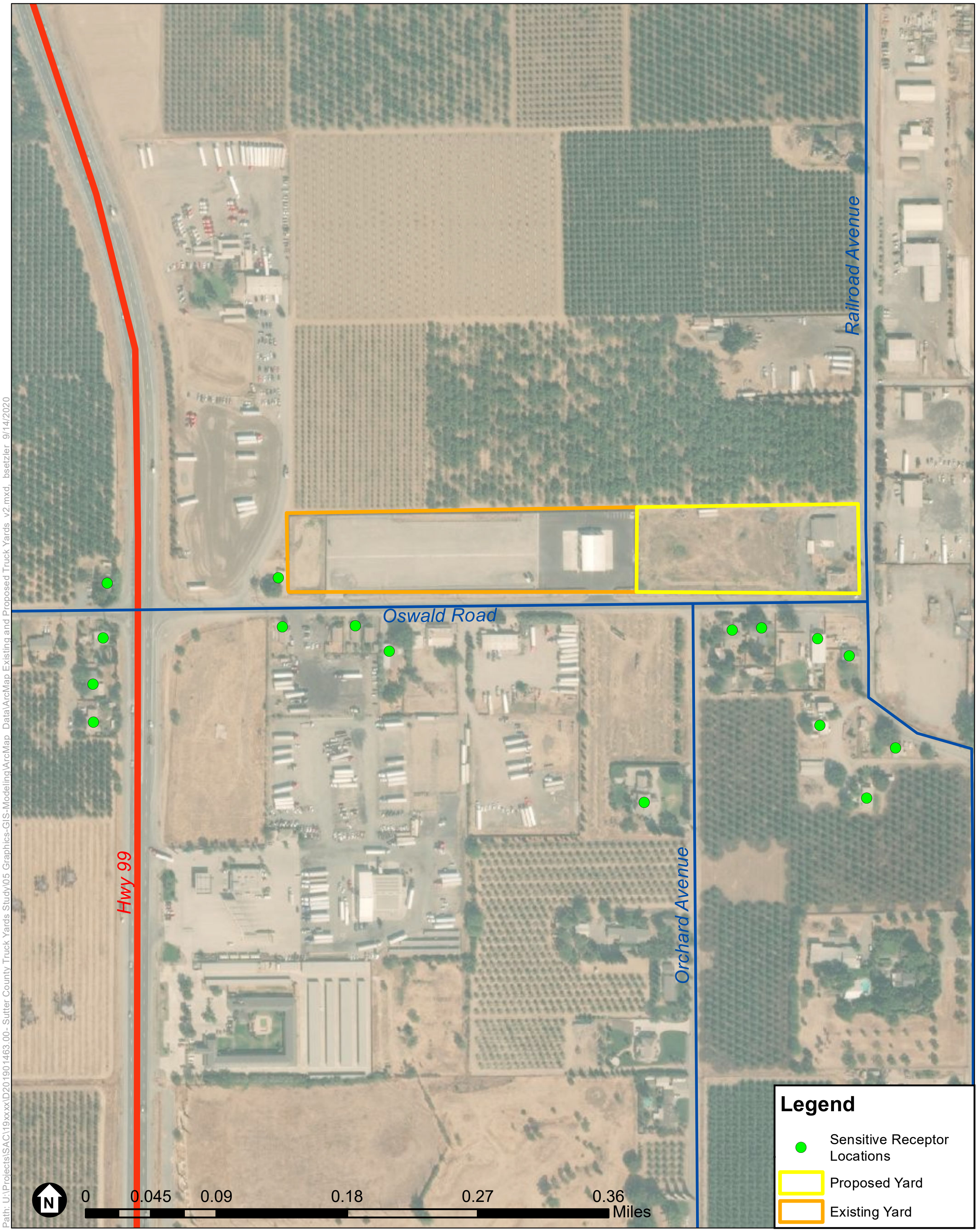


Path: U:\Projects\SFO\2020xxxxx\D202000605.00 - Sangha Trucking Expansion\05 Graphics-GIS-Modeling\GIS\Fig 1 Project Location.mxd, rteitel 9/14/2020

SOURCE: ESA 2020

Sangha Trucking Expansion

Figure 1
Project Location

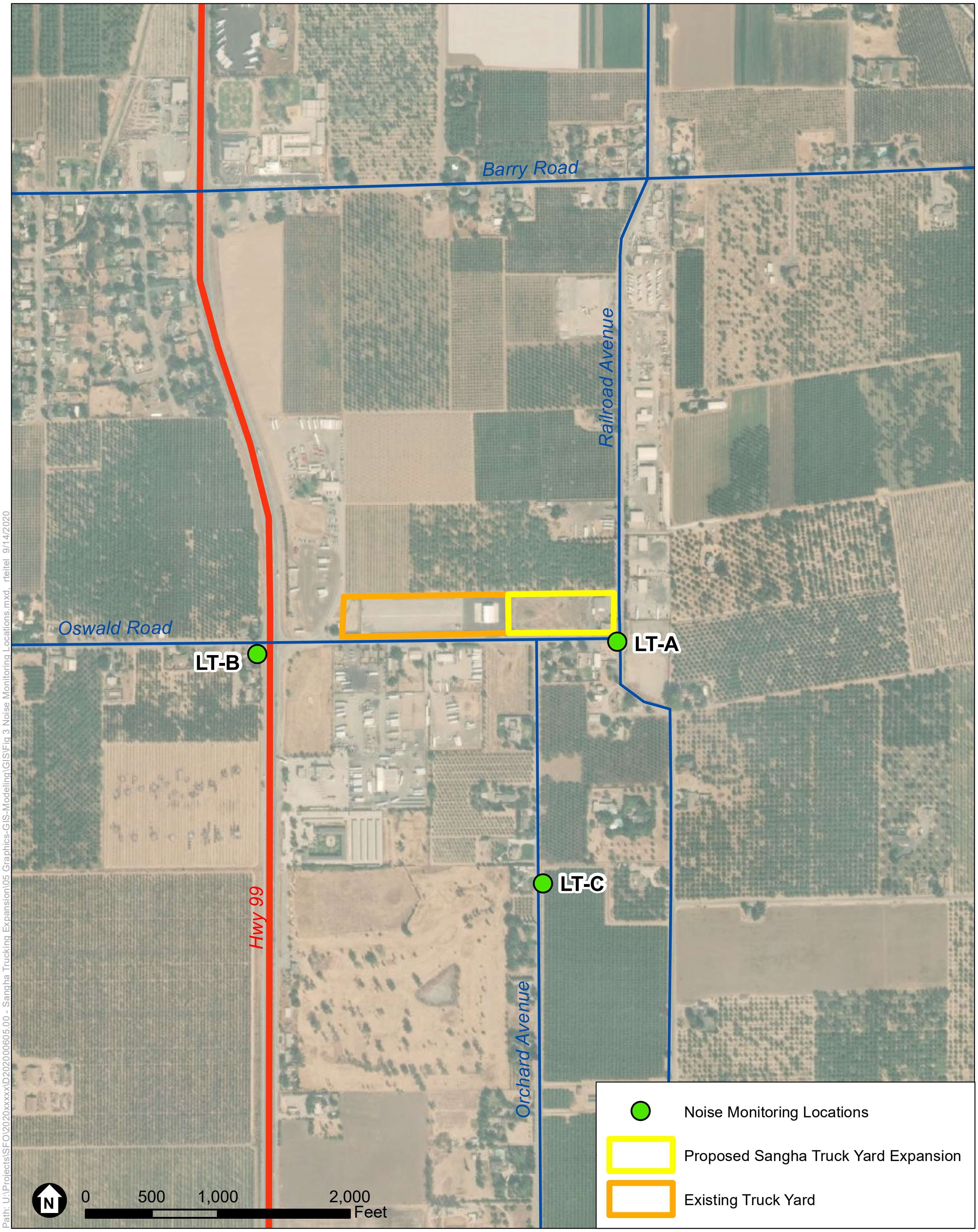


SOURCE: ESA 2020

Sangha Trucking Expansion

Figure 2
Sensitive Receptor Locations

ESA



SOURCE: ESA 2020

Sangha Trucking Expansion

Figure 3
Noise Monitoring Locations

ESA

APPENDIX A

Air Quality and GHG

CalEEMod Output Emissions Calcs

Note: FRAQMD Thresholds of Significance are AVERAGE ppd for NOx and ROG, but MAXIMUM ppd for PM10

Background Information

Work Days	Operational Da	Days per Year
49	#REF!	365

Tons	Pounds
1	2000

Criteria Pollutant Emissions

Construction Emissions

Average Daily Emissions

Criteria Pollutant Emissions (tpy)	ROG	NOx	PM10
Demo On-Site (CalEEMod)	0.020	0.197	0.015
Site Prep On-Site (CalEEMod)	0.002	0.027	0.001
Grading On-Site (CalEEMod)	0.005	0.061	0.023
Paving On-Site (CalEEMod)	0.006	0.053	0.003
Arch Coating On-Site (CalEEMod)	0.045	0.008	0.0005
Demo Off-Site Fugitive Dust (CalEEMod)			0.002
Site Prep Off-Site Fugitive Dust (CalEEMod)			0.0002
Grading Off-Site Fugitive Dust (CalEEMod)			0.0004
Paving Off-Site Fugitive Dust (CalEEMod)			0.004
Arch Coat Off-Site Fugitive Dust (CalEEMod)			0.001
Hauling, Vendor, and Worker Exhaust(EMFAC2017)	0.005	0.062	0.003
Total	0.084	0.408	0.052

Criteria Pollutant Emissions (ppd)	ROG	NOx	PM10
Demo On-Site (CalEEMod)	0.812	8.041	0.616
Site Prep On-Site (CalEEMod)	0.095	1.118	0.043
Grading On-Site (CalEEMod)	0.224	2.473	0.931
Paving On-Site (CalEEMod)	0.236	2.171	0.119
Arch Coating On-Site (CalEEMod)	1.845	0.311	0.019
Demo Off-Site Fugitive Dust (CalEEMod)			0.080
Site Prep Off-Site Fugitive Dust (CalEEMod)			0.007
Grading Off-Site Fugitive Dust (CalEEMod)			0.017
Paving Off-Site Fugitive Dust (CalEEMod)			0.149
Arch Coat Off-Site Fugitive Dust (CalEEMod)			0.030
Hauling & Worker (EMFAC2017)	0.201	2.548	0.103
Total	2.600	8.622	1.497

Max Daily Emissions

Criteria Pollutant Emissions (ppd) SUMMER	ROG	NOx	PM10
Demo On-Site (CalEEMod)	1.993	19.697	1.509
Site Prep On-Site (CalEEMod)	1.546	18.286	0.702
Grading On-Site (CalEEMod)	1.827	20.214	7.606
Paving On-Site (CalEEMod)	1.152	10.648	0.583
Arch Coating On-Site (CalEEMod)	9.037	1.527	0.094
Demo Off-Site Fugitive Dust (CalEEMod)			0.203
Site Prep Off-Site Fugitive Dust (CalEEMod)			0.114
Grading Off-Site Fugitive Dust (CalEEMod)			0.140
Paving Off-Site Fugitive Dust (CalEEMod)			0.754
Arch Coat Off-Site Fugitive Dust (CalEEMod)			0.153
Hauling & Worker (EMFAC2017)	0.201	2.548	0.103
Total			7.849

Criteria Pollutant Emissions (ppd) WINTER	ROG	NOx	PM10
Demo On-Site (CalEEMod)	1.993	19.697	1.509
Site Prep On-Site (CalEEMod)	1.546	18.286	0.702
Grading On-Site (CalEEMod)	1.827	20.214	7.606
Paving On-Site (CalEEMod)	1.152	10.648	0.583
Arch Coating On-Site (CalEEMod)	9.037	1.527	0.094
Demo Off-Site Fugitive Dust (CalEEMod)			0.203
Site Prep Off-Site Fugitive Dust (CalEEMod)			0.114
Grading Off-Site Fugitive Dust (CalEEMod)			0.140
Paving Off-Site Fugitive Dust (CalEEMod)			0.754
Arch Coat Off-Site Fugitive Dust (CalEEMod)			0.153
Hauling & Worker (EMFAC2017)	0.201	2.548	0.103
Total			7.849

Criteria Pollutant Emissions (ppd) OVERALL	ROG	NOx	PM10
Demo On-Site (CalEEMod)	1.993	19.697	1.509
Site Prep On-Site (CalEEMod)	1.546	18.286	0.702
Grading On-Site (CalEEMod)	1.827	20.214	7.606
Paving On-Site (CalEEMod)	1.152	10.648	0.583
Arch Coating On-Site (CalEEMod)	9.037	1.527	0.094
Demo Off-Site Fugitive Dust (CalEEMod)			0.203
Site Prep Off-Site Fugitive Dust (CalEEMod)			0.114
Grading Off-Site Fugitive Dust (CalEEMod)			0.140
Paving Off-Site Fugitive Dust (CalEEMod)			0.754
Arch Coat Off-Site Fugitive Dust (CalEEMod)			0.153
Hauling & Worker (EMFAC2017)	0.201	2.548	0.103
Total			7.849

Operational Emissions

Maximum Daily Emissions

Criteria Pollutant Emissions (ppd) SUMMER				
	ROG	NOx	PM10 Dust	PM10 Exhaust
Area (CalEEMod)	0.070	1.20E-04		5.00E-05
Mobile (CalEEMod)	x	x	2.035	x
Mobile (EMFAC2017)	0.729	5.676	x	4.85E-01
Mobile (AP 42)	x	x	0.018	x
Total	**0.799**	**5.676**		**2.539**

Criteria Pollutant Emissions (ppd) WINTER				
	ROG	NOx	PM10 Dust	PM10 Exhaust
Area (CalEEMod)	0.070	1.20E-04		5.00E-05
Mobile (CalEEMod)	x	x	2.035	x
Mobile (EMFAC2017)	0.729	5.676	x	0.4852
Mobile (AP 42)	x	x	0.018	x
Total	**0.799**	**5.676**		**2.539**

Criteria Pollutant Emissions (ppd) OVERALL				
	ROG	NOx	PM10 Dust	PM10 Exhaust
Area (CalEEMod)	0.070	1.20E-04		5.00E-05
Mobile (CalEEMod)	x	x	2.035	x
Mobile (EMFAC2017)	0.729	5.676	x	0.485
Mobile (AP 42)	x	x	0.018	x
Total	**0.799**	**5.676**		**2.539**

GHG Emissions

Construction Emissions

GHG Emissions (tpy)	
	CO2e
Demo On-Site (CalEEMod)	21.2
Site Prep On-Site (CalEEMod)	3.3
Grading On-Site (CalEEMod)	5.5
Paving On-Site (CalEEMod)	7.8
Arch Coating On-Site (CalEEMod)	1.3
Hauling, Vendor, and Worker Exhaust(EMFAC2017)	19.3
Total	58.3

Operational Emissions

GHG Emissions (tpy)	
	CO2e
Area (CalEEMod)	0.002
Energy (CalEEMod)	0.5
Mobile (EMFAC2017)	357.5
Total	358.0

Sangha Trucking Expansion - EMFAC 2017 Emission Calculations

Tons	Pounds	Grams
1	2000	907185

Year	Work Days	Operational Days	Days per Year
1	49	312.8571429	365

Mile	Feet
1	5280

Project Schedule

Phase	*Number of Days*
Demo	20
Grading	3
Site Prep	6
Paving	10
Arch Coating	10

Construction Trips

	One-way Daily Trips	Trip Length (mi)
Worker	604	16.8
Vendor	98	6.6
Hauling	340.72	20

Operational Trips

	One-way Annual	Trip Length (mi)_
Employee	23151.42857	33.28
Trucks	1877.142857	33.28
Total new daily	80	

Operational Parking Lot Trips

	One-way Annual	Trip Length (mi)
Trucks	1877.142857	0.151515152

Distance Measured on Site Plan
800 feet

TRU Operation

2	hours/day
104.2857143	days/year
208.5714286	hours/year

CONSTRUCTION

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Sutter
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	CO2_RUNEX	CO2_IDLEX	CO2_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
Sutter	2021	LDA	Aggregate	Aggregate	Gasoline	47593.92951	1748423.235	223170.3768	0.047396754	0	0.21522958	0.001369462	0	0.002032325	0.008000002	0.036750011	266.9523972	0	57.25534492	0.010868433	0	0.276796324	0.121280104	0.243879241	0.231511666	0.333405953
Sutter	2021	LDT1	Aggregate	Aggregate	Gasoline	4613.463949	170245.4403	21201.46316	0.100821101	0	0.284067809	0.001838573	0	0.002698421	0.008000002	0.036750011	306.5889238	0	66.69729111	0.022607603	0	0.403042178	0.219383008	0.757885417	0.439692931	0.70146331
Sutter	2021	LDT1	Aggregate	Aggregate	Diesel	4.160062695	60.23693469	13.25503652	1.360316383	0	0	0.162163839	0	0	0.008000002	0.036750011	394.9191055	0	0	0.218016323	0	0	0	0	0	0
Sutter	2021	LDT2	Aggregate	Aggregate	Gasoline	17423.19699	622874.3495	79564.22068	0.137903246	0	0.423879486	0.001578943	0	0.002322474	0.008000002	0.036750011	342.8757436	0	76.48287511	0.024996378	0	0.490575597	0.209962318	0.6994147	0.449465557	0.656922473
Sutter	2021	LDT2	Aggregate	Aggregate	Diesel	84.29404734	3636.085952	408.9725876	0.070744528	0	0	0.007381523	0	0	0.008000002	0.036750011	264.4219794	0	0	0.016081283	0	0	0	0	0	0
Sutter	2021	T7 single construct	Aggregate	Aggregate	Diesel	168.8357444	11871.38022	763.2998361	6.526801426	22.67282546	3.516604753	0.115258911	0.032354446	0	0.03600001	0.061740018	1859.782655	3917.791879	0	0.426036513	1.57802503	0	0	0	0	0
Sutter	2021	T6 instate construc	Aggregate	Aggregate	Diesel	97.89902349	6661.860434	442.5976789	4.796472497	5.082112639	1.908779559	0.121984354	0.011810577	0	0.012000003	0.130340037	1256.940368	660.5244581	0	0.408367052	0.074290457	0	0	0	0	0
Sutter	2021	T7 single construct	Aggregate	Aggregate	Diesel	168.8357444	11871.38022	763.2998361	6.526801426	22.67282546	3.516604753	0.115258911	0.032354446	0	0.03600001	0.061740018	1859.782655	3917.791879	0	0.426036513	1.57802503	0	0	0	0	0

Project Background Information

Background Info	
Worker Trips	
Total one-way trips	604
Trip Length	16.8
Vendor Trips	
Total one-way trips	98
Trip Length	6.6
Haul Trips	
Total one-way trips	340.72
Trip Length	20

Fleet Mix		
Worker Trips		
LDA	Gas	0.5
LDT1	Gas	0.125
LDT1	Diesel	0.125
LDT2	Gas	0.125
LDT2	Diesel	0.125
Vendor Trips		
HHDT	Diesel	0.5
MHDT	Diesel	0.5
Haul Trips		
HHDT	Diesel	1

Emissions Calcs

g/ton	907185					ROG	ROG	ROG	ROG	ROG	ROG	ROG	NOx	NOx	NOx	PM10	PM10	PM10	PM10	PM10	CO2	CO2	CO2
			g/mi	g/trip	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/trip	g/trip	g/vehicle/day	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day	g/trip	g/mi	g/mi	g/mi	g/vehicle/day	g/trip
	One-Way Trips	mi	tot mi	tot trip	tot veh	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	CO2_RUNEX	CO2_IDLEX	CO2_STREX
3 LDA	302	16.8	5073.6	302	151	6.08E-05	0	9.21E-05	4.04E-05	8.12E-05	3.85E-05	5.55E-05	2.65E-04	0	7.16E-05	7.66E-06	0	6.77E-07	4.47E-05	2.06E-04	1.49E+00	0.00E+00	1.91E-02
4 LDT1	75.5	16.8	1268.4	75.5	37.75	3.16E-05	0	3.35E-05	1.83E-05	6.31E-05	1.83E-05	2.92E-05	1.41E-04	0	2.36E-05	2.57E-06	0	2.25E-07	1.12E-05	5.14E-05	4.29E-01	0.00E+00	5.55E-03
5 LDT1	75.5	16.8	1268.4	75.5	37.75	3.05E-04	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-03	0	0.00E+00	2.27E-04	0	0.00E+00	1.12E-05	5.14E-05	5.52E-01	0.00E+00	0.00E+00
6 LDT2	75.5	16.8	1268.4	75.5	37.75	3.49E-05	0	4.08E-05	1.75E-05	5.82E-05	1.87E-05	2.73E-05	1.93E-04	0	3.53E-05	2.21E-06	0	1.93E-07	1.12E-05	5.14E-05	4.79E-01	0.00E+00	6.37E-03
7 LDT2	75.5	16.8	1268.4	75.5	37.75	2.25E-05	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.89E-05	0	0.00E+00	1.03E-05	0	0.00E+00	1.12E-05	5.14E-05	3.70E-01	0.00E+00	0.00E+00
8 HHDT	49	6.6	323.4	49	24.5	1.52E-04	4.26171E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-03	0.000612316	1.90E-04	4.11E-05	8.73784E-07	0.00E+00	1.28E-05	2.20E-05	6.63E-01	1.06E-01	0.00E+00
9 MHDT	49	6.6	323.4	49	24.5	1.46E-04	2.00633E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-03	0.000137251	1.03E-04	4.35E-05	3.18964E-07	0.00E+00	4.28E-06	4.65E-05	4.48E-01	1.78E-02	0.00E+00
10 HHDT	340.72	20	6814.4	340.72	170.36	3.20E-03	0.000296337	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.90E-02	0.004257723	1.32E-03	8.66E-04	6.07583E-06	0.00E+00	2.70E-04	4.64E-04	1.40E+01	7.36E-01	0.00E+00

Sum of Emissions

tons/year	ROG	NOx	PM10	CO2
LDA	3.69E-04	3.37E-04	2.59E-04	1.51204087
LDT1	1.94E-04	1.65E-04	6.54E-05	0.434214671
LDT1	3.05E-04	1.90E-03	2.89E-04	0.552164546
LDT2	1.97E-04	2.28E-04	6.50E-05	0.48576426
LDT2	2.25E-05	9.89E-05	7.29E-05	0.369707214
HHDT	1.94E-04	3.13E-03	7.68E-05	0.768795352
MHDT	1.48E-04	1.95E-03	9.45E-05	0.465921906
HHDT	3.50E-03	5.46E-02	1.61E-03	14.70564212
Total	**4.93E-03**	**6.24E-02**	**2.53E-03**	**1.93E+01**

lbs/day	2.011E-01	2.548E+00	1.032E-01	7.875E+02

tons/year	ROG	NOx	PM10	CO2
Worker	1.09E-03	2.73E-03	7.51E-04	3.35E+00
Vendor	3.42E-04	5.08E-03	1.71E-04	1.23E+00
Haul	3.50E-03	5.46E-02	1.61E-03	1.47E+01

lbs/day	ROG	NOx	PM10	CO2
Worker	4.44E-02	1.11E-01	3.07E-02	1.37E+02
Vendor	1.40E-02	2.07E-01	6.99E-03	5.04E+01
Haul	1.43E-01	2.23E+00	6.56E-02	6.00E+02

OPERATION

Truck & Employee Vehicle Aggregate Speed On-Road Emissions

EMFAC2017 Output - Worker and Truck Trips (Aggregate Speed)

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Sutter
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	NOx_RUNEX	NOx_IDLEX	NOx_STREX
Sutter	2021	LDA	Aggregate	Aggregate	Gasoline	47593.92951	1748423.235	223170.3768	0.047396754	0	0.21522958
Sutter	2021	LDT1	Aggregate	Aggregate	Gasoline	4613.463949	170245.4403	21201.46316	0.100821101	0	0.284067809
Sutter	2021	LDT1	Aggregate	Aggregate	Diesel	4.160062695	60.23693469	13.25503652	1.360316383	0	0
Sutter	2021	LDT2	Aggregate	Aggregate	Gasoline	17423.19699	622874.3495	79564.22068	0.137903246	0	0.423879486
Sutter	2021	LDT2	Aggregate	Aggregate	Diesel	84.29404734	3636.085952	408.9725876	0.070744528	0	0
Sutter	2021	T7 tractor	Aggregate	Aggregate	Diesel	436.5272923	59585.01155	5543.896612	3.920310289	26.87947042	1.353506556
						ok	ok	ok	ok	ok	ok

Vehicle Category	Fuel	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	CO2_RUNEX	CO2_IDLEX	CO2_STREX	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
LDA	Gasoline	0.001369462	0	0.002032325	0.008000002	0.036750011	266.9523972	0	57.25534492	0.010868433	0	0.276796324	0.121280104	0.243879241	0.231511666	0.333405953
LDT1	Gasoline	0.001838573	0	0.002698421	0.008000002	0.036750011	306.5889238	0	66.69729111	0.022607603	0	0.403042178	0.219383008	0.757885417	0.439692931	0.70146331
LDT1	Diesel	0.162163839	0	0	0.008000002	0.036750011	394.9191055	0	0	0.218016323	0	0	0	0	0	0
LDT2	Gasoline	0.001578943	0	0.002322474	0.008000002	0.036750011	342.8757436	0	76.48287511	0.024996378	0	0.490575597	0.209962318	0.6994147	0.449465557	0.656922473
LDT2	Diesel	0.007381523	0	0	0.008000002	0.036750011	264.4219794	0	0	0.016081283	0	0	0	0	0	0
T7 tractor	Diesel	0.079049581	0.036678148	0	0.03600001	0.061740018	1380.864973	4636.543202	0	0.122612193	1.865588173	0	0	0	0	0
		ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok

Project Background information

Background Info	
Employee Trips	
Total one-way trips	23151.42857
Trip Length	33.28
Truck Trips	
Total one-way trips	1877.142857
Trip Length	33.28

Fleet Mix		
Employee Trips - Same as Worker (above)		
LDA	Gas	0.5
LDT1	Gas	0.125
LDT1	Diesel	0.125
LDT2	Gas	0.125
LDT2	Diesel	0.125
Truck Trips		
T7 Tractor	Diesel	1

Emissions Calcs

TPY	g/ton	907185					ROG	ROG	ROG	ROG	ROG	ROG	ROG
				g/mi	g/trip	g/vehicle/day	g/mi	g/vehicle/day	g/trip	g/trip	g/trip	g/vehicle/day	g/vehicle/day
		One-Way Trips	mi	tot mi	tot trip	tot veh	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOAK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN
3	LDA	11575.71429	33.28	385239.7714	11575.71429	5787.857143	4.62E-03	0.00E+00	3.53E-03	1.55E-03	3.11E-03	1.48E-03	2.13E-03
4	LDT1	2893.928571	33.28	96309.94286	2893.928571	1446.964286	2.40E-03	0.00E+00	1.29E-03	7.00E-04	2.42E-03	7.01E-04	1.12E-03
5	LDT1	2893.928571	33.28	96309.94286	2893.928571	1446.964286	2.31E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	LDT2	2893.928571	33.28	96309.94286	2893.928571	1446.964286	2.65E-03	0.00E+00	1.56E-03	6.70E-04	2.23E-03	7.17E-04	1.05E-03
7	LDT2	2893.928571	33.28	96309.94286	2893.928571	1446.964286	1.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	T7 Tractor	1877.142857	33.28	62471.31429	1877.142857	938.5714286	8.44E-03	1.93E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

		NOx	NOx	NOx	PM10	PM10	PM10	PM10	PM10	CO2	CO2	CO2
		g/mi	g/vehicle/day	g/trip	g/mi	g/vehicle/day	g/trip	g/mi	g/mi	g/mi	g/vehicle/day	g/trip
		NOx_RUNEX	NOx_IDLEX	NOx_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	CO2_RUNEX	CO2_IDLEX	CO2_STREX
3	LDA	2.01E-02	0.00E+00	2.75E-03	5.82E-04	0.00E+00	2.59E-05	3.40E-03	1.56E-02	1.13E+02	0.00E+00	7.31E-01
4	LDT1	1.07E-02	0.00E+00	9.06E-04	1.95E-04	0.00E+00	8.61E-06	8.49E-04	3.90E-03	3.25E+01	0.00E+00	2.13E-01
5	LDT1	1.44E-01	0.00E+00	0.00E+00	1.72E-02	0.00E+00	0.00E+00	8.49E-04	3.90E-03	4.19E+01	0.00E+00	0.00E+00
6	LDT2	1.46E-02	0.00E+00	1.35E-03	1.68E-04	0.00E+00	7.41E-06	8.49E-04	3.90E-03	3.64E+01	0.00E+00	2.44E-01
7	LDT2	7.51E-03	0.00E+00	0.00E+00	7.84E-04	0.00E+00	0.00E+00	8.49E-04	3.90E-03	2.81E+01	0.00E+00	0.00E+00
8	T7 Tractor	2.70E-01	2.78E-02	2.80E-03	5.44E-03	3.79E-05	0.00E+00	2.48E-03	4.25E-03	9.51E+01	4.80E+00	0.00E+00

Sum of Emissions

TPY	ROG	NOx	PM10	CO2
LDA	1.64E-02	2.29E-02	1.96E-02	1.14E+02
LDT1	8.62E-03	1.16E-02	4.95E-03	3.28E+01
LDT1	2.31E-02	1.44E-01	2.20E-02	4.19E+01
LDT2	8.88E-03	1.60E-02	4.93E-03	3.66E+01
LDT2	1.71E-03	7.51E-03	5.53E-03	2.81E+01
T7 Tractor	1.04E-02	3.01E-01	1.22E-02	9.99E+01
Total	6.91E-02	5.03E-01	6.92E-02	3.53E+02

PPD	ROG	NOx	PM10	CO2
LDA	1.05E-01	1.46E-01	1.25E-01	7.29E+02
LDT1	5.51E-02	7.42E-02	3.17E-02	2.09E+02
LDT1	1.48E-01	9.23E-01	1.40E-01	2.68E+02
LDT2	5.68E-02	1.02E-01	3.15E-02	2.34E+02
LDT2	1.09E-02	4.80E-02	3.54E-02	1.79E+02
T7 Tractor	6.63E-02	1.92E+00	7.81E-02	6.39E+02
Total	4.42E-01	3.22E+00	4.42E-01	2.26E+03

TRU Off-Road Emissions

OFFROAD2017 Output - TRUs

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: Sutter
Calendar Year: 2021
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	ROG_tpd	NOx_tpd	PM10_tpd	CO2_tpd	Fuel Consumptic	Total_Activity_hp (hr/year)	Total_Populatic	Horsepower_Hours_hhpy
Sutter	2021	TRU - Instate Traile	Aggregate	Aggregate	Diesel	0.003135386	0.026778533	0.00046821	0.63345287	402.0929355	160997.9831	121.5186445	5473931.426
						ROG_tpd per TRU	NOx_tpd per TRU	PM10_tpd per TRU	CO2_tpd per TRU		hr/day/TRU		
						2.58017E-05	0.000220366	3.85299E-06	0.005212804		3.629816366		
						ROG_tons per hour per TRU	NOx_tons per hour per TRU	PM10_tons per hour per TRU	CO2_tpd tons per hour per TRU				
						7.10826E-06	6.07099E-05	1.06148E-06	0.001436107				

Project Background information

TRUs		
Number of TRUs		10
Hours of Operation per day	(per TRU)	2
Days of Operation per year	(per TRU)	104
Hour of Operation per year	(per TRU)	209

^ If reefer is on, running 15 minutes per hour for 8 hours (required rest time)
^ info from heather

Emissions Calcs

TPY	ROG	NOx	PM10	CO2
TRU	1.48E-02	1.27E-01	2.21E-03	3.00E+00

Sum of Emissions

TPY	ROG	NOx	PM10	CO2
TRU	1.48E-02	1.27E-01	2.21E-03	3.00E+00

PPD	ROG	NOx	PM10	CO2
TRU	2.84E-01	2.43E+00	4.25E-02	5.74E+01

Truck 5mph On-Road Emissions

EMFAC2017 Output - Worker and Truck Trips - 5mph

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Sutter
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	VMT	NOx_RUNEX	PM10_RUNEX	CO2_RUNEX	ROG_RUNEX
Sutter	2021	T7 tractor	Aggregate	5	Diesel	240.5004549	15.8750768	0.149718116	3574.546991	1.408182805

Project Background information

Background Info	
Truck Trips within Parking Lot	
Total one-way trips	1877.142857
Trip Length	0.151515152

<- need to measure the distance that trucks would be driving through the site .

Fleet Mix		
Trucks		
T7 tractor	Diesel	1

Emissions Calcs

TPY	g/ton 907185			g/mi tot mi	g/trip tot trip	g/vehicle/day tot veh	ROG g/mi ROG_RUNEX	NOx g/mi NOx_RUNEX	PM10 g/mi PM10_RUNEX	CO2 g/mi CO2_RUNEX
		One-Way Trips	mi							
3	T7 tractor	1877.142857	0.151515152	284.4155844	1877.142857	938.5714286	4.41E-04	4.98E-03	4.69E-05	1.12E+00

Sum of Emissions

TPY	ROG	NOx	PM10	CO2
T7 Tractor 5mpl	4.41E-04	4.98E-03	4.69E-05	1.12E+00

PPD	ROG	NOx	PM10	CO2
T7 Tractor 5mpl	2.82E-03	3.18E-02	3.00E-04	7.16E+00

Total Operational Emissions Generated from EMFAC2017

TPY	ROG	NOx	PM10	CO2
Total Ops	**0.084412067**	**0.634576377**	**0.071465457**	**357.5003388**

PPD	ROG	NOx	PM10	CO2
Total Ops	**0.729174164**	**5.675582175**	**0.485163015**	**2323.686475**

5mph Fugitive Dust Emissions from Travel on Parking Lot

Background Information

Tons	Pounds
1	2000

Truck Weight	
33000	pounds
16.5	tons

Silt Loading Content
4%

Mile	Feet
1	5280

Operational Parking Lot Trips

	One-way Daily Trips	Trip Lengtl	VMT/day
Trucks	6	0.151515	0.909090909

Emissions Factor Equation

Equation 1a from Chapter 13 of AP 42

E = k (s/12)^a (W/3)^b

Constants	
	PM-10
k (lb/VMT)	1.5
a	0.9
b	0.45

E = size-specific emission factor
s = surface material silt content
W = mean vehicle weight (tons)

Emissions Factor Calculations

Emission Factor for Movement Through Parking Lot

0.020329 lb/VMT PM10

Emissions Calculation

Emissions from Movement Through Parking Lot

0.018481 lb/day PM10

Sangha Trucking Expansion Project

Sutter County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.24	1000sqft	2.58	112,240.00	0
Parking Lot	14.60	1000sqft	0.34	14,601.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sangha Trucking Expansion Project - Sutter County, Annual

Project Characteristics - PG&E GHG emission factor based on <http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf>

Land Use - SF from client contractor

Construction Phase -

Trips and VMT - Trips based on 25cy truck capacity; import trips during paving phase

Demolition -

Grading - Info provided from contractor

Vehicle Trips - Based on F&P data. 6 new truck trips for repair & 74 new employee trips per day. Average trip length = 33.28 for all trips. All trips are primary trips. Truck trips considered commercial ->customer, employee trips considered work -> home

Energy Use -

Construction Off-road Equipment Mitigation -

Fleet Mix - non-asphalt surfaces will be for HHDT only; parking lot for employee vehicles

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.11	1.00
tblFleetMix	HHD	0.11	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDA	0.51	0.50
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.25
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.25
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MDV	0.11	0.00

tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblGrading	AcresOfGrading	3.00	3.36
tblGrading	AcresOfGrading	4.50	0.00
tblGrading	MaterialImported	0.00	3,915.00
tblLandUse	LandUseSquareFeet	14,600.00	14,601.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	43.00	28.00
tblTripsAndVMT	HaulingTripNumber	489.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	314.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	6.60	33.28
tblVehicleTrips	CC_TL	6.60	33.28

tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	0.05
tblVehicleTrips	ST_TR	0.00	5.07
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	0.00	5.07

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					
2021	0.0815	0.3955	0.2766	6.3000e-004	0.0317	0.0178	0.0494	0.0127	0.0165	0.0293	0.0000	56.1804	56.1804	0.0117	0.0000	56.4732
Maximum	**0.0815**	**0.3955**	**0.2766**	**6.3000e-004**	**0.0317**	**0.0178**	**0.0494**	**0.0127**	**0.0165**	**0.0293**	**0.0000**	**56.1804**	**56.1804**	**0.0117**	**0.0000**	**56.4732**

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					
2021	0.0815	0.3955	0.2766	6.3000e-004	0.0181	0.0178	0.0358	6.7600e-003	0.0165	0.0233	0.0000	56.1803	56.1803	0.0117	0.0000	56.4732
Maximum	**0.0815**	**0.3955**	**0.2766**	**6.3000e-004**	**0.0181**	**0.0178**	**0.0358**	**6.7600e-003**	**0.0165**	**0.0233**	**0.0000**	**56.1803**	**56.1803**	**0.0117**	**0.0000**	**56.4732**

	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**	**42.97**	**0.00**	**27.53**	**46.94**	**0.00**	**20.40**	**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	**3-15-2021**	**6-14-2021**	0.4625	0.4625
		Highest	0.4625	0.4625

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	0.0127	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.4868	0.4868	7.0000e-005	1.0000e-005	0.4926
Mobile	0.0342	0.3469	0.7470	3.4100e-003	0.3060	2.4700e-003	0.3085	0.0816	2.3100e-003	0.0839	0.0000	313.1815	313.1815	8.9600e-003	0.0000	313.4056
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0469**	**0.3469**	**0.7482**	**3.4100e-003**	**0.3060**	**2.4700e-003**	**0.3085**	**0.0816**	**2.3100e-003**	**0.0839**	**0.0000**	**313.6706**	**313.6706**	**9.0400e-003**	**1.0000e-005**	**313.9006**

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	0.0127	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.4868	0.4868	7.0000e-005	1.0000e-005	0.4926
Mobile	0.0342	0.3469	0.7470	3.4100e-003	0.3060	2.4700e-003	0.3085	0.0816	2.3100e-003	0.0839	0.0000	313.1815	313.1815	8.9600e-003	0.0000	313.4056
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0469**	**0.3469**	**0.7482**	**3.4100e-003**	**0.3060**	**2.4700e-003**	**0.3085**	**0.0816**	**2.3100e-003**	**0.0839**	**0.0000**	**313.6706**	**313.6706**	**9.0400e-003**	**1.0000e-005**	**313.9006**

	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**	**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	3/15/2021	4/9/2021	5	20	
2	Site Preparation	Site Preparation	4/10/2021	4/14/2021	5	3	
3	Grading	Grading	4/15/2021	4/22/2021	5	6	
4	Paving	Paving	4/23/2021	5/6/2021	5	10	
5	Architectural Coating	Architectural Coating	5/7/2021	5/20/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.36

Acres of Paving: 2.92

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,610 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	5	13.00	2.00	28.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	314.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

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					4.6800e-003	0.0000	4.6800e-003	7.1000e-004	0.0000	7.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**4.6800e-003**	**0.0104**	**0.0151**	**7.1000e-004**	**9.7100e-003**	**0.0104**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

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	1.1000e-004	3.5300e-003	5.3000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0831	1.0831	6.0000e-005	0.0000	1.0847
Vendor	6.0000e-005	2.1800e-003	3.9000e-004	1.0000e-005	1.2000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5161	0.5161	5.0000e-005	0.0000	0.5173
Worker	6.1000e-004	4.9000e-004	4.7200e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.3000e-004	0.0000	1.2594	1.2594	3.0000e-005	0.0000	1.2603
Total	**7.8000e-004**	**6.2000e-003**	**5.6400e-003**	**3.0000e-005**	**1.9600e-003**	**3.0000e-005**	**1.9800e-003**	**5.3000e-004**	**3.0000e-005**	**5.5000e-004**	**0.0000**	**2.8587**	**2.8587**	**1.4000e-004**	**0.0000**	**2.8623**

3.2 Demolition - 2021

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					2.1000e-003	0.0000	2.1000e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**2.1000e-003**	**0.0104**	**0.0125**	**3.2000e-004**	**9.7100e-003**	**0.0100**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

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	1.1000e-004	3.5300e-003	5.3000e-004	1.0000e-005	2.4000e-004	1.0000e-005	2.5000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	1.0831	1.0831	6.0000e-005	0.0000	1.0847
Vendor	6.0000e-005	2.1800e-003	3.9000e-004	1.0000e-005	1.2000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.5161	0.5161	5.0000e-005	0.0000	0.5173
Worker	6.1000e-004	4.9000e-004	4.7200e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6100e-003	4.3000e-004	1.0000e-005	4.3000e-004	0.0000	1.2594	1.2594	3.0000e-005	0.0000	1.2603
Total	**7.8000e-004**	**6.2000e-003**	**5.6400e-003**	**3.0000e-005**	**1.9600e-003**	**3.0000e-005**	**1.9800e-003**	**5.3000e-004**	**3.0000e-005**	**5.5000e-004**	**0.0000**	**2.8587**	**2.8587**	**1.4000e-004**	**0.0000**	**2.8623**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**0.0000**	**1.0500e-003**	**1.0500e-003**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

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	1.0000e-005	3.3000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0774	0.0774	1.0000e-005	0.0000	0.0776
Worker	6.0000e-005	5.0000e-005	4.4000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1163	0.1163	0.0000	0.0000	0.1163
Total	**7.0000e-005**	**3.8000e-004**	**5.0000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1937**	**0.1937**	**1.0000e-005**	**0.0000**	**0.1939**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**0.0000**	**1.0500e-003**	**1.0500e-003**	**0.0000**	**9.7000e-004**	**9.7000e-004**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

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	1.0000e-005	3.3000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0774	0.0774	1.0000e-005	0.0000	0.0776
Worker	6.0000e-005	5.0000e-005	4.4000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1163	0.1163	0.0000	0.0000	0.1163
Total	**7.0000e-005**	**3.8000e-004**	**5.0000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1937**	**0.1937**	**1.0000e-005**	**0.0000**	**0.1939**

3.4 Grading - 2021

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					0.0201	0.0000	0.0201	0.0102	0.0000	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**0.0201**	**2.7500e-003**	**0.0228**	**0.0102**	**2.5300e-003**	**0.0127**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

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	2.0000e-005	6.5000e-004	1.2000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1548	0.1548	1.0000e-005	0.0000	0.1552
Worker	1.4000e-004	1.1000e-004	1.0900e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2906	0.2906	1.0000e-005	0.0000	0.2908
Total	**1.6000e-004**	**7.6000e-004**	**1.2100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4455**	**0.4455**	**2.0000e-005**	**0.0000**	**0.4460**

3.4 Grading - 2021

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					9.0300e-003	0.0000	9.0300e-003	4.5700e-003	0.0000	4.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**9.0300e-003**	**2.7500e-003**	**0.0118**	**4.5700e-003**	**2.5300e-003**	**7.1000e-003**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

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	2.0000e-005	6.5000e-004	1.2000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1548	0.1548	1.0000e-005	0.0000	0.1552
Worker	1.4000e-004	1.1000e-004	1.0900e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.2906	0.2906	1.0000e-005	0.0000	0.2908
Total	**1.6000e-004**	**7.6000e-004**	**1.2100e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4455**	**0.4455**	**2.0000e-005**	**0.0000**	**0.4460**

3.5 Paving - 2021

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	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	4.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7700e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

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	1.1900e-003	0.0396	5.9000e-003	1.3000e-004	2.6600e-003	1.3000e-004	2.8000e-003	7.3000e-004	1.3000e-004	8.6000e-004	0.0000	12.1466	12.1466	7.2000e-004	0.0000	12.1646
Vendor	3.0000e-005	1.0900e-003	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2581	0.2581	2.0000e-005	0.0000	0.2586
Worker	3.5000e-004	2.9000e-004	2.7200e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.3000e-004	2.5000e-004	0.0000	2.5000e-004	0.0000	0.7266	0.7266	2.0000e-005	0.0000	0.7271
Total	**1.5700e-003**	**0.0410**	**8.8200e-003**	**1.4000e-004**	**3.6400e-003**	**1.4000e-004**	**3.7900e-003**	**1.0000e-003**	**1.3000e-004**	**1.1300e-003**	**0.0000**	**13.1312**	**13.1312**	**7.6000e-004**	**0.0000**	**13.1503**

3.5 Paving - 2021

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	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	4.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7700e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

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	1.1900e-003	0.0396	5.9000e-003	1.3000e-004	2.6600e-003	1.3000e-004	2.8000e-003	7.3000e-004	1.3000e-004	8.6000e-004	0.0000	12.1466	12.1466	7.2000e-004	0.0000	12.1646
Vendor	3.0000e-005	1.0900e-003	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2581	0.2581	2.0000e-005	0.0000	0.2586
Worker	3.5000e-004	2.9000e-004	2.7200e-003	1.0000e-005	9.2000e-004	1.0000e-005	9.3000e-004	2.5000e-004	0.0000	2.5000e-004	0.0000	0.7266	0.7266	2.0000e-005	0.0000	0.7271
Total	**1.5700e-003**	**0.0410**	**8.8200e-003**	**1.4000e-004**	**3.6400e-003**	**1.4000e-004**	**3.7900e-003**	**1.0000e-003**	**1.3000e-004**	**1.1300e-003**	**0.0000**	**13.1312**	**13.1312**	**7.6000e-004**	**0.0000**	**13.1503**

3.6 Architectural Coating - 2021

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	0.0441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**0.0452**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

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	3.0000e-005	1.0900e-003	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2581	0.2581	2.0000e-005	0.0000	0.2586
Worker	2.6000e-004	2.1000e-004	2.0000e-003	1.0000e-005	6.8000e-004	0.0000	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5328	0.5328	1.0000e-005	0.0000	0.5332
Total	**2.9000e-004**	**1.3000e-003**	**2.2000e-003**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**7.4000e-004**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.7909**	**0.7909**	**3.0000e-005**	**0.0000**	**0.7918**

3.6 Architectural Coating - 2021

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	0.0441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**0.0452**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

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	3.0000e-005	1.0900e-003	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2581	0.2581	2.0000e-005	0.0000	0.2586
Worker	2.6000e-004	2.1000e-004	2.0000e-003	1.0000e-005	6.8000e-004	0.0000	6.8000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5328	0.5328	1.0000e-005	0.0000	0.5332
Total	**2.9000e-004**	**1.3000e-003**	**2.2000e-003**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**7.4000e-004**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.7909**	**0.7909**	**3.0000e-005**	**0.0000**	**0.7918**

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	tons/yr										MT/yr					
Mitigated	0.0342	0.3469	0.7470	3.4100e-003	0.3060	2.4700e-003	0.3085	0.0816	2.3100e-003	0.0839	0.0000	313.1815	313.1815	8.9600e-003	0.0000	313.4056
Unmitigated	0.0342	0.3469	0.7470	3.4100e-003	0.3060	2.4700e-003	0.3085	0.0816	2.3100e-003	0.0839	0.0000	313.1815	313.1815	8.9600e-003	0.0000	313.4056

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	5.61	5.61	0.00	58,271	58,271
Parking Lot	74.02	74.02	0.00	768,597	768,597
Total	79.63	79.63	0.00	826,868	826,868

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
Other Non-Asphalt Surfaces	33.28	33.28	33.28	0.00	100.00	0.00	100	0	0
Parking Lot	33.28	33.28	33.28	0.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.500000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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	0.4868	0.4868	7.0000e-005	1.0000e-005	0.4926
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.4868	0.4868	7.0000e-005	1.0000e-005	0.4926
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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					
Other Non-Asphalt Surfaces	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
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		**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**

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					
Other Non-Asphalt Surfaces	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
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		**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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5110.35	0.4868	7.0000e-005	1.0000e-005	0.4926
Total		**0.4868**	**7.0000e-005**	**1.0000e-005**	**0.4926**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	5110.35	0.4868	7.0000e-005	1.0000e-005	0.4926
Total		**0.4868**	**7.0000e-005**	**1.0000e-005**	**0.4926**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.0127	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-003
Unmitigated	0.0127	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-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	4.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.2000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-003
Total	**0.0127**	**1.0000e-005**	**1.1700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2700e-003**	**2.2700e-003**	**1.0000e-005**	**0.0000**	**2.4200e-003**

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	4.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.2000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2700e-003	2.2700e-003	1.0000e-005	0.0000	2.4200e-003
Total	**0.0127**	**1.0000e-005**	**1.1700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2700e-003**	**2.2700e-003**	**1.0000e-005**	**0.0000**	**2.4200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

Sangha Trucking Expansion Project

Sutter County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.24	1000sqft	2.58	112,240.00	0
Parking Lot	14.60	1000sqft	0.34	14,601.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E GHG emission factor based on <http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf>

Land Use - SF from client contractor

Construction Phase -

Trips and VMT - Trips based on 25cy truck capacity; import trips during paving phase

Demolition -

Grading - Info provided from contractor

Vehicle Trips - Based on F&P data. 6 new truck trips for repair & 74 new employee trips per day. Average trip length = 33.28 for all trips. All trips are primary trips. Truck trips considered commercial ->customer, employee trips considered work -> home

Energy Use -

Construction Off-road Equipment Mitigation -

Fleet Mix - non-asphalt surfaces will be for HHDT only; parking lot for employee vehicles

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.11	1.00
tblFleetMix	HHD	0.11	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDA	0.51	0.50
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.25
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.25
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MDV	0.11	0.00

tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblGrading	AcresOfGrading	3.00	3.36
tblGrading	AcresOfGrading	4.50	0.00
tblGrading	MaterialImported	0.00	3,915.00
tblLandUse	LandUseSquareFeet	14,600.00	14,601.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	43.00	28.00
tblTripsAndVMT	HaulingTripNumber	489.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	314.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	6.60	33.28
tblVehicleTrips	CC_TL	6.60	33.28

tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	0.05
tblVehicleTrips	ST_TR	0.00	5.07
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	0.00	5.07

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					
2021	9.1002	20.4628	15.1459	0.0460	6.8298	1.0435	7.7467	3.4229	0.9740	4.2666	0.0000	4,650.5299	4,650.5299	0.7749	0.0000	4,668.0802
Maximum	**9.1002**	**20.4628**	**15.1459**	**0.0460**	**6.8298**	**1.0435**	**7.7467**	**3.4229**	**0.9740**	**4.2666**	**0.0000**	**4,650.5299**	**4,650.5299**	**0.7749**	**0.0000**	**4,668.0802**

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					
2021	9.1002	20.4628	15.1459	0.0460	3.1504	1.0435	4.0674	1.5609	0.9740	2.4045	0.0000	4,650.5299	4,650.5299	0.7749	0.0000	4,668.0801
Maximum	**9.1002**	**20.4628**	**15.1459**	**0.0460**	**3.1504**	**1.0435**	**4.0674**	**1.5609**	**0.9740**	**2.4045**	**0.0000**	**4,650.5299**	**4,650.5299**	**0.7749**	**0.0000**	**4,668.0801**

	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**	**53.87**	**0.00**	**47.50**	**54.40**	**0.00**	**43.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Energy	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
Mobile	0.2643	2.1200	5.8440	0.0236	2.0349	0.0158	2.0507	0.5409	0.0148	0.5557		2,383.8047	2,383.8047	0.0671		2,385.4816
Total	**0.3346**	**2.1201**	**5.8570**	**0.0236**	**2.0349**	**0.0158**	**2.0507**	**0.5409**	**0.0148**	**0.5557**		**2,383.8325**	**2,383.8325**	**0.0672**	**0.0000**	**2,385.5112**

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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Energy	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
Mobile	0.2643	2.1200	5.8440	0.0236	2.0349	0.0158	2.0507	0.5409	0.0148	0.5557		2,383.8047	2,383.8047	0.0671		2,385.4816
Total	**0.3346**	**2.1201**	**5.8570**	**0.0236**	**2.0349**	**0.0158**	**2.0507**	**0.5409**	**0.0148**	**0.5557**		**2,383.8325**	**2,383.8325**	**0.0672**	**0.0000**	**2,385.5112**

	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	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	3/15/2021	4/9/2021	5	20	
2	Site Preparation	Site Preparation	4/10/2021	4/14/2021	5	3	
3	Grading	Grading	4/15/2021	4/22/2021	5	6	
4	Paving	Paving	4/23/2021	5/6/2021	5	10	
5	Architectural Coating	Architectural Coating	5/7/2021	5/20/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.36

Acres of Paving: 2.92

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,610 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	5	13.00	2.00	28.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	314.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

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					0.4676	0.0000	0.4676	0.0708	0.0000	0.0708			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.717 1	2,322.717 1	0.5940		2,337.565 8
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.4676**	**1.0409**	**1.5085**	**0.0708**	**0.9715**	**1.0423**		**2,322.717 1**	**2,322.717 1**	**0.5940**		**2,337.565 8**

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	0.0104	0.3432	0.0494	1.1500e-003	0.0245	1.1800e-003	0.0257	6.7300e-003	1.1300e-003	7.8600e-003		120.6483	120.6483	6.7200e-003		120.8162
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0675	0.0448	0.5685	1.5500e-003	0.1661	9.0000e-004	0.1670	0.0440	8.3000e-004	0.0449		153.9519	153.9519	4.1500e-003		154.0555
Total	**0.0841**	**0.6028**	**0.6534**	**3.2500e-003**	**0.2028**	**2.6200e-003**	**0.2055**	**0.0543**	**2.4700e-003**	**0.0568**		**332.4129**	**332.4129**	**0.0158**		**332.8075**

3.2 Demolition - 2021

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					0.2104	0.0000	0.2104	0.0319	0.0000	0.0319			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.717 1	2,322.717 1	0.5940		2,337.565 8
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.2104**	**1.0409**	**1.2513**	**0.0319**	**0.9715**	**1.0033**	**0.0000**	**2,322.717 1**	**2,322.717 1**	**0.5940**		**2,337.565 8**

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	0.0104	0.3432	0.0494	1.1500e-003	0.0245	1.1800e-003	0.0257	6.7300e-003	1.1300e-003	7.8600e-003		120.6483	120.6483	6.7200e-003		120.8162
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0675	0.0448	0.5685	1.5500e-003	0.1661	9.0000e-004	0.1670	0.0440	8.3000e-004	0.0449		153.9519	153.9519	4.1500e-003		154.0555
Total	**0.0841**	**0.6028**	**0.6534**	**3.2500e-003**	**0.2028**	**2.6200e-003**	**0.2055**	**0.0543**	**2.4700e-003**	**0.0568**		**332.4129**	**332.4129**	**0.0158**		**332.8075**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457		2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.0000**	**0.7019**	**0.7019**	**0.0000**	**0.6457**	**0.6457**		**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0415	0.0276	0.3498	9.5000e-004	0.1022	5.5000e-004	0.1027	0.0271	5.1000e-004	0.0276		94.7396	94.7396	2.5500e-003		94.8034
Total	**0.0477**	**0.2424**	**0.3854**	**1.5000e-003**	**0.1144**	**1.0900e-003**	**0.1155**	**0.0306**	**1.0200e-003**	**0.0317**		**152.5523**	**152.5523**	**7.4700e-003**		**152.7392**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457	0.0000	2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.0000**	**0.7019**	**0.7019**	**0.0000**	**0.6457**	**0.6457**	**0.0000**	**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0415	0.0276	0.3498	9.5000e-004	0.1022	5.5000e-004	0.1027	0.0271	5.1000e-004	0.0276		94.7396	94.7396	2.5500e-003		94.8034
Total	**0.0477**	**0.2424**	**0.3854**	**1.5000e-003**	**0.1144**	**1.0900e-003**	**0.1155**	**0.0306**	**1.0200e-003**	**0.0317**		**152.5523**	**152.5523**	**7.4700e-003**		**152.7392**

3.4 Grading - 2021

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					6.6898	0.0000	6.6898	3.3855	0.0000	3.3855			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.6898**	**0.9158**	**7.6055**	**3.3855**	**0.8425**	**4.2280**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0519	0.0345	0.4373	1.1900e-003	0.1277	6.9000e-004	0.1284	0.0339	6.4000e-004	0.0345		118.4245	118.4245	3.1900e-003		118.5042
Total	**0.0581**	**0.2493**	**0.4729**	**1.7400e-003**	**0.1400**	**1.2300e-003**	**0.1412**	**0.0374**	**1.1500e-003**	**0.0386**		**176.2373**	**176.2373**	**8.1100e-003**		**176.4400**

3.4 Grading - 2021

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					3.0104	0.0000	3.0104	1.5235	0.0000	1.5235			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**3.0104**	**0.9158**	**3.9261**	**1.5235**	**0.8425**	**2.3660**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0519	0.0345	0.4373	1.1900e-003	0.1277	6.9000e-004	0.1284	0.0339	6.4000e-004	0.0345		118.4245	118.4245	3.1900e-003		118.5042
Total	**0.0581**	**0.2493**	**0.4729**	**1.7400e-003**	**0.1400**	**1.2300e-003**	**0.1412**	**0.0374**	**1.1500e-003**	**0.0386**		**176.2373**	**176.2373**	**8.1100e-003**		**176.4400**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1524**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

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	0.2337	7.6982	1.1071	0.0258	0.5501	0.0265	0.5766	0.1509	0.0254	0.1762		2,705.9697	2,705.9697	0.1506		2,709.7356
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0778	0.0517	0.6559	1.7800e-003	0.1916	1.0400e-003	0.1926	0.0508	9.6000e-004	0.0518		177.6368	177.6368	4.7800e-003		177.7564
Total	**0.3177**	**7.9647**	**1.7986**	**0.0282**	**0.7539**	**0.0281**	**0.7820**	**0.2052**	**0.0268**	**0.2320**		**2,941.4192**	**2,941.4192**	**0.1603**		**2,945.4278**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1524**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

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	0.2337	7.6982	1.1071	0.0258	0.5501	0.0265	0.5766	0.1509	0.0254	0.1762		2,705.9697	2,705.9697	0.1506		2,709.7356
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0778	0.0517	0.6559	1.7800e-003	0.1916	1.0400e-003	0.1926	0.0508	9.6000e-004	0.0518		177.6368	177.6368	4.7800e-003		177.7564
Total	**0.3177**	**7.9647**	**1.7986**	**0.0282**	**0.7539**	**0.0281**	**0.7820**	**0.2052**	**0.0268**	**0.2320**		**2,941.4192**	**2,941.4192**	**0.1603**		**2,945.4278**

3.6 Architectural Coating - 2021

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	8.8181					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**9.0370**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0571	0.0379	0.4810	1.3100e-003	0.1405	7.6000e-004	0.1413	0.0373	7.0000e-004	0.0380		130.2670	130.2670	3.5100e-003		130.3547
Total	**0.0633**	**0.2527**	**0.5166**	**1.8600e-003**	**0.1528**	**1.3000e-003**	**0.1541**	**0.0408**	**1.2100e-003**	**0.0420**		**188.0797**	**188.0797**	**8.4300e-003**		**188.2905**

3.6 Architectural Coating - 2021

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	8.8181					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**9.0370**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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
Vendor	6.1700e-003	0.2148	0.0356	5.5000e-004	0.0123	5.4000e-004	0.0128	3.5300e-003	5.1000e-004	4.0400e-003		57.8127	57.8127	4.9200e-003		57.9358
Worker	0.0571	0.0379	0.4810	1.3100e-003	0.1405	7.6000e-004	0.1413	0.0373	7.0000e-004	0.0380		130.2670	130.2670	3.5100e-003		130.3547
Total	**0.0633**	**0.2527**	**0.5166**	**1.8600e-003**	**0.1528**	**1.3000e-003**	**0.1541**	**0.0408**	**1.2100e-003**	**0.0420**		**188.0797**	**188.0797**	**8.4300e-003**		**188.2905**

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	0.2643	2.1200	5.8440	0.0236	2.0349	0.0158	2.0507	0.5409	0.0148	0.5557		2,383.8047	2,383.8047	0.0671		2,385.4816
Unmitigated	0.2643	2.1200	5.8440	0.0236	2.0349	0.0158	2.0507	0.5409	0.0148	0.5557		2,383.8047	2,383.8047	0.0671		2,385.4816

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	5.61	5.61	0.00	58,271	58,271
Parking Lot	74.02	74.02	0.00	768,597	768,597
Total	79.63	79.63	0.00	826,868	826,868

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
Other Non-Asphalt Surfaces	33.28	33.28	33.28	0.00	100.00	0.00	100	0	0
Parking Lot	33.28	33.28	33.28	0.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.500000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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	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
NaturalGas Unmitigated	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

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					
Other Non-Asphalt Surfaces	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
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		**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**

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					
Other Non-Asphalt Surfaces	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
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		**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**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Unmitigated	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296

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	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0449					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Total	**0.0703**	**1.2000e-004**	**0.0130**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0278**	**0.0278**	**7.0000e-005**		**0.0296**

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	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0449					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Total	**0.0703**	**1.2000e-004**	**0.0130**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0278**	**0.0278**	**7.0000e-005**		**0.0296**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Sangha Trucking Expansion Project
Sutter County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.24	1000sqft	2.58	112,240.00	0
Parking Lot	14.60	1000sqft	0.34	14,601.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	61
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E GHG emission factor based on <http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf>

Land Use - SF from client contractor

Construction Phase -

Trips and VMT - Trips based on 25cy truck capacity; import trips during paving phase

Demolition -

Grading - Info provided from contractor

Vehicle Trips - Based on F&P data. 6 new truck trips for repair & 74 new employee trips per day. Average trip length = 33.28 for all trips. All trips are primary trips. Truck trips considered commercial ->customer, employee trips considered work -> home

Energy Use -

Construction Off-road Equipment Mitigation -

Fleet Mix - non-asphalt surfaces will be for HHDT only; parking lot for employee vehicles

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.11	1.00
tblFleetMix	HHD	0.11	0.00
tblFleetMix	LDA	0.51	0.00
tblFleetMix	LDA	0.51	0.50
tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT1	0.03	0.25
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.25
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	LHD2	6.0570e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MCY	3.4920e-003	0.00
tblFleetMix	MDV	0.11	0.00

Sangha Trucking Expansion Project - Sutter County, Winter

tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MH	7.8700e-004	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	OBUS	8.3000e-004	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	SBUS	1.0210e-003	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblFleetMix	UBUS	4.4300e-004	0.00
tblGrading	AcresOfGrading	3.00	3.36
tblGrading	AcresOfGrading	4.50	0.00
tblGrading	MaterialImported	0.00	3,915.00
tblLandUse	LandUseSquareFeet	14,600.00	14,601.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	43.00	28.00
tblTripsAndVMT	HaulingTripNumber	489.00	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	314.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	6.60	33.28
tblVehicleTrips	CC_TL	6.60	33.28

tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CNW_TL	6.60	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	CW_TL	14.70	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HO_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HS_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TL	0.00	33.28
tblVehicleTrips	HW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	0.05
tblVehicleTrips	ST_TR	0.00	5.07
tblVehicleTrips	WD_TR	0.00	0.05
tblVehicleTrips	WD_TR	0.00	5.07

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					
2021	9.0993	20.4729	15.0620	0.0451	6.8298	1.0436	7.7468	3.4229	0.9740	4.2666	0.0000	4,558.8821	4,558.8821	0.7752	0.0000	4,576.9405
Maximum	**9.0993**	**20.4729**	**15.0620**	**0.0451**	**6.8298**	**1.0436**	**7.7468**	**3.4229**	**0.9740**	**4.2666**	**0.0000**	**4,558.8821**	**4,558.8821**	**0.7752**	**0.0000**	**4,576.9405**

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					
2021	9.0993	20.4729	15.0620	0.0451	3.1504	1.0436	4.0674	1.5609	0.9740	2.4046	0.0000	4,558.8821	4,558.8821	0.7752	0.0000	4,576.9405
Maximum	**9.0993**	**20.4729**	**15.0620**	**0.0451**	**3.1504**	**1.0436**	**4.0674**	**1.5609**	**0.9740**	**2.4046**	**0.0000**	**4,558.8821**	**4,558.8821**	**0.7752**	**0.0000**	**4,576.9405**

	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**	**53.87**	**0.00**	**47.50**	**54.40**	**0.00**	**43.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Energy	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
Mobile	0.2072	2.2937	4.6779	0.0213	2.0349	0.0159	2.0508	0.5409	0.0149	0.5558		2,161.3126	2,161.3126	0.0642		2,162.9175
Total	**0.2775**	**2.2938**	**4.6909**	**0.0213**	**2.0349**	**0.0160**	**2.0509**	**0.5409**	**0.0149**	**0.5559**		**2,161.3403**	**2,161.3403**	**0.0643**	**0.0000**	**2,162.9471**

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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Energy	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
Mobile	0.2072	2.2937	4.6779	0.0213	2.0349	0.0159	2.0508	0.5409	0.0149	0.5558		2,161.3126	2,161.3126	0.0642		2,162.9175
Total	**0.2775**	**2.2938**	**4.6909**	**0.0213**	**2.0349**	**0.0160**	**2.0509**	**0.5409**	**0.0149**	**0.5559**		**2,161.3403**	**2,161.3403**	**0.0643**	**0.0000**	**2,162.9471**

	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**	**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	3/15/2021	4/9/2021	5	20	
2	Site Preparation	Site Preparation	4/10/2021	4/14/2021	5	3	
3	Grading	Grading	4/15/2021	4/22/2021	5	6	
4	Paving	Paving	4/23/2021	5/6/2021	5	10	
5	Architectural Coating	Architectural Coating	5/7/2021	5/20/2021	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3.36

Acres of Paving: 2.92

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,610 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	5	13.00	2.00	28.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	314.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

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					0.4676	0.0000	0.4676	0.0708	0.0000	0.0708			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.4676**	**1.0409**	**1.5085**	**0.0708**	**0.9715**	**1.0423**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

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	0.0108	0.3533	0.0571	1.1200e-003	0.0245	1.2200e-003	0.0257	6.7300e-003	1.1600e-003	7.8900e-003		117.6638	117.6638	7.6200e-003		117.8544
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0658	0.0557	0.4682	1.3500e-003	0.1661	9.0000e-004	0.1670	0.0440	8.3000e-004	0.0449		134.4384	134.4384	3.5600e-003		134.5275
Total	**0.0832**	**0.6255**	**0.5695**	**3.0000e-003**	**0.2028**	**2.6900e-003**	**0.2055**	**0.0543**	**2.5300e-003**	**0.0568**		**307.7211**	**307.7211**	**0.0168**		**308.1408**

3.2 Demolition - 2021

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					0.2104	0.0000	0.2104	0.0319	0.0000	0.0319			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.717 1	2,322.717 1	0.5940		2,337.565 8
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**0.2104**	**1.0409**	**1.2513**	**0.0319**	**0.9715**	**1.0033**	**0.0000**	**2,322.717 1**	**2,322.717 1**	**0.5940**		**2,337.565 8**

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	0.0108	0.3533	0.0571	1.1200e-003	0.0245	1.2200e-003	0.0257	6.7300e-003	1.1600e-003	7.8900e-003		117.6638	117.6638	7.6200e-003		117.8544
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0658	0.0557	0.4682	1.3500e-003	0.1661	9.0000e-004	0.1670	0.0440	8.3000e-004	0.0449		134.4384	134.4384	3.5600e-003		134.5275
Total	**0.0832**	**0.6255**	**0.5695**	**3.0000e-003**	**0.2028**	**2.6900e-003**	**0.2055**	**0.0543**	**2.5300e-003**	**0.0568**		**307.7211**	**307.7211**	**0.0168**		**308.1408**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457		2,372.8832	2,372.8832	0.7674		2,392.0692
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.0000**	**0.7019**	**0.7019**	**0.0000**	**0.6457**	**0.6457**		**2,372.8832**	**2,372.8832**	**0.7674**		**2,392.0692**

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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0405	0.0343	0.2882	8.3000e-004	0.1022	5.5000e-004	0.1027	0.0271	5.1000e-004	0.0276		82.7313	82.7313	2.1900e-003		82.7861
Total	**0.0471**	**0.2508**	**0.3323**	**1.3600e-003**	**0.1144**	**1.1200e-003**	**0.1156**	**0.0306**	**1.0500e-003**	**0.0317**		**138.3503**	**138.3503**	**7.7900e-003**		**138.5451**

3.3 Site Preparation - 2021

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457	0.0000	2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.0000**	**0.7019**	**0.7019**	**0.0000**	**0.6457**	**0.6457**	**0.0000**	**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0405	0.0343	0.2882	8.3000e-004	0.1022	5.5000e-004	0.1027	0.0271	5.1000e-004	0.0276		82.7313	82.7313	2.1900e-003		82.7861
Total	**0.0471**	**0.2508**	**0.3323**	**1.3600e-003**	**0.1144**	**1.1200e-003**	**0.1156**	**0.0306**	**1.0500e-003**	**0.0317**		**138.3503**	**138.3503**	**7.7900e-003**		**138.5451**

3.4 Grading - 2021

Unmitigated Construction On-Site

Category	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
	lb/day										lb/day					
Fugitive Dust					6.6898	0.0000	6.6898	3.3855	0.0000	3.3855			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.6898**	**0.9158**	**7.6055**	**3.3855**	**0.8425**	**4.2280**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

Unmitigated Construction Off-Site

Category	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
	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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0506	0.0428	0.3602	1.0400e-003	0.1277	6.9000e-004	0.1284	0.0339	6.4000e-004	0.0345		103.4142	103.4142	2.7400e-003		103.4827
Total	**0.0572**	**0.2593**	**0.4044**	**1.5700e-003**	**0.1400**	**1.2600e-003**	**0.1413**	**0.0374**	**1.1800e-003**	**0.0386**		**159.0331**	**159.0331**	**8.3400e-003**		**159.2416**

3.4 Grading - 2021

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					3.0104	0.0000	3.0104	1.5235	0.0000	1.5235			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**3.0104**	**0.9158**	**3.9261**	**1.5235**	**0.8425**	**2.3660**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0506	0.0428	0.3602	1.0400e-003	0.1277	6.9000e-004	0.1284	0.0339	6.4000e-004	0.0345		103.4142	103.4142	2.7400e-003		103.4827
Total	**0.0572**	**0.2593**	**0.4044**	**1.5700e-003**	**0.1400**	**1.2600e-003**	**0.1413**	**0.0374**	**1.1800e-003**	**0.0386**		**159.0331**	**159.0331**	**8.3400e-003**		**159.2416**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.652 4
Paving	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1524**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.110 7**	**1,709.110 7**	**0.5417**		**1,722.652 4**

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	0.2430	7.9231	1.2805	0.0252	0.5501	0.0273	0.5774	0.1509	0.0261	0.1770		2,639.031 2	2,639.031 2	0.1710		2,643.305 2
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0759	0.0642	0.5403	1.5600e-003	0.1916	1.0400e-003	0.1926	0.0508	9.6000e-004	0.0518		155.1212	155.1212	4.1100e-003		155.2240
Total	**0.3255**	**8.2038**	**1.8649**	**0.0273**	**0.7539**	**0.0289**	**0.7828**	**0.2052**	**0.0276**	**0.2328**		**2,849.771 4**	**2,849.771 4**	**0.1807**		**2,854.288 1**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.652 4
Paving	0.0891					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1524**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.110 7**	**1,709.110 7**	**0.5417**		**1,722.652 4**

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	0.2430	7.9231	1.2805	0.0252	0.5501	0.0273	0.5774	0.1509	0.0261	0.1770		2,639.031 2	2,639.031 2	0.1710		2,643.305 2
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0759	0.0642	0.5403	1.5600e-003	0.1916	1.0400e-003	0.1926	0.0508	9.6000e-004	0.0518		155.1212	155.1212	4.1100e-003		155.2240
Total	**0.3255**	**8.2038**	**1.8649**	**0.0273**	**0.7539**	**0.0289**	**0.7828**	**0.2052**	**0.0276**	**0.2328**		**2,849.771 4**	**2,849.771 4**	**0.1807**		**2,854.288 1**

3.6 Architectural Coating - 2021

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	8.8181					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**9.0370**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0557	0.0471	0.3962	1.1400e-003	0.1405	7.6000e-004	0.1413	0.0373	7.0000e-004	0.0380		113.7556	113.7556	3.0100e-003		113.8309
Total	**0.0623**	**0.2636**	**0.4404**	**1.6700e-003**	**0.1528**	**1.3300e-003**	**0.1541**	**0.0408**	**1.2400e-003**	**0.0420**		**169.3745**	**169.3745**	**8.6100e-003**		**169.5899**

3.6 Architectural Coating - 2021

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	8.8181					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**9.0370**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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
Vendor	6.5700e-003	0.2165	0.0442	5.3000e-004	0.0123	5.7000e-004	0.0128	3.5300e-003	5.4000e-004	4.0700e-003		55.6189	55.6189	5.6000e-003		55.7589
Worker	0.0557	0.0471	0.3962	1.1400e-003	0.1405	7.6000e-004	0.1413	0.0373	7.0000e-004	0.0380		113.7556	113.7556	3.0100e-003		113.8309
Total	**0.0623**	**0.2636**	**0.4404**	**1.6700e-003**	**0.1528**	**1.3300e-003**	**0.1541**	**0.0408**	**1.2400e-003**	**0.0420**		**169.3745**	**169.3745**	**8.6100e-003**		**169.5899**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	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
	lb/day										lb/day					
Mitigated	0.2072	2.2937	4.6779	0.0213	2.0349	0.0159	2.0508	0.5409	0.0149	0.5558		2,161.3126	2,161.3126	0.0642		2,162.9175
Unmitigated	0.2072	2.2937	4.6779	0.0213	2.0349	0.0159	2.0508	0.5409	0.0149	0.5558		2,161.3126	2,161.3126	0.0642		2,162.9175

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Non-Asphalt Surfaces	5.61	5.61	0.00	58,271	58,271
Parking Lot	74.02	74.02	0.00	768,597	768,597
Total	79.63	79.63	0.00	826,868	826,868

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
Other Non-Asphalt Surfaces	33.28	33.28	33.28	0.00	100.00	0.00	100	0	0
Parking Lot	33.28	33.28	33.28	0.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.500000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

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	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
NaturalGas Unmitigated	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

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					
Other Non-Asphalt Surfaces	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
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		**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**

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					
Other Non-Asphalt Surfaces	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
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		**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**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Unmitigated	0.0703	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296

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	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0449					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Total	**0.0703**	**1.2000e-004**	**0.0130**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0278**	**0.0278**	**7.0000e-005**		**0.0296**

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	0.0242					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0449					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.2000e-004	0.0130	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0278	0.0278	7.0000e-005		0.0296
Total	**0.0703**	**1.2000e-004**	**0.0130**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0278**	**0.0278**	**7.0000e-005**		**0.0296**

7.0 Water Detail

7.1 Mitigation Measures Water

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

Residential Cancer Risk & hazard Index Calculations

Component	Start Date	End Date	Calendar Days	3rd Trimester	0<2	2<16	16<30	DPM Emissions (tons/yr)	DPM Emission Rate (g/s)
Construction	3/15/2021	5/20/2021	66	66	0	0	0	1.59E-02	2.53E-03
Constr Haul/Vendor	3/15/2021	5/20/2021	66	66	0	0	0	4.85E-05	7.72E-06
Ops Parking	Operational			25	1.9	14	14	4.69E-05	1.35E-06
Ops TRU1				25	1.9	14	14	1.11E-03	3.18E-05
Ops TRU2				25	1.9	14	14	1.11E-03	3.18E-05
Ops Truck Travel				25	1.9	14	14	1.81E-04	5.20E-06
			6/14/2021		2.0				

from CalEEMod Output File	On Site Exh PM10
demo	0.0104
site prep	0.0011
grading	0.0011
paving	0.0029
arch coat	0.0005
SUM	**0.0159**

Cancer Risk Factors

	Abbreviation	Units	3rd Trimester	0<2	2<16	16<30
Daily Breathing Rate (95th %'ile under 2; 80th %'ile 2 and older)	DBR	L/kg-day	361	1090	572	261
Fraction Of Time At Home	FAH	unitless	0.73	0.73	0.73	0.73
Exposure Frequency	EF	days/year	0.96	0.96	0.96	0.96
Age Sensitivity Factor	ASF	unitless	10	10	3	1
Inhalation Absorption Factor	A	unitless	1	1	1	1
Conversion Factor	CF_1	m^3/L	0.001	0.001	0.001	0.001
Conversion Factor	CF_2	$\mu g/m^3$	0.001	0.001	0.001	0.001
Cancer Potency Factor (diesel exhaust)	CPF	$mg/kg\text{-}day^{-1}$	1.1	1.1	1.1	1.1
Averaging Time (for residential exposure)	AT	years	70.00	70.00	70.00	70.00

Cancer Risk = Dose inhalation × Inhalation CPF × ASF × ED/AT × FAH **(Equation 8.2.4 A)**

Where:

Cancer Risk = residential inhalation cancer risk

Dose inhalation (mg/kg-day) = C_{AIR} × DBR × A × EF › (Equation 5.4.1.1)

Inhalation CPF = inhalation cancer potency factor ($[mg/kg/day]^{-1}$)

ASF = age sensitivity factor for a specified age group (unitless)

ED = exposure duration for a specified age group (years) = # days/365 for less than a year

AT = averaging time period over which exposure is averaged in days (years)

FAH = fraction of time at home (unitless)

Where:

C_{AIR} = concentration of compound in air in micrograms per cubic meter ($\mu g/m^3$)

DBR = daily breathing rate in liter per kilogram of body weight per day (L/kg-body weight/day)

A = inhalation absorption factor (1 for DPM, unitless)

EF = exposure frequency in days per year (unitless, days/365 days)

10^{-6} = micrograms to milligrams conversion, liters to cubic meters conversion

Hazard Quotient = C_{air} / REL **(Section 8.3.1)**

Where:

Hazard Quotient = chronic non-cancer hazard

C_{AIR} = concentration of compound in air in micrograms per cubic meter ($\mu g/m^3$)

REL = Chronic non-cancer Reference Exposure Level for substance ($\mu g/m^3$)

Hazard Index

Chronic Inhalation	REL	$\mu g/m^3$	5

Intake Factor for Inhalation, IF (m^3/kg-day) = DBR*FAH*EF*ED*ASF*A*CF/AT					Risk Calculation Part 1, R1 = IF*CPF*CF			
Component	3rd Trimester	0<2	2<16	16<30	3rd Trimester	0<2	2<16	16<30
Construction	0.007	0.000	0.000	0.000	7.18E-06	0.00E+00	0.00E+00	0.00E+00
Constr Haul/Vendor	0.007	0.000	0.000	0.000	7.18E-06	0.00E+00	0.00E+00	0.00E+00
Ops Parking	0.002	0.211	0.240	0.037	2.72E-06	2.32E-04	2.64E-04	4.02E-05
Ops TRU1	0.002	0.211	0.240	0.037	2.72E-06	2.32E-04	2.64E-04	4.02E-05
Ops TRU2	0.002	0.211	0.240	0.037	2.72E-06	2.32E-04	2.64E-04	4.02E-05
Ops Truck Travel	0.002	0.211	0.240	0.037	2.72E-06	2.32E-04	2.64E-04	4.02E-05

	Cancer Risk	UTM X	UTM Y	HI	UTM X	UTM Y
MAX	5.64	618709.87	4325307.76	0.032	618709.87	4325307.76

Diesel Particulate Matter concentration, C_{DPM} ($\mu g/m^3$)

X (UTM)	Y (UTM) Index Lookup HIDE	CONSTR 1	HAUL 2	PARK 3	TRU1 4	TRU2 5	TRUCK 6	Risk Calculation Part 2 ∑R1*C_{DPM} 3rd Trimester	0<2	2<9	Total	HI C_{DPM}/REL unitless
618789.99	4325295.68	0.080	2.94E-04	3.74E-05	7.14E-04	1.30E-03	1.98E-04	5.84E-07	5.21E-07	5.94E-07	1.70	0.017
618931.72	4325234.66	0.013	4.18E-05	7.51E-06	1.94E-04	2.44E-04	2.81E-05	9.55E-08	1.10E-07	1.25E-07	0.33	0.003
618789.99	4325242.54	0.059	1.54E-04	3.58E-05	7.02E-04	1.07E-03	1.04E-04	4.33E-07	4.42E-07	5.04E-07	1.38	0.012
618831.33	4325171.68	0.031	8.40E-05	1.93E-05	4.09E-04	5.32E-04	5.65E-05	2.23E-07	2.35E-07	2.69E-07	0.73	0.006
618183.73	4325305.53	0.011	2.19E-04	8.75E-06	2.06E-04	1.83E-04	1.47E-04	8.52E-08	1.26E-07	1.44E-07	0.36	0.002
618059.72	4325307.49	0.008	8.20E-05	6.09E-06	1.42E-04	1.29E-04	5.52E-05	6.01E-08	7.68E-08	8.77E-08	0.22	0.002
618815.77	4325286.33	0.051	2.32E-04	2.44E-05	5.17E-04	8.36E-04	1.56E-04	3.74E-07	3.55E-07	4.05E-07	1.13	0.011
618797.23	4325354.8	0.062	7.82E-04	2.58E-05	6.26E-04	1.10E-03	5.27E-04	4.60E-07	5.28E-07	6.02E-07	1.59	0.013
618643.27	4325181.51	0.027	1.18E-04	2.50E-05	6.78E-04	5.00E-04	7.96E-05	2.00E-07	2.97E-07	3.39E-07	0.84	0.006
618518.63	4325300.82	0.037	4.87E-04	3.34E-05	8.66E-04	7.38E-04	3.28E-04	2.75E-07	4.55E-07	5.19E-07	1.25	0.008
618465.31	4325302.15	0.031	5.20E-04	2.76E-05	6.94E-04	5.77E-04	3.50E-04	2.32E-07	3.82E-07	4.36E-07	1.05	0.007
618402.66	4325308.81	0.025	6.32E-04	2.12E-05	5.23E-04	4.34E-04	4.25E-04	1.89E-07	3.25E-07	3.71E-07	0.88	0.005
618185.38	4325236.17	0.010	9.41E-05	7.90E-06	1.86E-04	1.69E-04	6.34E-05	7.45E-08	9.85E-08	1.12E-07	0.29	0.002
618184.72	4325265.49	0.011	1.26E-04	8.41E-06	1.98E-04	1.77E-04	8.46E-05	8.00E-08	1.08E-07	1.24E-07	0.31	0.002
618338.01	4325302.82	0.019	5.61E-04	1.55E-05	3.75E-04	3.20E-04	3.77E-04	1.44E-07	2.52E-07	2.87E-07	0.68	0.004
618332.68	4325350.14	0.020	8.35E-04	1.62E-05	3.91E-04	3.29E-04	5.62E-04	1.55E-07	3.01E-07	3.43E-07	0.80	0.004
618186.72	4325350.8	0.012	2.65E-04	9.11E-06	2.14E-04	1.90E-04	1.78E-04	8.91E-08	1.37E-07	1.56E-07	0.38	0.003
618851	4325208.89	0.029	9.26E-05	1.69E-05	3.58E-04	5.10E-04	6.23E-05	2.13E-07	2.19E-07	2.50E-07	0.68	0.006
618709.87	4325307.76	0.150	4.64E-04	1.79E-04	3.36E-03	5.28E-03	3.12E-04	1.11E-06	2.11E-06	2.41E-06	5.64	0.032
618739.9	4325310.43	0.152	4.67E-04	1.17E-04	1.73E-03	3.97E-03	3.14E-04	1.11E-06	1.42E-06	1.62E-06	4.15	0.032
618218.15	4326182.76	0.006	2.16E-05	4.15E-06	8.62E-05	8.25E-05	1.46E-05	4.15E-08	4.34E-08	4.95E-08	0.13	0.001

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February.

Daily breathing rate for residential receptor is based on the OEHHA 95th percentile moderate intensity breathing rates (OEHHA Table 5.7).

Fraction of time at home is set to values per OEHHA Table 8.4 for residential since the nearest school has an unmitigated cancer risk of <1 per million.

Inhalation cancer potency factor from OEHHA Table 7.1

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* AERMOD ( 19191): Sutter Trucking                                                       09/18/20
* AERMET ( 14134):                                                                       14:54:52
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: CONSTR
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
```

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
618789.99000	4325295.68000	31.75173	15.33	15.33	1.50	ANNUAL	CONSTR	00000005	
618931.72000	4325234.66000	5.17727	15.30	15.30	1.50	ANNUAL	CONSTR	00000005	
618789.99000	4325242.54000	23.51729	15.30	15.30	1.50	ANNUAL	CONSTR	00000005	
618831.33000	4325171.68000	12.13001	15.22	15.22	1.50	ANNUAL	CONSTR	00000005	
618183.73000	4325305.53000	4.52633	14.90	14.90	1.50	ANNUAL	CONSTR	00000005	
618059.72000	4325307.49000	3.23227	15.83	15.83	1.50	ANNUAL	CONSTR	00000005	
618815.77000	4325286.33000	20.27600	15.30	15.30	1.50	ANNUAL	CONSTR	00000005	
618797.23000	4325354.80000	24.72852	15.40	15.40	1.50	ANNUAL	CONSTR	00000005	
618643.27000	4325181.51000	10.78950	15.21	15.21	1.50	ANNUAL	CONSTR	00000005	
618518.63000	4325300.82000	14.65343	15.18	15.18	1.50	ANNUAL	CONSTR	00000005	
618465.31000	4325302.15000	12.35122	15.07	15.07	1.50	ANNUAL	CONSTR	00000005	
618402.66000	4325308.81000	9.95731	15.01	15.01	1.50	ANNUAL	CONSTR	00000005	
618185.38000	4325236.17000	4.00589	14.92	14.92	1.50	ANNUAL	CONSTR	00000005	
618184.72000	4325265.49000	4.28786	14.81	14.81	1.50	ANNUAL	CONSTR	00000005	

618338.01000	4325302.82000	7.55535	14.98	14.98	1.50	ANNUAL	CONSTR	00000005
618332.68000	4325350.14000	8.02699	15.01	15.01	1.50	ANNUAL	CONSTR	00000005
618186.72000	4325350.80000	4.71707	14.91	14.91	1.50	ANNUAL	CONSTR	00000005
618851.00000	4325208.89000	11.54018	15.30	15.30	1.50	ANNUAL	CONSTR	00000005
618709.87000	4325307.76000	59.50460	15.31	15.31	1.50	ANNUAL	CONSTR	00000005
618739.90000	4325310.43000	59.97652	15.36	15.36	1.50	ANNUAL	CONSTR	00000005
618218.15000	4326182.76000	2.24975	16.01	16.01	1.00	ANNUAL	CONSTR	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

```
* AERMOD ( 19191): Sutter Trucking                                                09/18/20
* AERMET ( 14134):                                                                14:54:52
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: HAUL
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
```

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
618789.99000	4325295.68000	38.08013	15.33	15.33	1.50	ANNUAL	HAUL	00000005	
618931.72000	4325234.66000	5.40861	15.30	15.30	1.50	ANNUAL	HAUL	00000005	
618789.99000	4325242.54000	20.00450	15.30	15.30	1.50	ANNUAL	HAUL	00000005	
618831.33000	4325171.68000	10.88385	15.22	15.22	1.50	ANNUAL	HAUL	00000005	
618183.73000	4325305.53000	28.33511	14.90	14.90	1.50	ANNUAL	HAUL	00000005	
618059.72000	4325307.49000	10.62718	15.83	15.83	1.50	ANNUAL	HAUL	00000005	
618815.77000	4325286.33000	30.09772	15.30	15.30	1.50	ANNUAL	HAUL	00000005	
618797.23000	4325354.80000	101.35594	15.40	15.40	1.50	ANNUAL	HAUL	00000005	
618643.27000	4325181.51000	15.32366	15.21	15.21	1.50	ANNUAL	HAUL	00000005	
618518.63000	4325300.82000	63.14384	15.18	15.18	1.50	ANNUAL	HAUL	00000005	
618465.31000	4325302.15000	67.33326	15.07	15.07	1.50	ANNUAL	HAUL	00000005	
618402.66000	4325308.81000	81.83653	15.01	15.01	1.50	ANNUAL	HAUL	00000005	
618185.38000	4325236.17000	12.19433	14.92	14.92	1.50	ANNUAL	HAUL	00000005	
618184.72000	4325265.49000	16.29136	14.81	14.81	1.50	ANNUAL	HAUL	00000005	

618338.01000	4325302.82000	72.63739	14.98	14.98	1.50	ANNUAL	HAUL	00000005
618332.68000	4325350.14000	108.11629	15.01	15.01	1.50	ANNUAL	HAUL	00000005
618186.72000	4325350.80000	34.33928	14.91	14.91	1.50	ANNUAL	HAUL	00000005
618851.00000	4325208.89000	11.99570	15.30	15.30	1.50	ANNUAL	HAUL	00000005
618709.87000	4325307.76000	60.12110	15.31	15.31	1.50	ANNUAL	HAUL	00000005
618739.90000	4325310.43000	60.44850	15.36	15.36	1.50	ANNUAL	HAUL	00000005
618218.15000	4326182.76000	2.80101	16.01	16.01	1.00	ANNUAL	HAUL	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

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* AERMOD ( 19191): Sutter Trucking                                                        09/18/20
* AERMET ( 14134):                                                                        14:38:58
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: PARK
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
```

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
618789.99000	4325295.68000	27.73048	15.33	15.33	1.50	ANNUAL	PARK	00000005	
618931.72000	4325234.66000	5.56322	15.30	15.30	1.50	ANNUAL	PARK	00000005	
618789.99000	4325242.54000	26.53335	15.30	15.30	1.50	ANNUAL	PARK	00000005	
618831.33000	4325171.68000	14.30986	15.22	15.22	1.50	ANNUAL	PARK	00000005	
618183.73000	4325305.53000	6.48003	14.90	14.90	1.50	ANNUAL	PARK	00000005	
618059.72000	4325307.49000	4.51309	15.83	15.83	1.50	ANNUAL	PARK	00000005	
618815.77000	4325286.33000	18.06612	15.30	15.30	1.50	ANNUAL	PARK	00000005	
618797.23000	4325354.80000	19.12987	15.40	15.40	1.50	ANNUAL	PARK	00000005	
618643.27000	4325181.51000	18.52048	15.21	15.21	1.50	ANNUAL	PARK	00000005	
618518.63000	4325300.82000	24.72221	15.18	15.18	1.50	ANNUAL	PARK	00000005	
618465.31000	4325302.15000	20.40947	15.07	15.07	1.50	ANNUAL	PARK	00000005	
618402.66000	4325308.81000	15.72069	15.01	15.01	1.50	ANNUAL	PARK	00000005	
618185.38000	4325236.17000	5.85171	14.92	14.92	1.50	ANNUAL	PARK	00000005	
618184.72000	4325265.49000	6.22513	14.81	14.81	1.50	ANNUAL	PARK	00000005	

618338.01000	4325302.82000	11.48113	14.98	14.98	1.50	ANNUAL	PARK	00000005
618332.68000	4325350.14000	11.97833	15.01	15.01	1.50	ANNUAL	PARK	00000005
618186.72000	4325350.80000	6.74391	14.91	14.91	1.50	ANNUAL	PARK	00000005
618851.00000	4325208.89000	12.54464	15.30	15.30	1.50	ANNUAL	PARK	00000005
618709.87000	4325307.76000	132.37706	15.31	15.31	1.50	ANNUAL	PARK	00000005
618739.90000	4325310.43000	86.52284	15.36	15.36	1.50	ANNUAL	PARK	00000005
618218.15000	4326182.76000	3.07483	16.01	16.01	1.00	ANNUAL	PARK	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

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* AERMOD ( 19191): Sutter Trucking                                                   09/18/20
* AERMET ( 14134):                                                                   14:38:58
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: TRU1
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
```

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
618789.99000	4325295.68000	22.41544	15.33	15.33	1.50	ANNUAL	TRU1	00000005	
618931.72000	4325234.66000	6.09007	15.30	15.30	1.50	ANNUAL	TRU1	00000005	
618789.99000	4325242.54000	22.05107	15.30	15.30	1.50	ANNUAL	TRU1	00000005	
618831.33000	4325171.68000	12.83084	15.22	15.22	1.50	ANNUAL	TRU1	00000005	
618183.73000	4325305.53000	6.47890	14.90	14.90	1.50	ANNUAL	TRU1	00000005	
618059.72000	4325307.49000	4.45218	15.83	15.83	1.50	ANNUAL	TRU1	00000005	
618815.77000	4325286.33000	16.22653	15.30	15.30	1.50	ANNUAL	TRU1	00000005	
618797.23000	4325354.80000	19.64378	15.40	15.40	1.50	ANNUAL	TRU1	00000005	
618643.27000	4325181.51000	21.30144	15.21	15.21	1.50	ANNUAL	TRU1	00000005	
618518.63000	4325300.82000	27.20138	15.18	15.18	1.50	ANNUAL	TRU1	00000005	
618465.31000	4325302.15000	21.80583	15.07	15.07	1.50	ANNUAL	TRU1	00000005	
618402.66000	4325308.81000	16.42563	15.01	15.01	1.50	ANNUAL	TRU1	00000005	
618185.38000	4325236.17000	5.82999	14.92	14.92	1.50	ANNUAL	TRU1	00000005	
618184.72000	4325265.49000	6.21158	14.81	14.81	1.50	ANNUAL	TRU1	00000005	

618338.01000	4325302.82000	11.77904	14.98	14.98	1.50	ANNUAL	TRU1	00000005
618332.68000	4325350.14000	12.28347	15.01	15.01	1.50	ANNUAL	TRU1	00000005
618186.72000	4325350.80000	6.72998	14.91	14.91	1.50	ANNUAL	TRU1	00000005
618851.00000	4325208.89000	11.24633	15.30	15.30	1.50	ANNUAL	TRU1	00000005
618709.87000	4325307.76000	105.44357	15.31	15.31	1.50	ANNUAL	TRU1	00000005
618739.90000	4325310.43000	54.25282	15.36	15.36	1.50	ANNUAL	TRU1	00000005
618218.15000	4326182.76000	2.70552	16.01	16.01	1.00	ANNUAL	TRU1	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

```
* AERMOD ( 19191): Sutter Trucking                                                                     09/18/20
* AERMET ( 14134):                                                                                     14:38:58
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: TRU2
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)
```

X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
618789.99000	4325295.68000	40.79454	15.33	15.33	1.50	ANNUAL	TRU2	00000005	
618931.72000	4325234.66000	7.65221	15.30	15.30	1.50	ANNUAL	TRU2	00000005	
618789.99000	4325242.54000	33.48513	15.30	15.30	1.50	ANNUAL	TRU2	00000005	
618831.33000	4325171.68000	16.70308	15.22	15.22	1.50	ANNUAL	TRU2	00000005	
618183.73000	4325305.53000	5.75022	14.90	14.90	1.50	ANNUAL	TRU2	00000005	
618059.72000	4325307.49000	4.04130	15.83	15.83	1.50	ANNUAL	TRU2	00000005	
618815.77000	4325286.33000	26.24345	15.30	15.30	1.50	ANNUAL	TRU2	00000005	
618797.23000	4325354.80000	34.56434	15.40	15.40	1.50	ANNUAL	TRU2	00000005	
618643.27000	4325181.51000	15.69623	15.21	15.21	1.50	ANNUAL	TRU2	00000005	
618518.63000	4325300.82000	23.17784	15.18	15.18	1.50	ANNUAL	TRU2	00000005	
618465.31000	4325302.15000	18.11786	15.07	15.07	1.50	ANNUAL	TRU2	00000005	
618402.66000	4325308.81000	13.62803	15.01	15.01	1.50	ANNUAL	TRU2	00000005	
618185.38000	4325236.17000	5.29491	14.92	14.92	1.50	ANNUAL	TRU2	00000005	
618184.72000	4325265.49000	5.56258	14.81	14.81	1.50	ANNUAL	TRU2	00000005	

618338.01000	4325302.82000	10.03981	14.98	14.98	1.50	ANNUAL	TRU2	00000005
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618186.72000	4325350.80000	5.95275	14.91	14.91	1.50	ANNUAL	TRU2	00000005
618851.00000	4325208.89000	16.02436	15.30	15.30	1.50	ANNUAL	TRU2	00000005
618709.87000	4325307.76000	165.88433	15.31	15.31	1.50	ANNUAL	TRU2	00000005
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618218.15000	4326182.76000	2.59211	16.01	16.01	1.00	ANNUAL	TRU2	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

```
* AERMOD ( 19191): Sutter Trucking                                                  09/18/20
* AERMET ( 14134):                                                                  14:38:58
* MODELING OPTIONS USED:   RegDFAULT  CONC  ELEV  FLGPOL  RURAL
*         PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS   5 YEARS FOR SOURCE GROUP: TRUCK
*         FOR A TOTAL OF    21 RECEPTORS.
*         FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

*        X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       NUM YRS   NET ID
* ____________  ____________  ____________  ______  ______  ______  ______  ________  ________  ________

  618789.99000 4325295.68000      38.08013    15.33    15.33     1.50  ANNUAL  TRUCK     00000005

  618931.72000 4325234.66000       5.40861    15.30    15.30     1.50  ANNUAL  TRUCK     00000005

  618789.99000 4325242.54000      20.00450    15.30    15.30     1.50  ANNUAL  TRUCK     00000005

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  618643.27000 4325181.51000      15.32366    15.21    15.21     1.50  ANNUAL  TRUCK     00000005

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```

618338.01000	4325302.82000	72.63739	14.98	14.98	1.50	ANNUAL	TRUCK	00000005
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618186.72000	4325350.80000	34.33928	14.91	14.91	1.50	ANNUAL	TRUCK	00000005
618851.00000	4325208.89000	11.99570	15.30	15.30	1.50	ANNUAL	TRUCK	00000005
618709.87000	4325307.76000	60.12110	15.31	15.31	1.50	ANNUAL	TRUCK	00000005
618739.90000	4325310.43000	60.44850	15.36	15.36	1.50	ANNUAL	TRUCK	00000005
618218.15000	4326182.76000	2.80101	16.01	16.01	1.00	ANNUAL	TRUCK	00000005

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

APPENDIX B

Noise

Existing

Calveno
Peak

ROAD SEGMENT	from:	to:	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	MT %	MT	HT %	HT	VEHICLE SPEED Auto	k/h	MT	k/h	HT	k/h	NOISE LEVEL (dBA) Auto	MT	HT	CALCULATED NOISE LEVEL (15 meters from roadway center)	Receptor Dist. from Roadway Center (m.)	Adjusted Noise Level (dBA)	Distance from Roadway t 65 dBA (m.)	Distance from Roadway t 65 dBA (ft)
Railroad	Oswald	Barry	13	0.1	0.013	0.1	0.013	99.8	12.974	10	16	10	16	10	16	-0.2	16.7	56.9	56.9	40	52.6	2.3	7.6
Oswald	Railroad	SR 99	45	90	40.5	5	2.25	5	2.25	35	56	35	56	35	56	50.4	47.6	54.3	56.4	40	52.1	2.1	6.7
Oswald	SR 99	S. Walton	118	90	106.2	5	5.9	5	5.9	35	56	35	56	35	56	54.6	51.7	58.5	60.6	40	56.3	5.4	17.7
SR 99	Oswald	Barry	1932	90	1738.8	5	96.6	5	96.6	55	88	55	88	55	88	72.4	66.9	72.4	76.0	40	71.7	187.7	615.7
SR 99	Oswald	Messick	2003	90	1802.7	5	100.15	5	100.15	55	88	55	88	55	88	72.5	67.1	72.6	76.1	40	71.9	194.6	638.3

APPENDIX C
Traffic Memorandum

FEHR & PEERS

MEMORANDUM

Date: September 16, 2020

To: Chris Easter, Environmental Science Associates

From: David Manciati, Fehr & Peers

Subject: ***Sangha Truck & Trailer Repair Expansion – Draft Traffic Study***

RS20-3886

Introduction

Fehr & Peers has completed a traffic study for the Sangha Truck & Trailer Repair Expansion project. The project would add 40 vehicle parking spaces and 60 truck parking spaces to allow for expanded operations at the Sangha Truck & Trailer Repair shop in the adjacent parcel to the west. The new parking area is located on approximately 4 acres on the northwest quadrant of the Oswald Road/Railroad Avenue intersection. This expansion project is expected to add 5 employees and allow for about 3 more customer vehicles to be serviced daily. The project would also remedy existing car and truck parking issues.

This memorandum documents the existing traffic setting, project travel characteristics, operations analysis, vehicle miles traveled (VMT) impact assessment, and a site access review.

Key Findings

This section summarizes key findings from the traffic study. The sections that follow provide additional analysis detail. The key findings include:

- Three study intersections, including State Route (SR) 99/Reed Road, SR 99/Walnut Avenue, and SR 99/Oswald Road, currently operate below Sutter County's adopted LOS threshold. In all cases, the deficient movement occurs from the side street. Delay at these intersections would be exacerbated by the proposed Sangha Expansion project.
- Average maximum vehicle queues are expected to be less than corresponding storage lengths under existing-plus-project conditions.
- Both a traffic signal and roundabout control (as proposed in the State Route 99 and Oswald Road Intersection Improvements report) would improve intersection operations at SR 99/Oswald Road to LOS A under existing-plus-proposed conditions.

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- Two improvement alternatives are discussed for SR 99/Reed Road and SR 99/Walnut Avenue: (1) use turn restrictions or (2) construct roundabout controls. As described in this study, both alternatives have pros and cons. Both, however, would reduce delay at SR 99/Reed Road and SR 99/Walnut Avenue to LOS C or better.
- The estimated daily trip generation of the Sangha Expansion project is less than 110 trips. Based on the Technical Advisory's "small projects" screening criteria, this proposed project's VMT impact would be assumed to be **less than significant**. No mitigation measures are required.
- The project access analysis showed that no roadway widening is required along Oswald Road. In addition, shared inbound and outbound left- and right-turn lanes are recommended at the Sangha driveways.
- The sight distance evaluation showed that the Sangha driveways maintain adequate sight distance to approaching vehicles under existing-plus-project conditions.
- The swept path analysis of a CA Legal Truck (65-foot), Rear-Load Garbage Truck (38-foot), and Front-Load Garbage Truck (34-foot) showed that the site plan can accommodate all vehicles without encroachment.
- The existing cross section on Oswald Road is consistent with Sutter County Standard Drawing H-3 for a rural local road. In addition, the Sangha driveways on Oswald Road are set back to provide future right-of-way for a 60-foot urban major collector street per Sutter County Standard Drawing H-5, providing compliance with the Implementation Program M 2-B in the Sutter County General Plan. The County will work with the applicant to condition the project consistent with Implementation Program M 2-E in the Sutter County General Plan.
- According to the *AASHTO Green Book 6th Edition* (2011), Oswald Road does not need to be widened to accept the truck traffic between the project site and SR 99. If the ADT on Oswald Road increases above 2,000 vehicles per day, AASHTO recommends widening the traveled way to 24 feet.
- Regarding bicycle and pedestrian facilities, the County will work with the applicant to condition the project consistent with Implementation Program M 5-C in the Sutter County General Plan.

Regulatory Setting

Senate Bill 743

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines in 2019, level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA. LOS measures average delay experienced by vehicles at an intersection during the most congested time of day, while the new CEQA metric (Vehicle Miles Traveled or VMT) measures the number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled. The shift in transportation impact criteria is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation.

Although the State's Office of Planning and Research provides recommendations for adopting new VMT analysis guidelines, lead agencies have discretion in establishing analysis methodology and setting impact significance thresholds.

State Route 99 Transportation Concept Report

Transportation Concept Reports (TCRs) are planning documents that identify existing and future route conditions, as well as future needs, for each route on the state highway system. Per the TCR for SR 99 (July 2017), the highway is expected to operate at LOS B within the study area in 2035. Since this segment of SR 99 is not expected to drop below a Concept LOS of D, no improvements to the mainline capacity are identified in the TCR.

Sutter County General Plan

The Sutter County General Plan (April 2011) establishes the County's LOS policy for county roads. Policy M 2.5 is included below:

> "Develop and manage the County roadway segments and intersections to maintain LOS D or better during peak hours, and LOS C or better at all other times. Adjust for seasonality. These standards shall apply to all County roadway segments and intersections, unless otherwise addressed in an adopted specific plan or community plan"

Existing Traffic Setting

This section describes the existing setting related to roadway, bicycle, and pedestrian facilities, which is the baseline scenario upon which project impacts are evaluated. The baseline scenario is based on in-field data collection, as well as volume estimates using StreetLight Data.

Study Area

The study area is the same as in the current Sutter County Truck Yards study, which considered the following factors when developing the transportation study area: proximity to proposed truck yard sites, truck travel routes to/from those sites, and the location of existing truck yards. **Figure 1** shows

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the study area, including the six study intersections and the location of the Sangha Expansion site. The study area also includes bicycle and pedestrian facilities near the proposed project. The study intersections are as follows:

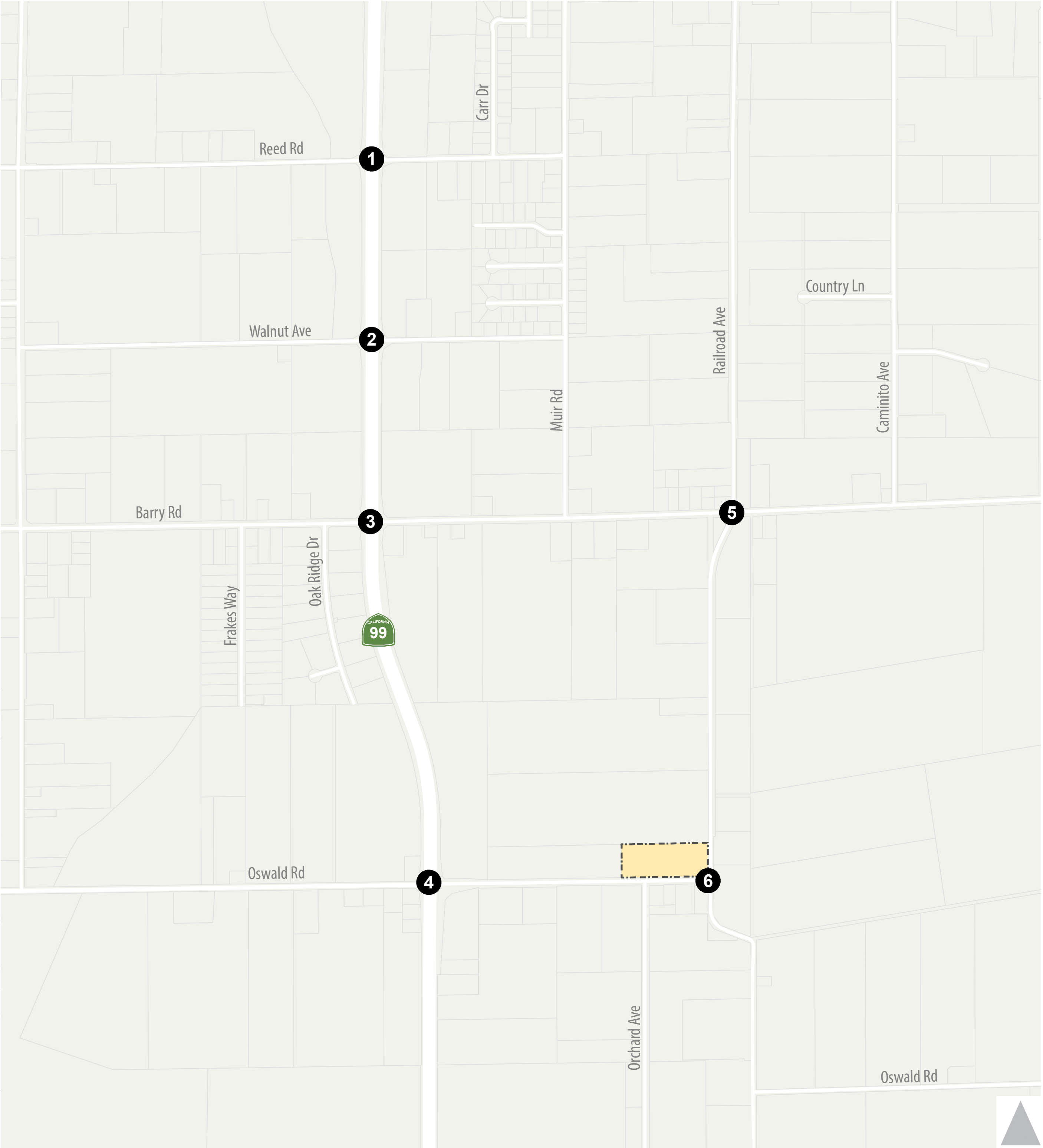
1. State Route 99/Reed Road
2. State Route 99/Walnut Avenue
3. State Route 99/Barry Road
4. State Route 99/Oswald Road
5. Barry Road/Railroad Avenue
6. Oswald Road/Railroad Avenue

Most study intersections on SR 99 are side-street stop controlled, except for SR 99/Barry Road, which has traffic signal control. Both intersections on Railroad Avenue are all-way stop controlled.

Roadway Network

The study area is in a rural setting and is served by State Route 99 and local/collector rural roads. The key roadways near the proposed project are described below.

- State Route 99 – is a major route that spans the Central Valley. Near the project site, SR 99 is a rural highway with a five-lane cross-section, including a two-way left-turn lane south of Oswald Road. There is a posted speed limit of 65 MPH and a signalized intersection at SR 99/Barry Road.
- Oswald Road – is a two-lane east-west roadway (one travel lane in each direction) in Sutter County. The proposed project fronts Oswald Road west of Railroad Avenue and there is a posted speed limit of 35 MPH. In addition, Oswald Road is considered a rural local road between Railroad Avenue and SR 99, a major rural collector between SR 99 and S. Walton Avenue, and a minor rural collector west of S. Walton Avenue.
- Railroad Avenue – is a two-lane north-south roadway east of SR 99 from Messick Road in Sutter County to South Yuba City. The proposed project fronts Railroad Avenue north of Oswald Road. There is a posted speed limit of 45 MPH, except for a short segment with a posted speed limit of 20 MPH due to horizontal curvature. Railroad Avenue between Oswald Road and Bogue Road is considered a minor rural collector.
- Barry Road – is a roughly 2.5-mile east-west rural road north of Oswald Road, with its western terminus at Carlson Road and its eastern terminus at Garden Highway. Barry Road has one eastbound lane and one westbound lane with a posted speed limit of 35 MPH west of Railroad Avenue and 45 MPH east of Railroad Avenue. Just east of SR 99, Barry Elementary School fronts Barry Road, which has a school zone speed limit of 25 MPH when children are present.



N:\2020 Projects\3937.00_Sangha_Trucking_Expansion\Graphics\GIS\MXD\Fig01_StudyArea.mxd

1 Study Intersection

Sangha Trucking (Expansion)

Figure 1

Study Area

- Walnut Avenue – is a three-quarter mile east-west local road north of Barry Road that runs from S. Walton Avenue to Muir Road. It has two lanes and a posted speed limit of 35 MPH.
- Reed Road – is a two-lane east-west roadway north of Walnut Avenue with a posted speed limit of 35 MPH. Its western terminus is located at S. George Washington Boulevard, while its eastern terminus is located at Muir Road.

Truck Routes

Within Sutter County, State Route 99, State Route 70, State Route 113, a portion of State Route 20, and Tudor Road east of State Route 113 have been designated as truck routes by Caltrans and are included in the National Network for Surface Transportation Assistance Act (STAA) of 1982. Sutter County's *Code of Ordinances* also establishes nine roadway segments within the unincorporated county as truck routes that "shall not be restricted in use for driving, operating, or towing by commercial vehicles with legal loads." Near the study area, portions of Bogue Road and Garden Highway are designated truck routes. The *Code of Ordinances* also establishes Railroad Avenue between Oswald Road and Oswald Avenue as having a 15-ton weight limit.

The most recent data published on Caltrans' website is from 2018 and shows that SR 99 carries about 20,350 vehicles per day in the vicinity of Oswald Road. The data also shows that approximately 10.2% of daily vehicles are trucks (light or heavy).

Traffic Data Collection

New traffic counts were not collected in 2020 due to suppressed travel demand resulting from the current coronavirus (COVID-19) pandemic and subsequent government actions to curtail mobility and encourage physical distancing. Instead, this traffic study relies on a combination of recent traffic data, traffic data from 2016, and StreetLight Data's turning movement volume estimate technology. These sources and their application to this traffic study are explained in more detail below.

Figure 2 shows existing conditions lane configurations and traffic volumes for all six study intersections. In this study, the SR 99 AM and PM peak hours used are 7:15 to 8:15 AM and 4:15 to 5:15 PM, respectively.

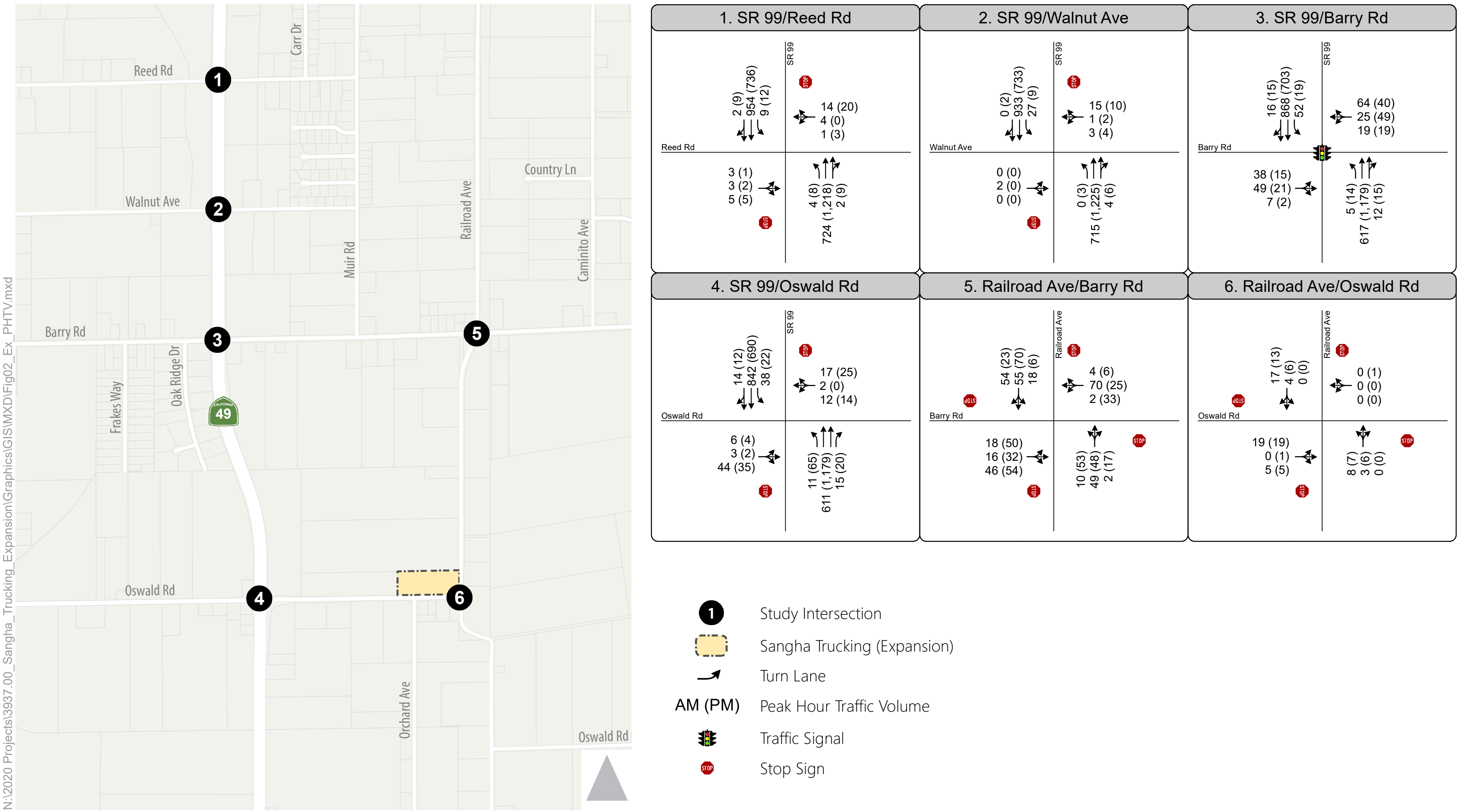


Figure 2

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

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Intersection Traffic Data

The following provides additional detail related to data collection of existing conditions turning movement volumes at study intersections.

Recent Traffic Data. AM (7:00 to 9:00) and PM (4:00 to 6:00) peak period traffic counts (including bikes, pedestrians, and heavy vehicles) were collected on Tuesday, October 30, 2018 at the SR 99/Barry Road, SR 99/Oswald Road, and Railroad Avenue/Oswald Road intersections as part of the State Route 99 and Oswald Road Intersection Improvements project. In addition, AM and PM peak period vehicle traffic counts were collected on Tuesday, April 23, 2019 at the SR 99/Walnut Avenue intersection as part of the HSD Trucking traffic assessment.

Traffic Data from 2016. AM and PM peak period traffic counts (including heavy vehicles) were collected on Wednesday, March 23, 2016 at the SR 99/Reed Road and SR 99/Walnut Avenue intersections as part of the Bogue-Stewart Master Plan EIR. Northbound and southbound SR 99 volumes at Reed Road were balanced using the recent traffic data at the other SR 99 study intersections.

StreetLight Data Turning Movement Volume Estimates. StreetLight Data is a company that uses data from mobile devices to provide traffic volume estimates at both signalized and unsignalized intersections. This technology was used to obtain peak hour turning movement volume estimates at the Railroad Avenue/Barry Road intersection. These estimates are based on data averaged for non-holiday Tuesdays, Wednesdays, and Thursdays from October to December 2019. They do not include pedestrian and bicycle activity.

Level of Service Definitions

As stated in this memorandum's Regulatory Setting section, the *Transportation and Circulation* element of the Sutter County General Plan includes a policy for level of service (LOS). Although vehicle LOS analysis cannot be used for determining CEQA impacts, it is used in this study to evaluate consistency with General Plan policy and to identify potential improvement projects where LOS is deficient.

Each study facility was analyzed using the concept of LOS. LOS is a qualitative measure of traffic operating conditions whereby a letter grade, from A (representing free-flow vehicular traffic conditions with little to no congestion) to F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. **Table 1** displays the delay range associated with each LOS category for signalized and unsignalized intersections as presented in the *Highway Capacity Manual 6th Edition*.

Table 1: Level of Service Definitions – Intersections

Level of Service	Description (at Signalized Intersections)	Average Control Delay[1]	
		Signalized	Unsignalized
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short. Most vehicles arrive during the green phase and travel through the intersection without stopping.	≤ 10	≤ 10.0
B	Volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10 to 20	> 10.0 to 15.0
C	Progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35	> 15.0 to 25.0
D	Volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55	> 25.0 to 35.0
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80	> 35.0 to 50.0
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80	> 50.0

Notes: [1] Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A).
Source: *Highway Capacity Manual 6th Edition* (Transportation Research Board, 2016).

Intersection Operations

Intersection operations at the six study intersections were quantitatively analyzed under AM and PM peak hour conditions using the Synchro 10 software, which applies the analysis procedures contained in the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016). **Table 2** displays the existing conditions peak hour intersection operations at the study intersections (refer to Appendix A for technical calculations). The operations analysis accounted for the interaction of automobiles, pedestrians, bicyclists, and heavy vehicles.

Table 2: Intersection Operations – Existing Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions Delay/LOS
1. SR 99 / Reed Road	SSSC	AM	**1 (41) / A (E)**
		PM	**1 (40) / A (E)**
2. SR 99 / Walnut Avenue	SSSC	AM	**1 (61) / A (F)**
		PM	**1 (49) / A (E)**
3. SR 99 / Barry Road	Signal	AM	12 / B
		PM	11 / B
4. SR 99 / Oswald Road	SSSC	AM	2 (29) / A (D)
		PM	**3 (105) / A (F)**
5. Railroad Avenue / Barry Road	AWSC	AM	8 / A
		PM	9 / A
6. Railroad Avenue / Oswald Road	AWSC	AM	7 / A
		PM	7 / A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2020.

As shown in Table 2, the following intersections operate below Sutter County's adopted LOS threshold under existing conditions. In all cases, the deficient movement occurs from the side street.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

Table 3 shows the peak hour average maximum queue length for key movements at each study intersection. These queue estimates are based on ten microsimulation runs using Synchro's SimTraffic

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microsimulation module. As shown in Table 3, all average maximum queue values are less than the corresponding storage length under existing conditions.

Table 3: Average Maximum Queue Lengths – Existing Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]
1. SR 99 / Reed Road	EB LTR	>1,000 feet	AM	50 feet
			PM	50 feet
	WB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB L	440 feet	AM	50 feet
			PM	50 feet
	NB L	435 feet	AM	25 feet
			PM	25 feet
2. SR 99 / Walnut Avenue	EB LTR	>1,000 feet	AM	50 feet
			PM	25 feet
	WB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB L	435 feet	AM	50 feet
			PM	50 feet
	NB L	500 feet	AM	25 feet
			PM	25 feet
3. SR 99 / Barry Road	EB LTR	>1,000 feet	AM	175 feet
			PM	100 feet
	WB LTR	>1,000 feet	AM	150 feet
			PM	150 feet
	NB L	435 feet	AM	50 feet
			PM	75 feet
	NB TR	>1,000 feet	AM	225 feet
			PM	225 feet
	SB L	370 feet	AM	125 feet
			PM	75 feet
	SB TR	>1,000 feet	AM	200 feet
			PM	150 feet
4. SR 99 / Oswald Road	EB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	WB LTR	>1,000 feet	AM	75 feet
			PM	125 feet

Table 3: Average Maximum Queue Lengths – Existing Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]
	NB L	440 feet	AM	50 feet
			PM	125 feet
	SB L	430 feet	AM	50 feet
			PM	50 feet
5. Railroad Avenue / Barry Road	EB LTR	>1,000 feet	AM	75 feet
			PM	100 feet
	WB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	NB LTR	>1,000 feet	AM	75 feet
			PM	100 feet
	SB LTR	>1,000 feet	AM	100 feet
			PM	75 feet
6. Railroad Avenue / Oswald Road	EB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	WB LTR	-Private Driveway-	AM	25 feet
			PM	25 feet
	NB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB LTR	>1,000 feet	AM	75 feet
			PM	75 feet

Notes: **Bold** indicates exceedance of storage length.

[1] Average maximum queue is based on an average of ten microsimulation runs using Synchro's SimTraffic microsimulation module.

Source: Fehr & Peers, 2020.

Bicycle and Pedestrian facilities

Currently, there are no bicycle or pedestrian facilities at the proposed project frontage. The only study intersection with pedestrian or bike facilities is the signalized intersection at SR 99/Barry Road, which contains marked crosswalks on each leg with pedestrian push buttons. In addition, sidewalks are provided at the intersection corners and on Barry Road along the Barry Elementary School frontage.

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Travel Characteristics

Trip Generation

Table 4 shows the trip generation estimate of the Sangha Expansion project. The trip generation estimate is based on trip rates for the automobile care center land use category published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition* (2017). The expansion is expected to increase employment from 8 to 13 employees (a 62.5% increase) and service volume by 30% over current levels. As shown in Table 4, the expansion is estimated to generate about 9 AM peak hour and 13 PM peak hour vehicle trips.

Table 4: Trip Generation Estimate – Sangha Expansion

Land Use	ITE Land Use (Code)	Quantity	Trips [1]					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Employee/ Service Volume Expansion	Automobile Care Center (942)	62.5% increase	6	3	9	6	7	13

[1] Trip generation based on rates in the *Trip Generation Manual, 10th Edition* (ITE, 2017). AM and PM peak hour trip rates are based on ITE average trip rates.

Source: Fehr & Peers, 2020.

Trip Distribution

The site plan of the proposed project shows that access to the repair shop will continue to be provided by the existing driveway on Oswald Road. No additional driveways are planned as part of the proposed project. **Figure 3** shows the estimated trip distribution based on daily and peak hour (AM/PM) origin-destination data for the parcels along Oswald Road between just west of SR 99 and just east of Railroad Avenue. This data was purchased from StreetLight Data as part of the Sutter County Truck Yards project. The figure shows that about 90% of traffic passes through the SR 99/Oswald Road intersection, with about 65% of traffic traveling north of the study area via SR 99. A moderate amount of traffic (21%) travels south of the study area via SR 99.

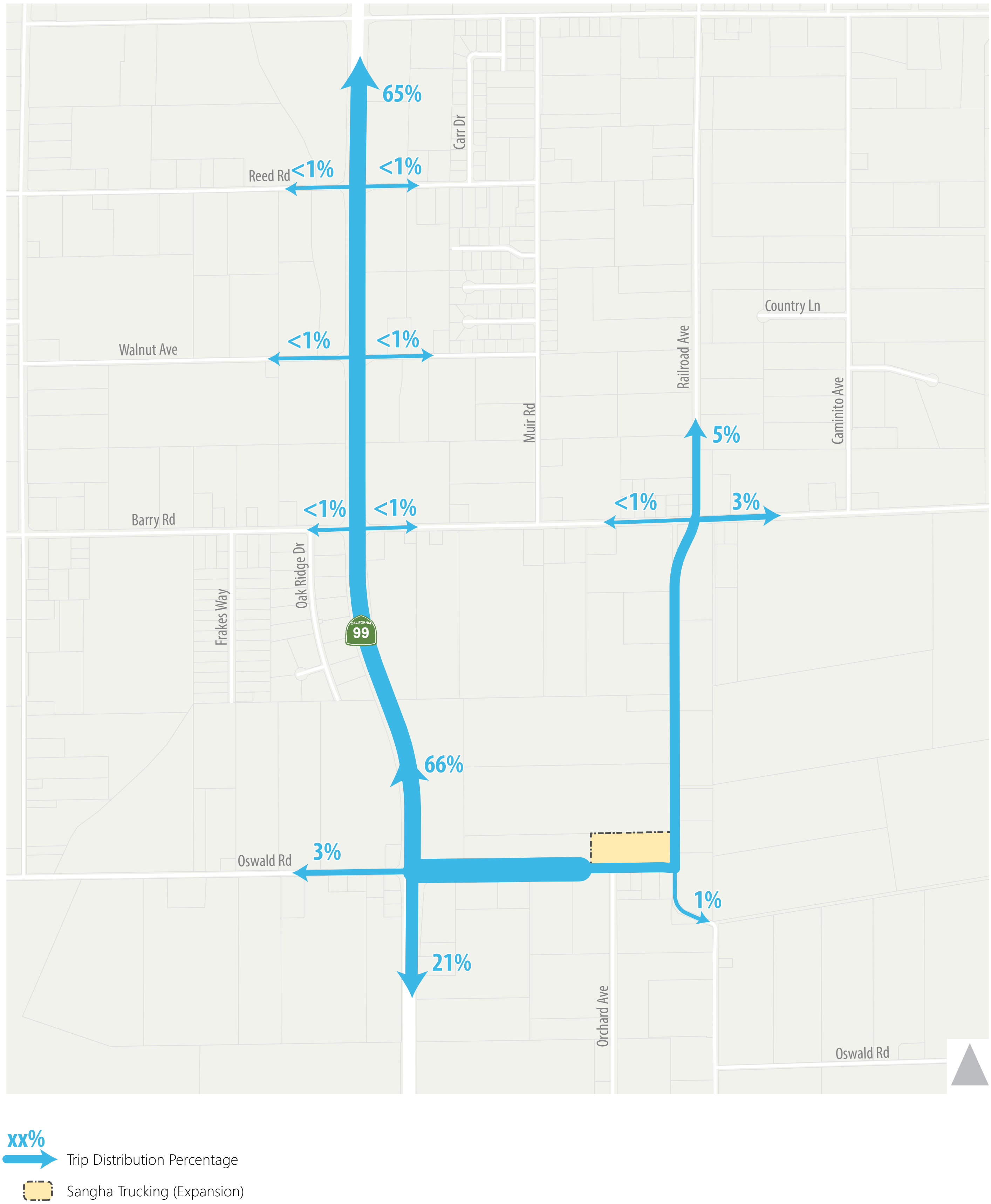

Figure 3

Project Trip Distribution

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Existing-Plus-Project Conditions

Intersection Operations

Existing-plus-project traffic volumes account for the addition of vehicle trips to the existing volumes, in accordance with the trip distribution previously presented. **Figure 4** displays the resulting AM and PM peak hour study intersection traffic volumes under existing-plus-project conditions. **Table 5** shows the existing-plus-project peak hour intersection operations at the study intersections (refer to Appendix A for technical calculations).

Table 5: Intersection Operations – Existing-Plus-Project Conditions

Intersection	Traffic Control	Peak Hour	Delay/LOS	
			Existing Conditions	Existing Plus Project Conditions
1. SR 99 / Reed Road	SSSC	AM	**1 (41) / A (E)**	**1 (42) / A (E)**
		PM	**1 (40) / A (E)**	**1 (41) / A (E)**
2. SR 99 / Walnut Avenue	SSSC	AM	**1 (61) / A (F)**	**1 (61) / A (F)**
		PM	**1 (49) / A (E)**	**1 (50) / A (E)**
3. SR 99 / Barry Road	Signal	AM	12 / B	12 / B
		PM	11 / B	11 / B
4. SR 99 / Oswald Road	SSSC	AM	2 (29) / A (D)	2 (31) / A (D)
		PM	**3 (105) / A (F)**	**4 (138) / A (F)**
5. Railroad Avenue / Barry Road	AWSC	AM	8 / A	8 / A
		PM	9 / A	9 / A
6. Railroad Avenue / Oswald Road	AWSC	AM	7 / A	7 / A
		PM	7 / A	7 / A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2020.

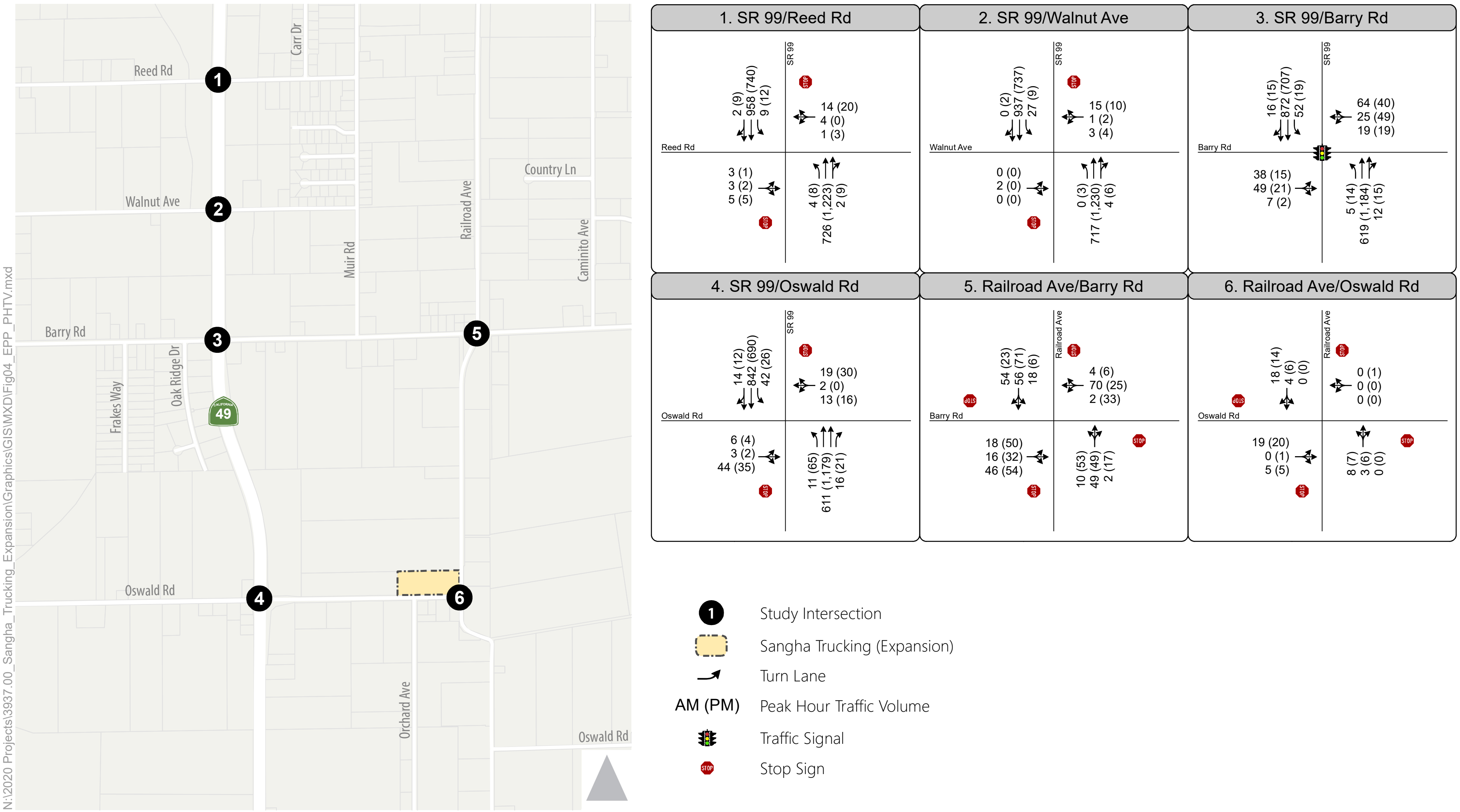


Figure 4

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions

FEHR PEERS

As shown in Table 5, the following intersections currently operate below Sutter County's adopted LOS threshold under existing conditions and delay would be exacerbated by the proposed project. In all cases, the deficient movement occurs from the side street.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

Table 6 shows the existing-plus-project conditions peak hour average maximum queue length for key movements at each study intersection. These queue estimates are based on ten microsimulation runs using Synchro's SimTraffic microsimulation module. As shown in Table 6, the proposed project would result in relatively minor changes in queuing. All average maximum queue values are less than the corresponding storage length.

Table 6: Average Maximum Queue Lengths – Existing-Plus-Project Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]	Increase/ Decrease with Project
1. SR 99 / Reed Road	EB LTR	>1,000 feet	AM	50 feet	-
			PM	50 feet	-
	WB LTR	>1,000 feet	AM	75 feet	+25 feet
			PM	75 feet	-
	SB L	440 feet	AM	50 feet	-
			PM	50 feet	-
	NB L	435 feet	AM	25 feet	-
			PM	25 feet	-
2. SR 99 / Walnut Avenue	EB LTR	>1,000 feet	AM	50 feet	-
			PM	25 feet	-
	WB LTR	>1,000 feet	AM	75 feet	+25 feet
			PM	75 feet	-
	SB L	435 feet	AM	50 feet	-
			PM	25 feet	-25 feet
	NB L	500 feet	AM	25 feet	-
			PM	25 feet	-
3. SR 99 / Barry Road	EB LTR	>1,000 feet	AM	175 feet	-
			PM	100 feet	-
	WB LTR	>1,000 feet	AM	175 feet	+25 feet
			PM	150 feet	-

FEHR PEERS

Table 6: Average Maximum Queue Lengths – Existing-Plus-Project Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]	Increase/ Decrease with Project
	NB L	435 feet	AM	50 feet	-
			PM	75 feet	-
	NB TR	>1,000 feet	AM	225 feet	-
			PM	225 feet	-
	SB L	370 feet	AM	125 feet	-
			PM	75 feet	-
	SB TR	>1,000 feet	AM	225 feet	+25 feet
			PM	175 feet	+25 feet
4. SR 99 / Oswald Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	125 feet	+50 feet
	WB LTR	>1,000 feet	AM	100 feet	+25 feet
			PM	150 feet	+25 feet
	NB L	440 feet	AM	50 feet	-
			PM	125 feet	-
	SB L	430 feet	AM	50 feet	-
			PM	50 feet	-
5. Railroad Avenue / Barry Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	100 feet	-
	WB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-
	NB LTR	>1,000 feet	AM	75 feet	-
			PM	125 feet	+25 feet
	SB LTR	>1,000 feet	AM	75 feet	-25 feet
			PM	75 feet	-
6. Railroad Avenue / Oswald Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-
	WB LTR	-Private Driveway-	AM	25 feet	-
			PM	50 feet	+25 feet
	NB LTR	>1,000 feet	AM	50 feet	-
			PM	75 feet	-
	SB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-

Notes: **Bold** indicates exceedance of storage length.

[1] Average max queue is based on an average of ten microsimulation runs using Synchro's SimTraffic microsimulation module.

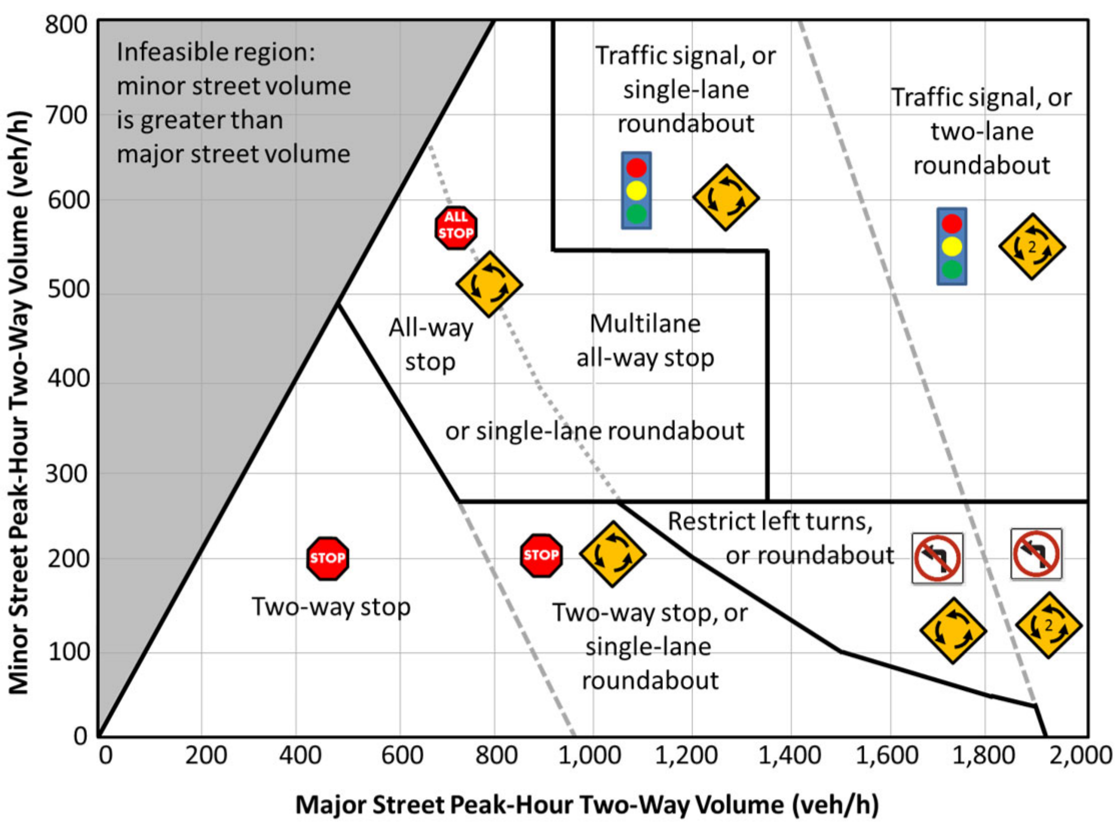
Source: Fehr & Peers, 2020.

Assessment of Potential Off-Site Impacts

Based on the intersection operations analysis, the following intersections currently operate below Sutter County's adopted LOS threshold under existing conditions. The delay at each of these intersections would be exacerbated by the proposed Sangha Expansion project.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

Under existing-plus-project conditions, none of the above three intersections meet the peak hour signal warrant due to insufficient volume on the minor streets. In *Planning and Preliminary Engineering Applications Guide (PPEAG) to the HCM* (NCHRP Report 825, 2016), Section E provides methods for predicting what the intersection traffic control may be, given estimates of the major and minor street traffic volumes and the directional distribution (see image). This section recognizes that state and local policies may specify the conditions under which particular types of intersection traffic controls should or should not be considered, and states that these policies should supersede Section E guidance.



At SR 99/Reed Road and SR 99/Walnut Avenue, the PPEAG guidance recommends either (1) restricting turns or (2) implementing two-lane roundabouts under existing conditions PM peak hour volumes. Restricting left-turn and through side-street vehicles would improve intersection delays and safety. However, these side-street vehicles would need either to divert to intersections that permit left-turns onto SR 99 (such as at Barry Road) or make right-turn movements followed by U-turns downstream of the intersection. Both possibilities present operational problems, especially relating to heavy trucks. If vehicles decide to divert to other intersections, the heavy vehicle traffic volume would increase on rural roads. These roads may not be designed for such traffic (especially STAA truck traffic). On the other hand, if heavy vehicles must take the fastest route to SR 99, they would be forced to make U-turns at intersections that are possibly not designed to allow for heavy vehicle U-turns. This would require redesigning several intersections to allow for such movements. Roundabouts would be a cleaner option. Two-lane roundabouts at SR 99/Reed Road and SR 99/Walnut Avenue would provide operational and safety benefits to side-street vehicles. The negative consequences of installing two-lane roundabouts are increased right-of-way and increased implementation costs compared to the turn restrictions alternative. **Table 7** shows the existing-plus-project intersection operations with implementation of each of these two alternatives at SR 99/Reed Road and SR 99/Walnut Avenue.

The *State Route 99 and Oswald Road Intersection Improvements* report (GHD, April 2020) shows that traffic signal warrants 1 and 7 (Interruption of Continuous Traffic and Crash Warrant) are met at SR 99/Oswald Road under existing conditions. That report also presents signalization and roundabout installation as two intersection improvement alternatives. Table 13 shows existing-plus-project intersection operations with implementation of each of these two alternatives at SR 99/Oswald Road.

Table 7 shows that all proposed improvement alternatives would improve LOS to acceptable levels (i.e., LOS D or better) during the AM and PM peak hours.

Table 7: Intersection Operations – Existing-Plus-Project Conditions with Improvements

Intersection	Peak Hour	Existing-Plus-Project Conditions Delay/LOS			
		With SSSC	With Signal	With Roundabout	With SSSC & Restricted Turns
1. SR 99 / Reed Road	AM	**1 (42) / A (E)**	-	7 / A	<1 (13) / A (C)
	PM	**1 (41) / A (E)**	-	8 / A	<1 (15) / A (C)
2. SR 99 / Walnut Avenue	AM	**1 (61) / A (F)**	-	7 / A	<1 (12) / A (B)
	PM	**1 (50) / A (E)**	-	8 / A	<1 (15) / A (B)

Table 7: Intersection Operations – Existing-Plus-Project Conditions with Improvements

Intersection	Peak Hour	Existing-Plus-Project Conditions Delay/LOS			
		With SSSC	With Signal	With Roundabout	With SSSC & Restricted Turns
4. SR 99 / Oswald Road	AM	2 (31) / A (D)	7 / A	6 / A	-
	PM	**4 (138) / A (F)**	8 / A	8 / A	-

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2020.

Analysis of Project Access

Project access was analyzed to determine turn-lane, vehicle storage, and sight distance requirements. Vehicle and truck access at project driveways were evaluated, as were bicycle and pedestrian access to the project site. In addition, the project was evaluated for agreement with relevant Sutter County design and improvement standards.

Recommended Project Access

The need for separate ingress left-turn lanes and right-turn deceleration lanes are evaluated below.

- Need for Left-Turn Lane on Oswald Road – The eastbound left-turn from Oswald Road into the project site is expected to serve 15 vehicles or less during the AM and PM peak hours. Based on the existing-plus-project traffic volumes on Oswald Road, the maximum vehicle queue for the eastbound left-turn movement is calculated to be two vehicles. Based on the 35 MPH speed limit along Oswald Road and the expected maximum queue, a left-turn lane is not needed on Oswald Road at either Sangha driveway.

- Need for Right-Turn Tapers/Deceleration Lanes – The westbound right-turn from Oswald Road into the project site is expected to serve less than 5 vehicles during the AM and PM peak hours. Based on the existing-plus-project traffic volumes on Oswald Road, a right-turn deceleration lane or taper is not needed on Oswald Road at either Sangha driveway.

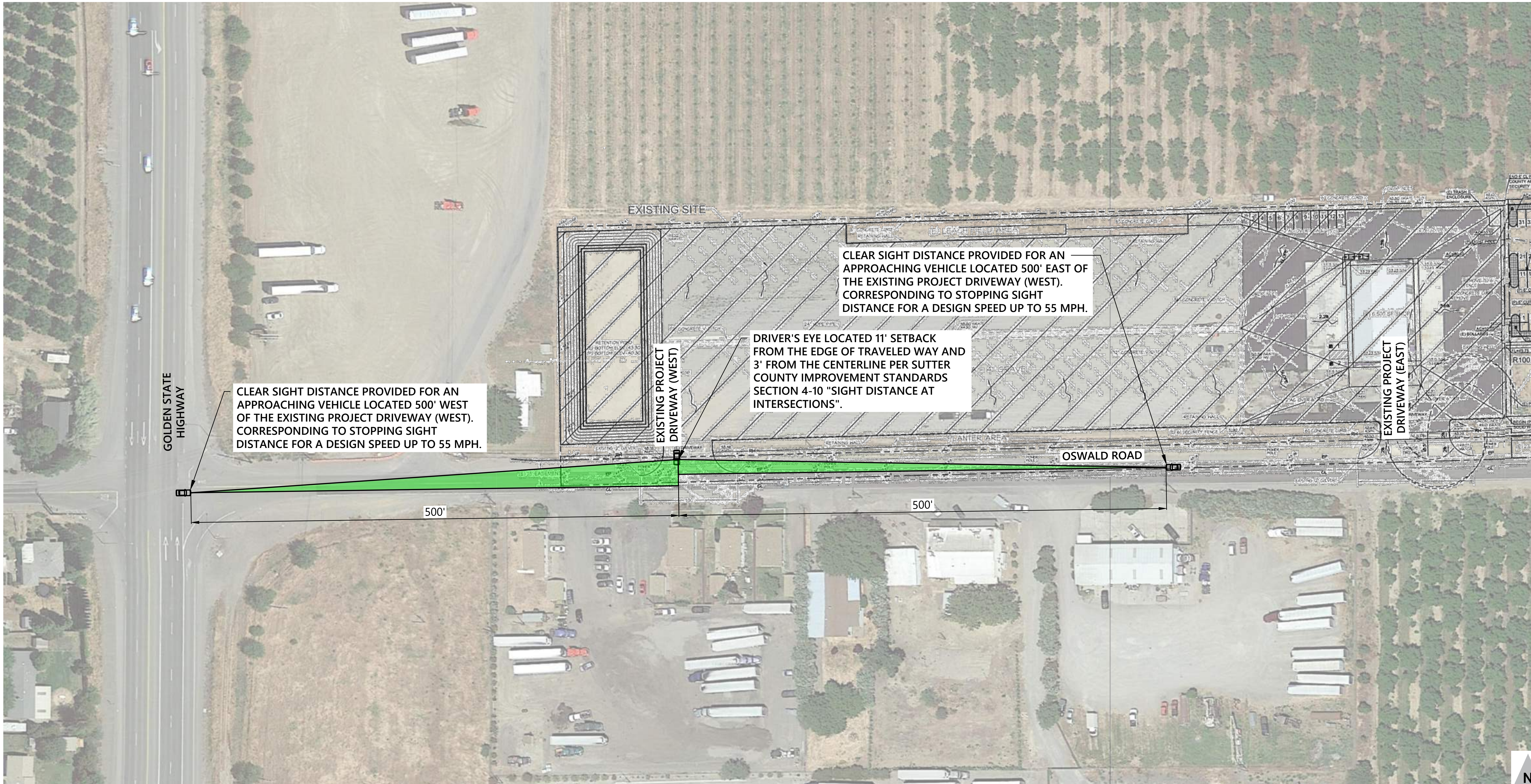
- Vehicle Storage Requirements at Sangha Driveways – The southbound left- and right-turns from the Sangha driveways onto Oswald Road are expected to serve less than 20 vehicles during the AM and PM peak hours. Based on the existing-plus-project traffic volumes on Oswald Road, the maximum vehicle queue for the Sangha driveways was calculated to be one vehicle. The existing storages of 180 feet at the western driveway and 75 feet at the eastern driveway are adequate to accommodate the maximum queue.

Given the low ingress/egress volumes during the peak hours, shared inbound and outbound left- and right-turn lanes are recommended at the Sangha driveways. Therefore, no roadway widening is required along Oswald Road.

Sight Distance Evaluation

Sight distance analysis was performed at the existing westerly and easterly Sangha driveways on Oswald Road. The Oswald Road eastbound and westbound directions have posted speed limits of 35 MPH between SR 99 and Railroad Avenue. Without data from a speed survey for this stretch of Oswald Road, and given the road's rural built environment, sight distance was analyzed for a design speed of 55 MPH (20 MPH above the posted speed limit). With the adjacent side-street stop-controlled intersection at SR 99, Oswald Road eastbound traffic approaching the westerly Sangha driveway would approach from a stop or, at worst case, a low-speed turn from SR 99. Similarly, with the adjacent all-way stop-controlled intersection at Railroad Avenue, Oswald Road westbound traffic approaching the easterly Sangha driveway would approach from a stop.

Figure 5 shows the sight triangles from the driver's eye waiting at the westerly driveway to the approaching eastbound and westbound vehicles on Oswald Road positioned 500 feet in advance of the driveway. This positioning corresponds to a design speed of 55 MPH per County standards. **Figure 6** shows the sight triangles from the driver's eye waiting at the easterly driveway to the approaching eastbound and westbound vehicles on Oswald Road positioned 500 feet in advance of the driveway. Again, this positioning corresponds to a design speed of 55 MPH per County standards. Figure 5 and Figure 6 were drawn per provisions in the *Sutter County Street Improvement Standards* (2010), Section 4-10. As shown, the sight triangles at both driveways are clear of all existing and proposed vertical elements with no visibility obstructions. Therefore, both existing driveways maintain adequate sight distance to approaching vehicles under existing-plus-project conditions.



LEGEND

STOPPING SIGHT DISTANCE TRIANGLE - DESIGN OF VERTICAL ELEMENTS IN THIS AREA TO BE CONSISTENT WITH SUTTER COUNTY STANDARD DRAWING H-14.

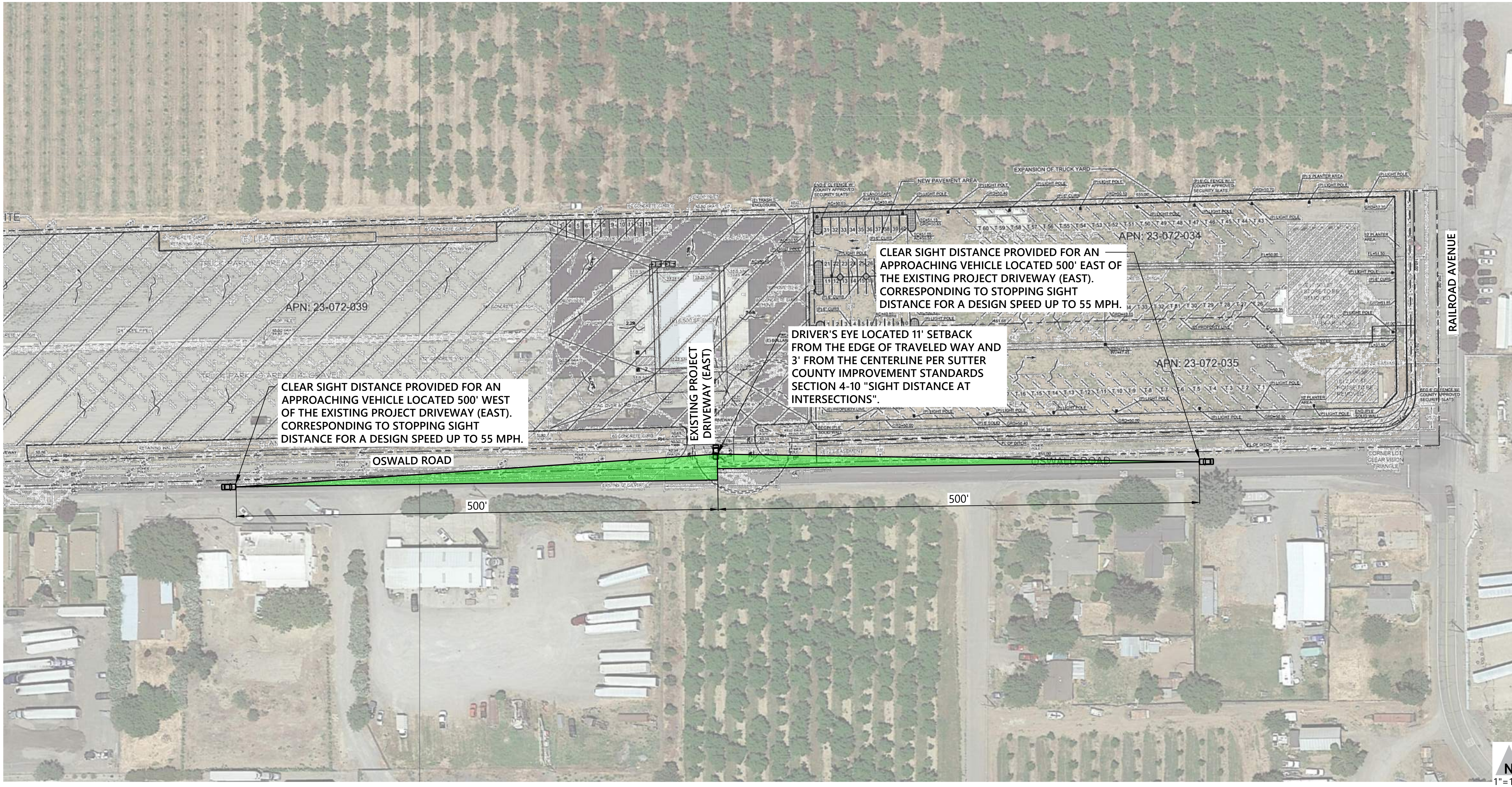
100 0 100 200

1" = 100' GRAPHIC SCALE

Figure 5

Stopping Sight Distance

Oswald Road and Existing Project Driveway (West)



LEGEND

STOPPING SIGHT DISTANCE TRIANGLE - DESIGN OF VERTICAL ELEMENTS IN THIS AREA TO BE CONSISTENT WITH SUTTER COUNTY STANDARD DRAWING H-14.

100 0 100 200
1" = 100' GRAPHIC SCALE

Figure 6

Stopping Sight Distance
Oswald Road and Existing Project Driveway (East)

Site Access and Circulation

Site access and site circulation were evaluated using the swept path analysis software, AutoTurn, to determine if the proposed changes to the site plan can accommodate the following vehicles:

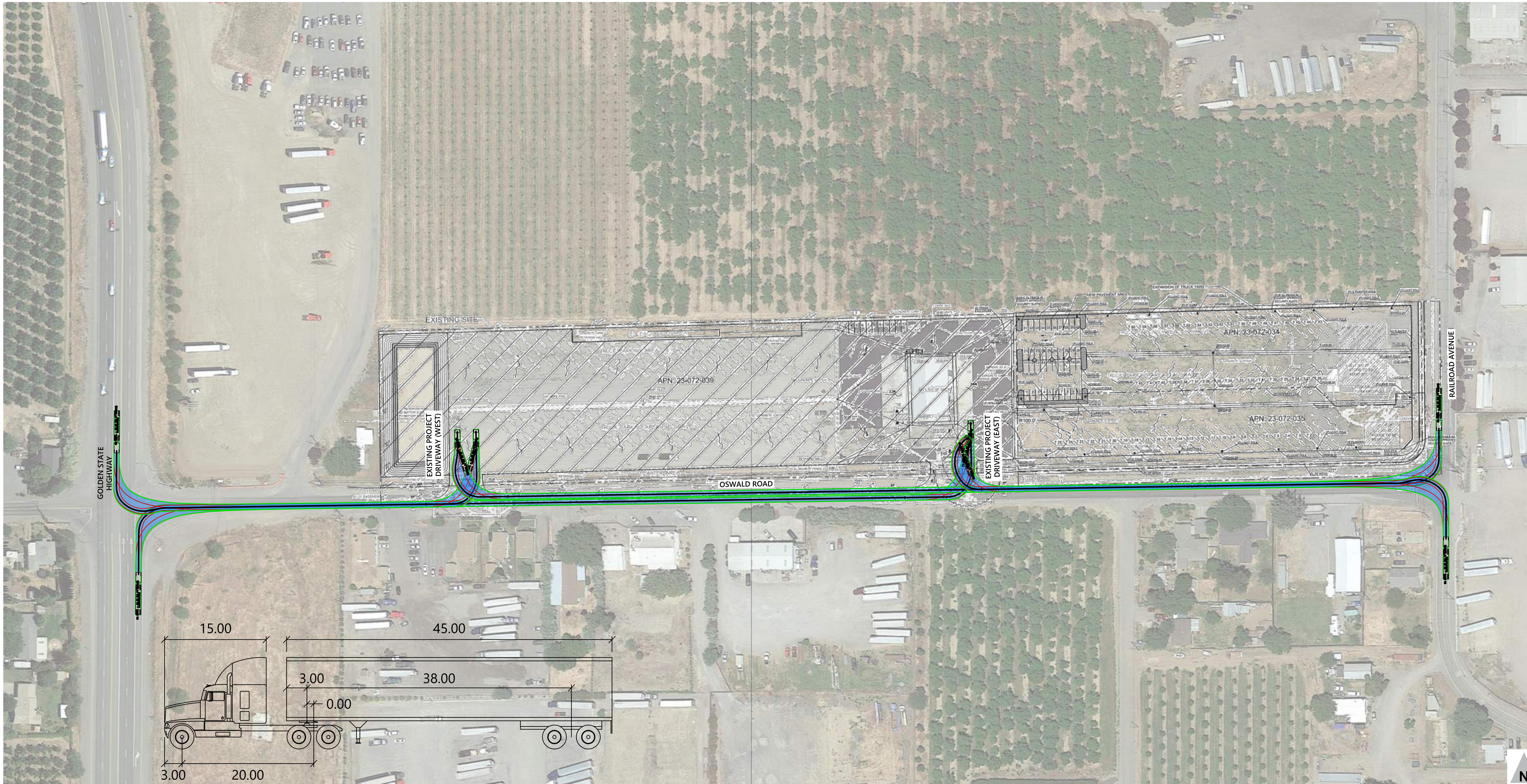
- CA Legal Truck (65-Foot)
- Rear-Load Garbage Truck (38-Foot)
- Front-Load Garbage Truck (34-Foot)

Figure 7 shows the swept paths of inbound CA Legal Trucks (65-Foot) as they access the Sangha driveways from SR 99 and Railroad Avenue. **Figure 8** shows the swept paths of outbound CA Legal Trucks (65-Foot) as they leave the Sangha driveways to SR 99 and Railroad Avenue. **Figure 9**, **Figure 10**, and **Figure 11** show the swept paths of the CA Legal Truck (65-Foot), Rear-Load Garbage Truck (38-Foot) and Front-Load Garbage Truck (34-Foot) as they circulate through the project site. As shown, the site plan can accommodate all vehicles without encroachment. No modifications to the site plan are required.

Project Compliance with Relevant Design and Improvement Standards

Oswald Road between SR 99 and Railroad Avenue is classified as a rural local road in the "Existing Functional Classification Circulation Diagram" of the Sutter County General Plan. Oswald Road has 11-foot travel lanes, 1-foot paved shoulders, and 6-foot gravel shoulders in either direction, resulting in a total pavement width of 24 feet, traveled way width of 22 feet, and graded shoulder width of 7 feet. The posted speed limit for eastbound and westbound Oswald Road is 35 MPH, and the daily traffic is about 1,680 vehicles based on StreetLight Data collected for the Sutter County Truck Yards project. The existing cross section on Oswald Road is consistent with Sutter County Standard Drawing H-3 for a rural local road.

Oswald Road between SR 99 and Railroad Avenue is classified as an urban major collector (2 lanes) in the "Future Functional Classification Circulation Diagram" of the Sutter County General Plan. The Sangha driveways on Oswald Road are set back to provide future right-of-way for the 60-foot urban major collector street per Sutter County Standard Drawing H-5, providing compliance with the Implementation Program M 2-B in the Sutter County General Plan. There are existing overhead utilities on the north and south sides of the street within the ultimate 60-foot right-of-way for the urban major collector street.



CA LEGAL - 65 FT (50 FT RADIUS)

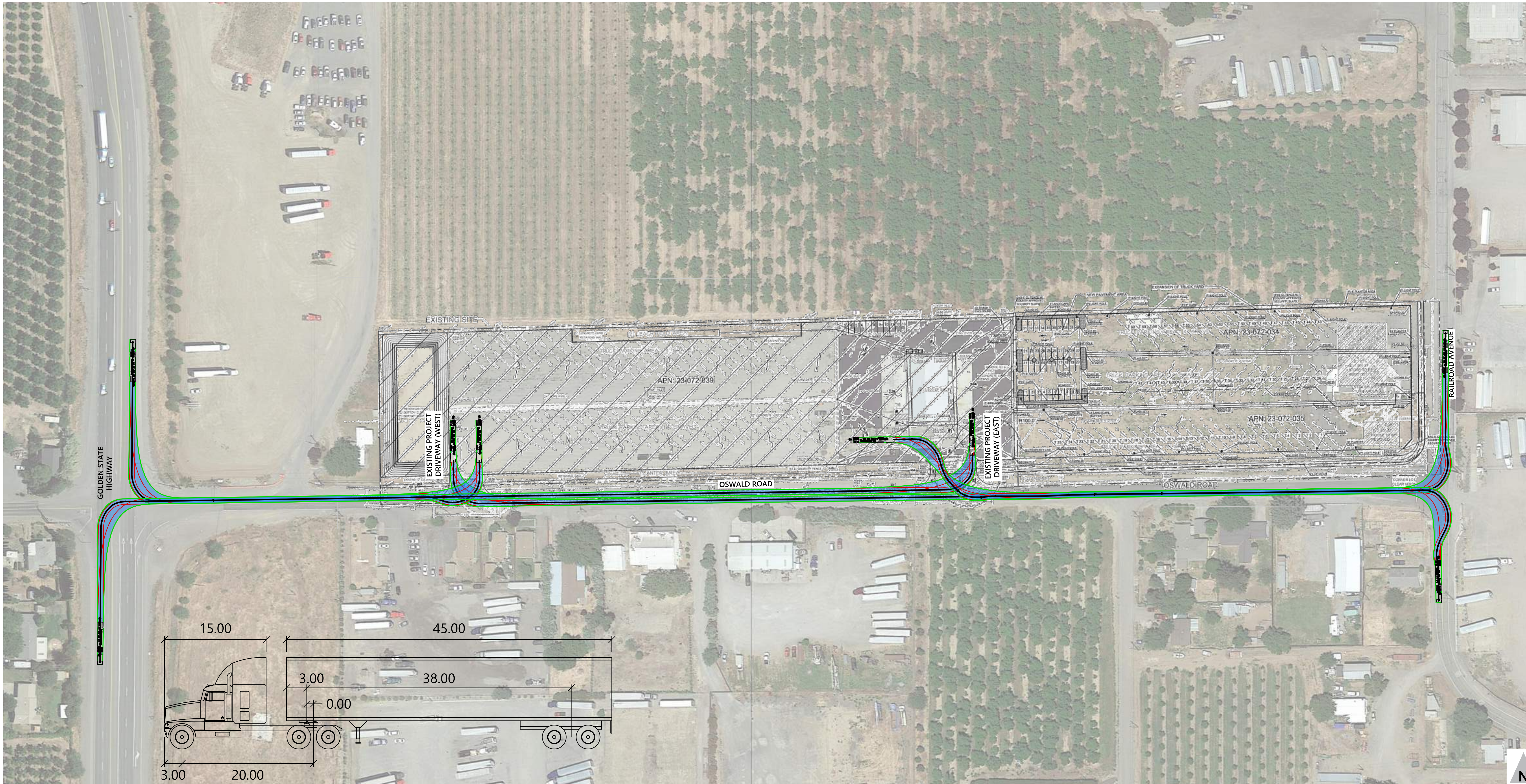
	feet		
Tractor Width	: 8.50	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 26.0
Tractor Track	: 8.50	Articulating Angle	: 70.0
Trailer Track	: 8.50		

150 0 150 300
1" = 150' GRAPHIC SCALE

Figure 7

Site Access
Inbound CA Legal - 65 FT (50 FT Radius) Trucks

Sep 15, 2020 CADD FILE: N:\2020 Projects\3937.00_Sangha_Trucking_Expansion\CAD\3937-Site-Access.dwg



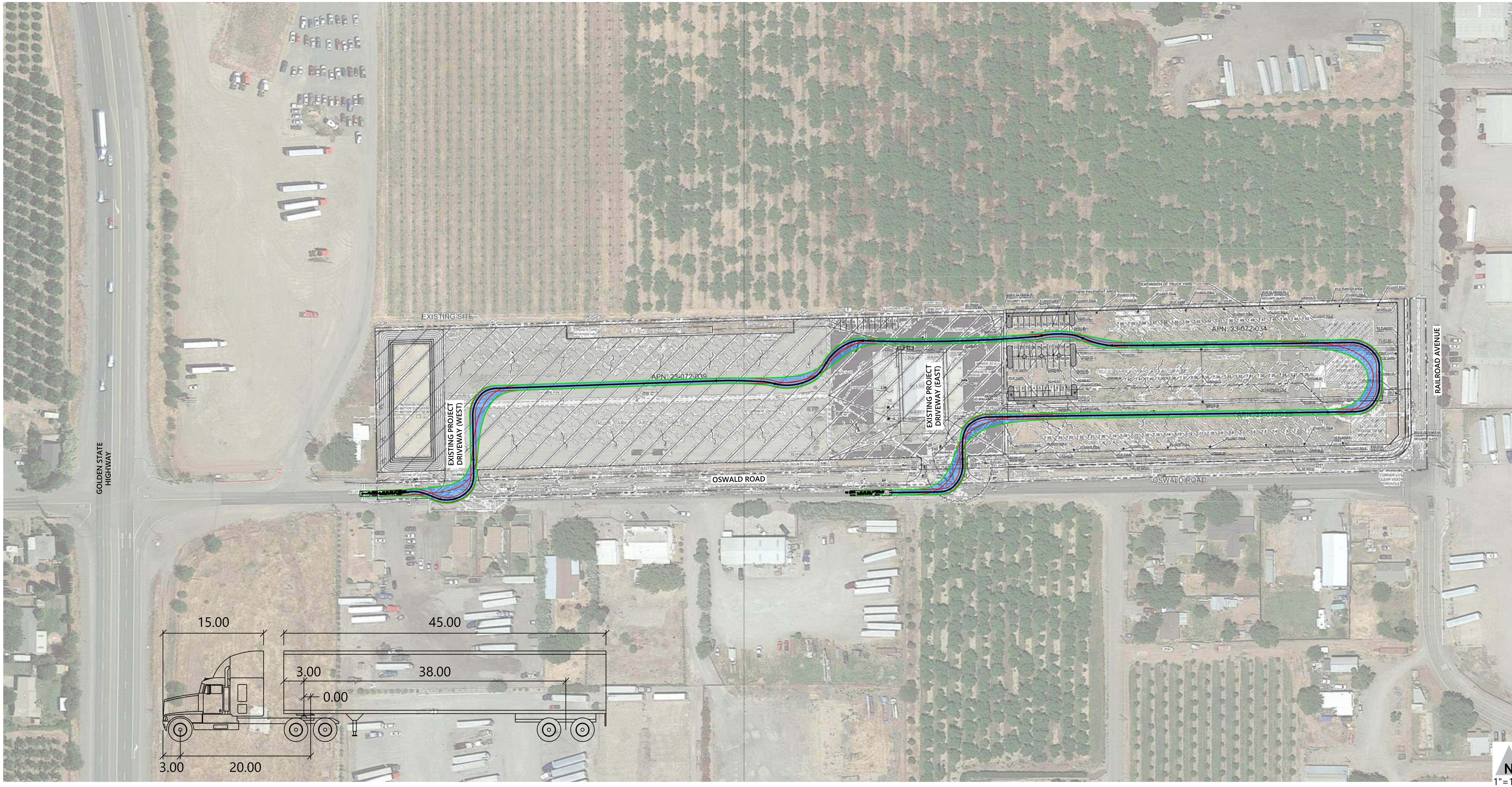
CA LEGAL - 65 FT (50 FT RADIUS)

	feet		
Tractor Width	: 8.50	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 26.0
Tractor Track	: 8.50	Articulating Angle	: 70.0
Trailer Track	: 8.50		

150 0 150 300
1" = 150' GRAPHIC SCALE

Figure 8

Site Access
Outbound CA Legal - 65 FT (50 FT Radius) Trucks



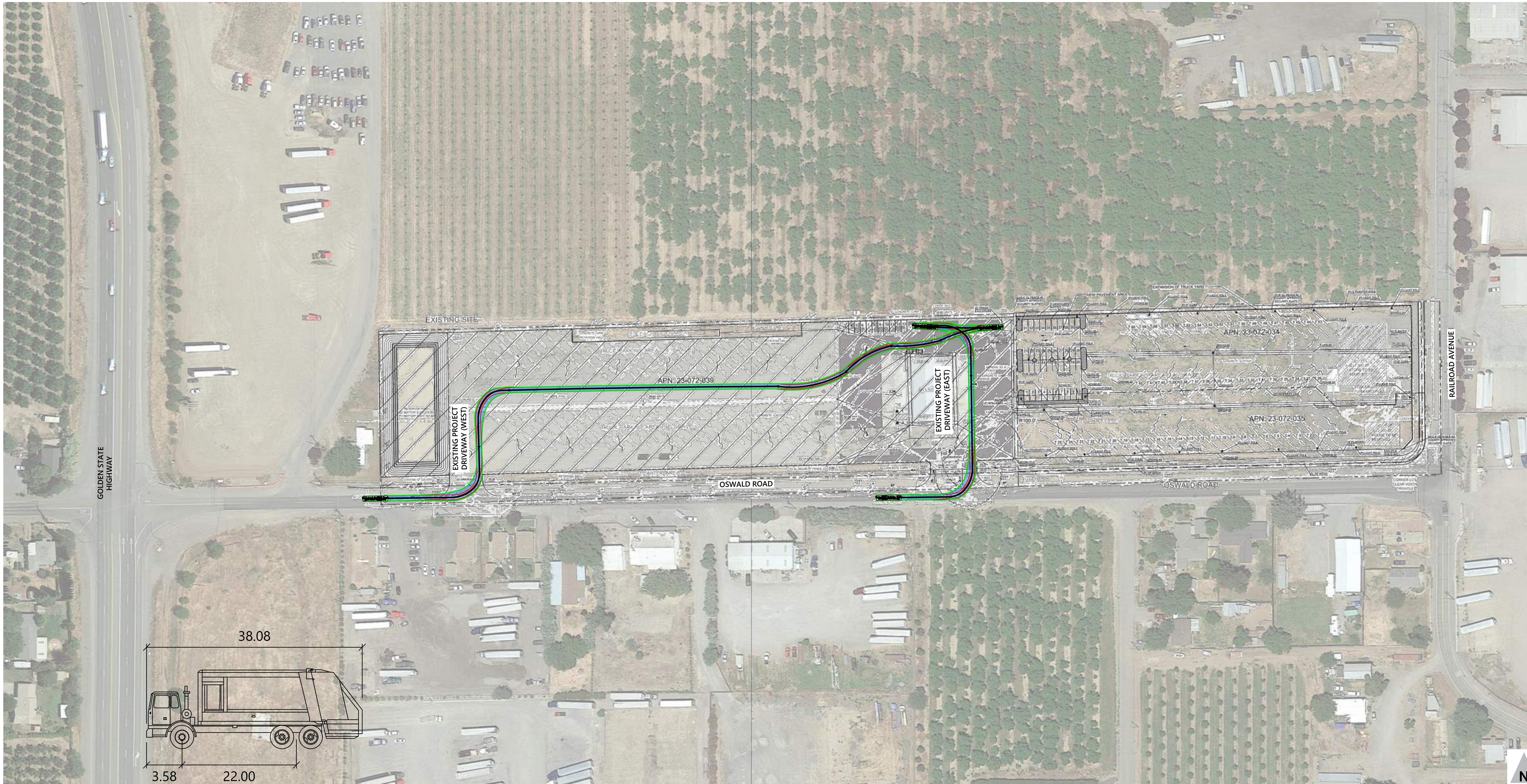
CA LEGAL - 65 FT (50 FT RADIUS)

	feet		
Tractor Width	: 8.50	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 26.0
Tractor Track	: 8.50	Articulating Angle	: 70.0
Trailer Track	: 8.50		

150 0 150 300
1" = 150' GRAPHIC SCALE

Figure 9

Site Circulation
CA Legal - 65 FT (50 FT Radius) Truck



Rear-Load Garbage Truck

		feet
Width	:	8.00
Track	:	8.00
Lock to Lock Time	:	6.0
Steering Angle	:	27.4

150 0 150 300
1" = 150' GRAPHIC SCALE

Figure 10

Site Circulation
Rear-Load Garbage Truck

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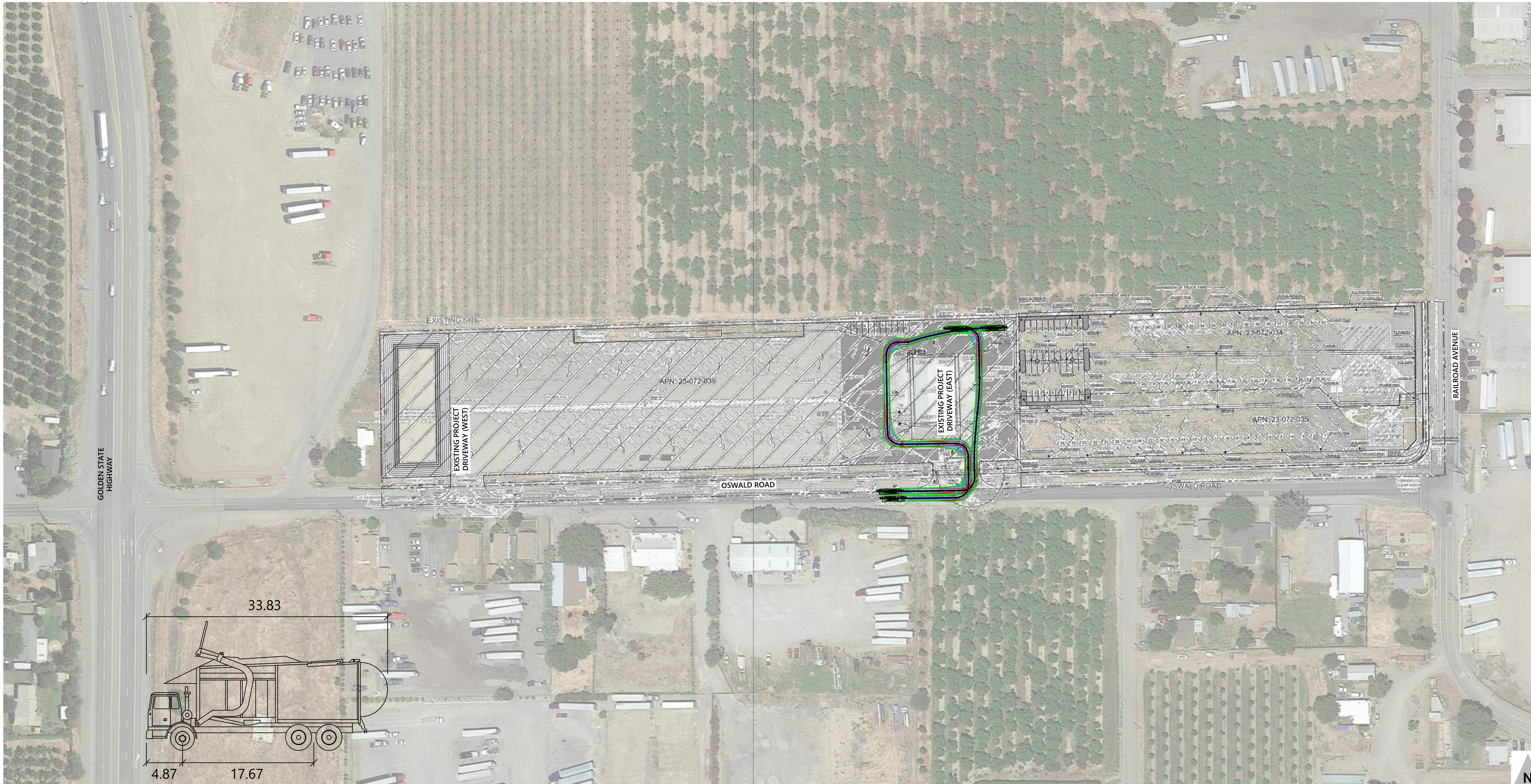
Sep 15, 2020



Front-Load Garbage Truck

	feet
Width	: 8.46
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

150 0 150 300
1" = 150' GRAPHIC SCALE

Figure 11

Site Circulation
Front-Load Garbage Truck

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Sep 15, 2020

Implementation Program M 2-E in the Sutter County General Plan is in place to "condition new development to finance and construct appropriate circulation improvements necessary to mitigate a project's transportation impacts including pedestrian and bicycle mobility, safety, and level of service-related impacts." In addition, M 2-E is in place to "collect the fair share cost of required circulation improvements through established fees, and/or construction estimates of needed improvements, as appropriate, where construction is not practical at the time of development". The County will work with the applicant to condition the project consistent with Implementation Program M 2-E.

The Sangha Truck & Trailer Repair shop generates STAA truck trips. While SR 99 is a Caltrans designated truck route, Oswald Road is not a designated truck route. Since Oswald Road is currently serving, and will continue to serve, truck traffic between SR 99 and the project site, the existing Oswald Road cross section was evaluated in relation to additional relevant design standards. Section 4.3 of the *AASHTO Green Book 6th Edition* (2011) states that "the wider 3.6m [12-ft] lane provides desirable clearances between large commercial vehicles traveling in opposite directions on two-lane, two-way rural highways when high traffic volumes and particularly high percentages of commercial vehicles are expected." In the context of local rural roads, Section 5.2.2 ("Cross-Sectional Elements" [of Local Rural Roads]) lists the minimum traveled way widths and shoulder widths for local rural roads based on design speed and ADT in table 5-5. For a design speed of 40 MPH (rounded up from the 35 MPH posted speed limit) and ADT between 1,500 and 2,000 vehicles per day, the minimum acceptable traveled way width is 22 feet with minimum graded shoulder widths of 6 feet on each side. Therefore, Oswald Road does not need to be widened to accept the truck traffic between the project site and SR 99. If the ADT on Oswald Road increases above 2,000 vehicles per day, AASHTO recommends widening the traveled way to 24 feet.

Pedestrian and Bicycle Access

Pedestrian and bicycle access were evaluated near the proposed project based on existing and planned facilities. There are currently no bicycle or pedestrian facilities on Oswald Road between SR 99 and Railroad Avenue. As previously discussed, Oswald Road between SR 99 and Railroad Avenue is planned to be a future urban major collector (2 lanes) in the Sutter County General Plan, which includes 4.5-foot sidewalks and 5-foot in-street bike lanes in each direction. Additionally, according to Figure 6 of the *County of Sutter Bicycle & Pedestrian Master Plan* (2012), a Class III bikeway is planned on Oswald Road between Schlag Road and Railroad Avenue. This bikeway will connect to planned Class III bikeways on Schlag Road, S. Township Road, and Railroad Avenue (north of Oswald Road), along with a planned Class II bikeway on Walton Avenue.

Per the *County of Sutter Bicycle & Pedestrian Master Plan* (Section 3.2.3, "Class III Bikeway Overview"), Class III bikeway improvements should include the following:

- Add a paved shoulder, where possible, to allow more space between autos and bikes
- Perform pavement maintenance on surfaces in need of repair
- Install "Share the Road" bike route signs on all routes with minimal travel lane surface/shoulders
- Install directional wayfinding signs along routes to identify where the route leads, opportunities for connectivity to other facilities, and distances between key locations.

Implementation Program M 5-C in the Sutter County General Plan is in place to "condition new development to construct bicycle and pedestrian lanes/trails and associated facilities in and supporting the development project in accordance to the County's Bikeway and Pedestrian Master Plan and County improvement standards; and to the extent possible, connect these facilities to existing and planned bicycle lanes/trails". The County will work with the applicant to condition the project consistent with Implementation Program M 5-C.

Vehicle Miles Traveled Transportation Assessment

Background

Methodology

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines in 2019, level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA. LOS measures the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day, while the new CEQA metric (Vehicle Miles Traveled or VMT) measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from that travel.

To aid in SB 743 implementation, OPR released a Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory) in December 2018. The Technical Advisory provides advice and recommendations to CEQA lead agencies on how to implement the SB 743 changes. This includes technical recommendations regarding the assessment of VMT, thresholds of significance, VMT mitigation measures, and screening thresholds for certain land use projects. Lead agencies may consider and use these recommendations at their discretion. Sutter County has not yet adopted a CEQA VMT significance threshold and methodology for CEQA VMT transportation assessments.

Therefore, the State of California's guidance in the Technical Advisory is used for this VMT transportation assessment.

CEQA and Heavy Vehicles

CEQA Section 15064.3 defines vehicle miles traveled as the "amount and distance of automobile travel attributable to a project." The Technical Advisory further clarifies that "the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." "Heavy-duty truck VMT could be included for modeling convenience and ease of calculation," though the guidelines do not currently require it. Since the Technical Advisory specifically requires passenger vehicle VMT and not heavy-duty truck VMT, the assessment in this memorandum will consider only project VMT generated by passenger vehicles.

Screening Thresholds

The Technical Advisory identifies "screening thresholds" to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. The Technical Advisory suggests the following projects should be expected to have a less-than-significant impact on VMT. Of these screening criteria, "small projects" could potentially apply to the proposed Sangha Expansion project.

- Small projects
- Projects near transit stations
- Affordable residential development
- Local-serving retail
- Projects in low VMT areas

VMT Assessment of Sangha Expansion Project

The trip generation for the Sangha expansion project is based on published trip rates for the automobile care center ITE land use category. Data for number of daily trips are not provided for this land use category in the *Trip Generation Manual: 10th Edition*. The number of project-generated daily trips will depend on the number of cars and trucks expected to ingress or egress the site that are attributable to the expansion (i.e., ingress or egress vehicles attributable to the existing site should not be included). The project is expected to increase employment from 8 to 13 employees and increase service output by roughly 30%. Based on information provided by the applicant, the current Sangha Truck & Trailer Repair shop services about 10 vehicles per day. Therefore, the project's net result is an increase of 5 employees and about 3 additional vehicles serviced per day. It is assumed that heavy vehicles dropped off for repair or picked up after repair are accompanied by a passenger car that provides transportation to/from the site for the heavy vehicle driver. Assuming the estimated level of growth in employment and service volume, roughly 40 daily project trips could be anticipated. Some non-employee and non-customer project trips will also occur, such as additional shop deliveries to support expanded operations or additional incoming/outgoing security guard personnel. The probable total daily project trip generation is expected to be less than 80 trips. As previously expressed, this estimate does not include traffic from current site operations.

The Technical Advisory states that "[absent] substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact." The estimated daily trip generation of the Sangha Expansion project is less than 110 trips. In addition, the estimate is conservative, as it comprises of both passenger vehicle and heavy-duty truck traffic, though heavy-duty truck VMT is not required by CEQA. Therefore, based on the "small projects" screening criteria, the proposed project's VMT impact would be assumed to be **less than significant**. No mitigation measures are required.

ATTACHMENT 3

ESA Sutter County Truck Yard Study Technical Report

Final

SUTTER COUNTY TRUCK YARD STUDY

Technical Report

Prepared for
Sutter County

May 2021

Final

SUTTER COUNTY TRUCK YARD STUDY

Technical Report

Prepared for
Sutter County

May 2021

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EXECUTIVE SUMMARY

Sutter County has ten truck yard facilities located primarily along the State Route (SR) 99 corridor as well as pending applications for one similar facility and expansions of two of the existing facilities. This report was prepared to help the County better understand effects of operation of the existing ten truck yards, and to determine potential cumulative effects of operation of existing and proposed truck yards on air quality, health risk, hydrology, lighting, noise, and traffic conditions in the area.

Summary of Findings

In terms of air quality impacts, the existing truck yards generate emissions of criteria pollutant emissions and toxic air contaminants (TACs) during operations from vehicle trips, truck trips, and operation of trucks equipped with transportation refrigeration units (TRUs). Emissions of nitrogen oxides (NO_x) from three of the existing yards currently exceed the Feather River Air Quality Management District (FRAQMD) thresholds of significance, as identified in the FRAQMD Indirect Source Review Guidelines (Guidelines) for the California Environmental Quality Act (CEQA). While none of the existing yards exceed the thresholds for reactive organic gases (ROG) or particulate matter less than 10 microns in diameter (PM_{10}), operation of Legend Transportation, Sangha Trucking, and Parm Bains truck yards exceed the threshold of significance for operational NO_x emissions. Emissions that would be generated from construction and operation of each of the proposed truck yards were also calculated to determine if they would exceed the FRAQMD thresholds of significance upon project approval. Construction emissions would not exceed the FRAQMD thresholds of significance for any of the criteria air pollutants; however, it was found that emissions of NO_x from the proposed Legend Transportation Expansion project would exceed the FRAQMD thresholds of significance for operations. None of the proposed yards would exceed the FRAQMD CEQA operational thresholds of significance for either ROG or PM_{10}.

Exposure of sensitive receptors to potential health risks was analyzed based on TAC emissions, specifically diesel particulate matter (DPM) emissions, that are generated from operation of existing truck yards, and would be generated during construction and operation of proposed truck yards. Health risks include increased cancer probability (excess cancer risk per million) and chronic health hazard index, which is a measure of long-term, non-cancer health effects. Health risks were evaluated starting with the construction period for the proposed truck yards and extending to 30 years of operations, as health risk accumulates over the period of exposure to pollutants. The modeling for the operation of the existing ten truck yards calculated that the cancer risk at the maximally exposed individual resident (MEIR) is 101.4 in one million. The FRAQMD Guidelines do not currently include thresholds of significance with which to evaluate health risk impacts; therefore, this analysis used the health risk thresholds of significance established by the Bay Area Air Quality Management District (BAAQMD). The MEIR for the existing truck yard operations exceeds the cumulative BAAQMD CEQA threshold of 100 in one million. However, the chronic hazard index that would result from the existing truck yards would not exceed the hazard index threshold established by the BAAQMD. Similarly, health risk that would result from construction of the three proposed new and expanded yards would generate cancer risk that would exceed the BAAQMD project-level thresholds of significance for cancer risk (i.e. 10 in one million), when added to existing risk, but would not exceed the project-level threshold of significance for chronic hazard index. Finally, the maximum increase in cancer risk at the MEIR under the cumulative scenario considering both existing and proposed truck yards would exceed the BAAQMD cumulative cancer risk threshold at 108.6 in one million, but would not exceed the chronic hazard index. It was determined that the project-level threshold of ten per million is the most appropriate standard for County use in determining the health risk of new yards, and yard expansions, on the surrounding community.

Hydrologic conditions in the area were assessed during site visits that were completed during the dry season in August 2020. Based on information collected during this analysis it was determined that the truck yards are not in compliance with the State of California's Industrial Stormwater Permit Program. While the yards may be in non-compliance with regulatory requirements, none of the existing truck yards showed obvious signs of poor stormwater drainage, and most of the sites have hydrologic infrastructure to direct runoff into drains, ditches, and culverts to avoid flooding. In addition, the proposed yards would include drainage infrastructure that would likely avoid flooding or ponding on-site. The majority of the existing truck yard sites did not show signs of pollutant discharge that could negatively affect water quality and groundwater resources. However, during the site visits at Sangha Trucking and Nar Heer #2 sites, ground discoloration was observed, indicating that oil may have leaked from trucks or employee automobiles. The proposed HSD Trucking yard, though not already permitted, is already operational and did not have any indicators of pollutant discharge. While the approval of the proposed Legend Transportation and Sangha Trucking expansion projects would increase the number of trucks on-site, proper maintenance of these vehicles would not result in oil leaks that could contribute to surface or groundwater pollutants.

Lighting observations made during the August 2020 site visits indicated that some of the truck yards, including Sangha Trucking and Parm Bains, include bright stadium lighting that does not necessarily fit in with the character of the surrounding land uses. Additionally, some of the existing truck yards are operating in violation of their permit conditions to include shielding on light fixtures. None of the existing truck yards generate light that spills over into adjacent properties. Although HSD Trucking has not yet been permitted by the County, the yard is currently operational and observations made during the site visit indicate that lighting at this property spills over the site boundaries onto adjacent sites and onto public rights of way. The Sangha Trucking Expansion and Legend Transportation Expansion projects are likely to include installation of additional light sources; however, consideration of proper angling and installation of shielding on light fixtures would mitigate impacts.

Long-term noise level measurements were conducted throughout the study area in August 2020 to establish existing ambient noise concentrations in proximity of the noise-sensitive land uses in the area such as residences and schools. The proposed new and expanded truck yards were then evaluated to determine whether they would result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of applicable standards, and whether they would generate excessive groundborne vibration or groundborne noise levels. The analysis found that the construction of the proposed yards would not likely result in impacts from construction noise or vibration. Furthermore, operational noise from proposed new and expanded truck yards could result from truck maneuvering and operation of TRUs; however, these impacts could be reduced through a combination of measures including designation TRU operational areas at each site, and/or construction of noise barriers sufficient to block the line-of-sight between truck yards and receptors. Operational roadway noise from the cumulative operation of existing and proposed truck yards would not significantly increase noise levels along local roadways.

Finally, a traffic study (see Attachment A) was prepared to analyze existing level of service (LOS) at six study intersections and three roadway segments in the vicinity of the truck yard sites, as well as queue lengths at the same six study intersections. In addition, the study calculated trip generation estimates for the three proposed new and expanded truck yards; and used the trip generation estimates to determine operating conditions at the six intersections and three roadways segments under a cumulative scenario that accounted for existing plus proposed truck yard operation. The study yielded the following conclusions related to LOS, queuing, and vehicle miles traveled (VMT). Three study intersections (SR 99/Reed Road, SR 99/Walnut Avenue, and SR 99/Oswald Road) currently operating below Sutter County's adopted LOS threshold would experience a vehicle delay increase with the proposed projects. In contrast, study roadway segments would continue to operate at LOS C or better, and average maximum vehicle queues would be less than corresponding storage lengths under existing-plus-proposed conditions. HSD Trucking is currently exceeding its truck limit and is contributing to unacceptable traffic operations at three study intersections (SR 99 /Reed Road, SR99/Walnut Avenue, and SR99/Oswald Road). Lastly, while the HSD Trucking and Sangha Expansion projects would meet CEQA's significance criteria for VMT, the office component of the Legend Transportation Expansion project would result in workplace VMT per job that does not meet the criteria.

Table ES-1, below, presents a summary of recommendations identified to reduce air quality, health risk, hydrology, lighting, noise, and traffic impacts that could result from the existing and proposed truck yards. Additionally, a matrix of existing conditions and permitted operations was prepared to analyze permit conditions related to land use, number of trucks, number of TRUs, parking and surfacing requirements, hours of operation, noise generation, drainage, pollutant discharge, lighting, site conditions, and permits required from other agencies (refer to Attachment B, Existing Conditions and Permitted Operations Matrix). These recommendations are not intended to be implemented for every future new truck yard and existing truck yard expansion, but are suggested different options to reduce the risk. Each individual application and project will have different challenges and individual opportunities for which a different suite of these recommendations can be considered and implemented.

TABLE ES-1
RECOMMENDATIONS

Recommendation	Description
Air Quality	
Rec-Air-1: Prepare Air Quality Technical Report with Health Risk Assessment. For all proposed new yards and expansions, prepare an air quality technical report that compares project-level health risks to the BAAQMD thresholds of 10 cancers per million and chronic hazard index of 1.0. If projects exceed the thresholds, implement the following recommended measures, where feasible, to reduce health risk below the BAAQMD recommended thresholds of significance.	
Rec-Air-1a: Limit future operational capacity of proposed yards.	Operation of heavy-duty trucks generates emissions of DPM that increases health risk in the vicinity of the truck yard sites. Limiting the operational capacity of future proposed truck yards would limit additional health impacts that could negatively affect sensitive receptors. Limitations to number of permitted trucks would be based on the results of the health risk assessment (HRA) prepared as part of the environmental review process.
Rec-Air-1b: Limit future permitted number of TRUs operating on-site.	Operation of TRUs on the truck yard sites contributes to DPM concentrations that increase health risk at sensitive receptors surrounding the truck yard sites. Limiting the number of TRUs operating at future truck yards would limit increases to health risk that could negatively affect sensitive receptors. Limitations to the number of permitted TRUs would be based on the results of the HRA prepared as part of the environmental review process.
Rec-Air-1c: Require advanced TRU controls.	Require agreements between truck yard owners and operators to include conditions for trucks to use TRUs that meet Tier 4 emission standards and comply with all applicable California Air Resources Board (CARB) requirements to control emissions from diesel engines. Methods to comply include, but are not limited to, new clean diesel trucks, higher-tier diesel engine trucks with added particulate matter (PM) filters, hybrid trucks, alternative energy trucks, or other methods that achieve the applicable CARB emission standard. Compliance with this requirement could be verified through CARB's Verification Procedures for In-Use Strategies to Control Emissions from Diesel Engines.
Rec-Air-1d: Consider electrification of TRUs.	Install electrical hook-ups for diesel trucks. Encourage all trucks (or as many as feasible) to use the electric hookups instead of their diesel engines and TRUs.
Rec-Air-1e: Require alternative fueled TRUs and trucks, as feasible.	Use alternative fuels as commercially available, such as renewable diesel, biodiesel, natural gas, propane, and electric trucks and TRUs.
Rec-Air-1f: Require model year 2014 or newer heavy-duty trucks.	CARBs Truck and Bus Regulation requires that heavier trucks and buses with a gross vehicle weight rating (GVWR) greater than 26,000 pounds must comply with the following schedule: all heavier vehicles with 2000 or newer model year engines should have a PM filter (OEM or retrofit); vehicles with 1999 model year and older engines should have been replaced with 2010 model year engines; By January 1, 2023, all trucks and buses must have 2010 model year engines with few exceptions. To go beyond the scope of this regulation, the County could require that all on-road heavy-duty trucks with a gross vehicle weight rating of 33,000 pounds or greater used at the project site have engines that are model year 2014 or newer. [BS1]

Recommendation	Description
Rec-Air-1g: Implement vegetative barriers.	Plant trees and/or vegetation between sensitive receptors and pollution sources, if feasible. Trees that are best suited to trapping PM shall be planted, and may include but are not limited to African Boxwood, Buck Brush, Chamise, Oregon Grape, Purple Phlomis, Arizona Cypress, or other species listed in the Shrub and Tree Information Table for the Sacramento Region in the Sacramento Metropolitan Air Quality Management District (SMAQMD) Landscaping Guidance for Improving Air Quality Near Roadways. Vegetation barriers should consist of rows of shrubs and trees and should be at least 33 feet wide, 165 feet long, and 16 feet tall. The higher, longer, and wider the barrier, the greater the benefit to people protected by the barrier.[1]
Rec-Air-1h: Enforce landscaping maintenance requirements.	Implementation of vegetative barriers on truck yard sites is one of the most cost effective ways to reduce risk sensitive receptors along Route 99. Though many of the truck yards have permit conditions pertaining to landscaping requirements, many of the yard operators do not maintain landscaping following the start of yard operation. It is recommended that the County perform follow-up inspections to ensure that yard operators maintain landscaping in accordance with applicable permit conditions.
Rec-Air-1i: Implement truck idling limits.	Prohibit trucks from idling for more than two minutes.
Rec-Air-1j: Require TRU shutoff while parked on-site.	TRUs generate emissions of DPM when operating on-site. Requiring that refrigerated cargo be dropped off before truck yards take their required 8-hour rest period, and that TRUs are shutoff while trucks are parked on-site would reduce emissions of DPM from truck yard operations.
Rec-Air-1k: Identify appropriate idling locations.	Locate truck idling areas as far from sensitive receptors as possible.
Rec-Air-1l: Participate in the local Emission Reduction Credits (ERC) program for criteria air pollutants.	ERC or offsets were established as part of the 1977 Clean Air Act Amendments. Proposed yards can purchase ERCs or offsets to achieve emission reductions by: • Directly funding or implementing a specific offset project within the region to achieve the equivalent of annual tons-per-year reduction equal to the total estimated operational ROG, NO_X, and PM_{10} emissions offsets required to reduce the Project's criteria pollutants below the FRAQMD's significance thresholds. • Pay mitigation offset fees to the FRAQMD or other governmental entity or third party. The mitigation offset fee shall fund one or more emissions reduction projects within the Air Basin. The fee will be based on the type of projects available at the time of the payment. This fee is intended to fund emissions reduction projects to achieve annual reductions of ROG, NO_X, and PM_{10} equal to the amount required to reduce emissions below significance levels after implementation of other identified mitigation measures as currently calculated and implemented. Information related to the ERC program is available at: https://www.fraqmd.org/emission-reduction-credits-ercs.

[1] Sacramento Metropolitan Air Quality Management District (SMAQMD), 2020. Landscaping Guidance for Improving Air Quality Near Roadways. Plant Species and Best Practices for the Sacramento Region. May 2020. Available at http://www.airquality.org/LandUseTransportation/Documents/LandscapingGuidanceforImprovingAirQualityNearRoadwaysMay2020V2.pdf. Accessed November 2020.

Recommendation	Description
Rec-Air-1m: Participate in the local Emission Reduction Credits (ERC) program for PM_{10} emissions.	Directly fund or implement a specific emissions or exposure reduction project(s) within the region through the ERC program to achieve the equivalent toxicity-weighted TAC emissions emitted from the Project or population-weighted TAC exposure reductions resulting from the Project, such that the existing and proposed truck yards do not result in a cumulatively considerable contribution to health risks associated with TAC emissions. Information related to the ERC program is available at: https://www.fraqmd.org/emission-reduction-credits-ercs.
Rec-Air-1n: Avoid siting new and proposed yards in close proximity to sensitive receptors.	As stated in CARB's Air Quality and Land Use Handbook, "in terms of siting air pollution sources, the proposed location of a project is a major factor in determining whether it will result in localized air quality impacts. Often, the problem can be avoided by providing an adequate distance or setback between a source of emissions and nearby sensitive land uses." Therefore, impacts to receptors may be reduced by increasing distance between yards and sensitive receptors.
Hydrology	
Rec-Hydro-1: Perform a follow-up wet season inspection.	Observations of hydrologic conditions were made during the dry season and may not be representative of conditions during the wet season. A wet-season inspection should be performed to evaluate stormwater flows and adequacy of hydrologic infrastructure for directing runoff at each of the truck yard sites.
Rec-Hydro-2: Further analysis of industrial stormwater compliance.	Available information from the State Water Resources Control Board (State Water Board) Stormwater Multiple Application and Report Tracking System (SMARTS) web database does not indicate that existing yards (with the exception of Sangha Trucking) gained appropriate coverage under a Construction General Permit during construction, nor that the yards with maintenance facilities have obtained coverage under an Industrial General Permit for operations. The County should follow-up with the State Water Board to determine whether there are any Permit Registration Documents (PRDs) that may have been filed with the State Water Board but are not available on the SMARTS database.
Rec-Hydro-3: Engage with the Regional Water Quality Control Board for permit enforcement.	It is likely that the existing truck yards were required to obtain coverage under a Construction General Permit during construction and that yards with maintenance facilities are required to have obtained coverage under an Industrial General Permit. Therefore, the County could engage with the Regional Water Quality Control Board (RWQCB) for enforcement of permit requirements.
Rec-Hydro-4: Develop a Watershed Management Plan in conjunction with the Regional Water Quality Control Board.	If this area were to be incorporated into a drainage district, then work with the RWQCB to develop a Watershed Management Plan that incorporates beneficial uses for local water bodies and implements specific control measures to reduce negative impacts from truck yard operations on beneficial uses.
Lighting	
Rec-Light-1: Enforce lighting standards at existing yards.	Existing operational yards are not compliant with their permit conditions to include light shielding. Implementation of light shielding at these yards would further reduce negative effects of lighting.
Rec-Light-2: Implement lighting-related conditions of approval at future yards.	Any future permit conditions of approval for future proposed truck yards should include lighting-related conditions to implement light shielding requirements, angling requirements, and height limitations to reduce the potential of future yards to generate lighting impacts.

Recommendation	Description
Noise	
Rec-Noise-1: Designate TRU operational areas.	To reduce noise exposure to the closest receptors, specific areas could be designated on the site so that TRU operations do not occur within a set distance of a receptors. For example, at a distance of 150 feet, TRU operations from a single unit would be approximately 54 dBA. Given that TRU units would cycle on for 15 minutes in a given hour, such a distance could accommodate the cumulative noise energy up to four TRU operations in a given daytime hour.
Rec-Noise-2: Provide sound barriers on property lines adjacent to noise-sensitive land uses.	Alternatively, to reduce noise exposure to the closest receptors, the permit applicant could construct a solid wall along property lines adjacent to sensitive receptors of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units. The wall should be of solid construction with no visible gaps.
Rec-Noise-3: Implement a more restrictive noise ordinance.	If the county receives complaints for projects that fall below the noise thresholds currently enforced by the County noise element, then consider revisiting the existing County noise element and analyzing its effectiveness. Implement a more restrictive noise ordinance with lower thresholds to directly address the County's noise complaint issues.
Rec-Noise-4: For nighttime operations, provide sound barriers on property lines adjacent to noise-sensitive land uses.	To reduce noise exposure to the closest receptors, the permit applicant could construct a solid wall along property lines adjacent to sensitive receptors of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units. The wall should be of solid construction with no visible gaps. The barrier should be designed by an acoustical professional to achieve a reduction of 10 to 15 dBA, depending on the location of the potentially impacted receptor(s).
Transportation	
Rec-Traffic-1: Improve traffic operations at SR 99/Oswald Road intersection.	To achieve General Plan LOS D policy, improve traffic control. Both a traffic signal and a roundabout control (as proposed in the State Route 99 and Oswald Road Intersection Improvements report) would improve intersection operations at SR 99/Oswald Road to LOS A under existing-plus-proposed conditions.

Rec-Traffic-2: Improve traffic operations at SR 99/Reed Road and SR 99/Walnut Avenue.	At SR 99/Reed Road and SR 99/Walnut Avenue, traffic operations and safety could be improved by implementing one of two options, described below.
	• Option 1 – Restrict left-turn and through movements
	  o Tradeoffs: (1) would likely cause traffic diversion to intersections that permit left-turns onto SR 99 (such as Barry Road); (2) would require vehicles to make right-turn movements followed by U-turns downstream. Both possibilities present operational problems, especially for heavy trucks.
	• Option 2 – Construct two-lane roundabouts
	  o Tradeoffs: (1) larger right-of-way; (2) larger implementation costs.
	It should be noted that under existing-plus-proposed conditions, neither SR 99/Reed Road nor SR 99/Walnut Avenue meet the peak hour signal warrant due to insufficient minor street volumes.

Recommendation	Description
Rec-Traffic-3: Mitigate Legend Transportation Expansion project's VMT impact.	The office component of the Legend Transportation Expansion project would result in workplace VMT per job that does not meet CEQA's significance criteria of achieving a level 15% below the County-wide average. Require one or both of the following mitigation measures: (1) implementation of a transportation demand management (TDM) program; (2) participation in a future County VMT fee program. These measures are either unlikely to mitigate the impact or currently not certain to occur.

SOURCES:

California Air Resources Board (CARB), 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* April 2005. Available at https://ww3.arb.ca.gov/ch/handbook.pdf. Accessed February 2021.

California Air Resources Board (CARB). *Truck and Bus Regulation.* Available at https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation/about. Accessed January 2021.

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CHAPTER 1
Introduction

1.1 Background

Sutter County is located north of Sacramento County and Sacramento International Airport, and is uniquely positioned to take advantage of its proximity to major transportation corridors and facilities. Major highways through the area include State Route 99 (SR 99) and SR 20 which connect the County to the Interstate 5 (I-5) corridor, to foothill communities in the east and the west, and to I-80 past Grass Valley. Due to its specific geography and availability of undeveloped land, Sutter County has become a center for the development of trucking facilities, primarily along the SR 99 corridor. Currently, there are ten such trucking facilities operating near the SR 99 corridor, two of which are pending County approval for significant expansions; as well as one pending new truck yard. **Figure 1-1,** below, shows the general vicinity of the truck yard sites in relation to SR 99; while **Figure 1-2** shows the location of each of the ten existing sites and three proposed projects. Seven of the existing facilities and one pending facility are concentrated near the intersection of Oswald Road and Orchard Avenue, near residential receptors. **Figure 1-3** shows the locations of the nearest receptors (i.e. residences and schools) to each truck yard.

1.2 Purpose of the Environmental Analyses

As the Sutter County truck yards operate in the area, residents near the yards have lodged complaints with the County that question whether the truck yards are operating within the limits of their existing permit conditions and otherwise causing impacts to the human health and the environment. This technical report was prepared to assess the existing truck yard operations as well as analyze cumulative conditions that would result from the approval of the three pending truck yard applications. Technical analyses were prepared to evaluate potential air quality and health risk, hydrology, lighting, noise, and traffic impacts resulting from truck yard operations, to determine whether the truck yards are in compliance with existing operating permits, and to ascertain whether approval of the three pending yards would result in cumulative environmental impacts.

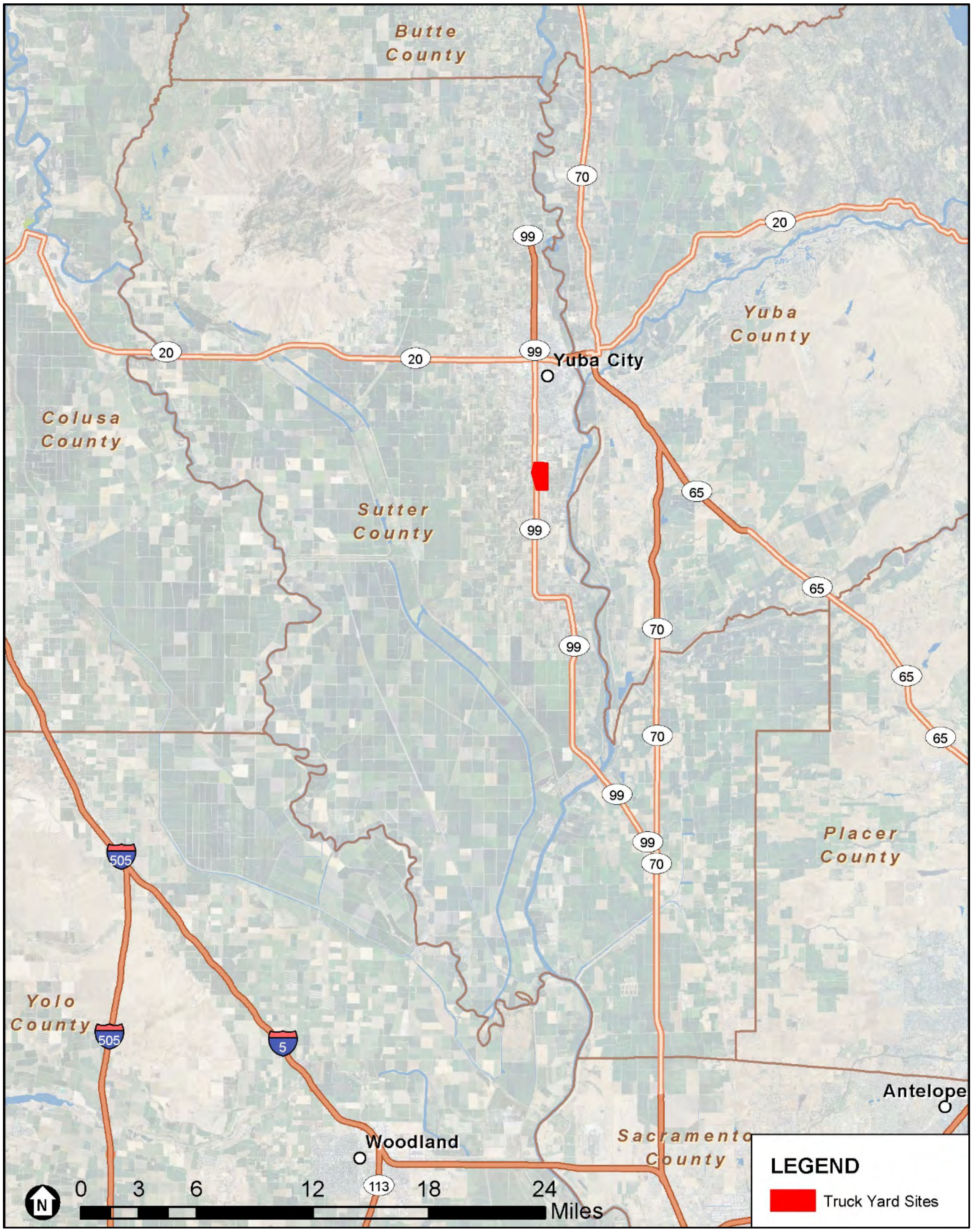

Figure 1-1
Regional Location of Sutter County Truck Yards

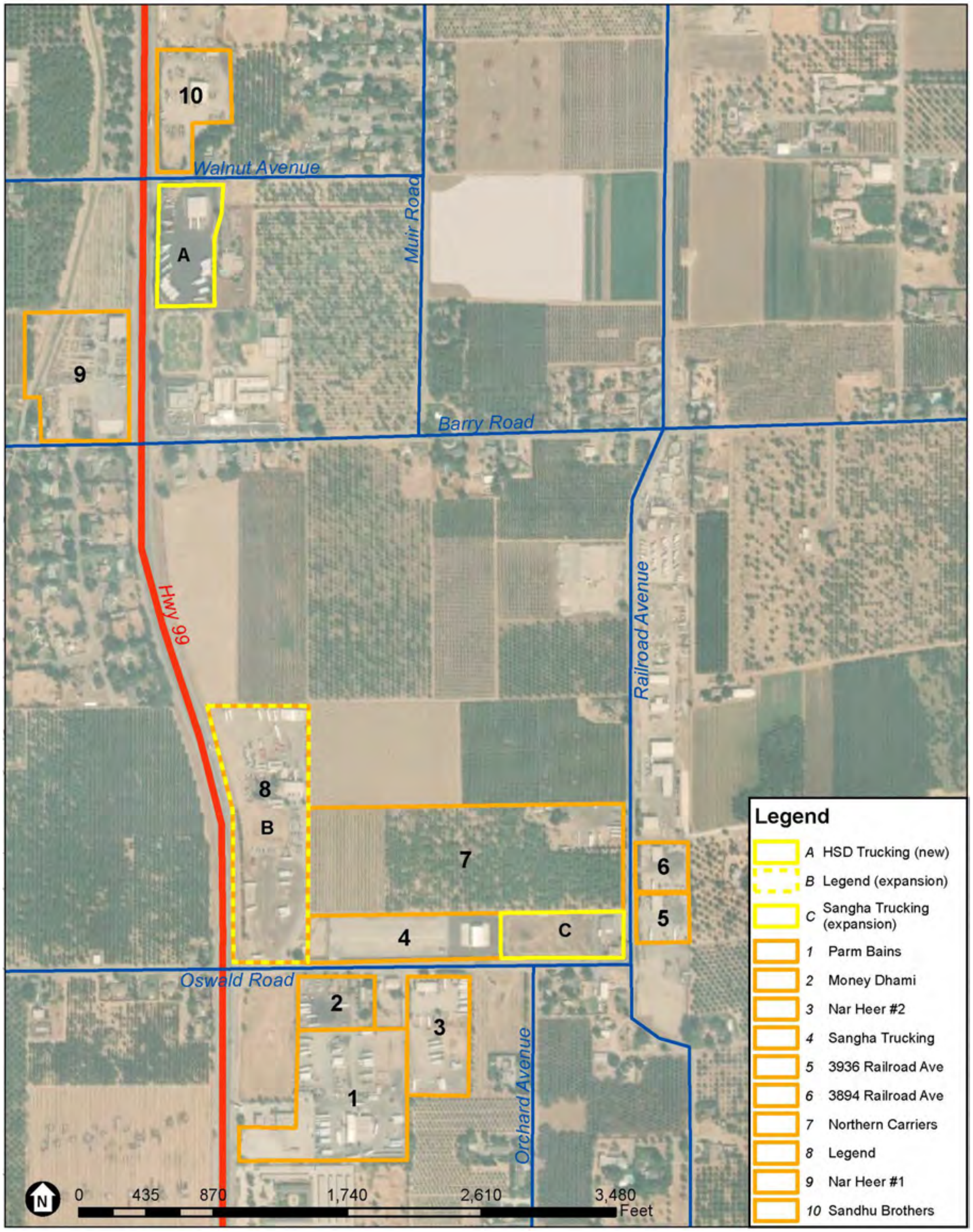

Figure 1-2
Locations of Existing and Proposed Sutter County Truck Yards

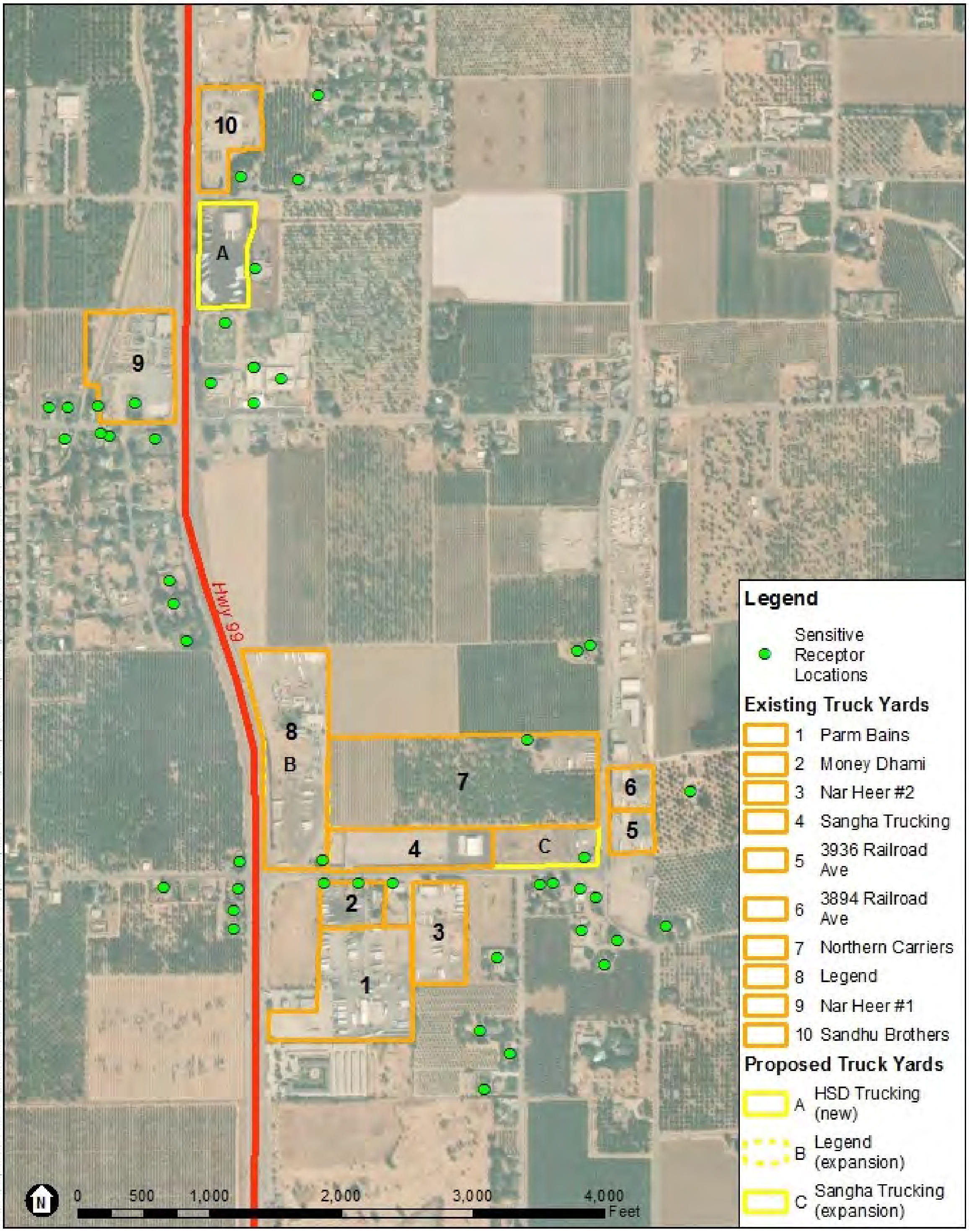

Figure 1-3
Sensitive Receptor Locations Near Existing and Proposed Sutter County Truck Yards

1.3 Truck Yards

1.3.1 Existing Yards

As part of the existing conditions analyses, truck yard operating conditions were compared to aspects of the permitted conditions contained in Sutter County Board of Supervisors approvals and permits to operate. **Table 1-1**, below, summarizes the projects consistency with the permit conditions related to permitted use, permitted number of trucks, permitted number of TRUs, parking requirements, and truck repair requirements. Additional permit conditions related to hours of operation, drainage and lighting requirements, site maintenance, and other applicable requirements listed in application approvals are included in **Attachment B,** *Existing Conditions and Permitted Operations Matrix.*

TABLE 1-1
EXISTING YARD CONSISTENCY WITH CONDITIONS OF APPROVAL[BS2]

Condition Type	Permit Conditions Approval	Yard Compliance Site Investigation Results
Sandhu Brothers		
Parking & Surfacing Requirements	Truck tractors and trailers shall be parked and truck morning operations shall be conducted in the northwest portion of the site between the maintenance shop and Highway 99.	Based on site photos and images available on Google Maps, trucks are parked are in the northwestern corner of the property. However, observations made by County staff indicate that some trucks and equipment are parked southeast of the onsite maintenance shop.
	All areas to be used for truck and other vehicle parking, accessways, and vehicle movements shall be graveled to reduce on-site dust emissions pursuant to Zoning Code Section 1500-8118(f)(2).	Photos taken during the site visit indicate that the northwestern portion of the site has been graveled. Information provided by County staff indicates that the driveway is paved.
	Street paving shall be required along the property frontage of Walnut Avenue… The new roadway shall consist of a 0.2' overlay and 8" of Class II AB for base. Reinforcing fabric shall be used under all street paving.	A Google Maps image from April 2019 shows that the driveway to the property and the street in front of the property has been paved. Information provided by County staff confirms this finding and indicates that the driveway is paved and in good condition, extending from Walnut Avenue to a point approximately 30 feet past the front gate of the yard.
Site Conditions	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	Tires and a materials stockpile were observed near the northern boundary of the site. No trash was noted during the site visit.
Nar Heer #1		
Permitted Number of Trucks	A maximum of 26 trucks and trailers can be parked on the property at any given time.	Ten trucks were observed on-site during the site visit.
Parking & Surfacing Requirements	Proposed parking lot area for truck driver's personal vehicles shall be located in the Southeast corner of the property, as shown on the site plan, and shall be paved in accordance with the requirements of Zoning Code Section 1500-20-080B.1.b. Required parking and circulation areas for industrial use types shall have paved surfacing based upon the recommendations of a geotechnical analysis for pavement thickness. At a	Parking area for personal vehicles was observed during the site visit in the southeastern corner of the site. It was not clear from observations made during the site visit where the truck trailers equipped with TRUs were parked. According to a Google Maps image from August 2019 and information provided by County staff, both

TABLE 1-1
EXISTING YARD CONSISTENCY WITH CONDITIONS OF APPROVAL[BS2]

Condition Type	Permit Conditions Approval	Yard Compliance Site Investigation Results
	minimum, these use types shall have 3.5 inches of asphalt concrete over 8 inches of class 2 aggregate base.	the parking area at the southern portion of the property and the driveway are paved.
	Truck trailers equipped with refrigeration units shall be parked on the east property line abutting State Highway 99, outside of the required landscape area and proposed parking lot area, as shown on approved site plan.	It is unclear based on site observations whether or not TRUs are parked solely along the eastern property line.
	The proposed commercial truck and trailer parking area shall be required to be maintained with gravel surfacing in accordance with County standards.	Based on Google Maps aerial photos, the site appears to be graveled. This finding was confirmed by County staff.
	Driveway entrance shall be paved.	According to a Google Maps image from August 2019, the driveway appears to be paved. This observation was confirmed by County staff.
Site Conditions	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	No debris was observed on the site during the site visit.
Legend Transportation		
Parking and Surfacing Requirements	All accessways and required parking areas, shall be improved with either 4 inches of Class 2 aggregate base or 7 inches of Butte Rock base with a 3/4-inch maximum grading requirement and such areas shall be paved with 2 inches of asphalt concrete with 1/2-inch grade requirement. This requirement is the minimum thickness required by the Zoning Code and is a requirement intended primarily for standard passenger vehicles, and should be increased to adequately accommodate heavy truck traffic and to avoid deteriorating over time. Driveway extending from the entrance at Oswald Road to the employee/customer parking lot areas shall be a minimum of 22 feet in width or wider to provide adequate area for trucks to safely pass each other and remain on the pavement while entering or exiting the property. The applicant shall add additional parking spaces to provide sufficient parking for all employee, driver, and customer vehicles parked on-site, separate from the truck parking area, and complying with the surfacing requirements noted above, so these vehicles are not parking on unpaved surfaces. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. Surfacing of the truck parking area shall be maintained with material sufficient to mitigate potential dust impacts to neighboring properties.	According to photos taken during the site visit, parking areas have not been graveled. Information provided by County staff indicates that a small parking lot adjacent to the existing building was paved and striped; however, most vehicles park in the unpaved, unmarked area south of the building/parking lot area. Based on a Google Maps image from April 2019, the driveway to the site has been paved; however, information provided by County staff indicates that the original paved driveway has been fenced off and does not extend to the paved customer parking lot adjacent to the existing building. Instead, the driveway to the site is gravel-surfaced. Based on a Google Maps image from May 2019, passenger cars are parked in the central eastern portion of the site, east of on-site office trailers and south of the existing maintenance building. This finding was confirmed by County staff. Observations made by County staff indicate that most vehicles onsite are parked on the unpaved, unmarked area south of the building/parking lot area.
	Driveway entrance shall be paved. The minimum width for a commercial driveway entrance is 35 feet.	Information provided by County staff indicates that the original paved driveway has been fenced off and does not extend to the paved customer parking lot adjacent to the existing building. Instead, the driveway to the site is gravel-surfaced.

TABLE 1-1
EXISTING YARD CONSISTENCY WITH CONDITIONS OF APPROVAL[BS2]

Condition Type	Permit Conditions Approval	Yard Compliance Site Investigation Results
Site Conditions	All required parking facilities shall be maintained, and kept free of litter and debris.	Debris and trash were observed along the northern boundary of the site during the site visit.
	The site including the caretaker mobile unit shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	
Northern Carriers		
Permitted Number of Trucks	Outdoor storage of a maximum of 11 truck tractors with trailers.	Six trucks were observed on-site during the site visit.
Site Conditions	The site shall be maintained in a clean condition and kept free of weeds, garbage, debris, salvage materials, and junk.	No junk, salvage materials, garbage, or debris were observed on-site.
3894 Railroad Avenue		
Other	All uses shall be conducted within a building or enclosed within a solid wall or fence of a type approved by the Planning Commission. No outdoor storage or activities will be permitted.	No outdoor storage was observed on-site.
3936 Railroad Avenue		
Other	All uses shall be conducted within a building or enclosed within a solid wall or fence of a type approved by the Planning Commission. No outdoor storage or activities will be permitted.	No outdoor storage was observed on-site.
Sangha Trucking		
Parking and Surfacing Requirements	All commercial trucks and trailers shall only be parked within the designated and screened truck parking area located at the western portion of the property. Employee vehicles shall be parked within the designated paved parking area located adjacent to the repair shop.	Based on Google Map images from April 2019, trucks and cars are parked to the west of the maintenance shop. It appears that passenger vehicles and heavy trucks are interspersed throughout the parking area. Information provided by County staff confirmed that trucks are parked to the west of the existing maintenance shop in the designated truck parking area. Although passenger automobiles are required to be parked within the paved parking area. County staff has indicated that this does not always occur and vehicles are parked next to where the trucks are parked since it is closer for the driver,
	All accessways and required parking areas shall be improved with either 4 inches of Class 2 aggregate base or 7 inches of Butte Rock base with a 3/4-inch maximum grading requirement and such areas shall be paved with 2 inches of asphalt concrete with one-half (1/2) inch grade requirement. This is the minimum thickness required by the Zoning Code, is a requirement intended primarily for standard passenger vehicles, and should be increased to adequately accommodate heavy truck traffic to avoid deteriorating over time. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. The designated employee parking spaces shall not be less than 9' x 18' in size and shall be provided	Automobile parking and circulation areas on-site are either graveled or paved. Information provided by County staff indicates that both driveways into the site are paved. The eastern driveway leads to the paved parking area around the maintenance shop, while the western driveway leads into the graveled truck parking area. It appears that automobile parking areas show striping.

TABLE 1-1
EXISTING YARD CONSISTENCY WITH CONDITIONS OF APPROVAL[BS2]

Condition Type	Permit Conditions Approval	Yard Compliance Site Investigation Results
	with a minimum 27' back up paved accessway in accordance with Zoning Code requirements.	
	The designated vehicle storage area (truck parking area) shall be surfaced and maintained with a minimum of 6inches of Class 2 aggregate base in accordance with Zoning Code Section 1500-8118(f)(2).	Based on site photos, it appears that parking areas on-site are either graveled or paved. Information provided by County staff confirmed that the truck parking area is graveled.
	Driveway entrance shall be paved. The minimum width for a commercial drive entrance is 35 feet.	Based on Google Maps image from April 2019 and site photos taken by the environmental consultant, the driveway of the site is paved. Information provided by County staff confirmed that both driveways into the site are paved.
Site Conditions	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and inoperable equipment.	Trash was observed on-site along the northern boundary of the site. In addition, there is a stockpile of tires and other materials near the maintenance building.
Other	There shall be no truck repairs conducted outside the proposed building.	Could not be determined based on information collected during the site visit.
	All trucks queuing for repair shall be parked on the truck parking area and shall not wait within or near the driveway to the south of the repair shop, facing Oswald Road.	Based on Google Maps images from April 2019, trucks awaiting repair are parked to the east of the repair shop and do not obstruct the driveway entrance to the site. This finding was confirmed by County staff.
Nar Heer #2		
Parking & Surfacing Requirements	All storage and parking of trucks shall occur behind the solid fencing.	Based on Google Maps images from April 2019, trucks are parked behind covered fencing and obscured from street view on Oswald Road by large trees. Observations made by County staff confirmed this finding.
	All parking spaces, truck parking areas, and maneuvering area shall be paved in accordance with Zoning Code Section 1500-8118 (f)(1).	According to information provided by the County, paved automobile parking areas are located onsite, adjacent to Oswald Road. The site plan included as Attachment A to the Board Staff Report from September 2008 for this yard shows paved parking along Oswald Road for automobiles but a "gravel" equipment yard in the back. Recent photos indicate that truck parking areas on the site may have been graveled in the past, but gravel is sparse.

TABLE 1-1
EXISTING YARD CONSISTENCY WITH CONDITIONS OF APPROVAL[BS2]

Condition Type	Permit Conditions Approval	Yard Compliance Site Investigation Results
Money Dhami		
Parking & Surfacing Requirements	All accessways and required parking areas, shall be improved with either four (4) inches of Class 2 aggregate base or seven (7) inches of Butte Rock base with a 3/4-inch maximum grading requirement and such areas shall be paved with 2 inches of asphalt concrete with one-half (1/2) inch grade requirement. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. Parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops.	Project site plans included in as an attachment to a 2008 Planning Commission Staff report show that the automobile parking area along Oswald Road would be paved, while the equipment yard South of the automobile parking lot would be graveled. Based on information provided by the County, automobile parking areas located between Oswald Road and the truck parking area have been paved. Based on site photos taken during the site visit, it appears that the site is graveled.
	Driveway entrance shall be paved. The minimum width for a commercial driveway entrance is 35 feet.	Based on Google Maps images from April 2019, the driveway to the site is paved. This finding was confirmed by County staff.
Site Conditions	Planting areas shall be kept free from weeds, debris, and undesirable materials which may be detrimental to safety, drainage or appearance.	No signs of trash/debris were noted during the environmental consultants site visit; however, observations made by County staff note that trash is sometimes present onsite and that tires are stored in two different locations within the truck yard. In addition, County staff indicate landscaping/mulch along the front of the site needs to be replaced and new bender board needs to be installed. Oleander along the west property line is in good shape but general weeding is needed.
	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	
	All required parking facilities including striping, handicapped parking, and bicycle parking areas shall be maintained, and kept free f litter and debris.	
Parm Bains		
Site Conditions	Planting areas shall be kept free from weeds, debris, and undesirable materials which may be detrimental to safety, drainage or appearance.	No signs of trash/debris were noted during the environmental consultants site visit.
	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	

NOTES:
For a more detailed list of permit conditions and compliance of existing yards, refer to Attachment B.

SOURCES:
Sutter County. *Conditions of Approval Project #05-009 – Harbajan Sandhu.* As approved by Board of Supervisors October 31, 2006.
Sutter County Development Services Department, 2017. *Board of Supervisors Agenda Item.* April 25, 2017.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* September 9, 2014.
Sutter County. *Conditions of Approval Project #05-089 – Northern Carriers.* As approved by the Board of Supervisors on September 19, 2006.
Sutter County Community Services Department, 2006. *Planning Application No. 06-055; Design Review for structures to be located on Assessor's Parcels 23-074-014 and -015.* October 31, 2006.
Sutter County Development Services Department, 2016. *Project #15-019, Design Review; 909 Oswald Road, approximately 375 feet east of State Highway 99, Yuba City, APN 23-072-039.* May 18, 2016.
Sutter County, 2011. *Board of Supervisors Agenda Item.* March 15, 2011.
Sutter County, 2008. *Board of Supervisors Agenda Item.* September 2, 2008.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* June 10, 2014.
Sutter County Development Services Department. *Board of Supervisors Agenda Item.* January 26, 2016.

Sandhu Brothers

Sandhu Brothers is a commercial trucking facility located on a 3.93-acre site on the northeast corner of Highway 99 and Walnut Avenue in Sutter County. The yard was permitted in 2006 when the Sutter County Board of Supervisors approved a general plan amendment to rezone the project from General Agriculture to Light Industrial; Combining Planned Development (M1:PD). The eastern portion of the site is used for truck repairs and includes 6,000 square foot building and a 2,500 square foot covered canopy as a repair shop; while the western half of the parcel is used for truck-trailer parking.

The permit application submitted to the County states that yard operations would accommodate ten truck-tractors and fifteen truck trailers to haul aggregate materials and agricultural commodities, which is consistent with the number of trucks that were observed on-site during the environmental consultant's site visit. To mitigate noise impacts, the yard operator is required to ensure that trucks are parked in the northwestern corner of the site, that hours of operation are limited, and that major vehicle maintenance be conducted within the warehouse facility.[2]

Nar Heer #1

The Nar Heer #1 truck yard operates on a 5.95-acre parcel located at 1325 Barry Road in Sutter County. On April 25, 2017, the Sutter County Board of Supervisors approved a design review for the property and a General Plan amendment to rezone the site from Agriculture (AG) to Light Industrial (M-1). The site includes a single-family residence along the southcentral border of the site; as well as an existing well drilling/pump business in the northwestern corner of the site.

Nearby uses include agricultural and residential development, with the Barry School and a Sutter County fire station located across Highway 99. In addition, there are existing industrial-zoned properties to the north and the south of the Nar Heer #1 truck yard.

As summarized in Table 1-1, above, the site is permitted for a maximum of 26 truck/trailer combinations, which is consistent with the ten trucks observed on-site during the environmental consultant's site visit. To mitigate noise impacts to the on-site residence, as well as a residence adjacent to the southwestern corner of the site, trucks equipped with TRUs are required to park near the eastern property line adjacent to Highway 99.[3]

Legend Transportation (Existing)

Legend Transportation is located at 1235 Oswald Road on an 11.89-acre lot in Sutter County. In 2014, the Sutter County Board of Supervisors approved a re-zone of the property from Commercial-Industrial (C-M) District to a Light Industrial (M-1) District and a design review to recognize a 6,737 square foot office/repair shop to be used as a commercial truck terminal. In addition, the Sutter County Board of Supervisors approved a Use Permit to allow an existing mobile home to remain as a caretaker unit in the northeastern corner of the site, located at 1285

[2] Sutter County Development Services Department, 2006. *Board of Supervisors Agenda Item.* October 31, 2006.
[3] Sutter County Development Services Department, 2017. *Board of Supervisors Agenda Item.* April 25, 2017.

Oswald Road, Sutter County, CA. Improvements to the existing building have increased the total usable building area to 7,429 total square feet.

In accordance with the Zoning Code, the site is subject to design requirements related to landscaping, lighting, screening, building design, and surfacing. At the time of the application, the applicant indicated to the County that operation of the yard would have a maximum of 20 employees on-site at any one time. The application also indicate that the as many as 50 to 75 trucks could be parked on-site, though the average maximum is likely to be 25 trucks/trailers parked on-site at any given time.[4]

Northern Carriers

Northern Carriers is a truck yard located at 3865 Railroad Avenue in Sutter County, California, and is permitted as an agricultural trucking terminal for trucks hauling agricultural products and canned goods. In September of 2006, the Sutter County Board of Supervisors approved the applicants request for a permit to operate the truck terminal on 1.5 acres of a 20-acre agricultural parcel.

The truck yard operation is permitted for outdoor storage of a maximum of 11 truck-tractors and trailers. According to the Planning Commission Staff Report prepared in 2006, the truck terminal area was [BS3]covered with 6 inches of gravel and has 11 on-site parking spaces for employee vehicles in addition to the truck-tractor and trailer parking spaces. During the environmental consultant’s site visit, six trucks were observed at the truck yard, consistent with the permit requirements.[5,6]

3894 Railroad Avenue & 3936 Railroad Avenue

In October 2006, the Sutter County Community Services Department, Planning Division approved a design review application for two identical repair buildings located at 3894 and 3936 Railroad Avenue. Truck parking is a permitted use under the Industrial zoning designation of these two sites.

At the time of the original design review applications, both of the yards were owned by Nar Heer. In 2019, Nar Heer leased the sites to other trucking firms. The yard at 3894 Railroad Avenue is now operating under the name JB Truck Repair, while the yard at 3936 is now operating under the name Truck World, Inc.

Allowable truck counts at these sites were not specified in the conditions of approval for these two sites. Observations by the environmental consultant during the site visits to the two properties

4 Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* September 9, 2014.
5 Sutter County Development Services Department, 2006. *Board of Supervisors Agenda Item.* September 19, 2006.
6 Sutter County, 2006. *Planning Commission Staff Report, Planning Commission Hearing May 17, 2006, Agenda Item #6.* May 17, 2006.

identified ten trucks and 13 trucks at 3894 Railroad Avenue and 3936 Railroad Avenue, respectively.[7]

Sangha Trucking (Existing)

The existing six-acre Sangha Trucking yard is located at 1055 Oswald Road in Sutter County, California. The yard is currently zoned as Light Industrial (M-1), and truck parking was a permitted use under that designation when the site was developed. In 2016, the Sutter County Development Services Department, Planning Division approved a design review application for a truck and trailer repair facility which includes a 6,500 truck repair shop building and a graveled truck waiting area. The truck repair building contains office space, reception area, and bathrooms, as well as light storage space located directly above the office. The site also includes 46 truck/trailer parking stalls as well as paved parking area for employee's personal vehicles. The yard currently operates from 8 AM to 5:30 PM Monday through Friday, from 8 AM to 1:30 PM on Saturdays, and is closed on Sundays.

Conditions of the design review approval require that commercial trucks and trailers are parked within the designated screened area in the western portion of the property, and that all truck repairs are completed within the repair building.[8] Other permit conditions associated with Sangha Trucking's operation are summarized in Table 1-1.

Nar Heer Yard #2

Nar Heer Yard #2 is located at 1104 Oswald Road on a 4.8-acre parcel, approximately two miles south of the City of Yuba City and its sphere of influence. The site is currently zoned Light Industrial (M-1) and is developed with a 4,000 square foot agricultural building used as a shop building and a gravel outdoor storage area which is used by the trucking company. During a site visit completed by the environmental consultant, approximately 30 trucks were identified on the site.

A General Plan Amendment, Rezoning and Design Review application to rezone the parcel from AG to M-1, was approved by the Sutter County Board of Supervisors in March 2011 and included various conditions of approval. These conditions include but are not limited to requirements that trucks are parked behind solid fencing; and that parking areas, truck parking areas, and maneuvering areas are surfaced in accordance with the requirements of Zoning Code Section 1500-8118 (f)(1). Other permit conditions that were included in the Sutter County Board of Supervisors Staff Report related to pollutant discharge and lighting are summarized in Attachment B. The approval does not specify a permitted number of trucks, number of TRUs, or hours of operation.[9]

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7 Sutter County Community Services Department, 2006. *Planning Application No. 06-055; Design Review for structures to be located on Assessor's Parcels 23-074-014 and -015.* October 31, 2006.

8 Sutter County Development Services Department, 2016. *Project #15-019, Design Review; 909 Oswald Road, approximately 375 feet east of State Highway 99, Yuba City, AON 23-072-039.* May 18, 2016.

9 Sutter County Development Services Department, 2011. *Project #05-024 (Heer) A General Plan amendment from AG-20 (Agriculture 20-acre minimums) to IND (Industrial) and a rezone from AG (General Agricultural) to M-1 (Light Industrial District) and design review for a 4.8-acre parcel. The project is located on the south side of Oswald Road approximately 800 feet east of Highway 99; 1104 Oswald Road; (APN 23-192-027).* March 15, 2011.

Money Dhami

The Money Dhami truck yard operates on a 2.2-acre parcel at 1186 Oswald Road in Sutter County, CA. In June 2014, the Sutter County Board of Supervisors approved a rezone of the property to Light Industrial (M-1), which is consistent with the truck yard use. The site is currently developed with four existing non-conforming residences, each with a garage/accessory building. An undeveloped area is located on the south portion of the property behind the residences. Observations made by the environmental consultant during a site visit identified approximately 23 trucks on-site. Surrounding land uses include truck terminals, the Oswald Market, and undeveloped land.

Allowable truck counts at the site were not included as part of the conditions of approval. However, in accordance with the Sutter County Board of Supervisors approval, the project is required to have a paved driveway entrance for truck turning movements, and meet material requirements for access-ways and required parking areas.[10] Additional conditions of approval required for the yard are presented in Attachment B.

Parm Bains

Parm Bains truck yard operates on 9.42 acres of a 12.1-acre site located 4142 Highway 99 in Sutter County. The site is zoned as Light Industrial with Combining Planned Development (M-1:PD) which is consistent with its current use as a truck terminal with an office, tire shop, truck scales, and truck parking area. Other existing uses on the site include gas and diesel fuel pumps and a convenience store. Aerial photos of the site from March 2019 indicated approximately 93 truck-tractors, 115 trailers (approximately 36 of which appeared to be equipped with TRUs), and 53 employee vehicles. These counts are consistent with observations made by the environmental consultant during a site visit in August 2020, which identified approximately 90 trucks on the site.

Conditions of approval were identified as part of the Sutter County Board of Supervisors January 2016 approval of an application for a General Plan amendment to rezone the property from General Commercial (C-2) to M-1. The conditions of approval include landscaping requirements, site maintenance requirements, and additional permit requirements, as summarized in Attachment B. In addition, the operations must continue to comply with the Conditions of Approval contained in previous applications, in particular DR#00-01 and DR#03-04.[11]

1.3.2 Proposed Truck Yards

HSD Trucking (New)

HSD Trucking is an existing, unpermitted truck yard operation on a 4.21-acre site located at 1280 Walnut Avenue in Sutter County. An application has been submitted to the County for a General Plan amendment from an Estate Residential (ER) to an Industrial (IND) land use designation, a

[10] Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* June 10, 2014.
[11] Sutter County Development Services Department, 2016. *Board of Supervisors Agenda Item.* January 26, 2016.

rezone from Estate Residential (ER) to Light Industrial (M-1), and a design review which would be consistent with the current trucking operation. In addition, a use permit is proposed to allow for a reduced agricultural buffer between adjacent agricultural uses and the project site.

Currently, the site operates as a truck yard with a 6,300 square foot on-site truck repair and maintenance shop. A future 1,440 square foot caretaker manufactured is proposed for the site. An aerial photograph of the project site taken in March 2019 shows approximately 56 truck-tractors, 51 trailers (15 of which appeared to be equipped with TRUs), and 15 employee vehicles. This is consistent with the observations made by the environmental consultant who reported approximately 45 trucks on-site in August 2020.

If approved, the proposed project would include operation of a maximum of 15 truck-trailers and a maximum of two TRUs on site at any one time. Truck parking areas would be surfaced with gravel and the area around the shop building would be paved for automobile parking. The proposed hours of operation for the truck yard are from 6:00 AM to 10:00 PM Monday through Saturday; however, the two TRUs may operate on-site at all hours of the day. The application submitted to the County states that a maximum of ten employees would work on-site, and the project would employ a maximum of 15 truck drivers. In accordance with zoning requirements, the proposed project would have to include landscaping.

Sangha Trucking (Expansion)

The proposed Sangha Trucking Expansion project would include construction and operational use of a four-acre parking area [CM4]adjacent to the existing Sangha Truck and Trailer Repair site. The proposed site is located at 3971 Railroad Avenue and 909 Oswald Road, while the existing yard operates at 1055 Oswald Road in Sutter County, California. An application has been submitted to the County to rezone the site from General Commercial (GC) to Light Industrial (M-1) and a design review for additional truck parking.

The site would provide additional gravel surfaced space for truck parking and would provide some paved automobile parking spaces for employee and truck driver's personal vehicles. In accordance with zoning requirements, the proposed project would have to include landscaping. The proposed expansion project would not include any new buildings or structures, but would demolish an existing home and commercial building on-site.

Legend Transportation (Expansion)

On June 6, 2019, The Planning Division of the Sutter County Development Services Department issued a notice of complete application submitted by Legend Transportation, Inc. for an 80 foot by 140 foot metal building which would include a shop area, general office space, drivers lounge, and parts storage.[12] The proposed expansion would allow for additional truck/trailer parking and

12 Sutter County Development Services Department (2019). *Re: Project #U-18-045; Design Review for additions to an existing general truck yards including proposed 80' x 140' metal building for shop area, office, driver's lounge, and parts storage; additional truck/trailer parking including parking for up to 84 truck-tractors; and additional employee vehicle parking. The project includes removal of two existing unpermitted modular buildings; located at 1235 Oswald Road, Yuba City; Assessor's Parcel 23-072-023.* June 6, 2019.

employee vehicle parking. In addition, the project improves the removal of two existing unpermitted modular buildings.

The altered parking layout would consist of parking stalls for on-site employees as well as drivers of truck/trailer units and would connect the existing parking area to the proposed area for an overall contiguous use. The proposed expansion would expand the truck/trailer parking area to the south of the existing building to accommodate a maximum of 84 truck-tractor units on the site.

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CHAPTER 2
Technical Analyses

2.1 Air Quality and Health Risk Assessment

This section describes the existing air quality in the project area and the surrounding region, details the associated regulatory setting, and presents an analysis of air quality impacts from existing truck yards as well as a cumulative analysis of air quality impacts, and human health risk assessment, from existing and proposed truck yards.

2.1.1 Environmental Setting

Existing air quality conditions in the project area are influenced by topography, meteorology, and climate, in addition to the types and quantities of emissions released by air pollutant sources.

Climate and Topography

The truck yards are located in Sutter County, which is located within the Sacramento Valley Air Basin (SVAB). Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. These mountain ranges channel winds through the air basin and act as barriers that inhibit the dispersion of pollutant emissions.

In the winter, temperatures average in the low 50s during the day and the upper 30s at night. During winter, north winds become more frequent, but winds from the south predominate. Rainfall occurs mainly from late October to early May, averaging approximately 20 inches per year, but varies substantially each year.[13]

In addition to the prevailing wind patterns that influence the rate at which local pollutant emissions disperse, Yuba and Sutter Counties experience two types of inversions that affect air quality. The first type of inversion layer contributes to photochemical smog conditions by confining pollution to a shallow layer near the ground. This condition occurs in the summer when sinking air forms a "lid" over the region. The second type of inversion occurs when the air near the ground cools while the air aloft remains warm. These inversions occur during winter nights and can cause localized air pollution "hot spots" near emission sources because of poor dispersion.[14]

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13 Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land use Projects Under the California Environmental Quality Act.* June 7, 2010. Available at https://www.fraqmd.org/ceqa-planning. Accessed May 29, 2020.

14 Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines: A Technical Guide to Assess the Air Quality Impact of Land use Projects Under the California Environmental Quality Act.* June 7, 2010. Available at https://www.fraqmd.org/ceqa-planning. Accessed May 29, 2020.

Air Pollutants of Concern

As required by the federal Clean Air Act of 1970, the U.S. Environmental Protection Agency (EPA) has identified six criteria air pollutants that are pervasive in urban environments and for which national and state health-based ambient air quality standards have been established. EPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public health– and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead are the six criteria air pollutants identified by EPA. In addition to these federally recognized criteria pollutants, California adds four State criteria pollutants: visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

Toxic Air Contaminants

TACs are airborne substances that can cause short-term (acute) or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects, either injury or illness. TACs include both organic and inorganic chemical substances. They may be emitted by a variety of common sources: gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. The main TAC of concern is DPM. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and DPM concentrations are higher near heavily traveled highways and rail lines with diesel locomotive operations.

Local Sources of Pollutants

The main sources of the above criteria pollutants and TACs in the area are the truck yards, existing traffic (trucks and passenger cars) traveling on Route 99, and agricultural operations. Diesel trucks and agricultural equipment emit predominantly NO_x and DPM. Agricultural operations are also a source of fugitive PM_{10} and $PM_{2.5}$. Background levels of criteria pollutants are available from monitoring stations throughout the state, and for the project area, are discussed and summarized in the section below. In order to show similar background data for TACs, some planning agencies have conducted large modeling studies to show risk levels for planning decisions.

Other Air District Background Risk Tools

The Sacramento Metropolitan Air Quality Management District (SMAQMD) maintains a background risk level tool called the Mobile Source Air Toxics (MSAT) tool. This is a web-based tool that shows modeled risk levels at varying distances from major freeways and roadways in the area.[15] In addition, the San Francisco Environmental Planning Department has modeled existing risk in its 2020 San Francisco Citywide Health Risk Assessment. This risk assessment defines areas with elevated risk levels as the Air Pollutant Exposure Zone (APEZ).[16] The Bay Area Air Quality Management District (BAAQMD) also provides an excel-based tool with which screening-level health risks can be calculated. The BAAQMD's Health Risk Calculator with

15 Sacramento Metropolitan Air Quality Management District (SMAQMD), 2020. *SMAQMD Mobile Sources Air Toxics Protocol Tool.* Available at http://sacramentorisk.azurewebsites.net/. Accessed November 2020.

16 San Francisco Planning, 2020. *Air Quality Community Risk Reduction Plan.* Available at https://sfplanning.org/air-quality-community-risk-reduction-plan. Accessed November 2020.

Distance Multipliers estimates and refines screen-level cancer risk, a non-cancer health hazard index, and $PM_{2.5}$ concentrations using emissions data from BAAQMD's permitting database.[17] These tools allow planners to consider background risk levels when making decisions on proposed new projects.

Existing Air Quality Conditions

Existing Ambient Air Quality

CARB operates two monitoring sites within the jurisdictional area of the FRAQMD. One site, located on Almond Street in Sutter County, can be considered indicative of air quality levels in the Yuba City–Marysville area. The second monitoring site is located on top of the South Butte in the Sutter Buttes mountain range, approximately 2,000 feet above the valley floor. This site is a special-purpose monitoring site, designed to record the transport of ozone from populated areas into the northern Sacramento Valley.

The Yuba City monitoring station is approximately four miles north of the northernmost truck yard, Sandhu Brothers, located at 1275 Walnut Avenue in Yuba City. The Yuba City monitoring station monitors ozone, NO_2, PM_{10}, and $PM_{2.5}$, which are the air pollutants of concern for the proposed project. **Table 2.1-1** shows a three-year summary of monitoring data (2017-2019) for these pollutants from the Yuba City monitoring station.

Sensitive Receptors

Degraded air quality does not affect every individual or group in the population in the same way. Some groups are more sensitive than others to adverse health effects caused by exposure to air pollutants, including the elderly, children, and those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease. Land uses such as schools, day care centers, hospitals, and nursing and convalescent homes are more sensitive than the general public to poor air quality because the population groups associated with these uses are more susceptible to respiratory distress. In addition, residential areas are more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods of time at home than elsewhere, with associated greater exposure to ambient air quality conditions.

Land uses adjacent to Sutter County truck yards include agriculture, open space, commercial, and residential uses. Sensitive receptors in the vicinity of the truck yard sites include various residential receptors as well as Barry Elementary School, which is located approximately 450 feet from the existing Nar Heer #1 yard, and 350 feet from the proposed HSD Trucking yard. Receptors in the vicinity of the truck yard sites that were modeled to determine health risks are shown in **Figure 1-3,** included in Chapter 1.

[17] Bay Area Air Quality Management District (BAAQMD), 2020. *Health Risk Calculator with Distance Multipliers.* March 6, 2020, revised Aril 3, 2020. Available at https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/baaqmd-health-risk-calculator-beta-4-0-xlsx.xlsx?la=en. Accessed November 2020.

TABLE 2.1-1
AIR QUALITY DATA SUMMARY (2014–2018) FOR THE YUBA CITY MONITORING STATION

Pollutant	Standard[a]	Monitoring Data by Year[b]		
		2017	2018	2019
Ozone				
Highest 1-Hour Average (ppm)	0.090 ppm	0.085	0.086	0.077
State Standard Exceedance Days		0	0	0
Highest 8-Hour Average (ppm)	0.070 ppm	0.074	0.072	0.070
State Standard Exceedance Days		2	1	0
National Standard Exceedance Days		2	1	0
NO_2				
Highest Hourly Average (ppm)	0.18 ppm	0.049	0.051	0.045
Measured Days over State Standard		0	0	0
PM_{10}				
Highest 24-Hour Average (µg/m^3)		145.5	339.6	81.9
Measured Days over National Standard	150 µg/m^3	0	8	0
Measured Days over State Standard	50 µg/m^3	19	40	27
State Annual Average (µg/m^3)	20 µg/m^3	21.8	–	23.3
$PM_{2.5}$				
Highest 24-Hour Average (µg/m^3)	35 µg/m^3	47.2	285.0	39.3
Measured Days over National Standard		2	8	2
State Annual Average (µg/m^3)	12 µg/m^3	11.9	18.1	8.4
National Annual Average (µg/m^3)	12 µg/m^3	9.2	10.2	8.4

NOTES:
µg/m^3 = micrograms per cubic meter; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; ppm = parts per million

a Generally, State standards and national standards are not to be exceeded more than once per year.
b "—" indicates that data are not available.

SOURCE:

California Air Resources Board (CARB), 2020. *iAdam: Air Quality Data Statistics: Top 4 Summary.* Available at https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed May 29, 2020.

2.1.2 Regulatory Setting

Federal

National Ambient Air Quality Standards

The national ambient air quality standards (NAAQS) are intended to protect public health and welfare and specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. Under the 1990 federal CAA Amendments, the U.S. EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant standard, based on whether or not the NAAQS have been achieved. The CAA Amendments define "unclassified" as any area that cannot be classified, based on available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. **Table 2.1-2** presents the current NAAQS and briefly describes the principal sources for each pollutant. California has adopted its own air quality standards (California Ambient Air Quality Standards [CAAQS]), also identified in Table 2.1-2, which are discussed further below. **Table 2.1-3** shows the Sutter County attainment status for both the NAAQS and the CAAQS.

TABLE 2.1-2
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS AND MAJOR SOURCES

Pollutant	Averaging Time	National Standard	State Standard	Major Pollutant Sources
Ozone	1 hour	–	0.09 ppm	On-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
	8 hours	0.070 ppm	0.070 ppm	
CO	1 hour	35 ppm	20 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours [1]	9 ppm	9.0 ppm	
NO_2	1 hour	100 ppb	0.18 ppm	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual average	0.053 ppm	0.030 ppm	
SO_2	1 hour	75 ppb	0.25 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	0.5 ppm [2]	–	
	24 hours	0.14 ppm	0.04 ppm	
	Annual average	0.030 ppm	–	
PM_{10}	24 hours	150 $\mu g/m^3$	50 $\mu g/m^3$	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual average	–	20 $\mu g/m^3$	
$PM_{2.5}$	24 hours	35 $\mu g/m^3$	–	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; also formed from photochemical reactions of other pollutants, including NO_X, SO_X, and organics.
	Annual average	12.0 $\mu g/m^3$	12 $\mu g/m^3$	
Lead	Monthly average	–	1.5 $\mu g/m^3$	*Present sources:* Lead smelters, battery manufacturing and recycling facilities. *Past source:* Combustion of leaded gasoline.
	Quarterly	1.5 $\mu g/m^3$	–	
Hydrogen Sulfide	1 hour	None	0.03 ppm	Geothermal power plants, petroleum production and refining.
Sulfates	24 hours	None	25 $\mu g/m^3$	The reaction of SO_2 in the air.
Visibility-Reducing Particles	8 hours	None	Extinction of 0.23/km; visibility of 10 miles or more	See $PM_{2.5}$.
Vinyl Chloride	24 hours	None	0.01 ppm	Polyvinyl chloride and vinyl manufacturing.

NOTES:

$\mu g/m^3$ = micrograms per cubic meter; CO = carbon monoxide; km = kilometer; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; ppb = parts per billion; ppm = parts per million; ROG = reactive organic gases; SO_2 = sulfur dioxide; SO_X = oxides of sulfur.

1 A more stringent 8-hour CO state standard exists around Lake Tahoe (6 ppm).
2 Secondary national standard.

SOURCES: CARB, 2009, 2016

TABLE 2.1-3
CRITERIA POLLUTANT ATTAINMENT STATUS FOR THE PROJECT AREA

Pollutant and Averaging Time	Designation/Classification	
	Federal Standards	**State Standards**
Ozone (1-hour)	--	Nonattainment
Ozone (8-hour)	Moderate Nonattainment (South Sutter); Marginal Nonattainment (Sutter Buttes); Attainment (remainder of FRAQMD)	Nonattainment
NO_2	Attainment	Attainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Maintenance (Yuba City-Marysville NAA); Attainment (Remainder of Yuba County)	Attainment

NOTES:

CO = carbon monoxide; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter that is 2.5 microns or less in diameter; PM_{10} = particulate matter that is 10 microns or less in diameter; SO_2 = sulfur dioxide

SOURCE: FRAQMD, 2019.

State

California Ambient Air Quality Standards

At the state level, CARB oversees California air quality policies and regulations. California had adopted its own air quality standards referred to as the CAAQS, shown in Table 2.1-3. Most of the California ambient standards tend to be at least as protective as NAAQS and are often more stringent.

In 1988, California passed the California Clean Air Act (CCAA) (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or non-attainment, but based on state ambient air quality standards rather than the federal standards. If an air basin (or portion thereof) exceeds the CAAQS for a particular criteria air pollutant, it is considered to be in non-attainment of that criteria air pollutant standard until the area can demonstrate compliance. As indicated in Table 2.1-4, the FRAQMD is classified as non-attainment for the 8-hour ozone, 1-hour ozone, and PM_{10} state standards; and portions of the FRAQMD are classified as non-attainment for the federal 8-hour ozone standard.

Toxic Air Contaminants

TACs are regulated differently than criteria air pollutants at both the federal and State levels. At the federal level, these pollutants are called “hazardous air pollutants.” California’s list of TACs identifies 243 substances and the federal list of hazardous air pollutants identifies 189 substances.

The California Air Resources Board (CARB) identified DPM as a TAC in 1998, based primarily on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic and carcinogenic. The risk from DPM, as determined by CARB, declined from 750 in one million in

1990 to 540 in one million in 2000, but still remains the highest risk to California's ambient air quality.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Further regulations of diesel emissions by the CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-road Diesel Vehicle Regulation, and the New Off-road Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment.

In 2004, CARB adopted a measure to limit idling of diesel-fueled commercial motor vehicles. Heavy-duty diesel vehicles with a Gross Vehicle Weight Rating of 10,000 pounds or heavier are prohibited from idling for more than 5 minutes within California's borders. Exceptions to the rule apply for certain circumstances.

Local

Feather River Air Quality Management District Guidelines

FRAQMD is the regional agency tasked with regulating the air quality of Sutter and Yuba Counties through federal, State, and local air quality management programs. Specifically, FRAQMD conducts monitoring, evaluation, and education programs; implements control measures to reduce emissions from stationary sources; issues permits for and inspects pollution sources; enforces air quality regulations; and supports and implements measures to reduce emissions from motor vehicles.

2.1.3 Analysis and Recommendations

Analysis Criteria

The FRAQMD has developed significance thresholds to help lead agencies determine whether a project may have a significant air quality impact. Projects with emissions that would exceed the significance thresholds would have a potentially significant adverse impact on air quality. **Table 2.1-4** presents the applicable FRAQMD thresholds of significance for criteria pollutant emissions. However, the FRAQMD has not developed thresholds of significance for health risks; therefore, risk thresholds developed by nearby air districts were used for this analysis. **Table 2.1-5** lists thresholds of significance for health risk from two other northern California air districts for reference: the SMAQMD and the [BS5]BAAQMD.

TABLE 2.1-4
FRAQMD MASS EMISSIONS THRESHOLDS OF SIGNIFICANCE

	NO_x	ROG	PM_{10}
Construction	25ppd, not to exceed 4.5tpy[a]	25ppd, not to exceed 4.5tpy[a]	80ppd
Operation	25ppd	25ppd	80ppd

NOTES:

a NO_x and ROG construction emissions may be averaged over the life of the project, but may not exceed 4.5 tpy. tpy=tons per year; ppd=pounds per day

SOURCE: Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines; Chapter 3: Thresholds of Significance.* June 7, 2020. Available at https://www.fraqmd.org/files/658e76309/Chapter+3.pdf. Accessed September 2, 2020.

TABLE 2.1-5
BAAQMD/SMAQMD HEALTH RISK THRESHOLDS OF SIGNIFICANCE

Thresholds of Significance	Cancer Risk	Hazard Index
SMAQMD		
Individual Project	10	1.0
Cumulative	N/A	N/A
BAAQMD		
Individual Project	10	1.0
Cumulative	100	10.0

NOTES:

a NO_x and ROG construction emissions may be averaged over the life of the project, but may not exceed 4.5 tpy. tpy=tons per year; ppd=pounds per day

SOURCE: Sacramento Metropolitan Air Quality Management District (SMAQMD), 2020. *SMAQMD Thresholds of Significance Table, CEQA Guide.* December 2009, Revised November 2014, May 2015, April 2020. Available at http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf. Accessed November 10, 2020.

Bay Area Air Quality Management District (BAAQMD), 2017. *California Environmental Quality Act Air Quality Guidelines.* May 2017. Available at https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed November 2020.

Methodology and Assumptions

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operations. The ten existing truck yards are already in operation, and therefore, no construction impacts would be associated with these yards. In addition, the proposed HSD Trucking is already operating, but without a permit, and would therefore not include a construction phase following approval. Construction emissions resulting from the proposed expanded truck yards include ozone precursors ROG and NO_x, fugitive dust (PM_{10}), and diesel exhaust (DPM, assuming equal to exhaust PM_{10}). Under operations (long-term), the yards result in emissions associated with truck trips as well as use of transport refrigeration units (TRUs).

Criteria Pollutant Emissions Estimates

Operation of ten existing truck yards results in emissions of criteria air pollutants including ozone precursors (ROG and NO_x), PM_{10}, and $PM_{2.5}$ from vehicle trips, truck trips, and operation of TRUs. Operational emissions from trucks and passenger vehicles were calculated for each of the existing truck yards using emission factors obtained from CARB's EMFAC2017 v1.0.3 database. Emissions from the operation of TRUs on-site were calculated using emission factors from CARB's OFFROAD ORION v1.0.1 database. Emissions for each yard are based on approximate number of trucks and passenger vehicles traveling to and from the site each day, as well as the approximate number of TRUs that would be operating on-site. Trip generation rates and VMT estimates were obtained from multiple sources including truck yard operators, the Traffic Analysis completed by Fehr & Peers (see Attachment A), and truck yard applications submitted to the County. Where specific information was not available, assumptions were made based on operational information relative to the other truck yard sites. See Appendix A for detailed modeling assumptions.

Construction emissions associated the proposed Sangha Trucking Expansion project and the Legend Transportation Expansion project were estimated using CalEEMod version 2016.3.2. CalEEMod inputs included land uses and project size; and where project-specific information was not available, CalEEMod defaults were used. As discussed in Chapter 1, the proposed HSD Trucking site has not yet been permitted by the County but is operating under a use that is inconsistent with its current land use and zoning designation. Therefore, if the proposed HSD Trucking yard is approved, it would not include a construction phase and would not generate construction emissions.

Toxic Air Contaminants

Emissions of TACs generated from operation of the existing ten truck yards results primarily from the operation of heavy-duty diesel trucks and operation of TRUs. The health risk resulting from exposure to DPM emissions from operation of the existing yards and operation under the cumulative scenario (existing plus proposed yards) was evaluated using air emission and dispersion modeling software. A HRA was conducted that evaluated the risks to nearby residences (sensitive receptors) along Railroad Avenue, Oswald Road, and SR 99 from exposure to TACs associated with the operation of the truck yards. The HRA uses conservative assumptions to provide an analysis that is most protective of human health. If predicted risks are found to be less than significance thresholds for these closest sensitive receptors, risks at other sensitive receptors farther from the proposed project site (e.g. Barry Elementary School) would be even lower and also less than significance thresholds.

As discussed above, DPM emissions would be generated by the operation of off-road construction equipment (e.g., excavators, loaders, cranes, graders) and on-road diesel heavy-duty vehicles and TRUs. The inhalation pathway is the dominant exposure pathway from DPM for both cancer risk and chronic non-cancer health effects. Consequently, the HRA prepared for the proposed project only evaluates the inhalation cancer and chronic non-cancer effects of DPM inhalation.

A three-step process was used to estimate cancer risks and chronic health hazards of DPM exposure. The first step involved estimating average annual DPM emissions using trip rates, estimated number of TRUs, and EMFAC2017 and OFFROAD emission factors.

The second step involved using the EPA-approved AERMOD (version 19191) dispersion model to calculate annual average ground-level concentrations of DPM at the sensitive receptor locations. AERMOD is a regulatory dispersion model developed by the American Meteorological Society and EPA for evaluation of pollutant concentrations from a variety of source types. This is described further, below.

AERMOD was used to estimate DPM concentrations that would result from operation of the existing yards as well as the cumulative scenario (existing plus proposed yards) from the construction of the proposed yards and operation of the existing and proposed yards, as discussed above. Model inputs include source sizes, locations, and operating activity, sensitive receptor locations, terrain elevations, and local, monitored meteorological data.

For this project, the following sources were used to conservatively represent the construction, operational, and haul truck activities at each of the proposed expansion sites and existing sites:

- On-site construction equipment within the project sites modeled as rectangular area sources.
- Off-site haul trucks transporting and[BS6] delivering import material including gravel and asphalt, modeled as a series of areas sources along Route 99 and Oswald Road.
- On-site parking and TRU operation, modeled as a rectangular area source.
- Off-site, on-road heavy trucks traveling to each of the truck yards, modeled as a series of areas sources along Route 99 and Oswald Road.

The above sources were modeled with an emission rate of one gram per second to determine the dispersion factor (unit concentration) occurring at the nearest residences, which are located along Oswald Road, between South Walton Avenue and Railroad Avenue; along Railroad Avenue, between Barry Road and Oswald Avenue; and along Orchard Avenue. These receptors are located nearest the high density truck yard area. Additional locations were modeled in case there could be a sensitive receptor present including a residence adjacent to the entitlement area on the Norther Carriers yard, a residence adjacent to the proposed Sangha Trucking expansion yard, and a residence to the east of the yards at 3894 Railroad Avenue and 3936 Railroad Avenue; as well as residences along Highway 99, Barry Road, Railroad Avenue, and Walnut Avenue. In addition, the Barry school is located on the northern side of Barry Road, just east of Highway 99, near the Nar Heer #1 yard and the proposed HSD Trucking yard which is already operational. The DPM concentration was calculated using this dispersion factor and annual DPM average emissions from CalEEMod, EMFAC2017, and OFFROAD.

The third step in evaluation of health risk used the calculated DPM concentration together with health risk factors and equations developed by the Office of Environmental Health Hazard Assessment (OEHHA). The OEHHA methodologies are used to calculate the potential cancer risk and chronic health hazard from the project's construction and operational activities over a 30-

year period.[18] Modeling assumptions and output, OEHHA equations, and the health impact calculations are detailed in Appendix A.

Analysis

Mass Criteria Pollutant Emissions

Existing Truck Yard Operation

Operational emissions of ROG, NO_x, and PM_{10} were calculated for each of the existing yards using estimated trip generation rates, estimated number of TRUs on-site, and emission factors from EMFAC2017 and OFFROAD databases. Emissions from existing truck yard operations are summarized in **Table 2.1-6,** below. Operational emissions associated with each of the truck yards were then compared to the FRAQMD operational thresholds of significance for operational emissions.

TABLE 2.1-6
OPERATIONAL EMISSIONS FROM EXISTING YARDS

	Emissions (ppd)		
Truck Yard	**ROG**	**NO_x**	**PM_{10}**
Sandhu Brothers	0.75	9.32	1.93
Nar Heer #1	0.38	5.79	0.79
Legend Transportation	4.35	**48.40**	12.34
Northern Carriers	0.27	3.60	0.63
3894 Railroad Avenue	0.41	5.87	0.91
3936 Railroad Avenue	0.53	7.64	1.18
Sangha Trucking	2.40	**30.11**	5.24
Nar Heer #2	1.22	17.70	2.75
Money Dhami	0.91	13.80	1.71
Parm Bains	3.45	**51.09**	8.37
FRAQMD Thresholds	25	25	80
Exceeds Threshold?	No	**Yes**	No

SOURCE:
Appendix A.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* June 7, 2010. Available at https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf. Accessed September 3, 2020.

As shown in Table 2.1-6, operations of seven of the existing truck yards do not exceed the FRAQMD thresholds of significance for NO_x, ROG, or PM_{10}. However, NO_x emissions from Legend Transportation, Sangha Trucking, and Parm Bains would exceed the FRAQMD threshold of 25 pounds of NO_x per day. Furthermore, when emissions from the existing truck yards

[18] Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program – Risk Assessment Guidelines*, February 2015.

are combined, cumulative NO_x emissions would exceed the FRAQMD thresholds of significance at 193.32 pounds of NO_x per day. Existing cumulative emissions of ROG and PM_{10} would be 14.67 pounds per day and 35.85 pounds per day, respectively, and would not exceed the applicable thresholds.

Proposed Truck Yards

Construction emissions associated with each of the expanded truck yards were estimated using CalEEMod version 2016.3.2. Construction emissions from each of the expanded yards are summarized and compared to the FRAQMD construction thresholds of significance in **Table 2.1-7.**

TABLE 2.1-7
CONSTRUCTION EMISSIONS FROM PROPOSED YARDS

Truck Yard[c]	Emissions				
	ROG[a] (ppd)	ROG (tpy)	NO_x [a] (ppd)	NO_x (tpy)	PM_{10}[b] (ppd)
HSD Trucking (New) (Construction)	0	0	0	0	0
Sangha Trucking Expansion (2021 Construction)	2.60	0.08	8.62	0.41	7.85
Legend Transportation Expansion (2021 Construction)	2.40	0.25	21.71	2.28	20.61
Legend Transportation Expansion (2022 Construction)	7.67	0.27	11.93	0.41	2.01
FRAQMD Thresholds	25	4.5	25	4.5	80
Exceeds Threshold?	No	No	No	No	No

NOTES:
a Average daily emissions
b Maximum daily emissions
c FRAQMD thresholds of significance are based on annual emissions. Therefore, emissions are reported by construction year. Construction of the Sangha Trucking Expansion Project would take place entirely in 2021, while construction of the Legend Transportation Expansion Project would take place in both 2021 and 2022.

SOURCES:
ESA, 2020.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* June 7, 2010. Available at https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf. Accessed September 3, 2020.

Construction of each of the proposed yards would not generate emissions of criteria pollutants that would exceed the FRAQMD construction thresholds of significance if considered separately. However, if construction of the proposed Sangha Trucking Expansion project and the proposed Legend Transportation Expansion project were to take place at the same time, construction activity would result in emissions of approximately 30 pounds of NO_x per day, which would exceed the FRAQMD daily NO_x threshold of 25 pounds.

Similar to emissions from operation of the existing truck yards, emissions of ROG, NO_x, and PM_{10} from operation of the proposed truck yards were calculated based on estimated trip generation rates, estimated number of TRUs on-site, and emission factors from EMFAC2017 and OFFROAD databases. Operational emissions from HSD Trucking were based on estimated truck trips, passenger trips, and operational on-site TRUs that would occur under permitted operating conditions. Currently, HSD Trucking is operating at a capacity much higher than what is proposed for the site; therefore, actual existing emissions from HSD trucking are likely to be higher than what was estimated in this analysis. **Table 2.1-8** presents a summary of operational emissions associated with each of the proposed yards compared to the FRAQMD thresholds of significance for project operations.

TABLE 2.1-8
OPERATIONAL EMISSIONS FROM PROPOSED YARDS

Truck Yard	Emissions (ppd)		
	ROG	**NO_x**	**PM_{10}**
HSD Trucking	0.69	9.12	1.71
Sangha Trucking Expansion	0.73	5.68	1.79
Legend Transportation Expansion	2.74	**29.67**	7.92
FRAQMD Thresholds	25	25	80
Exceeds Threshold?	No	**Yes**	No

NOTES:
a Average daily emissions
b Maximum daily emissions

SOURCES:
ESA, 2020.
Feather River Air Quality Management District (FRAQMD), 2010. *Indirect Source Review Guidelines, Chapter 3: Thresholds of Significance.* June 7, 2010. Available at https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf. Accessed September 3, 2020.

As shown in Table 2.1-8, operation of the proposed HSD Trucking and the proposed Sangha Trucking Expansion would not generate emissions that would exceed the FRAQMD thresholds of significance for project operations. However, operation of Legend Transportation Expansion would generate daily emissions of NO_x that would exceed the FRAQMD threshold of 25 pounds per day.

Cumulative Scenario – Existing Plus Proposed Yards

The cumulative emissions that would result from operation of all the existing yards, proposed yards, and proposed expansions would exceed the FRAQMD thresholds of significance for NO_x. Cumulative operations would result in emissions of 237.8 pounds of NO_x per day. Cumulative activities would not exceed the thresholds for ROG and NO_x, as operation of existing and proposed yards would result in emissions of 18.83 pounds per day of ROG and 47.27 pounds per day of PM_{10}.

Health Risk Assessment

Exposure of sensitive receptors to potential health risks were analyzed based on estimated DPM emissions during operation of existing truck yards and construction and operation of proposed new and expanded truck yards. Health risks include increased cancer probability (expressed as chances per million) and chronic health hazard index, which is a measure of long-term, non-cancer health effects. Health risks were evaluated starting with the construction period and extending to 30 years of operations, as health risk accumulates over the period of exposure to pollutants. Existing Truck Yards

Table 2.1-9 identifies the maximum cancer risk per million and chronic hazard index for sensitive receptors in the vicinity of the project site due to current truck yard operations. Cancer risk and chronic hazard index are reported for the maximally exposed individual resident (MEIR). The cancer risk to the MEIR from DPM emissions from operation of the ten existing truck yards is estimated to result in a maximum cancer risk of approximately 101.4 in one million and a chronic hazard index of 0.04. The MEIR is a resident located on the south side of Oswald Road between Route 99 and Orchard Avenue[BS7]. This analysis is considered a cumulative analysis, as it evaluates risk from several truck yards as opposed to one individual source of DPM. This risk would exceed the cumulative risk threshold of 100 in one million, as recommended by the BAAQMD (Table 2.1-5 above). The FRAQMD does not have any risk thresholds, so the BAAQMD threshold is used as a surrogate. The chronic hazard index would not exceed the BAAQMD threshold of 10.0.

TABLE 2.1-9
MAXIMUM CANCER RISK AND HAZARD INDEX AT THE MEIR FROM EXISTING TRUCK YARDS

Sensitive Receptor	Maximum Cancer Risk (in one million)	Chronic Hazard Index
MEIR - South side of Oswald Road between Route 99 and Orchard Avenue	**101.4**	0.04
Maximum Cumulative Cancer Risk and Hazard Index Threshold (BAAQMD)	100	10.0
Exceeds Threshold?	**Yes**	No

NOTE: See Appendix C for the Health Risk Assessment calculations.

Proposed Truck Yards

During construction of the proposed new and expanded truck yards, DPM emissions would be generated from use of heavy duty construction equipment and from worker trips, vendor trips, and haul trips to and from the proposed sites. To represent the most conservative emissions scenario, it was assumed that construction of each of the proposed and expanded yards would occur simultaneously. **Table 2.1-10**, below, summarizes cancer risk and chronic hazard index that would occur at the MEIR located adjacent to Route 99, south of Walnut Avenue. The modeled cancer risk exceeds the BAAQMD and SMAQMD risk thresholds for individual projects (Table 2.1-5).

TABLE 2.1-10
MAXIMUM INCREASE IN CANCER RISK AND HAZARD INDEX AT THE MEIR FROM CONSTRUCTION OF PROPOSED TRUCK YARDS

Sensitive Receptor	Maximum Cancer Risk (in one million)	Chronic Hazard Index
MEIR - Southwest corner of Route 99 and Barry Road	15.2	0.01

Maximum Individual Cancer Risk and HI Threshold	10	1.0
Exceeds Threshold?	Yes	No

NOTE: See Appendix C for the Health Risk Assessment calculations.

Cumulative Scenario – Existing Plus Proposed Yards

Following construction of the proposed new and expanded yards, operations of the proposed yards would contribute to the existing health risk discussed above. A cumulative scenario was modeled to determine the health risk of existing operations plus proposed operations. Emissions of DPM would be generated under the cumulative scenario from truck trips and use of diesel-fueled TRUs. **Table 2.1-11,** below, presents the maximum cancer risk and the maximum chronic hazard index at the MEIR in the vicinity of the truck yard sites (a residence on the south side of Oswald Road just east of Route 99). The maximum cancer risk was modeled to be 108.6 in one million, and the maximum chronic hazard index was modeled to be 0.04. The modeled cancer risk exceeds the BAAQMD cumulative threshold at the MEIR; the maximum chronic hazard index would not exceed the BAAQMD threshold of 10.0.

TABLE 2.1-11
MAXIMUM INCREASE IN CANCER RISK AND HAZARD INDEX FOR SENSITIVE RECEPTORS FROM OPERATION UNDER THE CUMULATIVE SCENARIO

Sensitive Receptor	Maximum Cancer Risk (in one million)	Chronic Hazard Index
MEIR – Southside of Oswald Road just East of Route 99	108.6	0.04
Maximum Cumulative Cancer Risk and Hazard Index Thresholds (BAAQMD)	100	10.0
Exceeds Threshold?	Yes	No

NOTE: See Appendix C for the Health Risk Assessment calculations.

Summary

The existing Sutter County truck yards within the study area generate criteria pollutant emissions during operations from vehicle trips, truck trips, and operation of trucks equipped with TRUs. Emissions of NO_x from the Legend Transportation, Sangha Trucking, and Parm Bains yards exceed the FRAQMD operational thresholds of significance. When existing emissions from the truck yards are combined, emissions of NO_x exceed the significance thresholds, while emissions of ROG and PM_{10} would not exceed the FRAQMD thresholds for operational emissions.

Construction and operation of the proposed new truck yard and proposed two yard expansions would generate additional criteria pollutant emissions. When operational emissions from the proposed yards are considered in the cumulative scenario with emissions from the existing ten truck yards, emissions exceed the FRAQMD thresholds of significance for NO_x. Therefore, ESA recommends that the County consider implementing measures, such as those included in this report, to reduce emissions associated with the existing truck yards.

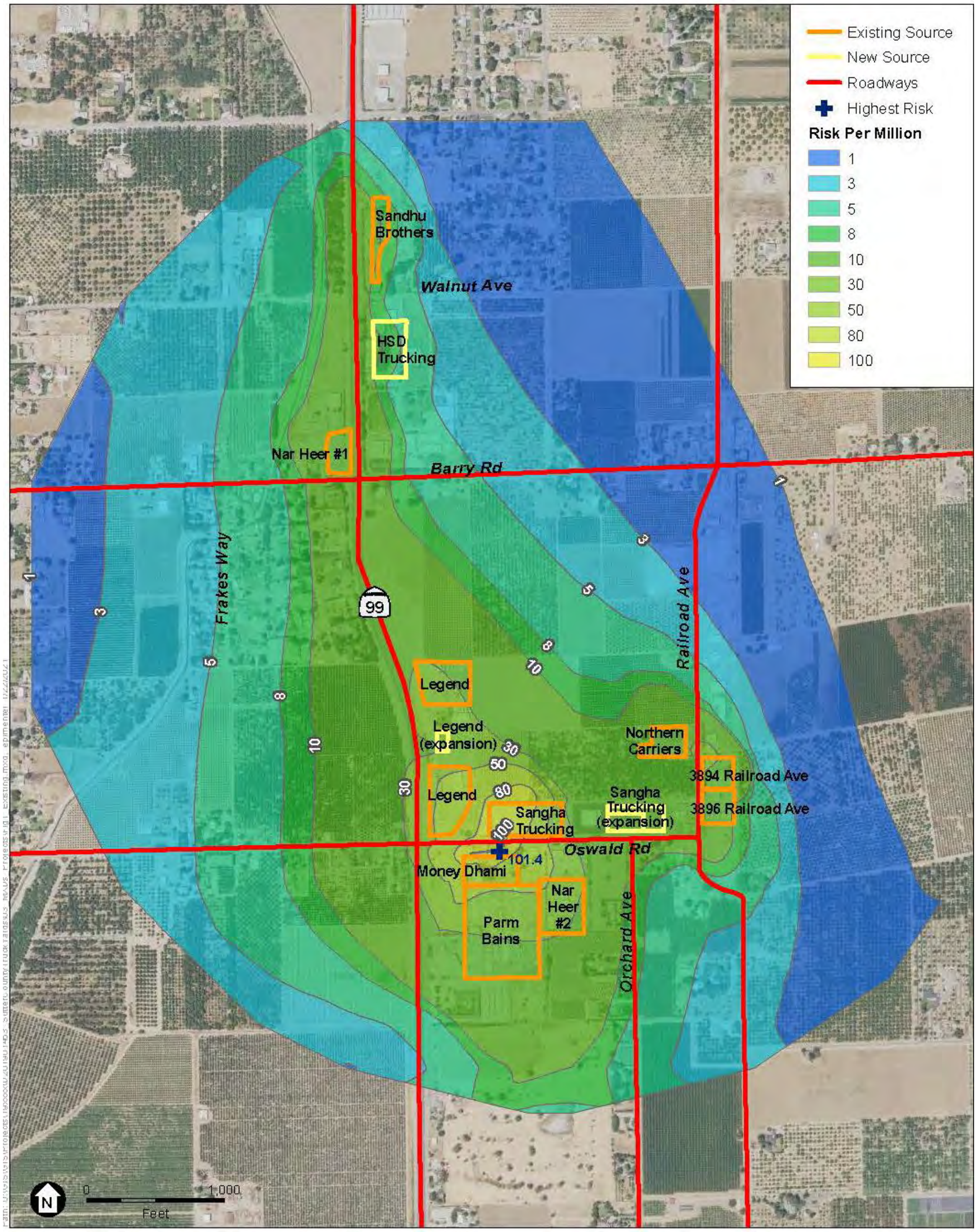

Figure 2.1-1
Health Risk Isopleth from Existing Yards

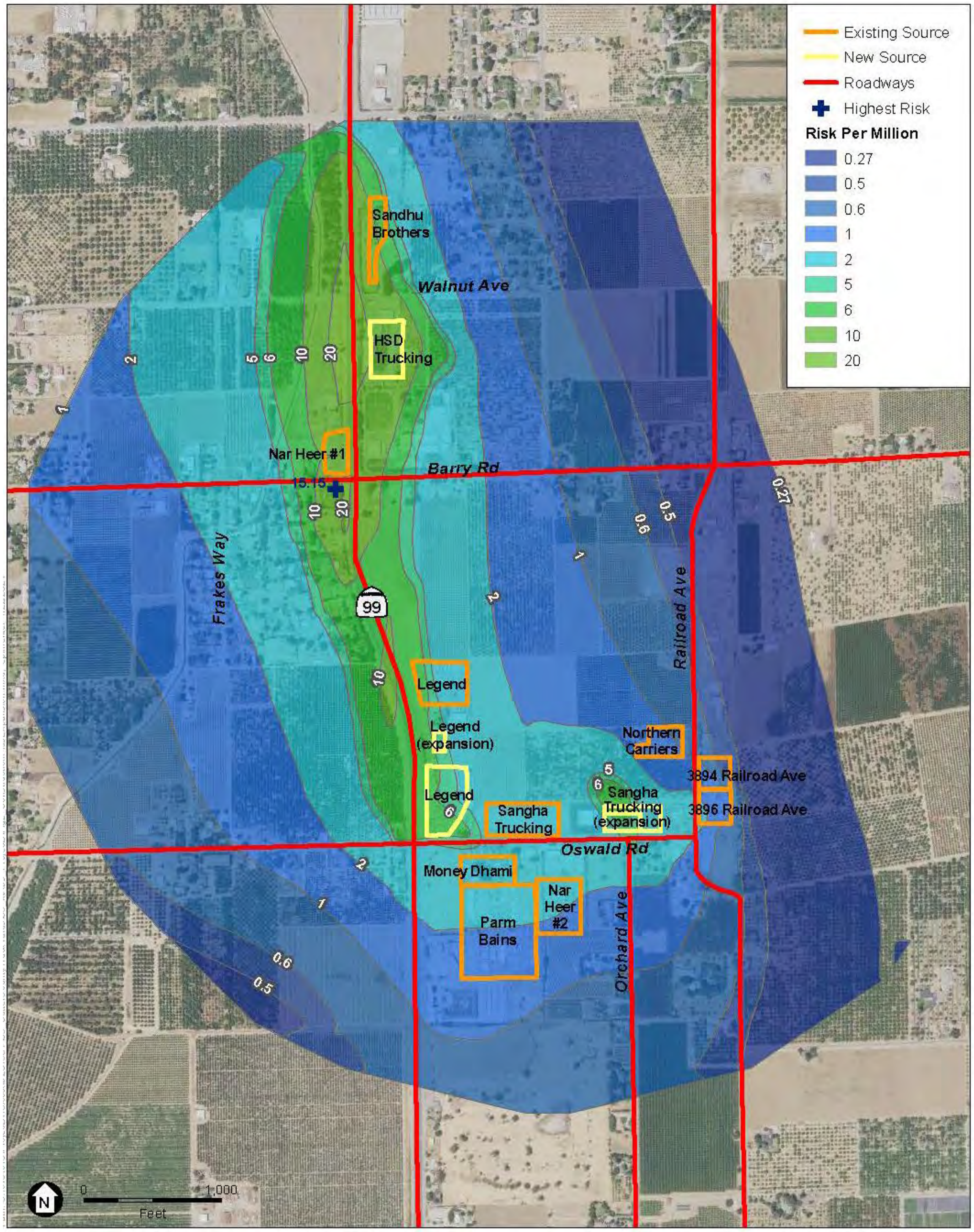

Figure 2.1-2
Health Risk Isopleth for Proposed Yards

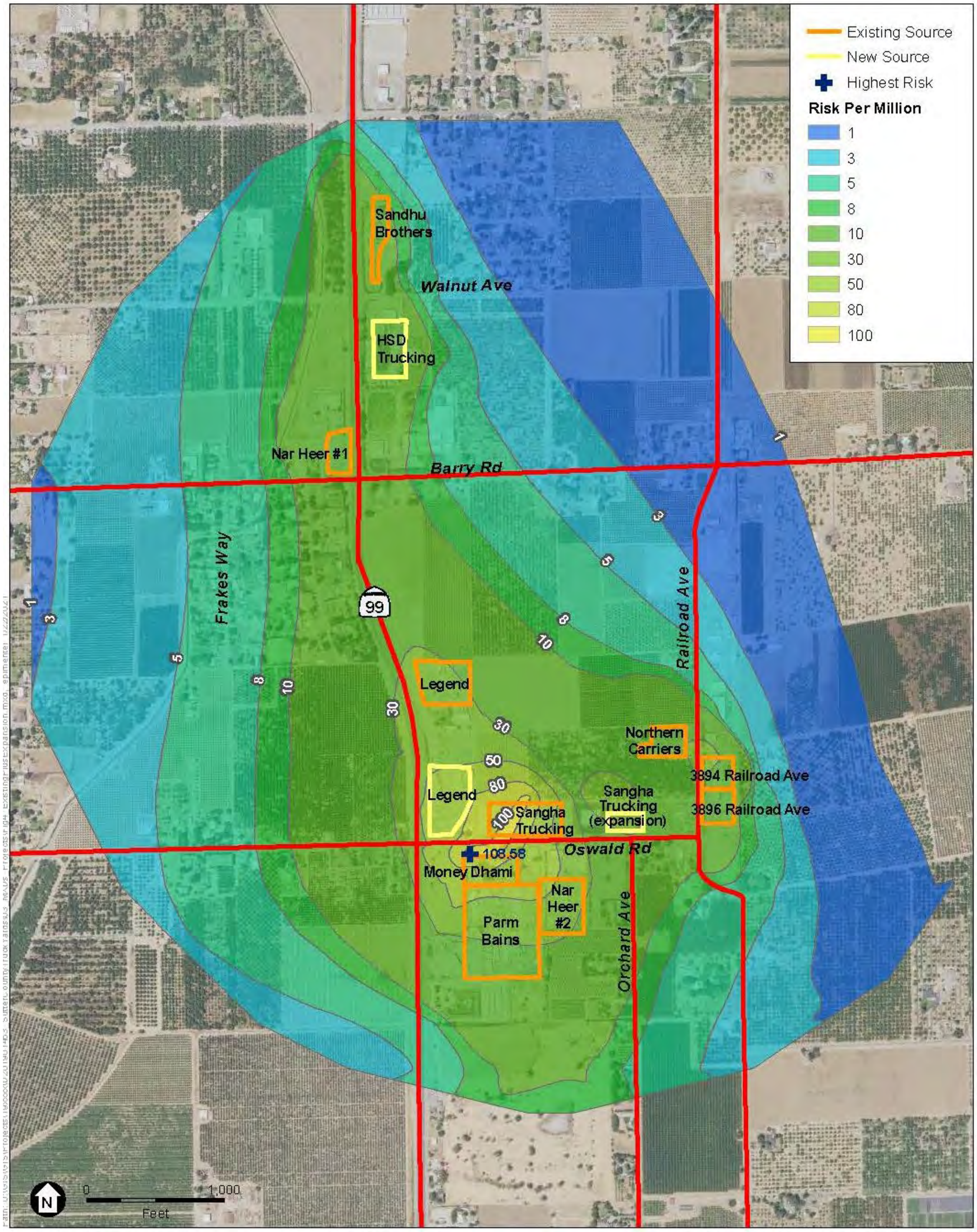

Figure 2.1-3
Health Risk Isopleth for Existing Plus Proposed Yard Operations

Operation of the existing truck yards results in a modeled cancer risk that would exceed cumulative risk thresholds used in other air districts and used here as a frame of reference, to put the results in some context. The construction and expansion of the Sangha Trucking and Legend Transportation truck yards, plus the operation of the HSD truck yard, result in a cancer risk that exceeds the threshold used in the two regional air districts, BAAQMD and SMAQMD, for an individual project.

Note that the cumulative risk analysis of existing truck yard operation did include trucks traveling to these yards along Route 99; however, the analysis excluded other diesel trucks traveling on Route 99.

Recommendations

Rec-Air-1: Prepare Air Quality Technical Report with Health Risk Assessment. For all proposed new yards and expansions, prepare an air quality technical report that compares project-level health risks to the BAAQMD thresholds of 10 cancers per million and chronic hazard index of 1.0. If projects exceed the thresholds, implement the following recommended measures, where feasible, to reduce health risk below the BAAQMD recommended thresholds of significance.

> **Rec-Air-1a: Limit future operational capacity of proposed yards.** As discussed above, operation of heavy duty trucks is a source of DPM that increases health risk in the vicinity of the truck yard sites. Limiting the operational capacity of any proposed future truck yard sites would limit additional health impacts that could negatively affect sensitive receptors in the area.
>
> **Rec-Air-21b: Limit future permitted number of TRUs operating on-site.** Similar to the operation of heavy duty trucks, operation of TRUs on the truck yard sites contributes to DPM concentrations that increase health risk at sensitive receptors surrounding the truck yard sites. Limiting the permitted number of TRUs on future truck yard sites would limit increases to health risk that could occur from the approval of additional truck yards in the area.
>
> **Rec-Air-1c: Require advanced TRU controls.** Require agreements between truck yard owners and operators to include conditions for trucks to use TRUs that meet Tier 4 emission standards and comply with all applicable CARB requirements to control emissions from diesel engines. Methods to comply include, but are not limited to, new clean diesel trucks, higher-tier diesel engine trucks with added PM filters, hybrid trucks, alternative energy trucks, or other methods that achieve the applicable CARB emission standard. Compliance with this requirement shall be verified through CARB’s Verification Procedures for In-Use Strategies to Control Emissions from Diesel Engines.
>
> **Rec-Air-1d: Require electrification of TRUs.** Install electrical hook-ups for diesel trucks. Require all trucks (or as many as feasible) to use the electric hookups instead of their diesel TRUs.

Rec-Air-1e: Require alternative fueled TRUs and trucks, as feasible. Use alternative fuels as commercially available, such as renewable diesel, biodiesel, natural gas, propane, and electric trucks and TRUs.

Rec-Air-1f: Require model year 2014 or newer heavy-duty trucks. Require that all on-road heavy-duty trucks with a gross vehicle weight rating of 33,000 pounds or greater used at the project site have engines that are model year 2014 or newer.

Rec-Air-1g: Implement vegetative barriers. Plant trees and/or vegetation between sensitive receptors and pollution sources, if feasible. Trees that are best suited to trapping PM shall be planted, and may include but are not limited to African Boxwood, Buck Brush, Chamise, Oregon Grape, Purple Phlomis, Arizona Cypress, or other species listed in the Shrub and Tree Information Table for the Sacramento Region in the Sacramento Metropolitan Air Quality Management District (SMAQMD) Landscaping Guidance for Improving Air Quality Near Roadways. Vegetation barriers should consist of rows of shrubs and trees and should be at least 33 feet wide, 165 feet long, and 16 feet tall. The higher, longer, and wider the barrier, the greater the benefit to people protected by the barrier.[19]

Rec-Air-1h: Enforce landscaping maintenance requirements. Implementation of vegetative barriers on truck yard sites is one of the most cost effective ways to reduce risk sensitive receptors along Route 99. Though many of the truck yards have permit conditions pertaining to landscaping requirements, many of the yard operators do not maintain landscaping following the start of yard operation. It is recommended that the County perform follow-up inspections to ensure that yard operators maintain landscaping in accordance with applicable permit conditions.

Rec-Air-1i: Implement truck idling limits. Prohibit TRUs from operating on-site for more than thirty minutes, and post signs at each yard presenting this TRU limit. Prohibit trucks from idling for more than two minutes.

Rec-Air-1j: Require TRU shutoff while parked on-site. TRUs generate emissions of DPM when operating on-site. Requiring that refrigerated cargo be dropped off before truck yards take their required 8-hour rest period, and that TRUs are shutoff while trucks are parked on-site would reduce emissions of DPM from truck yard operations.

Rec-Air-1k: Identify appropriate idling locations. Locate truck idling areas as far from sensitive receptors as possible.

Rec-Air-1l: Participate in the local Emission Reduction Credits (ERC) program for criteria air pollutants. Emission Reduction Credits or offsets were established as part of

[19] Sacramento Metropolitan Air Quality Management District (SMAQMD), 2020. Landscaping Guidance for Improving Air Quality Near Roadways. Plant Species and Best Practices for the Sacramento Region. May 2020. Available at http://www.airquality.org/LandUseTransportation/Documents/LandscapingGuidanceforImprovingAirQualityNearRoadwaysMay2020V2.pdf. Accessed November 2020.

the 1977 Clean Air Act Amendments. Proposed yards can purchase ERCs or offsets to achieve emission reductions by:

- Directly funding or implementing a specific offset project within the region to achieve the equivalent of annual tons-per-year reduction equal to the total estimated operational ROG, NO_X, and PM_{10} emissions offsets required to reduce the Project's criteria pollutants below the FRAQMD's significance thresholds.

- Pay mitigation offset fees to the FRAQMD or other governmental entity or third party. The mitigation offset fee shall fund one or more emissions reduction projects within the Air Basin. The fee will be based on the type of projects available at the time of the payment. This fee is intended to fund emissions reduction projects to achieve annual reductions of ROG, NO_X, and PM_{10} equal to the amount required to reduce emissions below significance levels after implementation of other identified mitigation measures as currently calculated and implemented.

Information related to the ERC program is available at: https://www.fraqmd.org/emission-reduction-credits-ercs.

Rec-Air-1m: Participate in the local Emission Reduction Credits (ERC) program for PM_{10} emissions. Directly fund or implement a specific emissions or exposure reduction project(s) within the region through the ERC program to achieve the equivalent toxicity-weighted TAC emissions emitted from the Project or population-weighted TAC exposure reductions resulting from the Project, such that the existing and proposed truck yards do not result in a cumulatively considerable contribution to health risks associated with TAC emissions.

Information related to the ERC program is available at: https://www.fraqmd.org/emission-reduction-credits-ercs.

Rec-Air-1n: Avoid siting new and proposed yards in close proximity to sensitive receptors. As stated in CARB's Air Quality and Land Use Handbook, "in terms of siting air pollution sources, the proposed location of a project is a major factor in determining whether it will result in localized air quality impacts. Often, the problem can be avoided by providing an adequate distance or setback between a source of emissions and nearby sensitive land uses." Therefore, impacts to receptors may be reduced by increasing distance between yards and sensitive receptors.

2.2 Hydrology

This section addresses the hydrologic resources that could be affected by the existing and proposed truck yards.

2.2.1 Environmental Setting

Sutter County is north of Sacramento on the east side of California's Central Valley. The topography of the area is generally flat except for the Sutter Buttes, approximately 10 miles to the northwest of the general vicinity of the Sutter County truck yards. As discussed within Chapter 2.1, *Air Quality*, above, the County has a Mediterranean climate characterized by hot, dry summers, and relatively moderate, wet winters. Precipitation rates are the greatest from late fall to early spring, while the dry season lasts from late spring to early fall.

There are no substantial water storage reservoirs within Sutter County; therefore, rainfall either percolates into the soil, runs off into local streams and rivers, or evaporates. By late summer, well into the dry season, most small creeks and streams are generally dry and rivers are at their lowest levels; however, some small creeks retain water during the dry season as a result of agricultural irrigation and drainage.[20]

Surface Hydrology

The Sutter County truck yards are located within the Sacramento Hydrologic Basin, which is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Sacramento – San Joaquin Delta (Delta) to the southeast.[21] The basin covers a 27,210-square-mile area that includes all watersheds tributary to the Sacramento River. The Sacramento River Basin is the largest river basin in California, with an average annual outflow of approximately 22 million acre-feet.[22]

The existing and proposed truck yards are located within the Feather River subregion of the Sacramento Hydrologic Basin, which includes all water of the Feather River from its headwaters in the Sierra Nevada downstream to the Sacramento River confluence. This subregion is divided into an upper watershed and lower watershed by the 3.5 million-acre-foot Oroville Reservoir, with the truck yards being located within the lower watershed.[23].

[20] Sutter County, 2008. *Sutter County General Plan Update Technical Background Report.* February 2008.

[21] Central Valley Regional Water Quality Control Board (CVRWQCB). *Map: Sacramento Hydrologic Basin Planning Area.* Available at https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/bp_sacramento_hydro_map.pdf. Accessed November 2020.

[22] Central Valley Regional Water Quality Control Board (CVRWQCB), 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region Fifth Edition – The Sacramento River Basin and the San Joaquin River Basin.* Revised May 2018. Available at https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf. Accessed November 2020.

[23] Sacramento River Watershed Program, n.d. *Feather River Subregion.* Available at https://sacriver.org/explore-watersheds/feather-river-subregion/. Accessed January 27, 2021.

Both Feather River and Gilsizer Slough are water bodies that are located in close proximity to the truck yard sites. Feather River is located a little less than a mile east of the general vicinity of truck yard sites, while Gilsizer Slough runs adjacent to the western boundary of Nar Heer #1. The locations of these rivers in relation to the existing and proposed truck yard sites are shown in **Figure 2.2-1.**

Flood Management

The Lower Feather River passes through agricultural lands before joining the Sacramento River at Verona, north of the City of Sacramento. Though the landscape is dominated by orchards, rice, and other crops, cities near the Lower Feather River including Yuba City and Marysville are rapidly expanding. Flooding and flood management are longstanding issues associated with Lower Feather River; and the river is confined by a system of levees.[24]

The largest floods in the Sacramento River Basin have been primarily heavy precipitation (including rain-on-snow) events occurring from November through April. The existing federal/state flood management system influences flooding and flood management on more than 2.2 million acres of land. The Central Valley flood management system includes Sacramento River Flood Control Project (SRFCP) facilities that are operated and maintained in conjunction with flood control facilities operated and maintained by federal, State, local, and private interests. This system includes approximately 1,600 miles of project levees and dams on nearly every major tributary.

The SRFCP's 10 overflow structures (six weirs, three flood relief structures, and an emergency overflow roadway) divert flows from the Sacramento River into bypass channels during peak-flow events to reduce the potential for levee failure downstream of the weir structures. Weirs are lowered sections of levees that allow flood flows that exceed downstream channel capacity to escape into a bypass channel or basin. The weirs pass floodwaters by gravity once the river reaches the overflow water surface elevation.

[24] Sacramento River Watershed Program, n.d. *Feather River Subregion.* Available at https://sacriver.org/explore-watersheds/feather-river-subregion/. Accessed January 27, 2021.

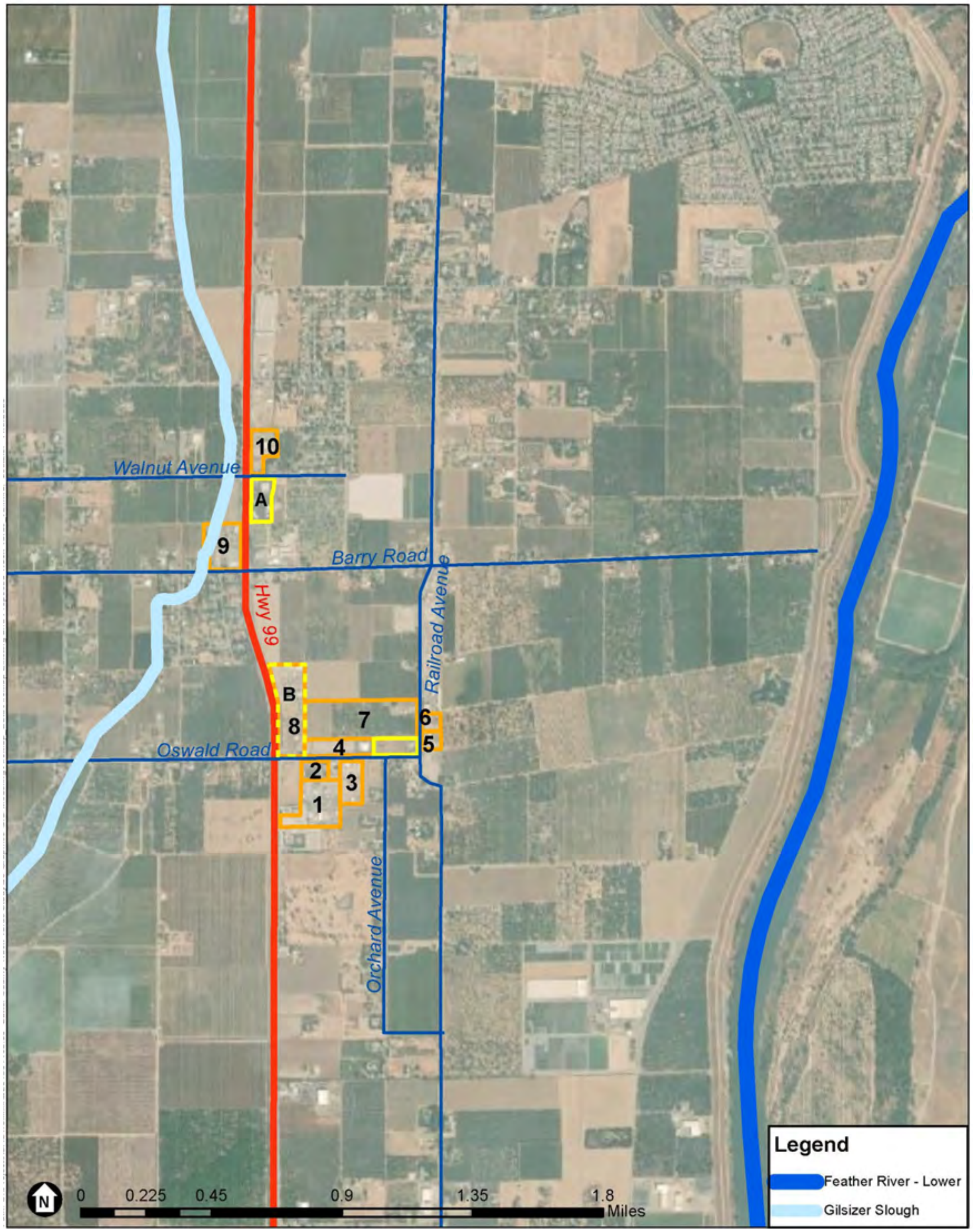

Figure 2.2-1
Locations of Feather River and Gilsizer Slough in Relation to Existing and Proposed Truck Yard Sites

Surface Water Quality

Numerous natural and artificial sources influence water quality within the Sacramento River Basin including soil erosion, discharges from industrial and residential wastewater plants, stormwater runoff, agriculture, recreation activities, mining, timber harvesting in upper portions of the watersheds, and flora and fauna. Water from the Sacramento River and its major tributaries is general of good quality, as it is largely melted snow that collects in upstream reservoirs and is released according to various rules of operation. However, several streams in the northern portion of the Sacramento River Watershed are listed as impaired as a result of abandoned mine drainage and high concentrations of copper, lead, and zinc. Other water quality issues can be affected by temperature, mercury, pesticides, nutrients, and salts.[25]

Salt and salinity management is considered one of the most serious long-term water quality issues facing the Central Valley, which includes the Sacramento River Basin. Salinity levels (measured as electrical conductivity [EC]) are generally lower in the Sacramento River Basin than in other regions of California. EC levels range from 84 to 140 micromhos per centimeter in the upper reaches of the Sacramento River. Farther downstream, EC levels gradually increase as water comes in contact with natural salts in soil and human activities (e.g., fertilizer application, disposal of treated wastewater) introduce salts either directly to water bodies or into the soil. In general, the Feather River has lower salinity levels than the Sacramento River and dilutes EC below the confluence of the two rivers.[26]

The State Water Resources Control Board (State Water Board) publishes updates to the *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins* (Basin Plan) to improve water quality and maintain beneficial uses in the Sacramento and San Joaquin Rivers. The Basin Plan describes water quality concerns for the Sacramento River that include agriculture, forestry, urban land uses, and stormwater runoff.

As shown in **Table 2.2-1**, Lower Feather River in the area of the existing and proposed truck yard sites (Lake Oroville Dam to Confluence with Sacramento River) is listed in the State Water Board's Total Maximum Daily Load (TMDL) program for group A pesticides, polychlorinated biphenyls (PCBs), cholorpyrifos, mercury, and unknown toxicity.[27] Feather River contributes to the Sacramento River (Knights Landing to the Delta) which is listed in the State Water Board's TMDL program for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, mercury, PCBs, and unknown toxicity. Furthermore, Gilsizer Slough (from Yuba City to downstream of Township Road, Sutter County) is listed in the TMDL program for diazinon, oxyfluorfen, and pH.[28] The State Water Board's TMDL programs are implemented under Clean Water Act (CWA)

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[25] California Department of Water Resources (DWR). 2014. *California Water Plan Update 2013*. October 2014.

[26] California Department of Water Resources (DWR). 2014. *California Water Plan Update 2013*. October 2014.

[27] State Water Resources Control Board (State Water Board), 2010. 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), 2010 California 303(d) List of Water Quality Limited Segments: Category 5. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed November 2020.

[28] State Water Resources Control Board (State Water Board). 2010. 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), 2010 California 303(d) List of Water Quality Limited Segments: Category 5. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed November 2020.

Section 303(d) for impaired water bodies. TMDL programs are plans that describe how an impaired water body will meet federal water quality standards.

TABLE 2.2-1
CLEAN WATER SECTION 303(D) LIST OF MAIN STEM IMPAIRED SURFACE WATER BODIES IN THE PROJECT VICINITY

Water Body	River Reach	Impairments
Sacramento River	Knights Landing to the Delta	Chlordane, DDT, dieldrin, mercury, PCBs, unknown toxicity
Feather River, Lower	Lake Oroville Dam to Confluence with Sacramento River	Chlorpyrifos, group A pesticides, mercury, PCBs, unknown toxicity
Gilsizer Slough	Yuba City to downstream of Township Road, Sutter County	Diazinon, oxyfluorfen, pH

NOTES:
DDT = dichlorodiphenyltrichloroethane; PCBs = polychlorinated biphenyls

SOURCE: State Water Resources Control Board (State Water Board). 2010. 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report), 2010 California 303(d) List of Water Quality Limited Segments: Category 5. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed November 2020.

Groundwater

The existing and proposed truck yards are located in Sutter County, which overlies three subbasins: the East Butte Subbasin, the Sutter Subbasin, and the North American Subbasin of the greater Sacramento Valley Groundwater Basin[29]. Of these, the existing and proposed truck yards are located within the Sutter Subbasin. Sources of recharge to the groundwater basin include surface waters, percolation of rainfall, agricultural irrigation, and subsurface inflow from adjacent groundwater subbasins. Groundwater pumping and subsurface outflow to rivers and adjoining subbasins result in the lowering of groundwater levels.

In Sutter County, groundwater is used for water supplies, agricultural irrigation, and domestic drinking water. Groundwater level trends in the county are reported to be stable and tend to be within about 10 feet below the ground surface.[30] Similarly, groundwater is approximately 10 feet below the ground surface in the project vicinity.[31]

DWR, the California Department of Public Health, and Sutter County monitor water quality in the Sutter Subbasin underlying Sutter County. Recent groundwater data for portions of the County report the presence of chemical elements and compounds in amounts that exceed standards for safe drinking water quality and aesthetics. In addition, groundwater quality is expected to degrade in the future unless measures are taken to reduce the presence of

[29] Sutter County, n.d. *Sustainable Groundwater Management Act (SGMA).* Available at https://www.suttercounty.org/doc/government/depts/ds/pw/wr/sgma/sgmahome. Accessed January 21, 2021.

[30] Sutter County. 2008. Sutter County General Plan Update Technical Background Report. February 2008.

[31] Department of Water Resources. 2018. Groundwater Information Center Interactive Map Application. Available: https://gis.water.ca.gov/app/gicima/. Last updated in June 2017. Accessed December 26, 2018.

contaminants in soil and prevent soil contamination. No major areas of groundwater contamination have been reported in Sutter County. [32]

2.2.2 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into "waters of the United States." The act specifies regulatory and administrative tools to reduce direct discharges of pollutants into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff.

Clean Water Act Section 303(d) Impaired Waters List

Section 303(d) of the CWA requires states to develop lists of water bodies that would not attain water quality objectives after point-source dischargers (municipalities and industries) implement the required levels of treatment. Under Section 303(d), each state must develop a TMDL for each listed pollutant. The TMDL is the amount ("loading") of a pollutant that the water body can receive and still comply with water quality objectives.

The TMDL can also serve as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must allocate allowable loadings to point and nonpoint sources, while considering background loadings and including a margin of safety. The TMDL must also analyze the linkage between loading reductions and the attainment of water quality objectives.

The U.S. Environmental Protection Agency (EPA) either must approve a TMDL prepared by the state or, if it disapproves the state's TMDL, must issue its own. Limits on listed pollutants specified in National Pollutant Discharge Elimination System (NPDES) permits must be consistent with the waste load allocation prescribed in the TMDL. It is anticipated that the problems that caused a given pollutant to be placed on the Section 303(d) list would be remediated once the TMDL has been implemented.

In California, the regional water boards are responsible for preparing and managing the Section 303(d) list. In November 2010, EPA approved the most recent update to California's Section 303(d) list of impaired waters requiring TMDLs (2008–2010). Table 2.2-1 shows the current (2010) Section 303(d) list of impaired waters in the vicinity of the existing and proposed Sutter County truck yards.

[32] Sutter County. 2008. Sutter County General Plan Update Technical Background Report. February 2008.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) was enacted, and revised in December 2007, to protect the quality of all waters of the State of California for use and enjoyment by the people of California. The Porter-Cologne Act states that all activities that may affect the quality of waters of the State must be regulated to obtain the highest water quality that is reasonable, considering all present and future demands on those waters. The law also provides for a statewide program to control water quality, recognizing that inter-basin water development projects and other statewide considerations increasingly influence waters of the State, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally.

The Porter-Cologne Act authorizes the State Water Board and regional boards to oversee the coordination and control of water quality in California. This work includes meeting the responsibilities established by the CWA that have been delegated to the State.

State Water Resources Control Board

Created by the California Legislature in 1967, the State Water Board holds authority over statewide water resources allocation and water quality protection. The State Water Board allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine regional water boards. The mission of the State Water Board is to preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.

Construction General Permit

The federal Clean Water Act (CWA) prohibits discharges from point sources to waters of the United States, unless the discharges are in compliance with the National Pollutant Discharge Elimination System (NPDES) permit. On September 2, 2009, the State Water Board adopted Order No. 2009-00009-DWQ, which supersedes Order NO. 99-08-DWQ [as amended by order No. 2010-0014-DWQ]. This Order regulates storm water runoff from construction sites. Construction and demolition activities covered under this Construction General Permit include clearing, grading, grubbing, excavation, or any other activity that results in a land disturbance equal to or greater than one acre. Following the completion of construction activities, the LRP must file a Notice of Termination (NOT) with the Regional Water Board. According to the Permit Fact Sheet, "in order for construction to be found complete, the discharger must install post-construction storm water management measures and establish a long-term maintenance plan. This requirement is intended to ensure that post-construction conditions at the project site do not cause or contribute to direct or indirect water quality impacts."[33]

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[33] State Water Resources Control Board (State Water Board), 2009. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. Order No. 2009-00096-DWQ, NPDES No. CAS000002.* September 2, 2009. Available at https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo2009_0009_dwq.pdf. Accessed November 2020.

To obtain coverage under the Construction General Permit, the appropriate Legally Responsible Person (LRP) must file Permit Registration Documents (PRDs) before construction of the project begins. PRDs required under the Construction General Permit include a Notice of Intent (NOI) and a Storm Water Pollution Prevention Plan (SWPPP). Under Order No. 2009-0009-DWQ, all SWPPPs must be written, amended, and certified by a Qualified SWPPP Developer.

Failure to comply with the stormwater permit requirements constitutes a violation of the Clean Water Act; therefore, violators may be required to pay fines of $2,500 to $25,000 per day or more. Furthermore, as is stated in Order 2009-0009-DWQ, "section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both" and that "any person who violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500 per calendar day of such violation."[34]

Industrial Stormwater Program

On April 1, 2014, the State Water Board adopted Order 2014-0057-DWQ, which supersedes Order 97-03-DWQ, and is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act. The order took effect on July 1, 2015. This Industrial General Permit regulates storm water discharges and authorized non-storm water discharges from industrial facilities, including transportation facilities, in California. As discussed under Attachment A to the NPDES General Permit for Stormwater Discharges Associated with Industrial Activities Order NPDES No. CAS000001, this program applies to transportation facilities including those "facilities with SICs 40XX through 45XX (except 4221-25) and 5171 with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication)" or other operations associated with industrial activity, as defined by the Permit.[35] Dischargers who were already operational at the time of this Order were required to continue to comply with State Water Board Order 97-03-DWQ up to, but no later than June 30, 2015, after which, existing dischargers were required to register for coverage under the new order.

Dischargers must either obtain regulatory coverage under this Permit through submittal of a NOI, or certify that there are no industrial activities exposed to storm water at the facility under the No Exposure Certification (NEC) provision of the Industrial General Permit. Under the NPDES Industrial General Permit, dischargers are required to develop and implement a site-specific

[34] State Water Resources Control Board (State Water Board), 2009. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. Order No. 2009-00096-DWQ, NPDES No. CAS000002*. September 2, 2009. Available at https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo2009_0009_dwq.pdf. Accessed November 2020

[35] State Water Resources Control Board (State Water Board), 2014. *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Industrial Activities, Order NPDES No. CAS000001.* April 1, 2014. Available at https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/industrial/2014indgenpermit/order.pdf. Accessed November 2020.

SWPPP for each industrial facility upon commencement of industrial activity. SWPPPs must include the facility name and contact information, site map, list of industrial materials, descriptions of potential pollution sources, assessment of potential pollutant sources, minimum BMPs, advanced BMPs (if applicable), monitoring implementation plan, annual comprehensive facility compliance evaluation (annual evaluation), date that the SWPPP was initially prepared, and the date of each SWPPP amendment (if applicable). The SWPPP is required to be certified and submitted via the Storm Water Multiple Application and Report Tracking System (SMARTS) website.

The Industrial General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Dischargers are required to conduct Annual Comprehensive Facility Compliance Evaluations (Annual Evaluation) to identify facility contributions to industrial storm water discharges, evaluate whether measures to reduce or prevent industrial pollutant loads identified in the SWPPP are adequate and properly implemented in accordance with the General Permit, and determine which control measures are needed.

Failure to comply with the stormwater permit requirements constitutes a violation of the Clean Water Act; therefore, violators may be required to pay fines of $2,500 to $25,000 per day or more. Furthermore, as is stated in Order 2014-0057-DWQ, "any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this Genera Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both" and "any person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed 37,000 dollars per calendar day of such violation."[36]

Central Valley Regional Water Quality Control Board

Under the Porter-Cologne Act, the Central Valley Regional Water Board (RWQCB) is charged with protecting the quality of the waters within its jurisdiction for all beneficial uses. The project area is located within the jurisdiction of the Central Valley RWQCB. State law defines the beneficial uses of California's waters that may be protected against quality degradation to include, but not be limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

To protect water quality, the Central Valley RWQCB develops and adopts water quality control plans (called "basin plans," as discussed below) for specific groundwater and surface water basins, and prescribes and enforces requirements on agricultural, domestic, and industrial waste discharges. The Central Valley RWQCB oversees many major programs to support and provide

36 State Water Resources Control Board (State Water Board), 2014. *National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Industrial Activities, Order NPDES No. CAS000001.* April 1, 2014. Available at https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/industrial/2014indgenpermit/order.pdf. Accessed November 2020.

benefit to water quality: Agricultural Regulatory; Above-Ground Tanks; Basin Planning; CALFED; Confined Animal Facilities; Landfills and Mining; Nonpoint Source; Spills, Leaks, Investigations, and Cleanups; Storm Water; TMDL; Underground Storage Tanks; Wastewater Discharges (including NPDES); Wastewater to Land Discharge; Water Quality Certification; and Watershed Management.

Basin Plans and Water Quality Objectives

The Porter-Cologne Act provides for the development and periodic review of basin plans that are prepared by the regional water boards. Basin plans designate the beneficial uses of California's major rivers and groundwater basins, and establish narrative and numerical water quality objectives for those waters. The term "beneficial uses" represents the services and qualities of a water body (the reasons the water body is considered valuable), and water quality objectives are the standards necessary to protect and support those beneficial uses. Basin plans are implemented primarily through the NPDES permitting system and by issuing waste discharge regulations to ensure that water quality objectives are met.

Basin plans provide the technical basis for determining waste discharge requirements and taking regulatory enforcement actions if deemed necessary. A basin plan has been adopted for the Sacramento and San Joaquin River Basins; and the Sacramento Hydrologic Planning area encompasses the project area.[37]

The Basin Plan sets water quality objectives from the surface waters in its region for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, radioactivity, salinity, sediment, settleable material, suspended material, taste and odor, temperature, toxicity, turbidity, and pesticides. For groundwater, water quality objectives applicable to all groundwater have been set for bacteria, chemical constituents, radioactivity, taste, odors, and toxicity.[38]

State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) "...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050[f]). Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning. The basin plans designate the beneficial uses and establish an implementation program to achieve the water quality objectives and protect the beneficial uses. The implementation program describes how a regional water board will coordinate its regulatory and non-regulatory programs to address specific water quality concerns.[39] Specific objectives for concentrations of chemical constituents are also applied to major water bodies based on their

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[37] Central Valley Regional Water Quality Control Board (RWQCB), 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition.* Revised May 2018.

[38] Central Valley Regional Water Quality Control Board (RWQCB), 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition.* Revised May 2018.

[39] DWR (California Department of Water Resources). 2014. California Water Plan Update 2013. October 2014. Accessed November 2020.

designated beneficial uses. **Table 2.2-2** shows the beneficial uses designated in the vicinity of the project area.

TABLE 2.2-2
DEFINED BENEFICIAL USES FOR MAJOR WATER BODIES IN THE PROJECT AREA

Beneficial Uses	Sutter Bypass, Feather River
Municipal and Domestic Supply	
Irrigation	x
Stock Waters	
Process	
Service Supply	
Power	
Contact Recreation	x
Noncontact Recreation	
Warm Freshwater Habitat	x
Cold Freshwater Habitat	
Warm-Water Migration	
Cold-Water Migration	x
Warm-Water Spawning	
Cold-Water Spawning	x
Wildlife Habitat	x
Navigation	

NOTE:
x = existing beneficial use

SOURCE: Central Valley Regional Water Quality Control Board (RWQCB). 2018. The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, Fifth Edition. Revised May 2018. Accessed November 2020.

2.2.3 Analysis and Recommendations

Methodology and Assumptions

The following evaluation of hydrologic conditions including water ponding, poor drainage, water quality degradation, and contaminated runoff at the existing truck yards is based on observations made by the environmental consultant during a site visit in August 2020. As previously discussed, the proposed HSD Trucking yard has not been approved by the County but is currently operational; therefore, existing hydrologic conditions at the HSD Trucking site were also observed. Furthermore, an evaluation of potential hydrologic impacts that could result from approval of the proposed expanded Legend Transportation and Sangha Trucking was prepared. The analysis below describes the possibility for on- or off-site flooding or ponding based on existing site conditions and proposed site plans.

Analysis

Existing Truck Yard Operations

Sandhu Brothers

Hydrologic infrastructure observed on the site included a drainage ditch and culverts adjacent to Highway 99 on the western side of the site. Stormwater exits the site to Highway 99 at the southwestern corner of the truck yard area, see **Figures 2.2-2, Figure 2.2-3, and Figure 2.2-4**. At the time of the site visit, there was no visible ponding on the site to indicate poor drainage conditions.

Within the truck parking and maintenance areas, there were no visible signs of oil leaks, discharge, or spills.

Conditions of approval for this yard require that the yard comply with storm water discharge regulations as contained in the State Water Board Water Quality Order No. 97-03-DWQ NPDES, General Permit No. 000001. As discussed above, Order No. 97-03-DWQ was superseded by Order No. 2014-0057-DWQ. Existing dischargers that were operating at the time that Order NO. 2014-0057-DWQ became effective were required to continue coverage under the previous permit until July 1, 2015. After July 1, 2015, existing dischargers were required to register for NOI coverage or NEC coverage under the newly effective Industrial General Permit. The State Water Board's SMARTS web database does not include any records for the Sandhu Brothers yard to indicate that the yard operator applied for coverage under the Industrial General Permit.

Figure 2.2-2
Sandhu Brothers Yard Culvert

Figure 2.2-3
Sandhu Brothers Yard Culvert

Figure 2.2-4
Sandhu Brothers Yard Culvert

Nar Heer #1

There is no hydrologic infrastructure within the truck yard site boundary; however, the consultant observed a large canal to the west of the site. This canal is Gilsizer Slough, shown in **Figure 2.2-5** and **Figure 2.2-6.** There were no visible signs of water ponding on the site to indicate poor stormwater drainage.

Furthermore, there were no signs of leaking vehicles, soil discoloration, or oil sheens to indicate pollutant discharge from the trucking operations.

Figure 2.2-5
View of Gilsizer Slough from Nar Heer #1 Yard

Figure 2.2-6
View of Gilsizer Slough from Nar Heer #1 Yard

Legend Transportation

Hydrologic infrastructure observed within the trucking site includes a ditch that runs along the east side of the site, see **Figure 2.2-7**. Water runs south through the ditch and then dissipates near the southwest corner of the site. No culvert was observed on-site to divert this drainage. A small amount of water ponding was observed near the water truck in the middle of the site, see **Figure 2.2-8**; however, this water did not have an oil sheen to indicate that the water was contaminated.

No leaking vehicles were observed on the site, and the site did not have any signs of ground discoloration that would indicate any oil discharge.

Permit conditions for Legend Transportation require that the if a project size is more than one acre, a NOI be filed to obtain coverage under the California State Water Resources General Construction Activity Storm Water Permit. However, at the time this yard was permitted by the County, the application did not include any proposed new construction, and so the Construction Activity Storm Water Permit is not applicable to this project. Though not included in the Permit Conditions of Approval for the truck yard, the yard includes a truck maintenance facility and would therefore be subject to the requirements of the Industrial General Permit, discussed above. A search of the State Water Board SMARTS web database does not show that the site has obtained or applied for an Industrial General Permit, and may not have prepared the required associated SWPPP.

Figure 2.2-7
Legend Transportation Yard Drainage Ditch

Figure 2.2-8
Legend Transportation Yard Water Truck and Ponding

Northern Carriers

There was no obvious stormwater drainage infrastructure observed on or in the vicinity of the Northern Carriers yard. The environmental consultant noted that there is a ten-foot-long ditch in the southeastern corner of the property, however, it is not clear whether the ditch would be used for stormwater drainage, see **Figure 2.2-9**. Due to the dry conditions during the time of the site visit, there was no clear stormwater discharge point observed on the site. In addition, there was no evidence of water ponding or poor drainage within the site and no leaking vehicles were observed.

The Northern Carriers yard includes a 3,200 square foot building and a large carport structure adjacent to an existing onsite home. As such, the yard is required to comply with the requirements of State Water Board Order 2014-0057-DWQ, which supersedes Order 97-03-DWQ. This order requires that vehicle maintenance facilities receive coverage under the Industrial General Permit by certifying and submitting Permit Registration Documents for NOI or NEC coverage. A search of the State Water Board SMARTS web database does not show that the site has obtained or applied for coverage under the Industrial General Permit.

Figure 2.2-9
Northern Carriers Yard Drainage Ditch

3894 Railroad Avenue

The environmental consultant did not observe any stormwater drainage infrastructure within the truck yard site, and therefore, a stormwater discharge point was not identified. There were no signs of water ponding within the site to indicate poor drainage, and no signs of pollution including oil sheens, soil discoloration, or odors were observed.

The truck yard site operating at 3894 Railroad Avenue includes a truck maintenance shop, JB Truck Repair. Since operation of the site includes a vehicle maintenance facility, the operator is required to receive coverage under the Industrial General Permit. A search of the State Water Board SMARTS web database did not indicate that the truck yard operator has obtained or applied for NOI or NEC coverage, required under the Industrial General Permit per Order 2014-0057-DWQ.

3936 Railroad Avenue

Similar to the site at 3834 Railroad Avenue, there was no drainage infrastructure observed at the truck yard located at 3936 Railroad Avenue. No stormwater discharge point was able to be identified and there were no signs of pollutant discharge within the site. The environmental consultant observed a small water hose on-site that appeared to be used for washing equipment, but not trucks. There was no water ponding associated with this wash area, furthermore, there was no water ponding observed within the site to indicate poor drainage conditions.

There is a maintenance shop located on the site, however, there are no drains or ditches within the maintenance area that would indicate possible pollutant discharge.

The truck yard operation is required to obtain coverage under the State Water Board's Industrial General Permit, as the site includes a vehicle maintenance operation. A search of the SMARTS database for permit-related documents did not indicate that the truck yard operator has obtained or applied for an NOI or NEC to gain coverage under the Industrial General Permit.

Sangha Trucking

Stormwater drainage infrastructure observed within the Sangha Trucking truck yard includes a concrete pad located in the middle of the site starting at the maintenance area and extending west to a detention/retention basin on a fenced-in portion of the site. See **Figure 2.2-10, Figure 2.2-11,** and **Figure 2.2-12**. This detention/retention basin in the western portion of the site is the stormwater discharge point. In addition, there is a storm drain located in the center of the site, west of the maintenance building, shown in **Figure 2.2-13.** The driveway on the southern side of the maintenance area slopes downward towards Oswald Road, so that stormwater in this area drains into ditches along Oswald Road, as shown in **Figure 2.2-14** and **Figure 2.2-15**. Furthermore, additional storm drains and ditches run through the center of the truck parking lot. There was no visible water ponding on-site to indicate poor drainage.

Potential pollutant discharge was observed within the truck parking areas, where two patches of oil, each approximately one foot by two feet wide, were observed in an empty parking space. This discoloration is shown in **Figure 2.2-16**. Further, there were barrels observed on-site, one of which was open. It is unclear what is stored in the barrel, however this could be a source of pollution. See **Figure 2.2-17**.

The permit conditions set forth by the County require that the project file an NOI to obtain coverage under the California State Water Board General Construction Activity Stormwater Permit. A search of the State Water Board SMARTS web database showed that in 2017, the yard received a Notice of Noncompliance from the CVRWQCB, which stated that the yard was required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as the project was active and was greater than one acre in size. The Notice of Noncompliance also stated that the project had not implemented Best Management Practices and had not prepared a SWPPP at the time that the notice was issued. In October 2017, the truck yard operator filed an NOI for a General Permit to Discharge Stormwater Associated with Construction Activity and associated SWPPP. Annual reports were filed for each year of construction and, following the conclusion of construction activity, the truck yard operator filed a Notice of Termination of the construction permit.

Though the County-imposed permit conditions of approval do not state that the truck yard obtain coverage under the Industrial General Permit, as the truck yard includes operation of a truck maintenance shop, the yard is required to certify and submit PRDs for an NOI or NEC. The SMARTS web database did not show that the truck yard operator has obtained or applied for coverage under the Industrial General Permit, Order No. 2014-0057-DWQ.

Figure 2.2-10
Sangha Trucking Yard Drainage Infrastructure

Figure 2.2-11
Sangha Trucking Yard Drainage Infrastructure

Figure 2.2-12
Sangha Trucking Drainage Basin

Figure 2.2-13
Sangha Trucking Yard Storm Drain

Figure 2.2-14
Sangha Trucking Yard Drainage Ditch Along Oswald Road

Figure 2.2-15
Sangha Trucking Yard Drainage Ditch Along Oswald Road

Figure 2.2-16
Sangha Trucking Yard Soil Discoloration

Figure 2.2-17
Sangha Trucking Yard Open Storage Barrel

Nar Heer #2

Stormwater drainage infrastructure within the Nar Heer #2 site was not extensive. Although the environmental consultant observed a small ditch in the southwestern portion of the site, it did not seem to be maintained to be purposefully used for stormwater drainage. No stormwater discharge point was identified within the site.

The environmental consultant observed oil stains within a few of the parking spaces, indicating potential pollutant discharge in the southern portion of the site. Soil discoloration can be seen in **Figure 2.2-18, Figure 2.2-19, Figure 2.2-20,** and **Figure 2.2-21**.

The Nar Heer #2 truck yard operation includes maintenance activities; therefore, the yard is required to obtain coverage under an Industrial General Permit from the State Water Board. A review of the SMARTS web database does not indicate that the truck yard operator has submitted the required documentation to obtain coverage under this permit.

Figure 2.2-18
Nar Heer #2 Yard Soil Discoloration

Figure 2.2-19
Nar Heer #2 Yard Soil Discoloration

Figure 2.2-20
Nar Heer #2 Yard Soil Discoloration

Figure 2.2-21
Nar Heer #2 Yard Soil Discoloration

Money Dhami

The truck yard site includes several drainage ditches along the perimeter of the site, shown in **Figure 2.2-22** and **Figure 2.2-23**, and along Oswald Road, as shown in **Figure 2.2-24, Figure 2.2-25,** and **Figure 2.2-26.** The stormwater discharge point was identified by the environmental consultant along the northwest corner of the site leading to Oswald Road. Although there was a damp spot identified in the southwest corner of the site, water was not ponding. Overall, the site appeared to have good drainage.

There were no visual signs of pollutant discharge observed on-site.

Figure 2.2-22
Money Dhami Yard Drainage Ditch

Figure 2.2-23
Money Dhami Yard Drainage Ditch

Figure 2.2-24
Money Dhami Yard Drainage Ditch Along Oswald Road

Figure 2.2-25
Money Dhami Yard Drainage Ditch Along Oswald Road

Figure 2.2-26
Money Dhami Yard Drainage Ditch Along Oswald Road

Parm Bains

Stormwater on the Parm Bains truck yard site drains into a large ditch to the south of the site, shown in **Figure 2.2-27** and **Figure 2.2-28**. This ditch then flows to the west past the gas station towards Highway 99. In addition, there is a large ditch along the eastern boundary of the site, shown in **Figure 2.2-29**. Furthermore, there is a storm drain located within the site, shown in **Figure 2.2-30**. This truck yard includes a wash area, and runoff from the truck washing operation is collected and recycled for reuse. There was no water ponding or evidence of poor drainage on the site.

The truck yard includes a fueling area, but no signs of leaks or contamination were observed within the fueling area. There were no oil sheens or soil discoloration to indicate any pollutant discharge from the truck yard operation. To ensure that there is no oil discharge, Parm Bains employs a full-time maintenance employee to check for leaks from the trucks.

There is a maintenance operation at the Parm Bains truck yard site; therefore, the yard operator is required to file for either a NOI or NEC to obtain coverage under the Industrial General Permit. The State Water Board SMARTS web database does not show that the required documentation has been filed by the truck yard operator.

Figure 2.2-27
Parm Bains Yard Drainage Ditch Along Southern Site Boundary

Figure 2.2-28
Parm Bains Yard Drainage Ditch Along Southern Site Boundary

Figure 2.2-29
Parm Bains Yard Drainage Ditch Along Eastern Site Boundary

Figure 2.2-30
Parm Bains Yard Storm Drain

Proposed Truck Yards

HSD Trucking

Although HSD Trucking's operation has not yet been approved by the County, the truck yard has been operating without a permit; therefore, the existing hydrologic conditions were observed by the environmental consultant at the same time as the other site visits completed in August 2020.

Hydrologic infrastructure on the site includes a large ditch near the southern end of the site, as shown in **Figure 2.2-31**. Since site observations were completed during the dry season, a definitive stormwater discharge point could not be identified; however, the stormwater discharge point is likely at the southern end of the site, near the drainage ditch, or potentially in the northwestern corner of the site. There was no visible ponding observed on-site to indicate poor drainage. No signs of pollutant discharge were observed on the site.

The HSD Trucking Yard, if approved, would include a maintenance shop. Therefore, the yard would be required to file a NOI or NEC with the State Water Board through the SMARTS database, to obtain coverage under an Industrial General Permit.

Figure 2.2-31
HSD Trucking Yard Drainage Ditch

Legend Transportation Expansion

The proposed Legend Transportation Expansion project would include additions to the existing truck yard including construction of an 80-foot by 40-foot metal building for repair shop, office, drivers lounge, and parts storage. The expansion project would allow for parking for 84 truck-tractors and 95 total employee parking spaces. Approval of the application would also allow for removal of two currently unpermitted modular buildings.

The Legend Transportation Expansion project would likely not include additional grading or paving activities that could significantly affect drainage patterns within the site. It is expected that stormwater and other runoff from the project site would continue to drain into the ditch that runs along the western edge of the site.

The Legend Transportation Expansion Project would likely be required to obtain coverage under the State Water Board Construction General Permit. Therefore, the truck yard operator would be required to submit a NOI and associated SWPPP with the State Water Board.

Sangha Trucking Expansion

As discussed in Chapter 1, the Sangha Trucking Expansion project is located adjacent to the existing Sangha Trucking yard. Though the project has yet to be approved and implemented, it is likely that stormwater would drain into an existing ditch located along Oswald Road south of the site. Other hydrologic infrastructure within the vicinity of the proposed project site includes a culvert on Oswald Road at the southwestern corner of the site.

There were no signs of water ponding observed during the environmental consultants visit to the proposed site; however, this could have been due to the timing of the site visit during the dry season. Furthermore, the project site is currently vacant and consists of an empty field. If the project is approved, the Site would be paved and graveled, which, if not properly designed, could lead to poor drainage and associated water ponding.

As discussed in Chapter 1, construction of the Sangha Trucking Expansion project would occur on a four-acre site. Therefore, the proposed project would be required to obtain coverage under the Construction General Permit through submittal of a NOI and SWPPP to the State Water Board. These PRDs must be submitted before the commencement of construction activity.

Summary

Site observations were taken during the dry season. As described above, none of the existing truck yards show obvious signs of poor stormwater drainage, and most of the sites have hydrologic infrastructure to direct runoff into drains, ditches, and culverts to avoid flooding. The same is true of the proposed new yard, HSD trucking, which already has drainage infrastructure in place (i.e. drainage ditch along the southern border of the site), as well as the proposed Legend Transportation Expansion project which would be unlikely to generate additional wastewater flows and would drain into the existing infrastructure present at the current Legend Transportation operation. The Sangha Trucking Expansion project has the potential to generate hydrologic impacts including flooding or ponding, since the site would be graded and paved following project approval by the County. However, the site plans for the Sangha Trucking show that the new site would include a V-Ditch/Valley Gutter on-site that would direct stormwater into a storm drain. Therefore, it is unlikely that the proposed Sangha Trucking Expansion project would lead to flooding or ponding.

Overall, the majority of the existing truck yard sites observed did not have visible evidence of pollutant discharge that could negatively affect water quality and groundwater resources. However, two of the existing sites, including Sangha Trucking and Nar Heer #2, showed signs of ground discoloration within parking areas, indicating oil leaks from trucks or employee automobiles. The proposed new HSD Trucking yard, though not permitted, is already operational and did not have any indicators of pollutant discharge. Both the Legend Transportation Expansion and the Sangha Trucking expansion projects would increase the number of employee vehicles and trucks on-site; however, with proper maintenance, these vehicles would not result in oil leaks that could contribute to surface water or groundwater pollution.

In terms of regulatory compliance, many of the yards are subject to the requirements of the NPDES General Permit for Stormwater Discharges Associated with Industrial Activities. As discussed above, a review of the SMARTS web database shows that none of the existing or proposed truck yards have filed a NOI or an NEC to obtain coverage under the Industrial General Permit.

TABLE 2.2-3
SUMMARY OF HYDROLOGIC CONDITIONS/COMPLIANCE OBSERVED ON-SITE

Site	Evidence of Poor Drainage?	Potential Pollution Sources?	NPDES Permit Required?	NPDES Permit Acquired/SWPPP Prepared?	Notes
Sandhu Brothers	No	No	Yes	**No**	Permit conditions for this site require that all on-site uses comply with storm water discharge regulations as contained in the State Water Board Water Quality Order No. 97-03-DWQ NPDES, General Permit No. CAS000001. Though operation of the site includes truck maintenance activities, the SMARTS database does not show that the yard operator has obtained or applied for coverage under the NPDES Permit.
Nar Heer #1	No	No	No	N/A	This site does not include a maintenance yard; therefore, an Industrial General Permit and associated SWPPP are not required for this property.
Legend Transportation	No	No	Yes	**No**	This site includes a truck maintenance facility and is therefore subject to the requirements of the Industrial General Permit; however, the SMARTS database does not show that the yard operator has obtained or applied for coverage under the NPDES permit.
Northern Carriers	No	No	Yes	**No**	This site includes a 3,200 square foot building that is used for truck repairs. Therefore, the site is required to obtain an Industrial General Permit per the requirements of Order No. 2014-0057-DWQ. The SMARTS database does not indicate that the yard operator has obtained or applied for coverage under the NPDES permit.
3894 Railroad Avenue	No	No	Yes	**No**	The truck yard at 3894 Railroad Avenue includes operation of JB Truck Repair. Vehicle repair facilities are required to obtain coverage under the State Water Board Industrial General Permit. The SMARTS database does not indicate that the yard operator has obtained or applied for coverage under the NPDES permit.
3936 Railroad Avenue	No	No	Yes	**No**	Due to the operation of the truck repair shop, Truck World, Inc., the operator is required to obtain coverage under the State Water Board Industrial General Permit. The SMARTS database does not indicate that the yard operator has obtained or applied for coverage under the NPDES permit.
Sangha Trucking	No	**Yes**	Yes	**No**	The Sangha Trucking yard included a construction stage that required a General Permit to Discharge Stormwater Associated with Construction Activity. The yard received a Notice of Noncompliance from the State Water Board in 2017, after which the yard operator filed the appropriate NOI and prepared a SWPPP to be implemented for the duration of the construction period. The operation of a truck maintenance shop on-site requires that the yard operator obtain coverage under an Industrial General Permit; however, no associated NOI nor NEC was found for this permit in the SMARTS database.

TABLE 2.2-3 (CONTINUED)
SUMMARY OF HYDROLOGIC CONDITIONS/COMPLIANCE OBSERVED ON-SITE

Site	Evidence of Poor Drainage?	Potential Pollution Sources?	NPDES Permit Required?	NPDES Permit Acquired/SWPPP Prepared?	Notes
Nar Heer #2	No	**Yes**	Yes	**No**	The Nar Heer #2 truck yard includes a truck maintenance shop; therefore, the yard is required to obtain coverage under the State Water Board Industrial General Permit. There is no indication that the yard operator has obtained or applied for coverage under this permit on the SMARTS database.
Money Dhami	No	No	No	N/A	This yard does not include a maintenance shop; therefore, it is not required to file an NOI or NEC for coverage under the State Water Board Industrial General Permit.
Parm Bains	No	No	Yes	**No**	A truck maintenance shop operated on this truck yard site; therefore, the truck yard operator is required to obtain coverage under an Industrial General Permit. A search of the State Water Board SMARTS database does not indicate that the truck yard operator has obtained or applied for the required permit.
HSD Trucking[a]	*No*	*No*	*N/A*	*N/A*	*This site is not yet permitted by the County; however, it is currently operating and includes a truck maintenance shop. Since there will be no construction activity associated with this yard, the yard is not required to obtain a NPDES General Construction Permit. However, since the yard includes vehicle maintenance uses, the site will be required to obtain coverage under an Industrial General Permit.*
Legend Transportation Expansion[a]	*N/A*	*N/A*	*N/A*	*N/A*	*This site has not yet been permitted by the County; however, it may be required to obtain coverage under the State Water Board General Construction Permit. The existing Legend Transportation operation includes a maintenance shop and is therefore required to obtain coverage under an Industrial General Permit.*
Sangha Trucking Expansion[a]	*N/A*	*N/A*	*N/A*	*N/A*	*This site has not yet been permitted by the County; however, it may be required to obtain coverage under the State Water Board General Construction Permit as the site is greater than one acre. The existing Sangha site includes a maintenance shop and is therefore required to obtain coverage under an Industrial General Permit, as discussed above.*

TABLE 2.2-3 (CONTINUED)
SUMMARY OF HYDROLOGIC CONDITIONS/COMPLIANCE OBSERVED ON-SITE

NOTES:

[a] Proposed yard, not yet permitted by the County.

SOURCE: State Water Resources Control Board (State Water Board), 2019. *Stormwater Multiple Application and Report Tracking System.* Available at https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml. Accessed November 2020.
Sutter County. *Conditions of Approval Project #05-009 – Harbajan Sandhu.* As approved by Board of Supervisors October 31, 2006.
Sutter County Development Services Department, 2017. *Board of Supervisors Agenda Item.* April 25, 2017.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* September 9, 2014.
Sutter County. *Conditions of Approval Project #05-089 – Northern Carriers.* As approved by the Board of Supervisors on September 19, 2006.
Sutter County Community Services Department, 2006. *Planning Application No. 06-055; Design Review for structures to be located on Assessor's Parcels 23-074-014 and -015.* October 31, 2006.
Sutter County Development Services Department, 2016. *Project #15-019, Design Review; 909 Oswald Road, approximately 375 feet east of State Highway 99, Yuba City, APN 23-072-039.* May 18, 2016.
Sutter County, 2011. *Board of Supervisors Agenda Item.* March 15, 2011.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* June 10, 2014.
Sutter County Development Services Department. *Board of Supervisors Agenda Item.* January 26, 2016.

Recommendations

Rec-Hydro-1: Perform a follow-up wet season inspection. Observations of hydrology and stormwater infrastructure on-site were made during the dry season; therefore, observations may not be representative of stormwater conditions during the wet season. ESA recommends scheduling a follow-up wet season inspection so that site conditions including stormwater runoff can be observed and evaluated.

Rec-Hydro-2: Further analysis of industrial stormwater compliance. As discussed above, a search of the State Water Board's SMARTS database did not indicate that any of the currently operational truck yards have filed NOIs or NECs required to gain coverage under the Industrial General Permit. In addition, with the exception of Sangha Trucking, there is no indication that any of the currently operational truck yards submitted the required PRD's gain coverage under the State Water Board's Construction General Permit for construction activities greater than one acre. Therefore, ESA recommends further collaboration with the State Water Board to determine whether there are any PRDs that may have been filed with the State Water Board but are not available through the SMARTS web database.

Rec-Hydro-3: Engage with the RWQCB for permit enforcement. It is likely that the operating truck yards are required to have obtained permit coverage under the State Water Board General Industrial Permit and operational truck yards should have obtained coverage under the Construction General Permit. None of the yards, aside from Sangha Trucking, has submitted a NOI or NEC to obtain coverage under either of these permits. Although the State Water Board issued a Notice of Noncompliance to the Sangha Trucking site for failure to obtain a Construction General Permit before commencing construction, no such Notices have been issued by the State Water Board to any of the other yards. ESA recommends County coordination with the RWQCB for permit enforcement, to ensure that yards are complying with regulations and obtaining the required permits.

Rec-Hydro-4: Develop a Watershed Management Plan in conjunction with the RWQCB. Develop a Watershed Management Plan that incorporates beneficial uses for local water bodies and implements specific control measures to reduce negative impacts from truck yard operations on beneficial uses.

2.3 Lighting & Glare

This section describes and evaluates the existing conditions related to lighting and glare, as well as the cumulative impacts that could result from construction and operation of the three proposed new and expanded yards in Sutter County.

The Environmental Setting of this chapter includes descriptions of existing lighting characteristics on sites and in the immediate vicinity of the existing operations. Existing permit conditions and related policies relevant to lighting are also discussed. The impact discussion evaluates impacts to nearby residents that may currently may be adversely affecting the community, as well as impacts that could result from construction and operation of the additional proposed truck yards, if approved. These analyses are based on available photographs, site reconnaissance, and project data.

2.3.1 Environmental Setting

Regional Setting

Much of the land in unincorporated Sutter County is visually rural in character and is dominated by various agricultural fields, agricultural buildings, trees and other windrows, roads, and the wider expanse of State Route (SR) 20 and SR 99. Land within the County is generally flat, with the notable exception of Sutter Buttes, a small, circular complex of eroded volcanic lava domes, approximately 10 miles northwest of the existing and proposed truck yard sites, that rises 2,100 feet, is oriented in a rosette circle, is approximately 10 miles in diameter, and encompasses approximately 800,000 acres.

Existing Conditions

Sutter County includes major transportation corridors including State Route (SR) 99 and SR 20, which connect the area to the Interstate 5 (I-5) corridor, to east-west foothill communities, and to I-80 past Grass Valley. The close proximity of these transportation corridors to Sutter County has made the area idea for the development of the trucking facilities near the SR 99 and Oswald Road intersection. There are ten operational truck yards with varying levels of operation, as well as three pending proposals for new and expanded yards. An aerial view of the general vicinity of the truck yard sites is provided in **Figure 1-1**, included in Chapter 1.

The area in the vicinity of the existing and proposed truck yard sites is generally level, making lights from the truck yard sites visible from far distances. Land uses surrounding the proposed truck yards include public rights of way, agricultural uses, and residential properties. The impact of light and glare spillover from the truck yard sites on these surrounding land uses is a concern of the County; and the County has included conditions of approval related to light and glare in many of the truck yards permit approvals.

2.3.2 Regulatory Setting

Federal

There are no applicable federal regulations that pertain to lighting and visual resources.

State

California State Scenic Highway Program

The California State Scenic Highway Program was created by the California Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. The agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program. There are no designated scenic highways in the vicinity of the of the truck yard sites that would be affected by the existing or proposed truck yards.[40]

Local

Sutter County General Plan

The existing and proposed truck yards are located in unincorporated Sutter County and are therefore subject to its General Plan goals, policies, and ordinances. General Plan goals that are applicable to lighting at the existing and proposed truck yards include the following:

Goal LU 4: Facilitate orderly, well-planned, sustainable, and efficient growth that balances aesthetic, functional, resource, and economic considerations.

> ***Policy LU 4.8: Quality New Development.*** Require high-quality, efficient, and well-designed new development.
>
> f. Design and locate lighting to avoid spillage and glare on adjacent properties and protect the rural night sky.

Goal LU 7: Provide for the consideration of appropriately planned and designed new Industrial/Commercial and Employment Corridor uses along the Highway 99 and Highway 70 corridor.

[40] California Department of Transportation (Caltrans), 2015. *Scenic Highway Systems List, Officially Designated Scenic Highways.* Available at https://dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf. Accessed October 2020.

Policy LU 7.2: Quality Design. Ensure that projects within Industrial/Commercial and Employment Corridor areas provide high quality site design, architecture, screening, buffering, landscaping, signage, lighting, and other design elements, in particular along the Highway 99 Corridor, in accordance with the Sutter County Design Guidelines and applicable General Plan Policies. (LU 1-B/LU 7-A)

Goal LU 9: Designate adequate and compatible sites for governmental/public uses, and take a lead role when feasible on regional issues of importance to Sutter County, its residents, and businesses.

Policy LU 9.4: Impacts to Nearby Land Uses. Require public facilities such as wells, pumps, tanks, and yards to be located and designed to ensure that noise, light, odors, and appearance do not adversely affect nearby land uses.

2.3.3 Analysis and Recommendations

Methodology and Assumptions

Lighting conditions such as lighting sources, location and source of on-site lighting, and potential light spillover associated with the existing truck yards were evaluated based on observations made during site visits in August 2020. Though HSD Trucking has not yet been approved by the County, it has been operating without a permit; therefore, a site visit was also performed at the HSD Trucking site to identify lighting sources and impacts.

Analysis

Existing Truck Yards

Sandhu Brothers

The Sandhu Brothers truck yard is located [BS8]east of Highway 99 and north of Walnut Avenue. This site has only one light that is located on the eastern side of the maintenance building and points down to illuminate only a small area of the site. This light does not cause any spillover onto the residential property directly south of the site, or other surrounding areas.

Nar Heer #1

Permit conditions of approval for the Nar Heer #1 truck yard include requirements which limit the height of lighting to 20 feet and limit light spillover to any adjacent property or roadway. The Nar Heer #1 truck yard site itself has only one security light to illuminate the front gate which points down and does not spill onto Barry Road, south of the site. Other lights that are not part of the truck yard operation but are still located on the parcel are located on all sides of the Nor Cal Pump and Well Drilling building, which is located in the northern half of the property. These lights are visible from Highway 99, which is parallel to the eastern boundary of the property, but do not spill off of the site and do not adversely affect nighttime views in the area.

Legend Transportation

Lighting at the Legend Transportation truck yard property is limited to the maintenance building located in the northeastern portion of the site. The northern and southern sides of the building each have three bright lights that do not have shielding, but are angled slightly downwards. This is in violation of the Legend Transportation conditions of approval which require that all lighting on-site have shields. Though the lights are bright and visible from Highway 99, which runs parallel to the western boundary of the site, they do not cause light spillover into adjacent properties.

Northern Carriers

The Northern Carriers truck yard is illuminated by one main light pole that is approximately 15 to 20 feet tall light pole located in the center of the site. This main light is shielded and is angled downward to direct light onto the site. In addition, there is a potential residence in the northwestern corner of the truck yard entitlement area that has one light on it. Both of the lights on-site were characterized by the environmental consultant as very dim, and they did not cause light spillover onto Railroad Avenue or adjacent properties. Overall, the Northern Carriers site does not generate light that shines on adjacent properties, consistent with its permit conditions.

3894 Railroad Avenue

The environmental consultant observed lights affixed to the maintenance building at the truck yard located at 3894 Railroad Avenue. The building has one light on the western, eastern, and southern sides, all of which are angled downwards to shine on the site. No light was observed spilling over onto other properties. Although lights on-site are angled downwards, permit conditions of approval for this property require that all exterior night security lighting be shielded to limit glare onto public rights-of-way and adjoining properties. Therefore, the truck yard operation at 3894 Railroad Avenue is not compliant with its lighting-related permit conditions.

3936 Railroad Avenue

The truck yard located at 3936 Railroad Avenue has one light on the south side of the maintenance building and another light on the eastern side of the building. These lights do not have shields, which violates the permit conditions of approval for this site; however, the lights are pointed towards the site so that no light spills over onto adjacent properties.

Sangha Trucking

The northern and southern boundaries of the existing Sangha Trucking site each have three 20- to [BS9]30-foot-high light poles with two lights affixed to the top of each. These lights are angled to shine onto the site. In addition, the on-site maintenance building has two to three lights located along each side of the structure; and one light pole is also located in the northeastern corner of the site. The lights on the site are bright but are angled to ensure that light is directed onto the site so there is no light spillover onto Oswald Road or other surrounding properties. However, due to the nature of the surrounding uses and landscape, the site affects nighttime views in the area as it is the only property lit up on the northern side of Oswald Road. Lighting generated by the Sangha Trucking site shown in **Figure 2.3-1.**

Permit conditions for the Sangha Trucking site require that any future light poles within the parking lot are limited to 18 feet; however, it is not clear whether the light poles on the site were constructed before or after the permit condition was imposed. Furthermore, the conditions of approval require that all lighting be shielded to limit glare onto public rights of way and adjoining properties. The environmental consultant did not note that lights within the site had shielding; therefore, the Sangha Truck yard may be operating in violation of this permit condition.

Figure 2.3-1
Lighting at Sangha Trucking

Nar Heer #2

Three lights were observed on the Nar Heer #2 truck yard site. Two lights are affixed to the maintenance building, one on the Northern side and one on the Southern site. Each of these lights are very dim. Finally, one bright light is located on a pole in the center of the site, approximately 20 to [BS10]30 feet high. Overall, though the light in the center of the site is bright, it does not cause light that spills over the site boundary onto adjacent properties. Permit conditions for the Nar Heer #2 site require that all exterior lighting be hooded and/or shielded to direct lighting downwards onto the property and to keep lighting from spilling onto adjoining properties and roads. During the site visit, the environmental consultant did not note that the lights at the Nar Heer #2 yard had any sort of shielding on lights; however, none of the lights are bright enough to cause spillover into adjacent properties.

Money Dhami

No lights were observed on the Money Dhami truck yard site.

Parm Bains

Lighting sources observed at the Parm Bains truck yard includes approximately 13 light poles, approximately 25 feet tall located along the west, north, and eastern boundaries of the site. These lights around the perimeter of the site are angled so that lights shine on the site; however, due to their height and brightness, along with the flat nature of the region, these lights are visible from a distance and affect nighttime views in the area. In addition, lights are located along the top of the maintenance building. Although these maintenance building lights are bright and unshielded, they do not result in light that spills over the site boundary. Lights at the Parm Bains property are shown in **Figure 2.3-2.**

Figure 2.3-2
Lighting at Parm Bains Truck Yard

Proposed Truck Yards

HSD Trucking

As discussed above, HSD Trucking has not yet been permitted by the county but is currently operational. This site has large, bright lights affixed to the northern, western, and southern sides of the maintenance building that have no shields and are angled slightly downward. These bright lights cause lighting to spill over onto Walnut Avenue which runs parallel to the northern boundary of the site; furthermore, the lights are highly visible from southbound lanes of Highway 99. The environmental consultant observed that lighting at the HSD Trucking site generates a source of light and glare that adversely affects nighttime views in the area.

Legend Transportation Expansion

The Legend Transportation Expansion project would include construction of an 80-foot by 140-foot metal building on the existing Truck Yard site. It is likely that this structure would include light fixtures that would be similar to those on the existing building on-site.

Sangha Trucking Expansion

The Sangha Trucking expansion project would include construction and operational use of a four-acre parking area located directly east of the existing Sangha Truck and Trailer Repair site. This expansion project would not include the construction of additional structures and would solely provide additional parking for trucks.

Summary

Some of the truck yards have bright lights that are visible from far distances and do not necessarily fit in with the character of the surrounding land uses including Sangha Trucking and Parm Bains. Additionally, a few of the existing truck yards, including Legend Transportation, the yard at 3936 Railroad Avenue, and Nar Heer #2 are in violation of their permit conditions that require lighting to have shielding. However, none of the existing permitted truck yards generate light that spills over into adjacent properties. Though HSD Trucking is not yet permitted, it is in operation and causes light to spill over the property line. The other two proposed truck yards, Sangha Trucking and Legend Transportation would likely include installation of additional lighting on-site. Additional lighting would have the potential to generate light that spills over the property line; however, with the proper consideration of angling and installation of shielding potential impacts to surrounding properties and public rights of way can be avoided.

TABLE 2.3-1
SUMMARY OF LIGHTING CONDITIONS OBSERVED ON-SITE

Truck Yard	Violates Permit Conditions?	Generates Light Spillover?	Adverse Effect on Nighttime Views?	Notes
Sandhu Brothers	No	No	No	N/A
Nar Heer #1	No	No	No	N/A
Legend Transportation	Yes	No	No	Permit conditions require that all lights have shielding; however, lights on-site are not shielded.
Northern Carriers	No	No	No	N/A
3894 Railroad Avenue	Yes	No	No	Permit conditions require that all lights have shielding; however, light shielding was not observed by the environmental consultant on-site.
3936 Railroad Avenue	Yes	No	No	Permit conditions require that all lights have shielding; however, light shielding was not observed by the environmental consultant on-site.

TABLE 2.3-1 (CONTINUED)
SUMMARY OF LIGHTING CONDITIONS OBSERVED ON-SITE

Truck Yard	Violates Permit Conditions?	Generates Light Spillover?	Adverse Effect on Nighttime Views?	Notes
Sangha Trucking	Yes	No	Yes	Permit conditions require that lighting is limited to 18 feet in height. Observations made by the environmental consultant estimate that light poles were 20-30 feet tall; however, it is unknown whether these light fixtures were present before or after the permit conditions were imposed. Permit conditions also require that lighting have shields; however, light shielding was not noted by the environmental consultant during the site visit. The site may adversely affect nighttime views in the area, as it is the only site lit up on the road.
Nar Heer #2	Yes	No	No	Permit conditions require that all lights have shielding; however, light shielding was not observed by the environmental consultant on-site.
Money Dhami	Yes	No	No	Permit conditions require that all exterior doors have one foot-candle of light; however, no lights were observed on the site.
Parm Bains	No	No	Yes	Although lights do not generate spillover, the site does affect nighttime views in the area as lights are very bright and are visible from a distance.
HSD Trucking[a]	N/A	Yes	Yes	This site is unpermitted, and therefore does not have any permit conditions associated with it. However, this site generates light that spills off of the property and negatively affects nighttime views in the area.

NOTES:

[a] Proposed yard, not yet permitted by the County.

SOURCE: Sutter County. *Conditions of Approval Project #05-009 – Harbajan Sandhu.* As approved by Board of Supervisors October 31, 2006.
Sutter County Development Services Department, 2017. *Board of Supervisors Agenda Item.* April 25, 2017.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* September 9, 2014.
Sutter County. *Conditions of Approval Project #05-089 – Northern Carriers.* As approved by the Board of Supervisors on September 19, 2006.
Sutter County Community Services Department, 2006. *Planning Application No. 06-055; Design Review for structures to be located on Assessor's Parcels 23-074-014 and -015.* October 31, 2006.
Sutter County Development Services Department, 2016. *Project #15-019, Design Review; 909 Oswald Road, approximately 375 feet east of State Highway 99, Yuba City, APN 23-072-039.* May 18, 2016.
Sutter County, 2011. *Board of Supervisors Agenda Item.* March 15, 2011.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* June 10, 2014.
Sutter County Development Services Department. *Board of Supervisors Agenda Item.* January 26, 2016.

Recommendations

Rec-Light-1: Enforce lighting standards at existing yards. Although the existing operational truck yard sites were not necessarily contributing to light spillover, a review of their permit conditions and operating conditions indicates that these sites are not operating in compliance with their permit conditions. Sites including Legend Transportation, 3894 Railroad Avenue, 3936 Railroad Avenue, Sangha Trucking, and

Nar Heer #2, would need to include light shielding to be compliant with their permit conditions.

Rec-Light-2: Implement lighting-related conditions of approval at future yards. As discussed above, the only truck yard site that generates light that negatively affects neighboring properties is the unpermitted HSD Trucking site. ESA recommends that when this site is officially approved, permit conditions of approval should include requirements for light shielding, angling, and height limitations that would reduce the amount of light that spills off of the site and onto neighboring properties. In addition, other future proposed yards should be required to implement similar conditions of approval to reduce potential lighting impacts.

2.4 Noise and Vibration

This section describes the existing noise environment near the existing and proposed truck yards and evaluates the potential for the construction and operation of the proposed truck yards to result in significant impacts associated with noise and vibration.

2.4.1 Environmental Setting

Technical Background and Noise Terminology

The term 'noise' is typically used to denote unwanted sound. Sound can be described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the intensity of the pressure vibrations that make up a sound. The pitch of the sound is correlated to the frequency of the sound's pressure vibration. Because humans are not equally sensitive to a given sound level at all frequencies, a special scale has been devised that specifically relates noise to human sensitivity. A-weighting of decibels (dBA) does this by placing more emphasis on frequencies that are more noticeable to the human ear.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is measure of noise at a given instant in time; however, noise levels rarely persist consistently over a long period of time. Rather, community noise varies continuously over time because of the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and wind. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to accurately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: The instantaneous maximum noise level for a specified period of time.

L_{min}: The instantaneous minimum noise level for a specified period of time.

L_{dn}: The Day/Night Average Sound Level is the 24-hour day and night A-weighed noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance from nighttime noise. (Also referred to as “DNL.”)

CNEL: similar to L_{dn}, the Community Noise Equivalent Level (CNEL) adds a 5-dB “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dB penalty between the hours of 10:00 p.m. and 7:00 a.m.

As a general rule, in areas where the noise environment is dominated by traffic, the L_{eq} during the peak-hour is generally within two decibels of the L_{dn} at that location.[41]

Effects of Noise on People

When a new source of noise is introduced to an environment, human reaction can be predicted by comparing the new noise to the ambient noise level, which is the existing noise level comprised of all sources of noise in a given location. In general, the more a new noise exceeds the ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:[42]

- except in carefully controlled laboratory experiments, a change of 1-dB cannot be perceived;
- outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- a change in level of at least 5-dB is required before any noticeable change in human response would be expected; and
- a 10-dB change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

The perceived increases in noise levels shown above are applicable to both mobile and stationary noise sources. These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Fundamentals of Vibration

As described in the Federal Transit Administration’s (FTA) *Transit Noise and Vibration Impact Assessment*, groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.

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41 California Department of Transportation, 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September 2013.

42 *California Department of Transportation, 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September 2013.*

In contrast to airborne noise, groundborne vibration is not a common environmental problem.[43] It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity.[44] The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV.[45]

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people.[46]

Existing Conditions

Existing Ambient Noise Levels

The project site is within an area of unincorporated Sutter County developed with mixed rural residential uses, agriculture and industrial trucking yards. Environmental noise in the vicinity of

[43] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*
[44] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*
[45] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*
[46] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*

the project site is dominated by vehicle traffic on roadways such as the adjacent SR 99, Walnut Avenue, Barry Road, Railroad Avenue and Oswald Road. There are existing trucking facilities throughout the study area indicated in Figure 1-1. The existing agricultural uses in the surrounding environs would only be expected to generate occasional modest levels of noise from harvesting and maintenance activities, which occur seasonally. Notwithstanding its name, there are no-longer any active rail lines in the vicinity of Railroad Avenue.

Long-term noise level measurements were conducted throughout the study area in August of 2020 to establish existing ambient noise conditions. Noise measurements were taken in proximity of the noise-sensitive land uses in the area such as residential uses and schools. The noise survey was conducted using Larson Davis Model LxT2 sound level meters that were calibrated before use and operated according to the manufacturer's written specifications. These measurements logged hourly average noise levels over a 24-hour period from August 2nd to August 3rd, 2020[BS11]. The measured average noise level (L_{eq}) during different averaging periods are shown in **Table 2.4-1**. The measurement locations are identified on **Figure 2.4-1**.

TABLE 2.4-1
EXISTING NOISE ENVIRONMENTS IN THE PROJECT VICINITY

Long-Term (LT) Noise Monitoring Location	Noise Levels (dBA)				Primary Noise Sources
	Day-Night Noise Level (Ldn)	24-Hour L_{eq}	Daytime[a] Hourly Average L_{eq}	Nighttime[b] Hourly Average L_{eq}	
LT-A: Southwest corner of Oswald Road and Railroad Avenue	63	59	61	54	Traffic on Railroad Avenue and operations of Trucking facilities east of Railroad Avenue
LT-B: Southwest corner of Oswald Road and SR 99	79	73	74	72	Traffic on SR 99
LT-C: Orchard Avenue 1400 feet south of Oswald Road	56	50	51	49	Distant shielded traffic on SR 99
LT-D: Barry Road 360 feet east of SR 99	62	58	59	55	Traffic on SR 99
LT-E: Walnut Avenue 650 feet east of SR 99	58	54	56	49	Traffic on SR 99

NOTES: dBA = A-weighted decibels; L_{dn} = Day-night noise level; L_{eq} = equivalent-continuous sound level; SR = State Route; UPRR = Union Pacific Railroad

a Daytime hours are considered to be 7 a.m. to 10 p.m.
b Nighttime hours are considered to be 10 p.m. to 7 a.m.

SOURCE: Environmental Science Associates in 2020.

Existing roadside noise levels along roadway segments near the project site were modeled to provide existing weekday noise level estimates for the roadway segments near the project site. The existing roadside noise levels are presented in **Table 2.4-2** during the weekday peak commute hour[47]. These modeled noise levels reflect only the noise generated by traffic on the

47 Existing and future traffic volumes provided by the transportation analysis were in the average daily trip metric for weekdays. These values were adjusted to reflect a peak-traffic-hour volume percentage of 5 percent.

identified roadway segments; they do not include other sources in the area, such as rail and highway noise where these other sources are nearby.

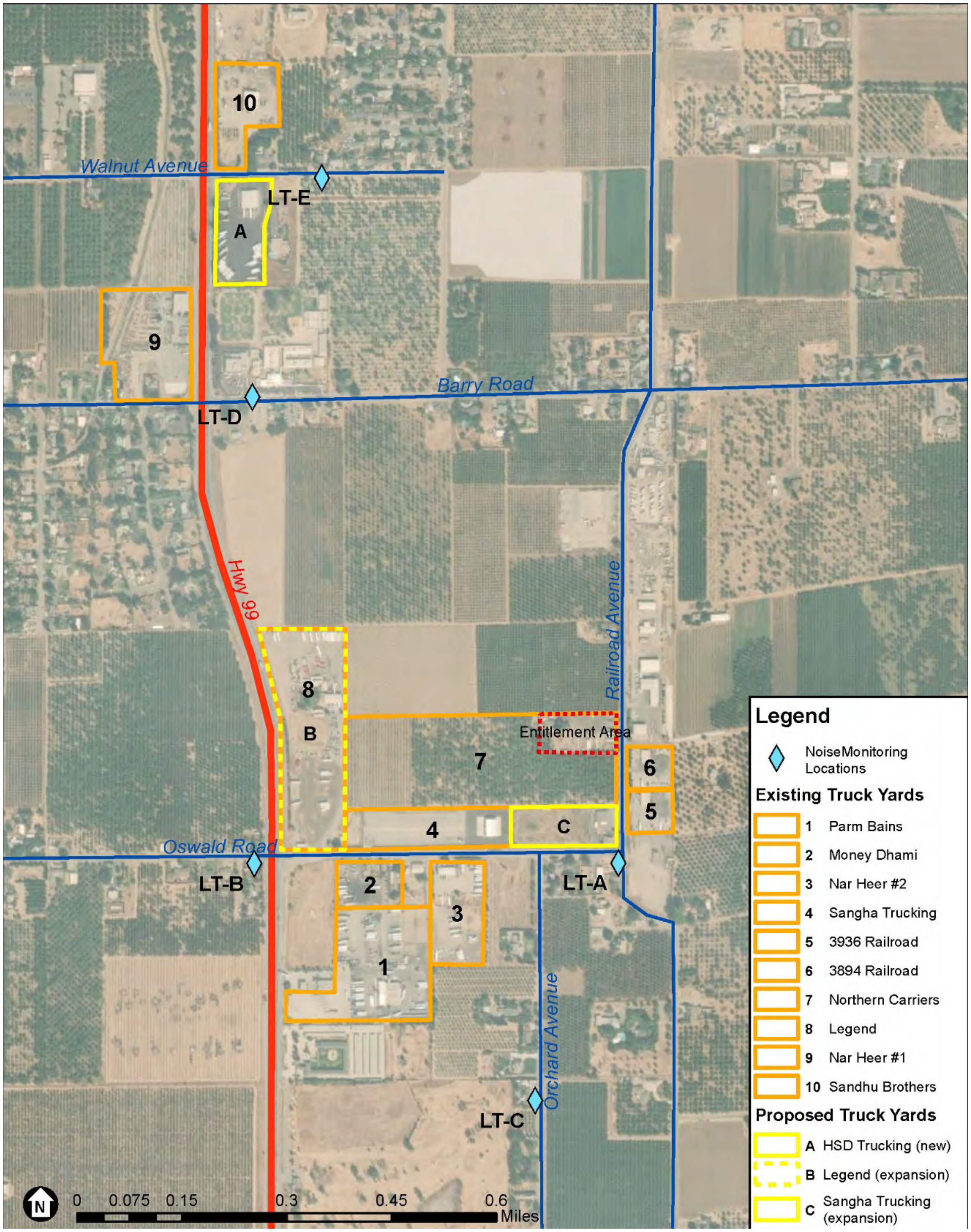

Figure 2.4-1
Noise Measurement Location

TABLE 2.4-2
EXISTING TRAFFIC NOISE ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing Hourly (dBA)
Weekday Peak-Hour Noise Levels	
Railroad Avenue from Oswald Road to Barry Road	58.1
Oswald Road from Railroad Avenue to SR 99	56.4
Oswald Road from SR 99 to South Walton Avenue	60.6
SR 99 from Oswald Road to Barry Road	76.0
SR 99 from Oswald Road to Messick Road	76.1
SR 99 from Barry Road to Walnut Avenue	76.1
SR 99 from Walnut Avenue to Reed Road	76.1
Walnut Avenue from SR 99 to Muir Road	52.7
Barry Road from SR 99 to Frakes Way	60.5
Barry Road from SR 99 to Railroad Avenue	62.0

NOTE: dBA = A-weighted decibels
SOURCES: Traffic data compiled by Fehr & Peers in 2020 and noise modeling performed by Environmental Science Associates in 2020.

Existing Truck Yard Operations

Sandhu Brothers

The Sandhu Brothers truck yard is the northernmost of the 10 yards considered. Located at the northeast corner of Walnut Avenue and SR 99 the predominant noise source at this location is traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-E in Table 2.4-1, above. Noise from existing operations of this yard are negligible compared to the existing noise environment due to the elevated noise from traffic on SR 99.

Nar Heer #1

The Nar Heer #1 truck yard is located at the northwest corner of SR 99 and Barry Road. The predominant noise source at this location is traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-D in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated noise from traffic on SR 99. This facility has a permit requirement for truck trailers equipped with refrigeration units to be parked on the east property line abutting State Highway 99, outside of the required landscape area and proposed parking lot area.

Legend Transportation

The Nar Heer #1 truck yard is located at the northwest corner of SR 99 and Barry Road. The predominant noise source at this location is traffic on SR 99. Existing noise levels at the school receptor nearest to this facility are represented by monitoring location LT-D in Table 2.4-1, above. The residence nearest this facility is located across Barry Road where the daytime noise levels from SR 99 in Table 2.4-2 above would be representative of the noise environment at this receptor. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated noise from traffic on SR 99.

Northern Carriers

The Northern Carriers truck yard is located on the west side of Railroad Avenue between Oswald Road and Barry Road. The predominant noise source at this location is traffic on Railroad Avenue and distant traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-A in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

3894 Railroad Avenue

The 3894 Railroad Avenue truck yard is located on the east side of Railroad Avenue between Oswald Road and Barry Road. The predominant noise source at this location is traffic on Railroad Avenue and distant traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-A in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

3936 Railroad Avenue

Similar to the site at 3834 Railroad Avenue, the 3894 Railroad Avenue truck yard is located on the east side of Railroad Avenue between Oswald Road and Barry Road. The predominant noise source at this location is traffic on Railroad Avenue and distant traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-A in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

Sangha Trucking

The Sangha truck yard is located on the north side of Oswald Road between Railroad Avenue and SR 99. The predominant noise source at this location is traffic on Oswald Road and traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring locations LT-A and LT-B in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

Nar Heer #2

The Nar Heer #2 truck yard is located on the south side of Oswald Road between Railroad Avenue and SR 99. The predominant noise source at this location is traffic on Oswald Road and traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring locations LT-A and LT-B in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

Money Dhami

The Money Dhami truck yard is located on the south side of Oswald Road between Railroad Avenue and SR 99. The predominant noise source at this location is traffic on Oswald Road and traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-B in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

Parm Bains

The Parm Bains truck yard is located on the west side of SR 99 South of Oswald Road The predominant noise source at this location is traffic on Oswald Road and traffic on SR 99. Existing noise levels at the receptor location nearest to this facility are represented by monitoring location LT-B in Table 2.4-1, above. Noise from existing operations of this yard contribute negligibly to the existing noise environment due to the elevated baseline existing level of noise from traffic on SR 99.

Existing Groundborne Vibration Levels

The only sources of groundborne vibration in the project site vicinity are heavy-duty vehicular travel (e.g., refuse trucks, haul trucks) on local roadways. Trucks traveling at a distance of 50 feet typically generate groundborne vibration velocity levels of around 63 VdB (approximately 0.006 in/sec PPV), and these levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over discontinuities in the roadway.[48]

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, and auditoriums generally are more sensitive to noise than are commercial and industrial land uses. Sensitive receptors in the study area are residential uses and Barry Elementary school at 1255 Barry Road (see Figure 1-3, included in Chapter 1). **Table 2.4-3** indicates the nearest sensitive receptor and distance for each of the 10 existing truck yards and each of the three proposed truck yards. For receptors that are located adjacent to the truck yards, a conservative default distance of 25 feet from the yards was assumed.

[48] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*

TABLE 2.4-3
EXISTING NOISE-SENSITIVE RECEPTORS NEAREST EACH TRUCK YARD

Truck Yard	Type of Sensitive Receptor	Location	Minimum Distance from Project Site Boundaries	Representative Monitoring Location
Sandhu Brothers	Residential	1261 Walnut Avenue	60 feet	LT-E
Nar Heer #1	Barry Road School/residential	1255 Barry Road	140 feet	LT-D
Legend (existing)	Residential	3799 Oak Ridge Drive	350 feet	LT-B
Legend (Proposed)	Residential	1311 Oswald Road	150 feet	LT-B
Northern Carriers	Residential	4000 block of Railroad Avenue and 900 Block of Oswald Road	500 feet	LT-A
3894 Railroad Avenue	Residential	4000 block of Railroad Avenue and 900 Block of Oswald Road	400 feet	LT-A
3936 Railroad Avenue	Residential	4000 block of Railroad Avenue and 900 Block of Oswald Road	170 feet	LT-A
Sangha (existing)	Residential	1100 Block Oswald Road	100 feet	LT-B
Sangha (Proposed)	Residential	4000 block of Railroad Avenue and 900 Block of Oswald Road	75 feet	LT-A
Nar Heer #2	Residential	1100 Block Oswald Road	25 feet	LT-B
Money Dhami	Residential	1100 Block Oswald Road	25 feet	LT-B
Parm Bains	Residential	1100 Block Oswald Road	25 feet	LT-B
HSD Trucking (proposed)	Residential	1200 Block Walnut Avenue	25 feet	LT-E

SOURCE: ESA, 2020; Google Earth (Imagery Date 6/2016) for parcel data (address and distance to the site).

2.4.1 Regulatory Setting

Federal

The primary federal noise standards that directly regulate noise related to the operation of the proposed project are with regard to noise exposure and workers. The U.S. Occupational Safety and Health Administration (OSHA) enforces regulations to safeguard the hearing of workers exposed to occupational noise. OSHA has established worker noise exposure limits that vary with the duration of the exposure and requires implementation of a hearing conservation program if employees are exposed to noise levels in excess of 85 dBA.

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

Federal Transit Authority Vibration Standards

FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by FTA are shown in **Table 2.4-4**.

TABLE 2.4-4
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

NOTES: in/sec = inches per second; PPV = peak particle velocity
SOURCE: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

In addition, the FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories:

- **Category 1—High Sensitivity:** Buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes.
- **Category 2—Residential:** All residential land uses and any buildings where people sleep, such as hotels and hospitals.
- **Category 3—Institutional:** Land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.[49] Under conditions where there are an occasional number of events per day, FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.[50] No thresholds have been adopted or recommended for commercial and office uses.

[49] "Infrequent events" is defined by FTA as being fewer than 30 vibration events of the same kind per day.
[50] "Occasional events" is defined by FTA as between 30 and 70 vibration events of the same source per day.

State

The California Department of Public Health has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in **Table 2.4-5**. In addition, Section 65302(f) of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

TABLE 2.4-5
COMMUNITY NOISE EXPOSURE (DNL OR CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-Family Homes, Duplexes, Mobile Homes	50–60	55–70	70–75	above 75
Multifamily Homes	50–65	60–70	70–75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	above 80
Transient Lodging—Motels, Hotels	50–65	60–70	70–80	above 75
Auditoriums, Concert Halls, Amphitheaters	—	50–70	—	above 70
Sports Arenas, Outdoor Spectator Sports	—	50–75	—	above 75
Playgrounds, Neighborhood Parks	50–70	—	67–75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–75	—	70–80	above 80
Office Buildings, Business and Professional, Commercial	50–70	67–77	above 75	—
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	above 75	—

NOTES: CNEL = community noise equivalent level; DNL = day-night average noise level

a Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
b Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
c Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
d Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: Governor's Office of Planning and Research, *State of California General Plan Guidelines*, Appendix D, 2017.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

Local

Sutter County General Plan Noise Element

The purpose of the Sutter County General Plan Noise Element contains policies and programs that are intended to protect Sutter County residents, businesses, and visitors by establishing maximum allowable interior and exterior noise levels, as well as maximum noise standards from stationary sources and vibration activities. The General Plan policies most applicable to the proposed Project are identified below.

Policy N 1.2: Exterior Incremental Environmental Noise Standards. Require new development to mitigate noise impacts on noise sensitive uses where the projected increases in exterior noise levels exceed those shown in **Table 2.4-6**, below.

TABLE 2.4-6
EXTERIOR INCREMENTAL ENVIRONMENTAL NOISE STANDARDS FOR NOISE-SENSITIVE USES (dBA)

Residences and Buildings Where People Normally Sleep [a]		Institutional Land Uses with Primarily Daytime and Evening Uses [b]	
Existing L_{dn}	Allowable Noise Increment	Existing Peak Hour L_{eq}	Allowable Noise Increment
45	8	45	**12**
50	5	50	**9**
55	3	55	**6**
60	2	60	**5**
65	1	65	**3**
70	1	70	**3**
75	0	75	**1**
80	**0**	**80**	**0**

Policy N 1.3: Interior Noise Standards. Require new development to mitigate noise impacts to ensure acceptable interior noise levels appropriate to the land use type as shown in **Table 2.4-7**, below.

TABLE 2.4-7
MAXIMUM ALLOWABLE ENVIRONMENTAL NOISE STANDARDS

	Exterior Noise Level Standard for Outdoor Activity Areas [a]		Interior Noise Level Standard
Land Use	**L_{dn}/CNEL, dB**	**L_{dn}/CNEL, dB**	**L_{eq}, dB [b]**
Residential (Low Density Residential, Duplex, Mobile Homes)	60[c]	45	**N/A**
Residential (Multi Family)	65[d]	45	**N/A**
Transient Lodging (Motels/Hotels)	65[d]	45	**N/A**
Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums	70	45	**N/A**
Theaters, Auditoriums	70	N/A	**35**
Playgrounds, Neighborhood Parks	70	N/A	**N/A**
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75	N/A	**N/A**
Office Buildings, Business Commercial and Professional	70	N/A	**45**
Industrial, Manufacturing, Utilities, and Agriculture	75	N/A	**45**

NOTES:
a Outdoor activity areas for residential developments are considered to be the back yard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multi-family development. Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including outdoor seating areas. Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.
b As determined for a typical worst-case hour during periods of use.
c Where it is not possible to reduce noise in outdoor activity areas to 60 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 65 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
Where it is not possible to reduce noise in outdoor activity areas to 65 dB, Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior level of up to 70 dB, Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-1.

Policy N 1.4: New Stationary Noise Sources. Require new stationary noise sources to mitigate noise impacts on noise-sensitive uses wherever the noise from that source alone exceeds the exterior levels specified in **Table 2.4-8**, below.

TABLE 2.4-8
NOISE LEVEL STANDARDS FROM STATIONARY SOURCES

Noise Level Descriptor	Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)
Hourly Leq, dB	55	45
Maximum level, dB	70	65

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-3.

Policy N 1.5: Frequent, High-Noise Events. Require development of noise sensitive uses subject to a discretionary permit and proposed in areas subject to frequent, high- noise events (such as aircraft over flights, or train and truck pass-by events) to adequately evaluate and mitigate the potential for noise-related impacts to ensure that noise- related annoyance, sleep disruption, speech interference, and other similar effects are minimized using metrics and methodologies appropriate to the effect(s) to be assessed and avoided.

Policy N 1.6: Construction Noise. Require discretionary projects to limit noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays, 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibit construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

Policy N 1.7: Vibration Standards. Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in **Table 2.4-9**, below.

TABLE 2.4-9
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Impact Levels (VdB)		
	Frequent Events [a]	Occasional Events [b]	Infrequent Events [c]
Category 1: Buildings where vibration would interfere with interior operations	65	65	**65**
Category 2: Residences and buildings where people normally sleep	72	75	**80**
Category 3: Institutional land uses with primarily daytime uses	75	78	**83**

NOTES: a “Frequent Events” is defined as more than 70 vibration events of the same source per day.
b “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day.
c “Infrequent Events” is defined as fewer than 30 vibration events of the same source per day.

This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels

SOURCE: Sutter County General Plan (2011), Noise Element, Table 11-4.

Sutter County Code

Article 21.5 the Sutter County Code establishes exterior noise standards that apply to all noise sensitive exterior areas within Sutter County. These codified standards are the same as those presented in Table 3-7 above relative to Policy N 1.4 of the County General Plan.

2.4.2 Analysis and Recommendations

Analysis Criteria

Based on the CEQA Guidelines, impacts related to noise and/or groundborne vibration would be significant if implementation of the proposed project would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generate excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels.

Methodology and Assumptions

The f[BS12]ollowing is a description of the methodology used to evaluate the potential impacts of project site development relative to each of the criteria cited above. New and/or expanded trucking facilities would consist of:

- HSD Trucking: This truck yard is already constructed but is seeking permitting to operate. Located at the southeast corner of SR 99 and Walnut Avenue, it is located adjacent to an existing residential lot to the east, as indicated in Table 2.4-3, above.
- Legend Transportation: This proposed expansion of the existing Legend facility to the north would be located at the northeast corner of SR 99 and Oswald Road. Besides an existing caretaker house on the property, the nearest receptors to this expansion yard would be three residential units across Oswald Road, approximately 150 feet from the southeast corner of the expansion yard.
- Sangha Trucking: This proposed expansion of the existing Sangha Truck yard to the east would be located at the northwest corner of Oswald Road and Railroad Avenue. The nearest receptor, across Oswald Road, is approximately 100 feet away.

Substantial Increase in Noise

The first criterion examines whether construction and/or operations for truck yard expansions would generate noise in excess of established criteria which are different for stationary, mobile, and construction noise sources.

Evaluation of the proposed expansion projects relative to this threshold under the first criterion focuses on operational increases in ambient noise level from stationary sources, while the second criterion focuses on the project’s contribution to localized increases in traffic-generated noise along roadways, and the third criterion focuses on construction-related noise generated by the project.

Stationary-Source Noise

The proposed new and expanded truck yard projects could substantially increase noise levels at noise-sensitive land uses or could expose sensitive receptors to noise levels exceeding standards established by Policy N 1.4 of the County General Plan.

Each site would serve as a truck storage area and/or maintenance area for heavy-duty trucks. Truck maneuvering and operation of TRUs would be the sources of on-site stationary noise to be evaluated. The project Sangha expansion proposes operations to occur 8am-5:30pm Mon-Friday; 8am-1:30pm Saturday; and closed Sundays. It was assumed that the HSD trucking yard and the Legend Yard expansion would also operate during daytime hours. Therefore, only the daytime standards are applied in this analysis. If new and expanded truck yards were to operate during the nighttime hours between 10:00 p.m. and 7:00 a.m., a more stringent standard of 45 dBA would apply.[BS13]

Project-Generated Traffic Noise

Guidance on the significance of changes in ambient noise levels from transportation is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels caused by aircraft operations.[51] The recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by the noise. The term “annoyance” summarizes the general adverse reaction of people to noise that interferes with speech, disturbs sleep, or interferes with the desire for a tranquil environment. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, they apply to all sources of transportation noise described in terms of cumulative noise exposure metrics such as the DNL. The measures of a substantial increase in transportation noise exposure as recommended by FICON are presented in **Table 2.4-10**.

TABLE 2.4-10
MEASURES OF A SUBSTANTIAL INCREASE IN TRANSPORTATION NOISE EXPOSURE

Ambient Noise Level without Project (DNL)	Significant Impact Assumed to Occur if Project Site Development Increases Ambient Noise Levels by:
<60 dB	+ 5.0 dB or more
60–65 dB	+ 3.0 dB or more
>65 dB	+ 1.5 dB or more[a]

NOTES: dB = decibels; DNL = day-night average noise level

a According to the Federal Interagency Committee on Noise report, the 1.5 A-weighted decibel (dBA) increase in environments that exceed 65 dBA is not necessarily a significant increase but, rather, an increase warranting further investigation.

SOURCE: Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

The rationale for the Table 2.4-10 criteria is that, as ambient noise levels increase, a small increase in decibel levels is sufficient to cause significant annoyance. The quieter the ambient

[51] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

noise level is, the more the noise can increase (in decibels) before it causes significant annoyance. The 5-dBA and 3 dBA noise level increases presented in Table 3-8 also correlate directly with noise level increases that Caltrans consider to represent "readily perceivable" and "barely perceivable," respectively, for short-term noise increases.

Traffic noise levels were modeled using the algorithms of the Federal Highway Administration's Traffic Noise Model for the existing and existing plus all three expansion yard scenarios. The resulting noise levels were then compared to existing modeled or monitored conditions, depending on the contribution of other noise sources in the local environment, to determine significance.

Construction Noise

Sutter County General Plan Policy N 1.6 restricts noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibits construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County.

This analysis assesses the potential for construction-related noise to cause a substantial temporary or periodic increase in ambient noise levels at the closest existing offsite noise-sensitive receptors, future on-site sensitive receptors, and planned offsite sensitive receptors using FTA methodology for general quantitative noise assessment.[52] The FTA methodology calls for estimating a combined noise level from the simultaneous operation of the two noisiest pieces of equipment expected to be used in each construction phase. This method applies usage factors to each piece of equipment analyzed to account for the time that the equipment is in use over the specified time period. Project construction noise impacts are evaluated at sensitive receptor locations to determine whether the proposed project would result in an exceedance of FTA criterion for residential uses of 90 dBA daytime Leq. If these quantitative criteria are exceeded, the evaluation then considers the duration and severity of the exceedance to determine whether the project would result in a substantial temporary increase in noise levels.

Groundborne Vibration

Impacts from groundborne vibration during project site construction are also assessed using vibration damage threshold criteria expressed in PPV for architectural damage. Equipment or activities that typically generate continuous vibration include but are not limited to: excavation equipment; static compaction equipment; and vibratory compaction equipment. General Plan Policy N 1.7 requires new development to minimize continuous vibration impacts on adjacent

[52] U.S. DOT, FTA, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Section 7, Quantitative Noise Assessment, pp. 172–179, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed January 25, 2019.

uses during demolition and construction and established standards, as indicated in Table 2.4-9 above. For short-term construction, the infrequent criterion is applied.

With respect to building damage, Caltrans's measure of the threshold of architectural damage for conventional sensitive structures is 0.5 in/sec PPV for new residential structures and modern commercial buildings and 0.25 in/sec PPV for historic and older buildings.[53]

Vibration impacts were estimated using reference vibration levels for construction equipment in concert with vibration propagation equations published by FTA, and estimating the potential for resultant vibration levels in excess of the General Plan standards.

Exposure of People to Excessive Noise Levels

The project site is not located within an airport land use plan area, within two miles of a public airport, or within the vicinity of a private airstrip. Therefore, there would be no impact with respect to exposure of people residing or working in the area to excessive noise levels from an airport or airfield and this topic is not discussed further.

Analysis

Noise Generation

Stationary Noise Sources – HSD

Operation of the existing and proposed truck yards would increase ambient noise levels in the immediate vicinity primarily through the on-site movement of trucks and the occasional operation of TRUs.

Table 2.4-11 shows noise levels associated with semi-trailer truck maneuvering including operation of TRUs.[54] This table indicates that the highest noise levels generated during a semi-trailer truck operation would be 66 dBA at 50 feet, as it maneuvers into a parking space. Once a truck is parked, the TRU could continue to operate, generating noise level of 62 dBA at a distance of 50 feet.

The nearest receptor to the HSD facility is a single family residence immediately to the east with the setback of the residence approximately 25 feet from the yard area. This residence is separated with a chain link fence and a small earthen berm of no more than 5-feet in height. The playfields of Barry Elementary School are located approximately 35 feet to the south with a chain link fence. There is also one residence directly across Walnut Avenue to the north. Existing monitored daytime noise levels in the vicinity, approximately 300 feet from the driveway of the receptor on Walnut Avenue were monitored to average 56 dBA during daytime hours.

Applying a standard composite source height for trucks of 8 feet (engine and exhaust stack/TRU), a 6-foot the existing chain link fence and small berm are insufficient to break the line-of-sight

[53] Caltrans, Transportation and Construction Vibration Guidance Manual (Table 19, p.38), September 2013.
[54] Environmental Science Associates, *Fresh and Easy Distribution Truck Noise Study*, December 3, 2008.

between the receptor and the source and, therefore, provide no meaningful noise reduction. Consequently, the predicted noise level would remain at approximately 62 dBA during TRU operations which would exceed the hourly daytime standard of 55 dBA, Leq. Additionally, the potential exists for multiple TRU operations to occur simultaneously. Truck maneuvering activity is typically of brief duration and would only generate noise over a brief period of one to two minutes per truck arrival. However, TRU operations can cycle off and on and operate for approximately 15 minutes every hour and, therefore, would be a more consistent noise source. Consequently, noise reduction measures are recommended to be considered to reduce the daytime noise levels from operations of the HSD facility at the closest receptors.

TABLE 2.4-11
SEMI-TRAILER TRUCK OPERATIONS AND DELIVERY

Noise Levels	Equivalent Continuous Noise Level (Leq), in dBA		
Scenario	**50 Feet**	**100 Feet**	**150 feet**
Truck Maneuvering into Loading Area with Operating TRU	65.9	63.2	59.7
TRU On with Engine at Idle	65.5	59.3	55.8
TRU On with Engine Off	**61.7**	**57.2**	53.7
Sutter County Daytime Noise Standard	55	55	55

NOTES: dBA = A-weighted decibels

SOURCE: Environmental Science Associates, *Fresh and Easy Distribution Truck Noise Study*, December 3, 2008

Potential Noise Reduction Measure HSD-1: Designate TRU operational areas. To reduce noise exposure to the closest receptors, specific areas could be designated on the site so that TRU operations do not occur within a set distance of a receptors. For example, at a distance of 150 feet, TRU operations from a single unit would be approximately 54 dBA. Given that TRU units would cycle on for 15 minutes in a given hour, such a distance could accommodate the cumulative noise energy up to four TRU operations in a given daytime hour.

Potential Noise Reduction Measure HSD-2: Provide sound barriers on property lines adjacent to noise-sensitive land uses: Alternatively, to reduce noise exposure to the closest receptors, the permit applicant could construct a solid wall along the eastern and southern property lines of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units. The barrier should have a minimum weight/density of 3.5 pounds per square foot. At such a density, more than 90 percent of the sound energy is blocked/reflected and less than 10 percent penetrates through. The wall should be of solid construction with no visible gaps and a number of material types would be sufficient. Masonry walls four inches thick are shown to obtain a high noise transition loss value and are more than sufficient for a sound barrier. A wood barrier of fir, pine, or plywood may also be sufficient but should use pressure treated wood and employ tongue and groove planking to minimize gaps.

Stationary Noise Sources – Legend Expansion

The nearest receptor to the Legend facility expansion area besides an existing caretaker house on the property, would be residential units across Oswald Road, approximately 150 feet from the southeast corner of the expansion yard. There are no existing barriers between the Legend expansion site and these residences on the south side of Oswald Road. Existing monitored daytime noise levels in the vicinity, approximately 300 feet from the driveway of the receptor on Walnut Avenue were monitored to average 74 dBA during daytime hours.

Table 2.4-11 indicates that the highest noise levels generated during a semi-trailer truck operation would be 64 dBA at 100 feet, as it maneuvers into a parking space. Once a truck is parked, the TRU could continue to operate, generating noise level of 57 dBA at a distance of 100 feet. As discussed above with respect to the HSD facility, truck maneuvering activity is typically of brief duration and would only generate noise over a brief period of one to two minutes per truck arrival. TRU operations can cycle off and on operate for approximately 15 minutes every hour and, therefore, would be a more consistent noise source. However, existing noise levels on the western property line are influenced by vehicle traffic on SR 99, resulting in a high existing noise levels (74 dBA) on this side of the facility expansion that would effectively mask the contribution from TRU operations at 57 dBA at receptors to the west of the expansion yard. Receptor to the east of the expansion area experience a reduced contribution from traffic on SR 99 and, as indicated in Table 2.4-2 traffic from Oswald Road contributes noise levels of 56 dBA at these more easterly receptors. Therefore, TRU operations at these more easterly receptors would result in noticeable contributions slightly in excess of the daytime county standard of 55 dBA.

Consequently, noise reduction measures should be considered to reduce the daytime noise levels from operations of the Legend expansion facility at the closest receptors.

> **Potential Noise Reduction Measure Legend-1: Designate TRU operational areas.** To reduce noise exposure to the closest receptors, specific areas could be designated on the site so that TRU operations do not occur within a set distance of a receptors to the east. For example, at a distance of 150 feet, TRU operations from a single unit would be approximately 54 dBA. Given that TRU units would cycle on for 15 minutes in a given hour, such a distance could accommodate the cumulative noise energy up to four TRU operations in a given daytime hour.

> **Potential Noise Reduction Measure Legend-2: Provide sound barriers on property lines adjacent to noise-sensitive land uses:** Alternatively, to reduce noise exposure to the closest receptors, the applicant could construct a solid wall along the eastern and southern property lines of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units The wall should be of solid construction with no visible gaps.

Stationary Noise Sources – Sangha Expansion

Operation of the proposed truck yard expansion would increase ambient noise levels in the immediate vicinity primarily through the on-site movement of trucks and the occasional operation of TRUs.

Table 2.4-11 indicates that the highest noise levels generated during a semi-trailer truck operation would be 63 dBA at 100 feet, as it maneuvers into a loading dock which would be the approximate closest distance of the expanded yard to the nearest receptor, across Oswald Road. Once a truck is parked, the TRU could continue to operate, generating noise level of 57 dBA at a distance of 100 feet.

The project application indicates a solid 6-foot stone wall would be constructed along the southern property line. The sound reduction potential associated with this wall was estimated using the Barrier Performance Model of the Department of Housing and Urban Development. However, applying a standard composite source height for trucks of 8 feet (engine and exhaust stack/TRU), a 6-foot barrier would be insufficient to break the line-of-sight between the receptor and the source and noise reduction would be minimal and the predicted noise level would remain at approximately 57 dBA during TRU operations which would exceed the daytime standard of 55 dBA, Leq. Additionally, the potential would exist for multiple TRU operations to occur simultaneously. Consequently, noise reduction measures are recommended to be considered to reduce the daytime noise levels from operations of the Sangha facility expansion area at the closest receptors.

> **Potential Noise Reduction Measure Sangha-1: Designate TRU operational areas.** To reduce noise exposure to the closest receptors, specific areas could be designated on the site so that TRU operations do not occur within a set distance of a receptors to the east. Project site plans indicate three discrete parking areas. If TRU operations are restricted to the northernmost parking area, the attenuation with distance would be sufficient to reduce hourly noise levels. For example, at a distance of 150 feet, TRU operations from a single unit would be approximately 54 dBA. Given that TRU units would cycle on for 15 minutes in a given hour, such a distance could accommodate the cumulative noise energy up to four TRU operations in a given daytime hour.
>
> **Potential Noise Reduction Measure Sangha-2: Increase Proposed Wall Height**
>
> The project applicant could ensure that the proposed solid wall along the southern property line shall be no less than eight feet in height from the eastern property border of the project site for a length of 500 feet. The wall would need to be of solid construction with no visible gaps.

Nighttime Operations

As discussed above, if truck yards propose to operate during nighttime hours between 10:00 p.m. and 7:00 a.m., a more stringent standard of 45 dBA would apply. Under such conditions there would likely not be enough available buffer area to restrict TRU operations geographically on the site to achieve a reduction in property line noise levels commensurate with the more stringent nighttime County standards. Therefore, a recommended noise control measures for nighttime operations would necessitate construction of a solid barrier between the project site and adjacent receptors. [BS14]

Project-Generated Traffic Noise

Vehicle trips generated by all three new or expanded facilities would cumulatively contribute to roadway noise in the project vicinity. The significance of traffic noise levels is determined by comparing the increase in noise levels (from the traffic contribution only) to increments recognized as significant.

Traffic noise levels were determined based on the transportation analysis, and assessed in this section for the following scenarios:

1. Existing traffic conditions during the weekday peak commute hour, as estimated based on average daily traffic (using data generated for the project's transportation analysis); and
2. Existing plus all three proposed truck yards/expansions during the weekday peak commute hour.

All traffic volumes provided in the project's transportation analysis and used in this roadway noise analysis were provided by Fehr & Peers Transportation Consultants. Modeled weekday noise level estimates for the most highly affected roadway segments near the project site are presented in **Table 2.4-12.** As indicated in the table, increase in traffic noise would be less than the applicable significance criteria and the impact of increases in roadway noise would be less than significant.

TABLE 2.4-12
TRAFFIC NOISE INCREASES ALONG ROADS IN THE PROJECT VICINITY

Roadway Segment	Existing	Applicable Increase Threshold (dB)	Existing plus Proje ct	dBA Difference	Significant Increase?
Weekday Peak-Hour Noise Levels					
Railroad Avenue from Oswald Road to Barry Road	58.1	5	59.9	1.8	No
Oswald Road from Railroad Avenue to SR 99	56.4	5	58.3	1.9	No
Oswald Road from SR 99 to South Walton Road	60.6	3	60.6	0.0	**No**
SR 99 from Oswald Road to Barry Road	76.0	1.5	76.0	0.0	No
SR 99 from Oswald Road to Messick Road	76.1	1.5	76.1	0.0	No
SR 99 from Barry Road to Walnut Avenue	76.1	1.5	76.1	0.0	No
SR 99 from Walnut Avenue to Reed Road	76.1	1.5	76.1	0.0	No
Walnut Avenue from SR 99 to Muir Road	52.7	5	55.0	2.3	No
Barry Road from SR 99 to Frakes Way	60.5	5	60.5	0.0	No
Barry Road from SR 99 to Railroad Avenue	62.0	3	63.7	1.7	No

NOTES: dB = decibels; dBA = A-weighted decibels; NA = not applicable

SOURCES: Traffic data compiled by Fehr & Peers in 2019 and 2020, and modeling performed by Environmental Science Associates in 2020.

Construction Noise

The new HSD trucking yard already has a structure on site and no additional construction is proposed. Additionally, there are structures proposed for demolition of construction at the Legend expansion yard. Therefore, only the Sangha yard expansion would involve demolition and construction which is the focus of the following analysis.

Construction of the Sangha expansion project would require demolition of existing structures. However, no structures are proposed to be erected and only fine grading and construction of minimal hardscape would be required. Truck parking areas would be coated with gravel and only the northwest corner of the site would be paved with asphalt. **Table 2.4-13** shows typical noise levels associated with various types of standard construction equipment.

TABLE 2.4-13
TYPICAL MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA, L_{max} at 50 feet)
Backhoe	78
Excavator	81
Compactor	83
Air Compressor	78
Dozer	82
Grader	85
Paver	77
Roller	80
Front-End Loader	79
Truck	76

NOTES: dBA = A-weighted decibels; L_{max} = maximum, instantaneous noise level experienced during a given period of time

These are maximum field measured values at 50 feet as reported from multiple samples.

SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User Guide*, 2006.

Sutter County does not establish quantitative noise limits for demolition or construction activities occurring in the county. During Project construction, exterior noise levels could affect the nearby existing sensitive receptor in the vicinity. The nearest sensitive receptor to the Project site is a residence located approximately 180 feet south of the center of the Project site.

Consistent with the general assessment methodology of the FTA, the two noisiest pieces of construction equipment (grader and dozer) listed in Table 3-12 were assumed to operate simultaneously. Using the Roadway Construction Noise Model of the Federal Highway Administration, the resultant noise level at the nearest receptor would be 72 dBA. The combined noise level at existing offsite receptors would not exceed the FTA's criterion of 90 dBA at residential sensitive receptor locations.

Per Policy N 1.6 of the County's General Plan, noise-generating construction activities within 1,000 feet of noise-sensitive uses (i.e., residential uses, daycares, schools, convalescent homes, and medical care facilities) is limited to daytime hours between 7:00 A.M. and 6:00 P.M. on weekdays, 8:00 A.M. and 5:00 P.M. on Saturdays, and prohibited construction on Sundays and holidays unless permission for the latter has been applied for and granted by the County. The proposed demolition and construction of the Sangha yard expansion would be required to adhere to General Plan Policy N 1.6. Therefore, since construction noise is temporary, intermittent, and limited to the daytime hours shown above, the impact would be less than significant.

Vibration

The new HSD trucking yard already has a structure on site and no additional construction is proposed. Additionally, there are structures proposed for demolition of construction at the Legend expansion yard. Therefore, only the Sangha yard expansion would involve demolition and construction which is the focus of the following vibration analysis.

This analysis addresses vibration impacts generated by construction activities at existing off-site buildings. Equipment or activities that typically generate continuous vibration include but are not limited to: excavation equipment; impact pile drivers; static compaction equipment; vibratory pile drivers; pile-extraction equipment and vibratory compaction equipment. Of these equipment types only a vibratory roller would be likely to be used in the paving of the northwest corner of the project.

General Plan Policy EC-2.3 requires new development to minimize impacts of continuous vibration on adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or buildings that are documented to be structurally weakened, a continuous vibration limit of 0.08 in/sec PPV is the standard applied to minimize the potential for cosmetic damage to a building. A continuous vibration limit of 0.20 in/sec PPV is applied to minimize the potential for cosmetic damage at buildings of normal conventional construction.

Policy N 1.7 requires new development to minimize continuous vibration impacts on adjacent uses during demolition and construction, as indicated in Table 2.4-9 above. An estimate of construction-related vibration levels is presented in **Table 2.4-14**, below. As can be seen from this table, predicted vibration levels are below the criteria established by Policy N 1.7 for human annoyance. These predicted levels are also below the 100 VdB commonly associated with the risk of building damage.[55] Therefore, vibration impacts from project construction would be less than significant.

TABLE 2.4-14
VIBRATION LEVELS FOR CONSTRUCTION ACTIVITY

Equipment	Vibration at 25 Feet (reference)	Distance to nearest Receptor (feet)	Vibration at Receptor	Threshold	Significant?
Loaded Trucks	86	85	72	80	No
Large Bulldozer	87	85	73	80	No
Vibratory Roller	94	250	64	80	No

SOURCES: California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013.
Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

[55] Federal Transit Administration (FTA), 2018. *Transit Noise and Vibration Impact Assessment.*

Summary

Construction of proposed truck yard and/or expansions are not predicted to result in environmental impacts from construction noise or vibration. Operational noise from proposed truck yard and/or expansions could result from truck maneuvering and operation of TRU at yard located adjacent or across the street from noise sensitive land uses. These potential impacts could be addressed through a combination of designated TRU operational areas and/or noise barriers sufficient to block the line-of-sight between truck yards and receptors.

Operational roadway noise from the cumulative operation of the proposed truck yards and/or expansions would not significantly increase noise levels along local roadways.

Recommendations

Rec-Noise-1: Designate TRU operational areas. To reduce noise exposure to the closest receptors, specific areas could be designated on the site so that TRU operations do not occur within a set distance of a receptors. For example, at a distance of 150 feet, TRU operations from a single unit would be approximately 54 dBA. Given that TRU units would cycle on for 15 minutes in a given hour, such a distance could accommodate the cumulative noise energy up to four TRU operations in a given daytime hour. Recommended TRU exclusion zones based on this recommended 150-foot distance were identified for the three proposed truck yards and are shown in **Figure 2.4-3, Figure 2.4-4, and Figure 2.4-5.**

Rec-Noise-2: Provide sound barriers on property lines adjacent to noise-sensitive land uses. Alternatively, to reduce noise exposure to the closest receptors, the permit applicant could construct a solid wall along property lines adjacent to sensitive receptors of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units. The wall should be of solid construction with no visible gaps.

Rec-Noise-3: Implement a more restrictive noise ordinance. If the county receives complaints for projects that fall below the noise thresholds currently enforced by the County noise element, then consider revisiting the existing County noise element and analyzing its effectiveness. Implement a more restrictive noise ordinance with lower thresholds to directly address the County's noise complaint issues.

Rec-Noise-4: For nighttime operations, provide sound barriers on property lines adjacent to noise-sensitive land uses. To reduce noise exposure to the closest receptors, the permit applicant could construct a solid wall along property lines adjacent to sensitive receptors of no less than eight feet in height such that the line-of-sight is broken between the receptor and elevated TRU units. The wall should be of solid construction with no visible gaps. The barrier should be designed by an acoustical professional to achieve a reduction of 10 to 15 dBA, depending on the location of the potentially impacted receptor(s).

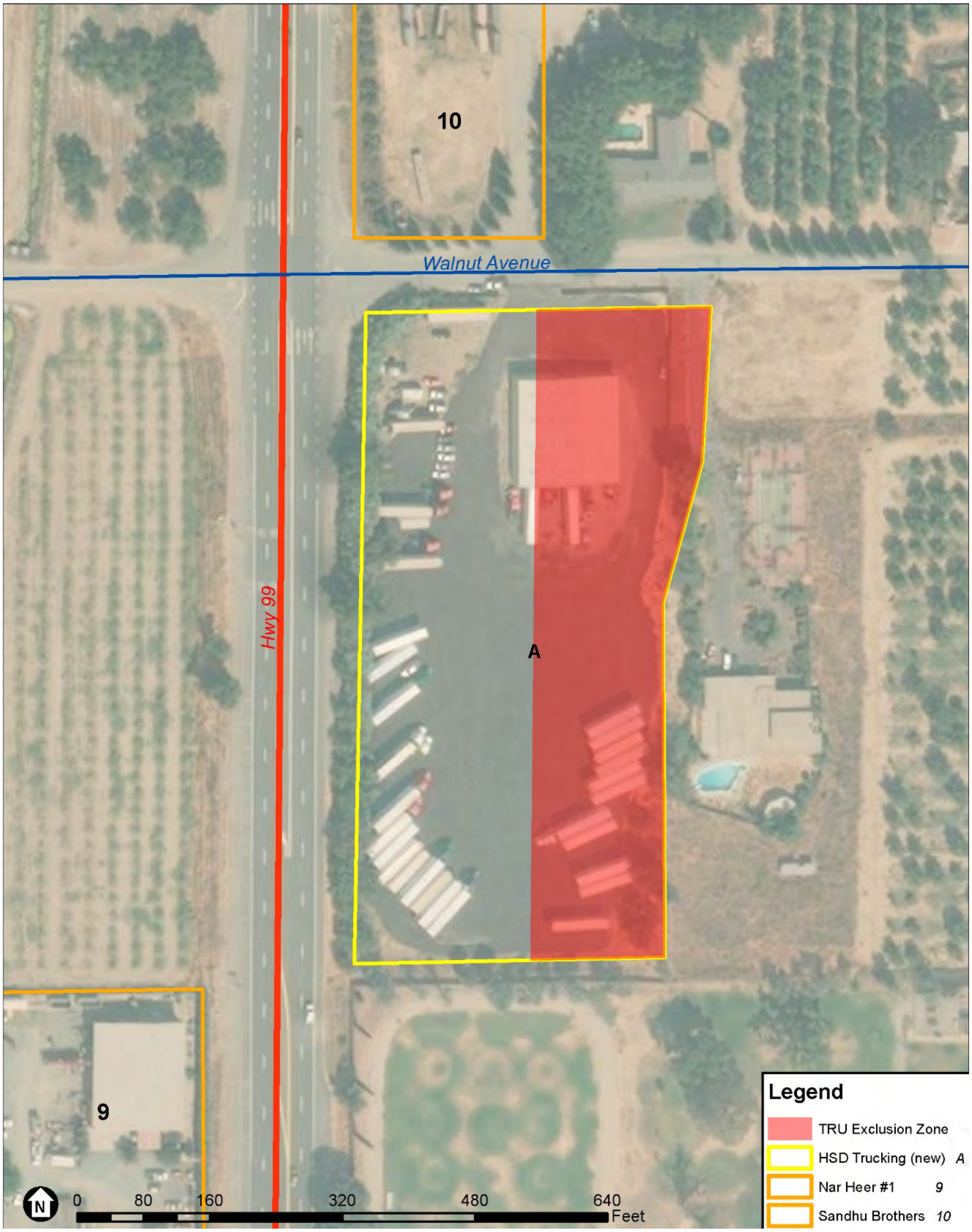

Figure 2.4-2
HSD Trucking Recommended TRU Exclusion Zone

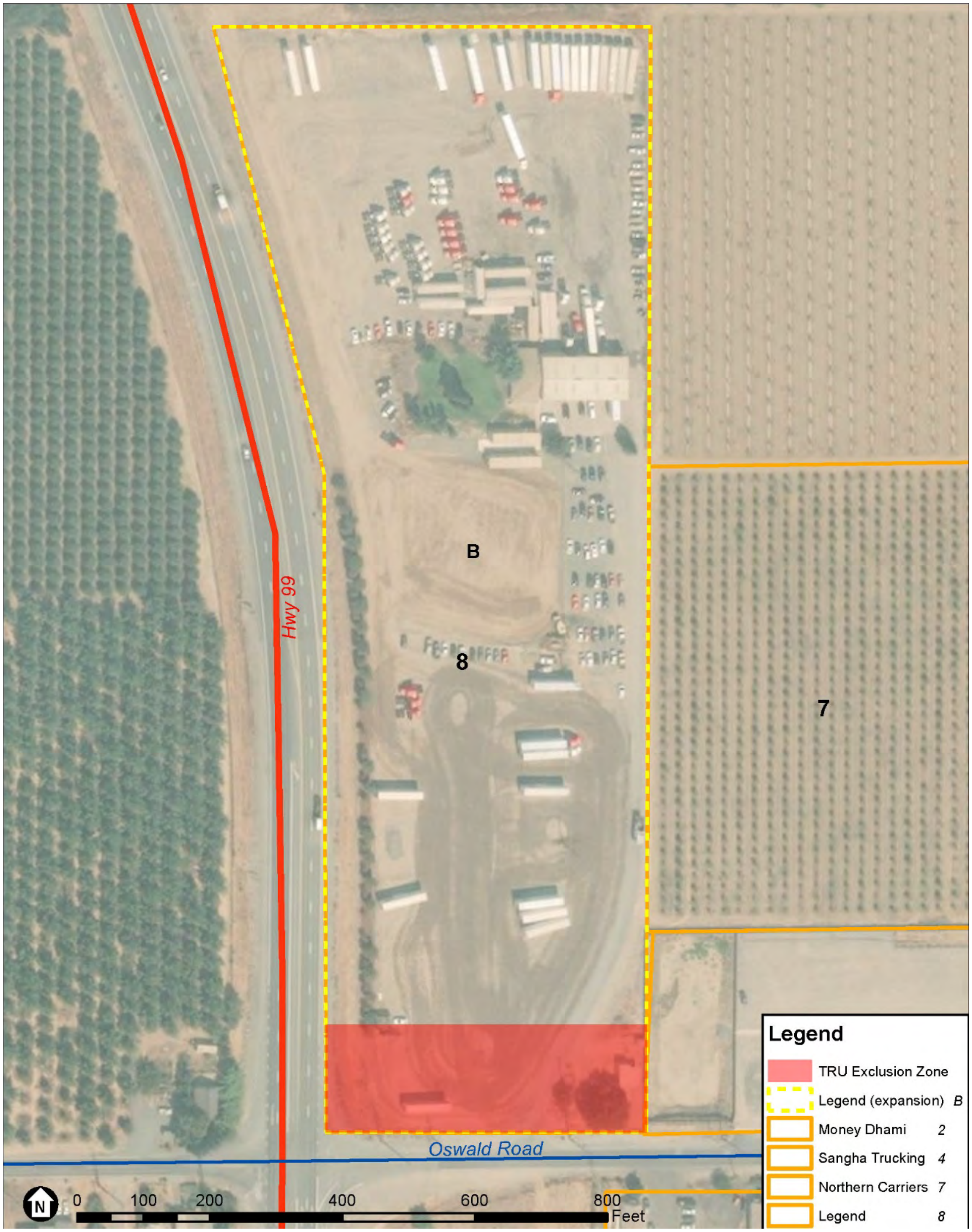

Figure 2.4-3
Legend Transportation Recommended TRU Exclusion Zone

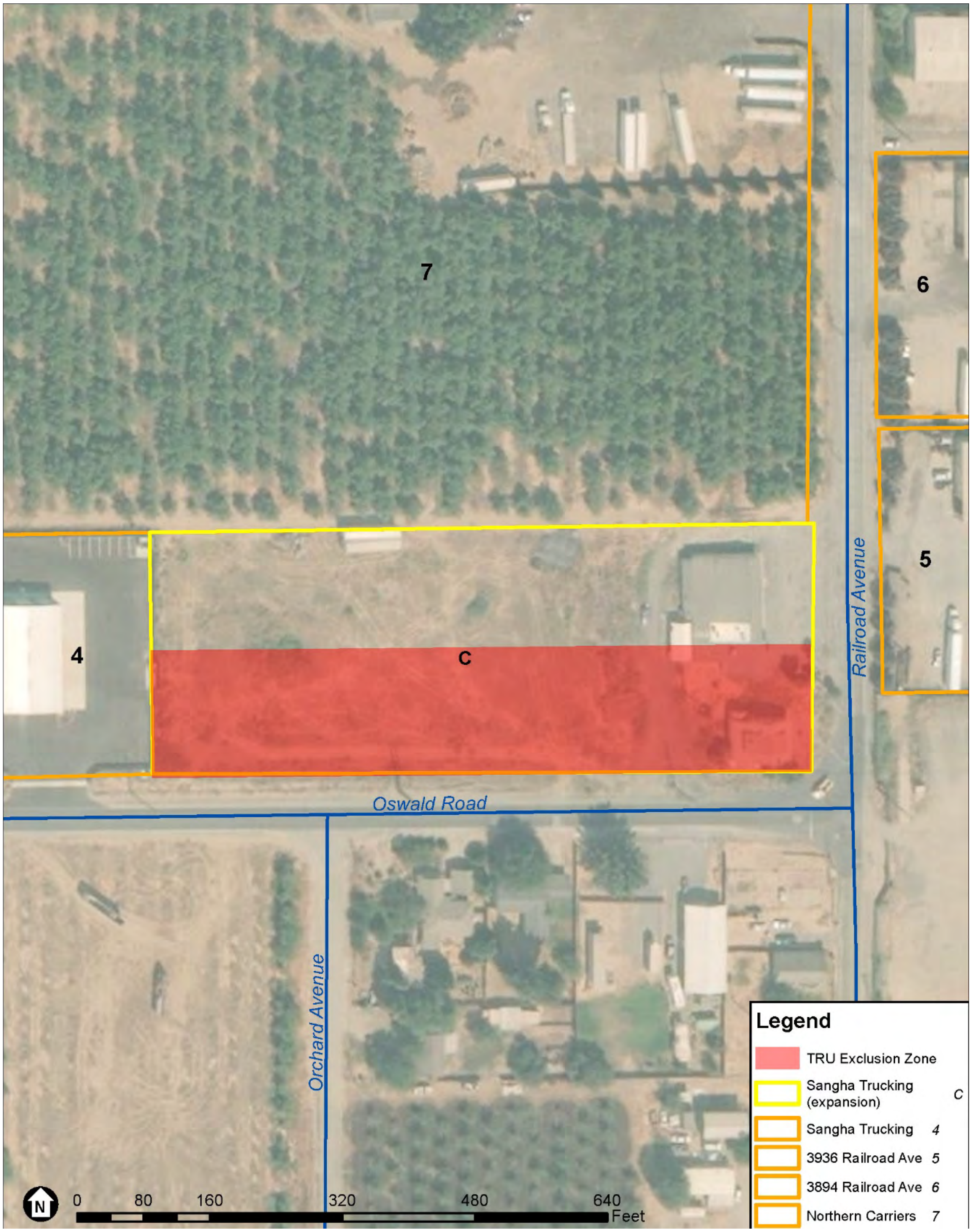

Figure 2.4-4
Sangha Trucking Expansion Recommended TRU Exclusion Zone

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Attachment A
Traffic Study

Attachment B

Existing Conditions and Permitted Operations Matrix

ESA

Appendix A
Air Quality & Health Risk Calculations

Appendix B
Noise Calculations

Attachment A

FEHR & PEERS

MEMORANDUM

Date: February 23, 2021

To: Chris Easter, Environmental Science Associates

From: David Manciati, Fehr & Peers

Subject: ***Sutter County Truck Yards – Traffic Study***

RS20-3886

Introduction

Fehr & Peers has completed a draft traffic study of the Sutter County Truck Yards project. The project is comprised of three separate developments, summarized as follows.

- Sangha Truck & Trailer Repair Expansion – This 10-acre development is located on the northwest quadrant of the Oswald Road/Railroad Avenue intersection. It will add 40 vehicle parking spaces and 60 truck parking spaces to allow for expanded operations at the Sangha Truck & Trailer Repair shop in the adjacent parcel to the west. It is expected that the expansion would add 5 employees and allow for about 3 more customer vehicles to be serviced daily.
- Legend Trucking Expansion – The existing site is located on the northeast quadrant of the State Route (SR) 99/Oswald Road intersection. Currently, there is an existing shop and office building with associated parking, a truck parking yard area, and caretaker home. The project will construct a 14,000 square feet metal building consisting of a shop area, receiving area, general office space, a driver's lounge, restrooms, a parts area, and associate parking. The project will also formalize truck parking through pavement construction of truck parking spaces.
- HSD Trucking – This project is located on the southeast quadrant of the SR 99/Walnut Avenue intersection. The project will pave the existing driveway, add an access gate at the east end of the parcel fronting Walnut Avenue, and install other on-site improvements. HSD Trucking is currently in operation. Based on County input, the site contains more trucks than were applied for and HSD Trucking has consistently exceeded daily truck limitations. Site traffic (including the illegal increase in site traffic) is already present in the surrounding roadway network. It is expected that the site will not add additional traffic to the surrounding roadway network (i.e., more than it is already contributing).

This memorandum documents the existing traffic setting, operations analysis, potential mitigation measures, and a vehicle-miles traveled (VMT) impact assessment.

Key Findings

This section summarizes key findings from the traffic study. The sections that follow provide additional analysis detail. The key findings include:

- Three study intersections, including State Route (SR) 99/Reed Road, SR 99/Walnut Avenue, and SR 99/Oswald Road, currently operate below Sutter County's adopted LOS threshold, with the deficient movement occurring from the side street in all cases. HSD Trucking site traffic is already present in the existing roadway network; therefore, HSD Trucking contributes to current unacceptable operations at the above three intersections. Delay at these intersections would be exacerbated by the other proposed projects.
- Study roadway segments operate at LOS C or better, and they would continue to operate at LOS C or better under existing-plus-proposed conditions.
- Average maximum vehicle queues are expected to be less than corresponding storage lengths under existing-plus-proposed conditions.
- Both a traffic signal and roundabout control (as proposed in the *State Route 99 and Oswald Road Intersection Improvements* report) would improve intersection operations at SR 99/Oswald Road to LOS A under existing-plus-proposed conditions.
- Two improvement alternatives are discussed for SR 99/Reed Road and SR 99/Walnut Avenue: (1) use turn restrictions or (2) construct roundabout controls. As described in this study, both alternatives have pros and cons. Both, however, would reduce delay at SR 99/Reed Road and SR 99/Walnut Avenue to LOS C or better.
- The proposed projects' pending applications are staff-level ministerial design reviews that do not require approval by the County Board of Supervisors. Therefore, CEQA does not apply because CEQA is only triggered by discretionary actions. The vehicle-miles traveled (VMT) assessment is presented for informational purposes, and the County has discretion on any conditions of approval related to VMT impacts.
- The estimated daily trip generation of the HSD Trucking project is less than 110 trips. Based on the Technical Advisory's "small projects" screening criteria, this proposed project's VMT impact would be assumed to be less than significant. However, the trip generation estimate is based on compliance with truck limitations. Non-compliance, which is occurring, results in additional site traffic. If the additional site traffic is composed entirely of heavy vehicles, the VMT impact remains unchanged. However, if the County determines that the additional

"illegal" traffic includes passenger vehicles, additional data and/or analysis may be needed to determine VMT impact.

- The estimated daily trip generation of the Sangha Expansion project is less than 110 trips. Based on the Technical Advisory's "small projects" screening criteria, this proposed project's VMT impact would be assumed to be less than significant.
- The office component of the Legend Trucking Expansion project would result in workplace VMT per job that does not meet CEQA's significance criteria of achieving a level 15% below the County-wide average. A transportation demand management (TDM) program is presented as a recommended improvement. However, the improvement would not reduce workplace VMT per job to a level 15% below the County-wide average.

Regulatory Setting

Senate Bill 743

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines in 2019, level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA. LOS measures average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day, while the new CEQA metric (Vehicle Miles Traveled or VMT) measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled. The shift in transportation impact criteria is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation.

Although the State's Office of Planning and Research provides recommendations for adopting new VMT analysis guidelines, lead agencies have discretion in establishing analysis methodology and setting impact significance thresholds.

State Route 99 Transportation Concept Report

Transportation Concept Reports (TCRs) are planning documents that identify existing and future route conditions, as well as future needs, for each route on the state highway system. Per the TCR for State Route 99 (July 2017), the highway is expected to operate at LOS B within the study area in 2035. Since this segment of State Route 99 is not expected to drop below a Concept LOS of D, no improvements to the mainline capacity are identified in the TCR.

Sutter County General Plan

The Sutter County General Plan (April 2011) establishes the County's LOS policy for county roads. Policy M 2.5 is included below:

> "Develop and manage the County roadway segments and intersections to maintain LOS D or better during peak hours, and LOS C or better at all other times. Adjust for seasonality. These standards shall apply to all County roadway segments and intersections, unless otherwise addressed in an adopted specific plan or community plan"

Existing Traffic Setting

This section describes the existing setting related to roadway, bicycle, and pedestrian facilities, which is the baseline scenario upon which project impacts are evaluated. The baseline scenario is based on in-field data collection, as well as volume estimates using StreetLight Data.

Study Area

The following factors were considered when developing the transportation study area: proximity to proposed project sites, truck travel routes to/from those sites, and the location of existing truck yards. **Figure 1** shows the study area, including proposed project sites, current truck yard locations, and the six study intersections. The study area also includes bicycle and pedestrian facilities near the proposed projects. The study intersections are as follows.

1. State Route 99/Reed Road
2. State Route 99/Walnut Avenue
3. State Route 99/Barry Road
4. State Route 99/Oswald Road
5. Barry Road/Railroad Avenue
6. Oswald Road/Railroad Avenue

Most study intersections on SR 99 are side-street stop controlled, except for SR 99/Barry Road, which has traffic signal control. Both intersections on Railroad Avenue are all-way stop controlled.

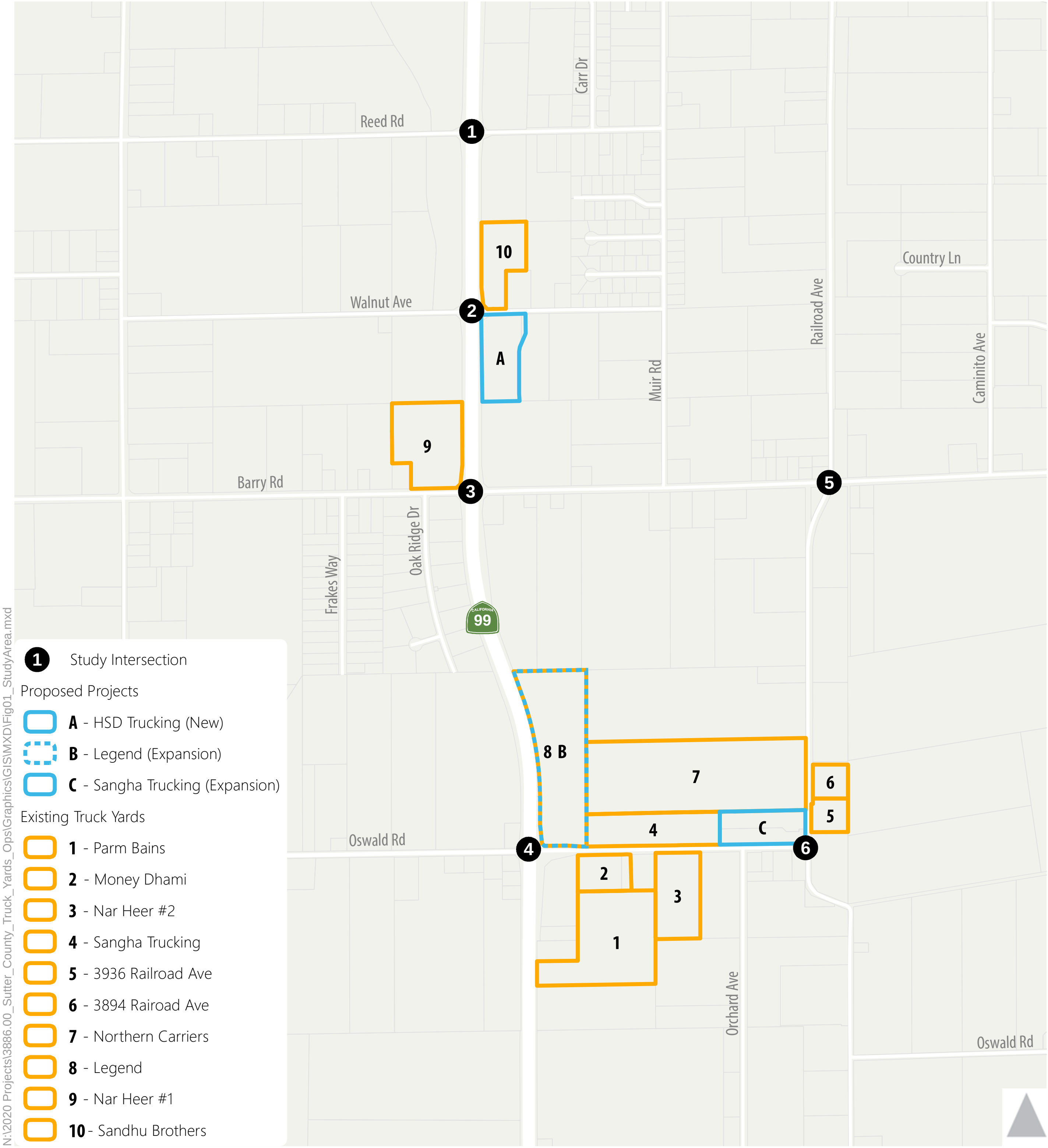

Figure 1

Study Area

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The three study roadway segments listed below are all two-lane rural local roadways.

1. Barry Road – SR 99 to Railroad Avenue
2. Railroad Avenue – Barry Road to Oswald Road
3. Oswald Road – SR 99 to Railroad Avenue

Roadway Network

The study area is in a rural setting and is served by SR 99 and local/collector rural roads. The key roadways near the proposed projects are described below.

- State Route 99 (SR 99) – is a major route that spans the Central Valley. Near the project sites, SR 99 is a rural highway with a five-lane cross-section, including a two-way left-turn lane south of Oswald Road. There is a posted speed limit of 65 MPH and a signalized intersection at SR 99/Barry Road.
- Oswald Road – is a two-lane east-west roadway (one travel lane in each direction) in Sutter County. Within the study area, two of the proposed projects (Legend Trucking Expansion and Sangha Expansion) front Oswald Road and there is a posted speed limit of 35 MPH. Oswald Road is considered a rural local road between Railroad Avenue and SR 99, a major rural collector between SR 99 and S. Walton Avenue, and a minor rural collector west of S. Walton Avenue.
- Railroad Avenue – is a two-lane north-south roadway east of SR 99 from Messick Road in Sutter County to South Yuba City. Within the study area, the Sangha Expansion project fronts Railroad Avenue north of Oswald Road. There is a posted speed limit of 45 MPH, except for a short segment with a posted speed limit of 20 MPH due to horizontal curvature. Railroad Avenue between Oswald Road and Bogue Road is considered a minor rural collector.
- Barry Road – is a roughly 2.5-mile-long east-west rural road north of Oswald Road, with its western terminus at Carlson Road and its eastern terminus at Garden Highway. Barry Road has one eastbound lane and one westbound lane with a posted speed limit of 35 MPH west of Railroad Avenue and 45 MPH east of Railroad Avenue. Just east of SR 99, Barry Elementary School fronts Barry Road, which has a school zone speed limit of 25 MPH when children are present.
- Walnut Avenue – is a three-quarter mile east-west local road north of Barry Road that runs from S. Walton Avenue to Muir Road. It has two lanes and a posted speed limit of 35 MPH. The HSD Trucking site fronts Walnut Avenue east of SR 99.

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- Reed Road – is a two-lane east-west roadway north of Walnut Avenue with a posted speed limit of 35 MPH. Its western terminus is located at S. George Washington Boulevard, while its eastern terminus is located at Muir Road.

Truck Routes

Within Sutter County, State Route 99, State Route 70, State Route 113, a portion of State Route 20, and Tudor Road east of State Route 113 have been designated as truck routes by Caltrans and are included in the National Network for Surface Transportation Assistance Act (STAA) of 1982. Sutter County's *Code of Ordinances* also establishes nine roadway segments within the unincorporated county as truck routes that "shall not be restricted in use for driving, operating, or towing by commercial vehicles with legal loads." Near the study area, portions of Bogue Road and Garden Highway are designated truck routes. The *Code of Ordinances* also establishes Railroad Avenue between Oswald Road and Oswald Avenue as having a 15-ton weight limit.

The most recent data published on Caltrans' website is from 2018 and shows that SR 99 carries about 20,350 vehicles per day near Oswald Road. The data also shows that approximately 10.2% of daily vehicles are trucks (light or heavy).

Collision Analysis

Caltrans provided SR 99 collision records for collisions between Stewart Road and just north of Oswald Road. Between January 2016 and December 2018, there were a total of 27 collisions. No collisions resulted in fatalities, 40 percent resulted in injury, and the remaining 60 percent resulted in property damage only. **Table 1** displays the actual and statewide average collision rates. As displayed, the fatal collision rate at the intersection is less than the statewide average for comparable intersections; however, fatal plus injury and total collisions is slightly higher than the statewide average for comparable intersections.

Table 1: Collision Rates

Actual			Statewide Average		
Fatality	F+I	Total	Fatality	F+I	Total
0.00	0.40	0.97	0.01	0.36	0.93

Notes: F+I = fatality and injury collision rate. Collision rate expressed as the number of collisions per million vehicles.
Source: Caltrans TASAS Table B Summary, 2016-2018

Speeding was the primary collision factor (PCF) for 40 percent of the collisions, improper turning was the PCF for approximately 20 percent of collisions, and influence of alcohol, failure to yield, and unknown were the PCFs for the remainder. Of the 27 collisions, 12 were rear end collision, 7 were "hit object," and 5 were broadside. The remaining 3 collisions were categorized as sideswipe, overturn, and other. Ten of the twelve rear end collisions occurred in the northbound direction along SR 99.

In addition to the above Caltrans data, Statewide Integrated Traffic Record System (SWITRS) collision records were reviewed at and near the intersection of SR 99/Oswald Road. Between January 2016 and December 2020, there were 12 collisions that resulted in injuries and 1 that resulted in a fatality (SWITRS does not provide property-damage-only collision data). Automobile right of way was the PCF for approximately 70 percent of collisions, improper turning was the PCF for about 15 percent of collisions, and unsafe speed and "traffic signals and signs" were PCFs for the remaining collisions. Of the 13 collisions, 7 were broadside, 4 were sideswipe, and 2 were rear end. All broadside collisions had automobile right of way listed as the PCF.

Traffic Data Collection

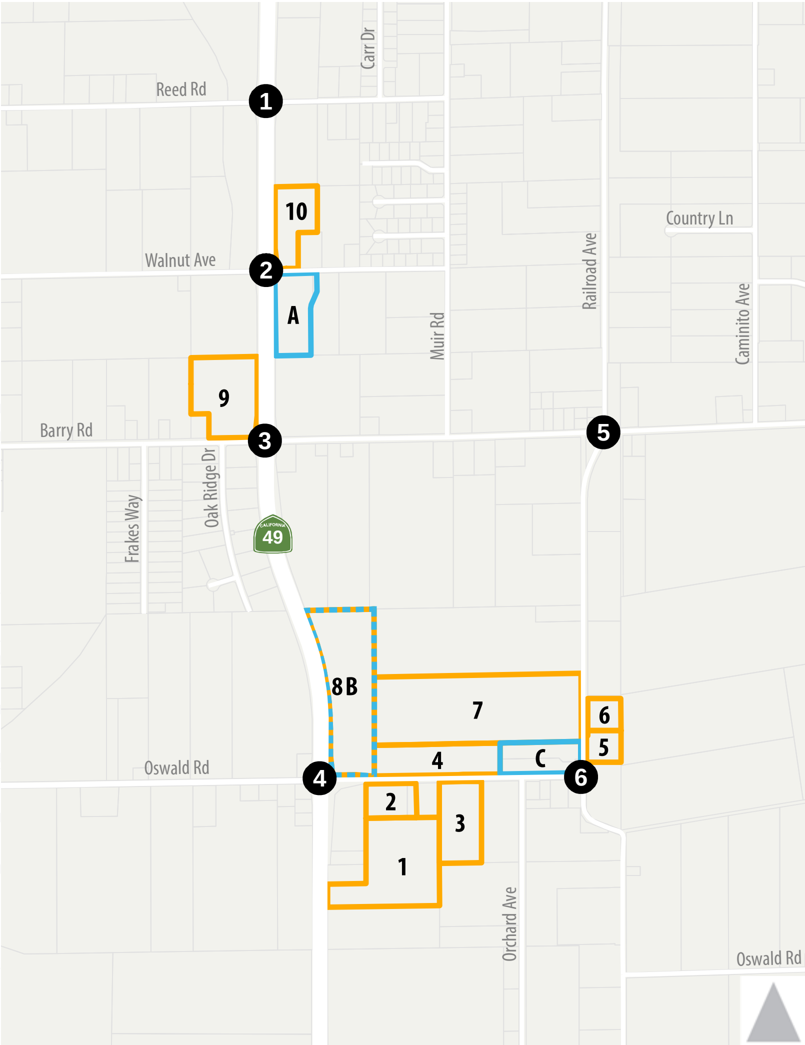
New traffic counts were not collected in 2020 due to suppressed travel demand resulting from the current coronavirus (COVID-19) pandemic and subsequent government actions to curtail mobility and encourage physical distancing. Instead, this traffic study relies on a combination of recent traffic data, traffic data from 2016, and StreetLight Data's turning movement volume estimate technology. These sources and their application to this traffic study are explained in more detail below.

Figure 2 shows existing conditions lane configurations and peak hour traffic volumes at all six study intersections. In this study, the SR 99 AM and PM peak hours used are 7:15 to 8:15 AM and 4:15 to 5:15 PM, respectively.

Intersection Traffic Data

The following provides additional detail related to data collection of existing conditions turning movement volumes at study intersections.

Recent Traffic Data. AM (7:00 to 9:00) and PM (4:00 to 6:00) peak period traffic counts (including bikes, pedestrians, and heavy vehicles) were collected on Tuesday, October 30, 2018 at the SR 99/Barry Road, SR 99/Oswald Road, and Railroad Avenue/Oswald Road intersections as part of the State Route 99 and Oswald Road Intersection Improvements project. In addition, AM and PM peak period vehicle traffic counts were collected on Tuesday, April 23, 2019 at the SR 99/Walnut Avenue intersection as part of the HSD Trucking traffic assessment.



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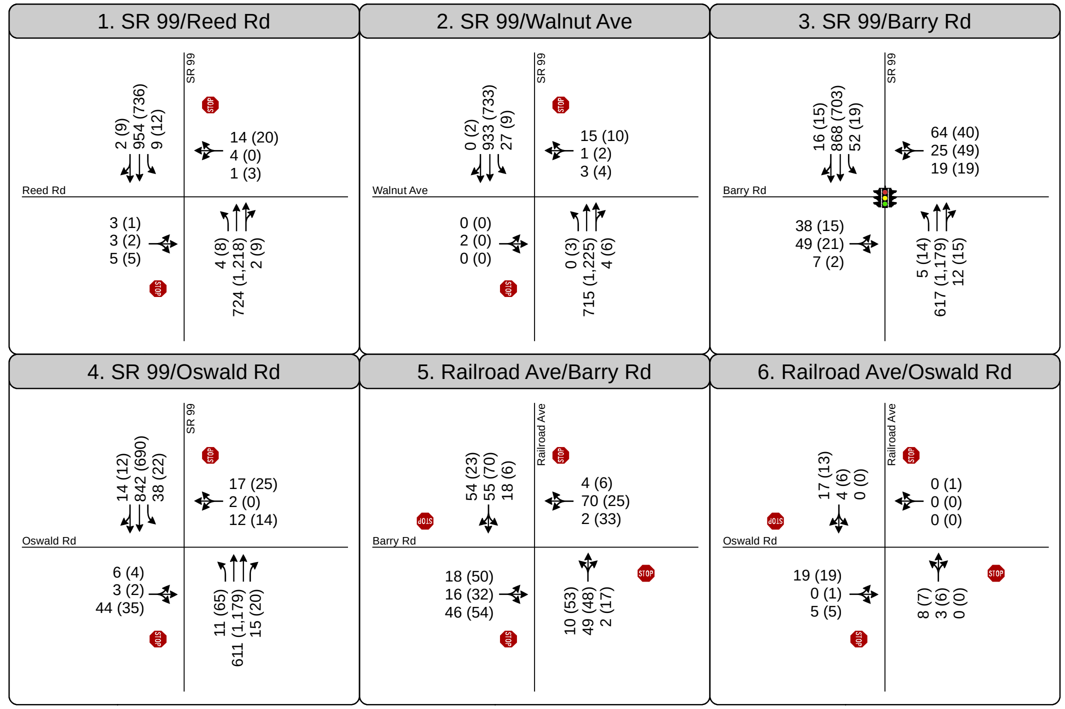

1 Study Intersection
Turn Lane
AM (PM) Peak Hour Traffic Volume
Traffic Signal
Stop Sign

Proposed Projects

- A - HSD Trucking (New)
- B - Legend (Expansion)
- C - Sangha Trucking (Expansion)

Existing Truck Yards

- 1 - Parm Bains
- 2 - Money Dhami
- 3 - Nar Heer #2
- 4 - Sangha Trucking
- 5 - 3936 Railroad Ave
- 6 - 3894 Rairoad Ave
- 7 - Northern Carriers
- 8 - Legend
- 9 - Nar Heer #1
- 10 - Sandhu Brothers

Parcels

Figure 2

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

Traffic Data from 2016. AM and PM peak period traffic counts (including heavy vehicles) were collected on Wednesday, March 23, 2016 at the SR 99/Reed Road and SR 99/Walnut Avenue intersections as part of the Bogue-Stewart Master Plan EIR. Northbound and southbound SR 99 volumes at Reed Road were balanced using the recent traffic data at the other SR 99 study intersections.

StreetLight Data Turning Movement Volume Estimates. StreetLight Data is a company that uses data from mobile devices to provide traffic volume estimates at both signalized and unsignalized intersections. This technology was used to obtain peak hour turning movement volume estimates at the Railroad Avenue/Barry Road intersection. These estimates are based on data averaged for non-holiday Tuesdays, Wednesdays, and Thursdays from October to December 2019. They do not include pedestrian and bicycle activity.

Roadway Segment Traffic Data

Two-day hourly roadway counts were collected on Railroad Avenue between Monday, October 28, 2019 at 9:00 AM and Wednesday, October 30, 2019 at 9:00 AM between Oswald Road and Barry Road.

A comparison of total daily volume to AM and PM peak hour roadway volumes was made to develop an adjustment factor of about 11.8% (i.e., about 11.8% of daily traffic occurs during the combined AM and PM peak hours) for estimating daily traffic volumes from peak hour intersection turning movement counts. Peak hour counts collected at SR 99/Oswald Road and SR 99/Barry Road were used to estimate the average daily traffic on the Oswald Road and Barry Road study roadway segments.

Level of Service Definitions

As stated in this memorandum's Regulatory Setting section, the *Transportation and Circulation* element of the Sutter County General Plan includes a policy for level of service (LOS). Although vehicle LOS analysis cannot be used for determining CEQA impacts, it is used in this study to evaluate consistency with General Plan policy and to identify potential improvement projects where LOS is deficient.

Each study facility was analyzed using the concept of LOS. LOS is a qualitative measure of traffic operating conditions whereby a letter grade, from A (representing free-flow vehicular traffic conditions with little to no congestion) to F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. **Table 2** displays the delay range associated with each LOS category for signalized and unsignalized intersections as presented in the *Highway Capacity Manual 6^th^ Edition* (Transportation Research Board, 2016). **Table 3** shows the LOS daily volume thresholds for various roadway facility types in Sutter County as used in the Sutter County General Plan.

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Table 2: Level of Service Definitions – Intersections

Level of Service	Description (at Signalized Intersections)	Average Control Delay[1]	
		Signalized	Unsignalized
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short. Most vehicles arrive during the green phase and travel through the intersection without stopping.	≤ 10	≤ 10.0
B	Volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10 to 20	> 10.0 to 15.0
C	Progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35	> 15.0 to 25.0
D	Volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55	> 25.0 to 35.0
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80	> 35.0 to 50.0
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80	> 50.0

Notes: [1] Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A).
Source: *Highway Capacity Manual 6th Edition* (Transportation Research Board, 2016).

Table 3: LOS Criteria – Roadway Segments[1]

Jurisdiction	Facility Type	Number of Lanes & Classification	Daily Volume Threshold				
			LOS A	LOS B	LOS C	LOS D	LOS E
Sutter County	Rural Roadway	2 (2R)	-	-	7,200	12,200	20,800
	Urban Arterial	2 (2U)	-	-	13,170	14,800	16,460
		4 (4U)	-	-	26,340	29,640	32,930
	Expressway	4 (4 E)	-	-	38,900	47,400	51,600
		6 (6 E) [2]	-	-	58,350	71,100	77,400

Notes:
[1] Both number of lanes and daily volume thresholds are two-way totals.
[2] Expressway thresholds extrapolated for six-lane facilities.
Source: Sutter County General Plan, 1996; Fehr & Peers, 2008.

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Intersection Operations

Intersection operations at the six study intersections were quantitatively analyzed under AM and PM peak hour conditions using the Synchro 10 software, which applies the analysis procedures contained in the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016). **Table 4** displays the existing conditions peak hour intersection operations at the study intersections (refer to Appendix A for technical calculations). The operations analysis accounted for the interaction of automobiles, pedestrians, bicyclists, and heavy vehicles.

Table 4: Intersection Operations – Existing Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions Delay/LOS
1. SR 99 / Reed Road	SSSC	AM	**<1 (41) / A (E)**
		PM	**<1 (40) / A (E)**
2. SR 99 / Walnut Avenue	SSSC	AM	**<1 (61) / A (F)**
		PM	**<1 (49) / A (E)**
3. SR 99 / Barry Road	Signal	AM	12 / B
		PM	11 / B
4. SR 99 / Oswald Road	SSSC	AM	2 (29) / A (D)
		PM	**3 (105) / A (F)**
5. Railroad Avenue / Barry Road	AWSC	AM	8 / A
		PM	9 / A
6. Railroad Avenue / Oswald Road	AWSC	AM	7 / A
		PM	7 / A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2021.

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As shown in Table 4, the following intersections operate below Sutter County's adopted LOS threshold under existing conditions. In all cases, the deficient movement occurs from the side street.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

Because HSD Trucking is already in operation, the project site is contributing to unacceptable LOS at these three intersections.

Table 5 shows the peak hour average maximum queue length for key movements at each study intersection. These queue estimates are based on ten microsimulation runs using Synchro's SimTraffic microsimulation module. As shown in Table 5, all average maximum queue values are less than the corresponding storage length under existing conditions.

Table 5: Average Maximum Queue Lengths – Existing Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]
1. SR 99 / Reed Road	EB LTR	>1,000 feet	AM	50 feet
			PM	50 feet
	WB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB L	440 feet	AM	50 feet
			PM	50 feet
	NB L	435 feet	AM	25 feet
			PM	25 feet
2. SR 99 / Walnut Avenue	EB LTR	>1,000 feet	AM	50 feet
			PM	25 feet
	WB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB L	435 feet	AM	50 feet
			PM	50 feet
	NB L	500 feet	AM	25 feet
			PM	25 feet
3. SR 99 / Barry Road	EB LTR	>1,000 feet	AM	175 feet
			PM	100 feet
	WB LTR	>1,000 feet	AM	150 feet
			PM	150 feet

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Table 5: Average Maximum Queue Lengths – Existing Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]
	NB L	435 feet	AM	50 feet
			PM	75 feet
	NB TR	>1,000 feet	AM	225 feet
			PM	225 feet
	SB L	370 feet	AM	125 feet
			PM	75 feet
	SB TR	>1,000 feet	AM	200 feet
			PM	150 feet
4. SR 99 / Oswald Road	EB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	WB LTR	>1,000 feet	AM	75 feet
			PM	125 feet
	NB L	440 feet	AM	50 feet
			PM	125 feet
	SB L	430 feet	AM	50 feet
			PM	50 feet
5. Railroad Avenue / Barry Road	EB LTR	>1,000 feet	AM	75 feet
			PM	100 feet
	WB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	NB LTR	>1,000 feet	AM	75 feet
			PM	100 feet
	SB LTR	>1,000 feet	AM	100 feet
			PM	75 feet
6. Railroad Avenue / Oswald Road	EB LTR	>1,000 feet	AM	75 feet
			PM	75 feet
	WB LTR	-Private Driveway-	AM	25 feet
			PM	25 feet
	NB LTR	>1,000 feet	AM	50 feet
			PM	75 feet
	SB LTR	>1,000 feet	AM	75 feet
			PM	75 feet

Notes: **Bold** indicates exceedance of storage length.

[1] Average maximum queue is based on an average of ten microsimulation runs using Synchro's SimTraffic microsimulation module.

Source: Fehr & Peers, 2021.

Roadway Segment Operations

Study roadway segments were analyzed by comparing average daily traffic volume to daily volume thresholds specific to the facility type. The use of daily traffic volume for the analysis of roadway segments is the preferred methodology for the analysis of roadway segment operations in Sutter County. **Table 6** shows existing daily traffic, LOS, and volume-to-capacity ratio for the 3 study roadway segments. As shown, all study roadway segments operate at LOS C or better.

Table 6: Roadway Segment Analysis – Existing Conditions

Roadway Segment	Existing Conditions			
	Lanes	Classification [1]	ADT	LOS/ VC
1. Barry Road – State Route 99 to Railroad Avenue	2	2R	3,270	C / 0.16
2. Railroad Avenue – Barry Road to Oswald Road	2	2R	740	C / 0.04
3. Oswald Road – State Route 99 to Railroad Avenue	2	2R	1,450	C / 0.07

Notes: ADT = average daily traffic; LOS = level of service; VC = volume-to-capacity ratio; **Bold** indicates exceedance of General Plan LOS policy.
[1] Classification codes are based on "Table 3: LOS Criteria – Roadway Segments".
Source: Fehr & Peers, 2021.

Bicycle and Pedestrian Facilities

Currently, there are no bicycle or pedestrian facilities at proposed project frontages. The only study intersection with pedestrian or bike facilities is the signalized intersection at SR 99/Barry Road, which contains marked crosswalks on each leg with pedestrian push buttons. In addition, sidewalks are provided at the intersection corners and on Barry Road along the Barry Elementary School frontage.

Travel Characteristics

Trip Generation

The Legend Trucking site currently has a shop/office building and a truck parking yard with space for 53 trucks (or 84 truck-tractors). The project will construct a 14,000 square feet metal building consisting of a shop area, receiving area, general office space, a driver's lounge, restrooms, a parts area, and associated parking. The metal building is expected to house Legend Trucking corporate headquarters. In addition, the project will formalize truck parking through pavement construction of parking spaces.

Table 7 shows the trip generation estimate for the Legend Trucking expansion. The trip rates used in the shop area expansion are based on driveway counts at the existing site collected on January 13, 2020 and the proposed growth in number of truck parking spaces (from 53 to 84). The trip rates used for the corporate headquarters space are based on the general office land use category published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition* (2017). As shown in Table 7, this expansion is estimated to generate about 48 AM peak hour and 51 PM peak hour vehicle-trips.

Table 7: Trip Generation Estimate – Legend Trucking Expansion

Land Use	ITE Land Use (Code)	Quantity	Trips					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Shop Area Expansion	-	31 Truck Parking Spaces	19	4	23	4	13	17
Headquarters (in Metal Building)	General Office (710) [1]	40 Office Employees	21	4	25	7	27	31
		Total Project:	40	8	48	11	40	51

Notes: [1] Trip generation based on rates in the *Trip Generation Manual, 10th Edition* (ITE, 2017). AM and PM peak hour trip rates are based on ITE fitted curve equations.
Source: Fehr & Peers, 2021.

Table 8 shows the trip generation estimate of the Sangha expansion project. The trip generation estimate is based on trip rates for the automobile care center land use category published in ITE's *Trip Generation Manual, 10th Edition*. The expansion is expected to increase employment from 8 to 13 employees (a 62.5% increase) and service volume by 30% over current levels. As shown in Table 8, the expansion is estimated to generate about 9 AM peak hour and 13 PM peak hour vehicle-trips.

Table 8: Trip Generation Estimate – Sangha Expansion

Land Use	ITE Land Use (Code)	Quantity	Trips [1]					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Employee/ Service Volume Expansion	Automobile Care Center (942)	62.5% increase	6	3	9	6	7	13

[1] Trip generation based on rates in the *Trip Generation Manual, 10th Edition* (ITE, 2017). AM and PM peak hour trip rates are based on ITE average trip rates.
Source: Fehr & Peers, 2021.

Trip generation of the HSD Trucking project is outlined in the "Revised Traffic Assessment for HSD Trucking Project, Sutter County, California" memorandum written by KD Anderson & Associates, Inc. (October 1, 2019). According to this assessment, HSD Trucking is currently in operation. Although the site contains more trucks than were applied for and the company has consistently exceeded daily truck limitations, it is not anticipated that the proposed project would exceed business operations already occurring. Therefore, the HSD Trucking project would not result in vehicle traffic beyond its current contribution to the roadway network.

Table 9 shows the combined trip generation estimate of the three proposed projects. In total, the projects are estimated to generate 57 AM peak hour and 64 PM peak hour trips.

Table 9: Trip Generation Estimate – Proposed Projects

Land Use	Trips					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Legend Trucking Expansion	40	8	48	11	40	51
Sangha Expansion	6	3	9	6	7	13
HSD Trucking [1]	0	0	0	0	0	0
Total:	46	11	57	17	47	64

[1] Based on "Revised Traffic Assessment for HSD Trucking Project, Sutter County, California" memorandum by KD Anderson & Associates, Inc. (October 1, 2019).

Source: Fehr & Peers, 2021.

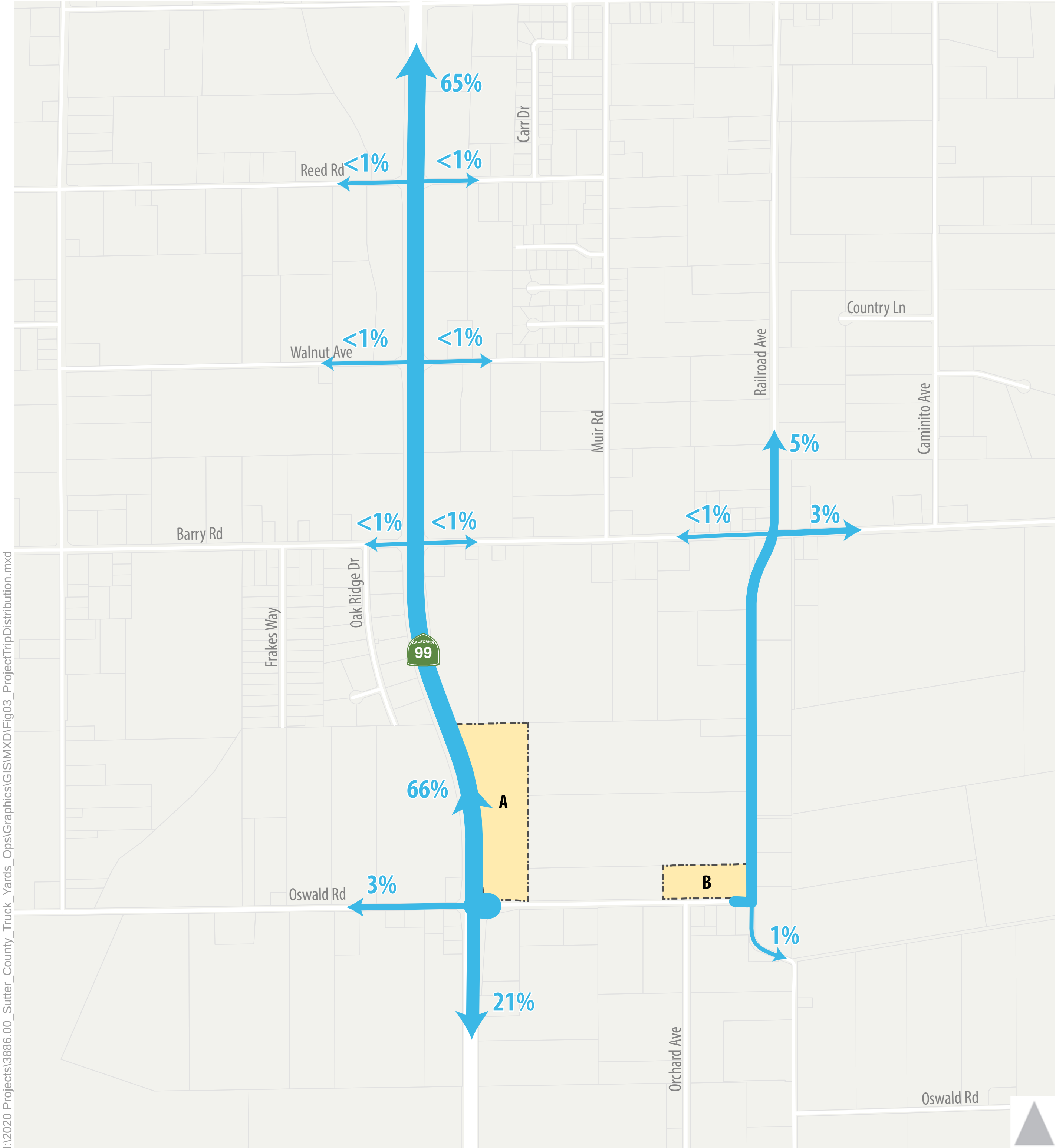
Trip Distribution

The two proposed projects that would generate new traffic (i.e., Legend Trucking and Sangha) provide access via existing driveways on Oswald Road. No additional driveways are planned as part of these two proposed projects. **Figure 3** shows the estimated trip distribution based on daily and peak hour (AM/PM) origin-destination data for the parcels along Oswald Road between just west of SR 99 and just east of Railroad Avenue. This data was purchased from StreetLight Data. The figure shows that about 90% of traffic passes through the SR 99/Oswald Road intersection, with about 65% of traffic traveling north of the study area via SR 99. A moderate amount of traffic (21%) travels south of the study area via SR 99.

Existing-Plus-Proposed Conditions

Intersection Operations

Existing-plus-proposed traffic volumes account for the addition of vehicle trips to the existing volumes, in accordance with the trip distribution previously presented. **Figure 4** displays the resulting AM and PM peak hour study intersection traffic volumes under existing-plus-proposed conditions.



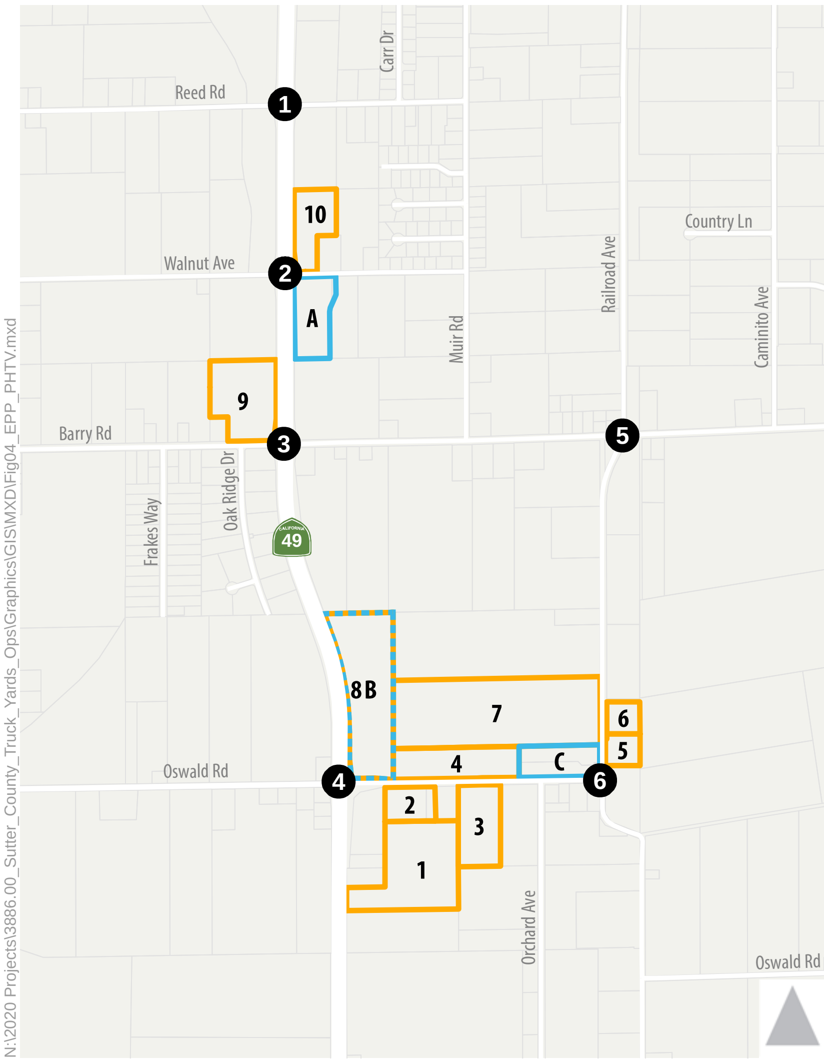
xx% Trip Distribution Percentage

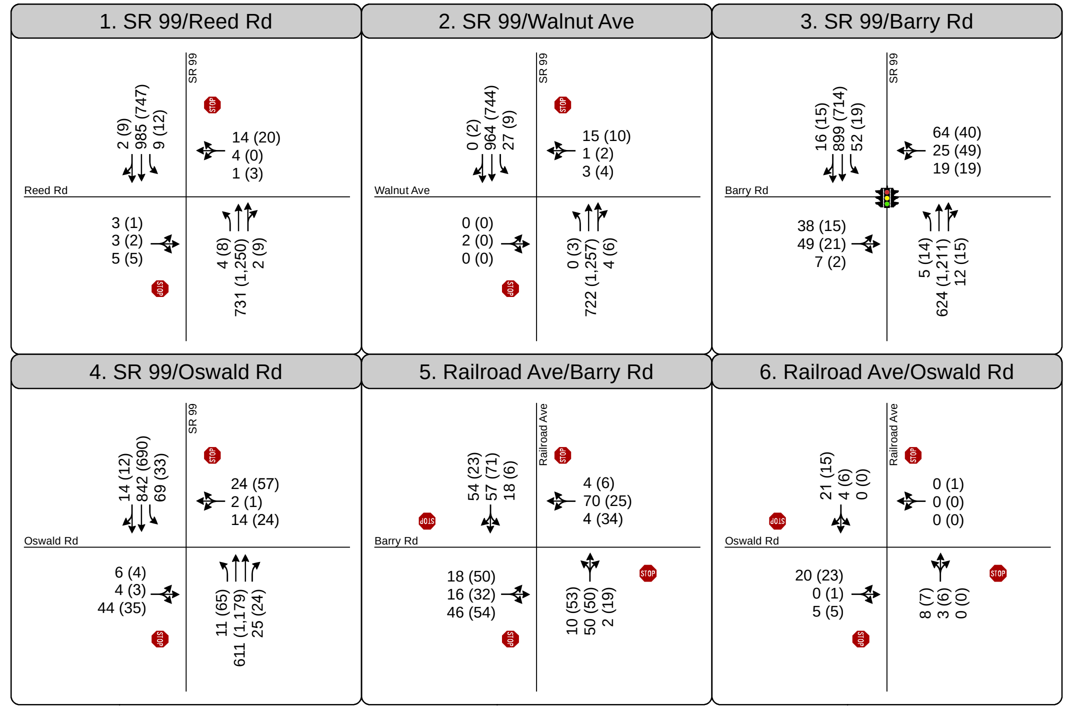
A Legend (Expansion)

B Sangha Trucking (Expansion)

Figure 3

Project Trip Distribution





1	Study Intersection
	Turn Lane
AM (PM)	Peak Hour Traffic Volume
	Traffic Signal
	Stop Sign

Proposed Projects

- A - HSD Trucking (New)
- B - Legend (Expansion)
- C - Sangha Trucking (Expansion)

Existing Truck Yards

- 1 - Parm Bains
- 2 - Money Dhami
- 3 - Nar Heer #2
- 4 - Sangha Trucking
- 5 - 3936 Railroad Ave
- 6 - 3894 Railroad Ave
- 7 - Northern Carriers
- 8 - Legend
- 9 - Nar Heer #1
- 10 - Sandhu Brothers

Parcels

Figure 4

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions

Table 10 shows the existing-plus-proposed peak hour intersection operations at the study intersections (refer to Appendix A for technical calculations). As shown in Table 10, the following intersections currently operate below Sutter County's adopted LOS threshold under existing conditions and delay would be exacerbated by the proposed projects. In all cases, the deficient movement occurs from the side street.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

Table 10: Intersection Operations – Existing-Plus-Proposed Conditions

Intersection	Traffic Control	Peak Hour	Delay/LOS	
			Existing Conditions	Existing-Plus-Proposed Conditions
1. SR 99 / Reed Road	SSSC	AM	**1 (41) / A (E)**	**1 (44) / A (E)**
		PM	**1 (40) / A (E)**	**1 (42) / A (E)**
2. SR 99 / Walnut Avenue	SSSC	AM	**1 (61) / A (F)**	**1 (65) / A (F)**
		PM	**1 (49) / A (E)**	**1 (53) / A (F)**
3. SR 99 / Barry Road	Signal	AM	12 / B	12 / B
		PM	11 / B	11 / B
4. SR 99 / Oswald Road	SSSC	AM	2 (29) / A (D)	2 (32) / A (D)
		PM	**3 (105) / A (F)**	**10 (230) / B (F)**
5. Railroad Avenue / Barry Road	AWSC	AM	8 / A	8 / A
		PM	9 / A	9 / A
6. Railroad Avenue / Oswald Road	AWSC	AM	7 / A	7 / A
		PM	7 / A	7 / A

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and all-way stop controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2021.

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Table 11 shows the existing-plus-proposed conditions peak hour average maximum queue length for key movements at each study intersection. These queue estimates are based on ten microsimulation runs using Synchro's SimTraffic microsimulation module. As shown in Table 11, the proposed projects would result in relatively minor changes in queuing at most intersections. At SR 99/Oswald Road, the westbound approach queue would increase by 150 feet (to 300 feet) during the PM peak hour and the southbound left turn queue would increase by 50 feet (to 100 feet) during the AM peak hour. All average maximum queue values are less than the corresponding storage length.

Table 11: Average Maximum Queue Lengths – Existing-Plus-Proposed Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]	Increase/ Decrease with Projects
1. SR 99 / Reed Road	EB LTR	>1,000 feet	AM	50 feet	-
			PM	50 feet	-
	WB LTR	>1,000 feet	AM	75 feet	-
			PM	50 feet	-25 feet
	SB L	440 feet	AM	50 feet	-
			PM	25 feet	-25 feet
	NB L	435 feet	AM	50 feet	+25 feet
			PM	50 feet	+25 feet
2. SR 99 / Walnut Avenue	EB LTR	>1,000 feet	AM	50 feet	-
			PM	25 feet	-
	WB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-
	SB L	435 feet	AM	50 feet	-
			PM	25 feet	-
	NB L	500 feet	AM	25 feet	-
			PM	25 feet	-
3. SR 99 / Barry Road	EB LTR	>1,000 feet	AM	175 feet	-
			PM	100 feet	-
	WB LTR	>1,000 feet	AM	150 feet	-25 feet
			PM	150 feet	-
	NB L	435 feet	AM	25 feet	-25 feet
			PM	50 feet	-25 feet
	NB TR	>1,000 feet	AM	225 feet	-
			PM	250 feet	+25 feet
	SB L	370 feet	AM	125 feet	-
			PM	100 feet	+25 feet
	SB TR	>1,000 feet	AM	200 feet	-25 feet

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Table 11: Average Maximum Queue Lengths – Existing-Plus-Proposed Conditions

Intersection	Movement	Storage Length	Peak Hour	Average Maximum Queue[1]	Increase/ Decrease with Projects
			PM	150 feet	-25 feet
4. SR 99 / Oswald Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	125 feet	-
	WB LTR	>1,000 feet	AM	100 feet	-
			PM	300 feet	+150 feet
	NB L	440 feet	AM	50 feet	-
			PM	100 feet	-25 feet
	SB L	430 feet	AM	100 feet	+50 feet
			PM	50 feet	-
5. Railroad Avenue / Barry Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	100 feet	-
	WB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-
	NB LTR	>1,000 feet	AM	75 feet	-
			PM	100 feet	-25 feet
	SB LTR	>1,000 feet	AM	100 feet	+25 feet
			PM	75 feet	-
6. Railroad Avenue / Oswald Road	EB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-
	WB LTR	-Private Driveway-	AM	25 feet	-
			PM	25 feet	-25 feet
	NB LTR	>1,000 feet	AM	50 feet	-
			PM	75 feet	-
	SB LTR	>1,000 feet	AM	75 feet	-
			PM	75 feet	-

Notes: **Bold** indicates exceedance of storage length.

[1] Average maximum queue is based on an average of ten microsimulation runs using Synchro's SimTraffic microsimulation module.

Source: Fehr & Peers, 2021.

Roadway Segment Operations

Existing-plus-proposed conditions study roadway segment volumes were estimated using the peak hour to daily adjustment factor used for existing conditions. The plus-proposed daily volumes were compared to daily volume thresholds specific to the facility type. **Table 12** shows existing-plus-proposed daily traffic, LOS, and volume-to-capacity ratio for the 3 study roadway segments. As shown, the proposed projects would result in relatively minor increases to vehicle-to-capacity ratios, and all study roadway segments would operate at LOS C or better on a daily basis. The daily volume on Barry Road east of SR 99 is not expected to change given the counter-intuitive route project trips would need to take to use Barry Road versus Oswald Road to access SR 99.

Table 12: Roadway Segment Analysis – Existing-Plus-Proposed Conditions

Roadway Segment	Lanes	Classification [1]	Existing Conditions		Existing-Plus-Proposed Conditions	
			ADT	LOS/VC	ADT	LOS/VC
1. Barry Road – State Route 99 to Railroad Avenue	2	2R	3,270	C / 0.16	3,270	C / 0.16
2. Railroad Avenue – Barry Road to Oswald Road	2	2R	740	C / 0.04	840	C / 0.04
3. Oswald Road – State Route 99 to Railroad Avenue	2	2R	1,450	C / 0.07	2,380	C / 0.11

Notes: ADT = average daily traffic; LOS = level of service; VC = volume-to-capacity ratio; **Bold** indicates exceedance of General Plan LOS policy.
[1] Classification codes are based on "Table 3: LOS Criteria – Roadway Segments".
Source: Fehr & Peers, 2021.

Assessment of Potential Off-Site Impacts

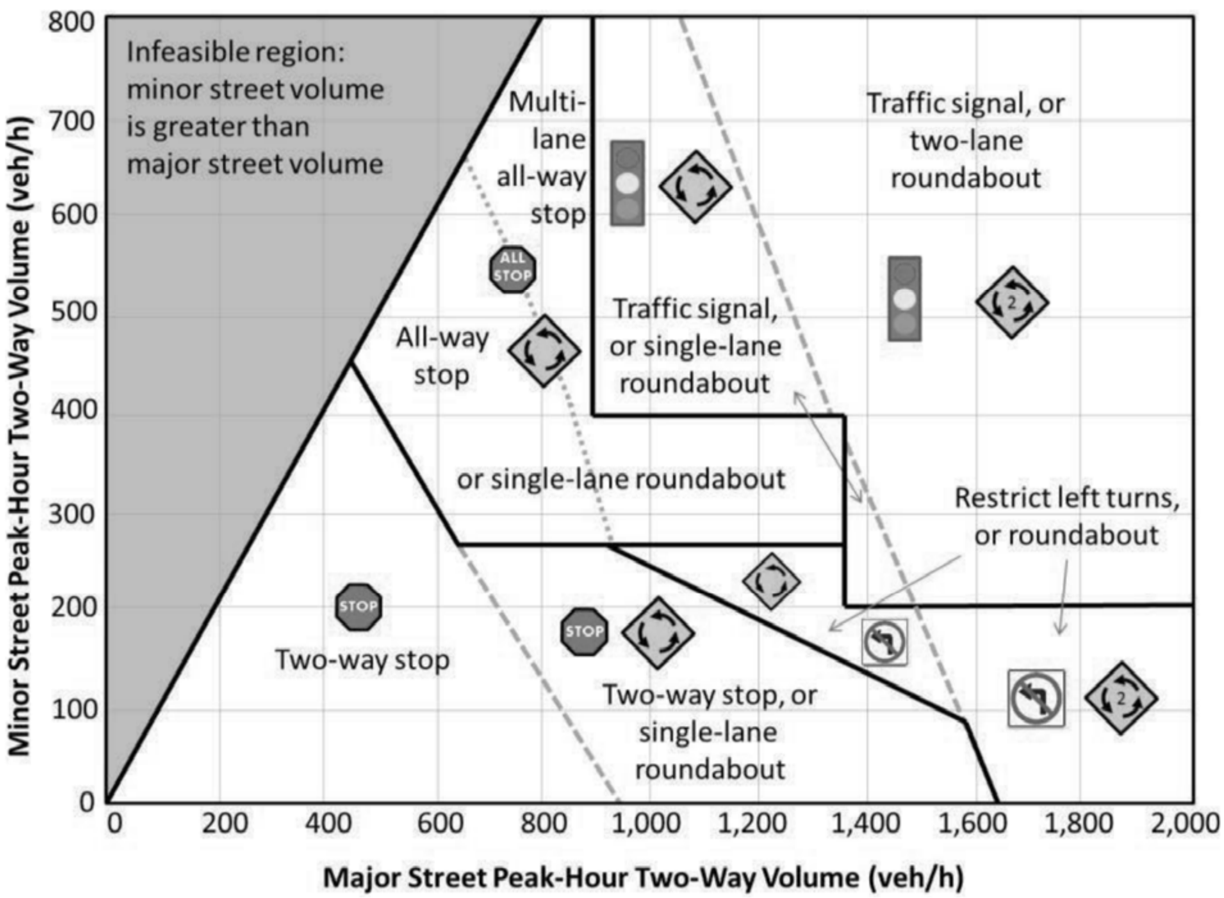
Based on the intersection operations analysis, the following intersections currently operate below Sutter County's adopted LOS threshold under existing conditions.

- SR 99/Reed Road during both the AM and PM peak hours
- SR 99/Walnut Avenue during both the AM and PM peak hours
- SR 99/Oswald Road during the PM peak hour

HSD Trucking site trips are already contributing to unacceptable operations at these intersections. Under existing-plus-proposed conditions, the delay at each of these intersections would be exacerbated.

Under existing-plus-proposed conditions, neither the SR 99/Reed Road nor the SR 99/Walnut Avenue intersections meet the peak hour signal warrant due to insufficient volume on the minor streets. In *Planning and Preliminary Engineering Applications Guide (PPEAG) to the HCM* (NCHRP Report 825, 2016), Section E provides methods for predicting what the intersection traffic control may be, given estimates of the major and minor street traffic volumes and the directional distribution (see image below). This section recognizes that state and local policies may specify the conditions under which particular types of intersection traffic controls should or should not be considered, and states that these policies should supersede Section E guidance.

At SR 99/Reed Road and SR 99/Walnut Avenue, the PPEAG guidance recommends either (1) restricting turns or (2) implementing two-lane roundabouts under existing conditions PM peak hour volumes.



Restricting left-turn and through side-street vehicles would improve intersection delays and safety. However, these side-street vehicles would need either to divert to intersections that permit left-turns onto SR 99 (such as at Barry Road) or make right-turn movements followed by U-turns downstream of the intersection. Both possibilities present operational problems, especially relating to heavy trucks. If vehicles decide to divert to other intersections, the heavy vehicle traffic volume would increase on rural roads (such as Muir Road). These roads may not be designed for such traffic, especially STAA truck traffic. On the other hand, if heavy vehicles must take the fastest route to SR 99, they would be forced to make U-turns at intersections that are possibly not designed to allow for heavy vehicle U-turns. This would require redesigning several intersections to allow for such movements. Roundabouts would be

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a cleaner option. Two-lane roundabouts at SR 99/Reed Road and SR 99/Walnut Avenue would provide operational and safety benefits to side-street vehicles. The negative consequences of installing two-lane roundabouts are increased right-of-way and increased implementation costs compared to the turn restrictions alternative. **Table 13** shows the existing-plus-proposed intersection operations with implementation of each of these two alternatives at SR 99/Reed Road and SR 99/Walnut Avenue.

The *State Route 99 and Oswald Road Intersection Improvements* report (GHD, April 2020) shows that traffic signal warrants 1 and 7 (Interruption of Continuous Traffic and Crash Warrant) are met at SR 99/Oswald Road under existing conditions. That report also presents signalization and roundabout installation as two intersection improvement alternatives. Table 13 shows existing-plus-proposed intersection operations with implementation of each of these two alternatives at SR 99/Oswald Road.

Table 13 shows that all proposed improvement alternatives would improve LOS to acceptable levels (i.e., LOS D or better) during the AM and PM peak hours.

Table 13: Intersection Operations – Existing-Plus-Proposed Conditions with Improvements

Intersection	Peak Hour	Existing-Plus-Proposed Conditions Delay/LOS			
		With SSSC	With Signal	With Roundabout	With SSSC & Restricted Turns
1. SR 99 / Reed Road	AM	**1 (44) / A (E)**	-	7 / A	<1 (13) / A (C)
	PM	**1 (42) / A (E)**	-	8 / A	<1 (15) / A (C)
2. SR 99 / Walnut Avenue	AM	**1 (65) / A (F)**	-	7 / A	<1 (13) / A (B)
	PM	**1 (53) / A (F)**	-	8 / A	<1 (15) / A (C)
4. SR 99 / Oswald Road	AM	2 (32) / A (D)	7 / A	6 / A	-
	PM	**10 (230) / B (F)**	9 / A	8 / A	-

Notes: LOS = Level of Service. SSSC = Side-Street Stop Controlled. AWSC = All-Way Stop Controlled. **Bold** indicates exceedance of Sutter County's LOS policy.

[1] For signalized and roundabout controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches. For SSSC intersections, the LOS and control delay for the worst movement is shown in parentheses next to the average intersection LOS and delay. Intersection LOS and delay is calculated based on the procedures and methodology contained in the Highway Capacity Manual 6th Edition (Transportation Research Board 2016). All intersections were analyzed in Synchro.

Source: Fehr & Peers, 2021.

Pedestrian and Bicycle Access

Pedestrian and bicycle access were evaluated in the vicinity of the proposed frontages based on existing and planned facilities. There are currently no bicycle or pedestrian facilities at proposed project frontages. In the Sutter County General Plan, Oswald Road between SR 99 and Railroad Avenue is planned to be a future urban major collector (2 lanes), which includes 4.5-foot sidewalks and 5-foot in-street bike lanes in each direction. Additionally, according to Figure 6 of the *County of Sutter Bicycle & Pedestrian Master Plan* (2012), a Class III bikeway is planned on Oswald Road between Schlag Road and Railroad Avenue. This bikeway will connect to planned Class III bikeways on Schlag Road, S. Township Road, and Railroad Avenue (north of Oswald Road), along with a planned Class II bikeway on Walton Avenue.

Per the *County of Sutter Bicycle & Pedestrian Master Plan* (Section 3.2.3, "Class III Bikeway Overview"), Class III bikeway improvements should include the following:

- Add a paved shoulder, where possible, to allow more space between autos and bikes
- Perform pavement maintenance on surfaces in need of repair
- Install "Share the Road" bike route signs on all routes with minimal travel lane surface/shoulders
- Install directional wayfinding signs along routes to identify where the route leads, opportunities for connectivity to other facilities, and distances between key locations.

Implementation Program M 5-C in the Sutter County General Plan is in place to "condition new development to construct bicycle and pedestrian lanes/trails and associated facilities in and supporting the development project in accordance to the County's Bikeway and Pedestrian Master Plan and County improvement standards; and to the extent possible, connect these facilities to existing and planned bicycle lanes/trails". The County will work with the applicants to condition the proposed projects consistent with Implementation Program M 5-C, as applicable. Given that the planned Class III bikeways on Oswald Road west of SR 99 and on Railroad Avenue do not yet exist, constructing a Class III bikeway along the Legend Trucking and Sangha Truck & Trailer Repair project frontages would not currently provide bicyclists with connectivity to other bicycle facilities.

Vehicle Miles Traveled Transportation Assessment

Background

Methodology

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines in 2019, level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA. LOS measures the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day, while the new CEQA metric (Vehicle Miles Traveled or VMT) measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from that travel.

To aid in SB 743 implementation, OPR released a *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) in December 2018. The Technical Advisory provides advice and recommendations to CEQA lead agencies on how to implement the SB 743 changes. This includes technical recommendations regarding the assessment of VMT, thresholds of significance, VMT mitigation measures, and screening thresholds for certain land use projects. Lead agencies may consider and use these recommendations at their discretion. Sutter County has not yet adopted a VMT significance threshold and methodology for CEQA VMT transportation assessments. Therefore, the State of California's guidance in the Technical Advisory is used for this VMT transportation assessment.

Based on input from County staff, the proposed projects' pending applications are staff-level ministerial design reviews that would not require approval by the County Board of Supervisors. As a result, CEQA does not apply because CEQA is only triggered by discretionary actions. Therefore, the VMT assessment presented below is for informational purposes, and the County has discretion on any conditions of approval related to VMT impacts.

CEQA and Heavy Vehicles

CEQA Section 15064.3 defines vehicle miles traveled as the "amount and distance of automobile travel attributable to a project." The Technical Advisory further clarifies that "the term 'automobile' refers to on-road passenger vehicles, specifically cars and light trucks." "Heavy-duty truck VMT could be included for modeling convenience and ease of calculation," though the guidelines do not currently require it. Since the Technical Advisory specifically requires passenger vehicle VMT and not heavy-duty truck VMT, the assessments in this memorandum will consider only project VMT generated by passenger vehicles.

Screening Thresholds

The Technical Advisory identifies "screening thresholds" to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed study. The Technical Advisory suggests the following projects should be expected to have a less-than-significant impact on VMT. Of these screening criteria, "small projects" could potentially apply to the proposed truck yard projects.

- Small projects
- Projects near transit stations

- Affordable residential development
- Local-serving retail
- Projects in low VMT areas

VMT Assessment of HSD Trucking Project

As stated previously, HSD Trucking is already in operation, albeit in non-compliance with certain County requirements related to truck traffic. The project is not expected to add more traffic to the surrounding roadway network than it is currently contributing.

As stated in the "Revised Traffic Assessment for HSD Trucking Project, Sutter County, California" memorandum (KD Anderson & Associates, Inc., 2019), the estimated daily trip generation of the HSD Trucking site is expected to be about 100 vehicle trips. The Technical Advisory states that "[absent] substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact." Therefore, based on the "small projects" screening criteria, the proposed project's VMT impact would be assumed to be less than significant. It should be noted that KD Anderson & Associates' memo assumed compliance of truck limitations. Non-compliance, which is currently occurring, results in additional site traffic. However, presuming the additional site traffic is composed entirely of heavy vehicles, the VMT conclusion would not change, as CEQA only considers passenger car vehicle VMT. If the County determines that additional "illegal" site traffic includes passenger vehicles, additional data and/or analysis may be needed to determine VMT impact.

VMT Assessment of Sangha Expansion Project

The trip generation for the Sangha expansion project is based on published trip rates for the automobile care center ITE land use category. Data for number of daily trips are not provided for this land use category in the *Trip Generation Manual: 10th Edition*. The number of project-generated daily trips will depend on the number of cars and trucks expected to ingress or egress the site that are attributable to the expansion (i.e., ingress or egress vehicles attributable to the existing site should not be included). The project is expected to increase employment from 8 to 13 employees and increase service output by roughly 30%. Based on information provided by the applicant, the current Sangha Truck & Trailer Repair Shop services about 10 vehicles per day. Therefore, the project's net result is an increase of 5 employees and about 3 additional vehicles serviced per day. It is assumed that heavy vehicles dropped off for repair or picked up after repair are accompanied by a passenger car that provides transportation to/from the site for the heavy vehicle driver. Assuming the estimated level of growth in employment and service volume, roughly 40 daily project trips could be anticipated. Some non-employee and non-customer project trips will also occur, such as additional shop deliveries to support expanded operations or additional incoming/outgoing security guard personnel. The probable total daily project trip generation is expected to be less than 80 trips. As previously expressed, this estimate does not include traffic from current site operations.

As previously referenced, the Technical Advisory states that "[absent] substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact." The estimated daily trip generation is less than 110 trips. In addition, the estimate provided in this assessment is conservative, as it includes both passenger car and heavy-duty truck traffic. Therefore, based on the "small projects" screening criteria, the proposed project's VMT impact would be assumed to be less than significant.

VMT Assessment of Legend Trucking Expansion

Project VMT

The trip rates used in the shop area expansion are based on driveway counts at the existing site and expected employment growth (and consequently enhanced business operations). The trip rates used for the corporate headquarters space is based on the general office land use category published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition* (2017). Based on these methods, the estimated weekday daily trip generation of the proposed Legend Trucking expansion is 276 passenger cars and 59 trucks. This does not include current weekday site trips, which total nearly 500 inbound or outbound vehicles per day.

Based on StreetLight Data origin-destination data for land uses along Oswald Road between just west of SR 99 and just east of Railroad Avenue, the average trip length estimate for the current Legend Trucking site is 33.3 miles per trip. The proposed project's trips are presumed to have the same average trip length. Therefore, the passenger car VMT is calculated as follows.

$$(276\ daily\ passenger\ cars)\ x\ (33.3\ miles\ per\ vehicle) = 9{,}191\ daily\ vehicle\ miles\ traveled$$

Significance Criteria

Sutter County has not adopted a VMT significance threshold and methodology for CEQA VMT transportation assessments. Therefore, the State of California's guidance in the Technical Advisory is used, which states that each component of a mixed-use project can be evaluated independently through applying the corresponding significance threshold for each project type. The proposed project consists of industrial and office land uses. In the absence of an applicable Sutter County VMT significance threshold, for the purposes of this study and in accordance with the CEQA Guidelines, a VMT-related impact would be considered significant if implementation of the proposed Legend Trucking project would trigger the following conditions.

- Office Component – the proposed project exceeds a level of 15% below existing regional VMT per employee (i.e., exceeds 15.5 vehicle-miles per employee)
- Industrial Component – the proposed project exceeds regional VMT per employee (i.e., exceeds 18.3 vehicle-miles per employee)

Office Component VMT Assessment

The proposed project contains an office component. To support SB 743 implementation, SACOG has developed screening maps for office projects using outputs from the 2016 base year model run of the SACSIM travel demand model for the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). SACSIM 2016 is activity/tour based and is designed to estimate individuals' daily travel, accounting for land use, transportation, and demographics that influence peoples' travel behaviors. SACOG's Workplace-based VMT per job map uses "HEX" geography, wherein average workplace VMT per job is calculated for each HEX by tallying all VMT generated by work-place tours and subtours at a workplace in the HEX and dividing by the total number of jobs available for residents inside the SACOG region in that HEX. It should be noted that this screening map does not account for VMT traveled outside the SACOG region.

According to SACOG's HEX map, the Legend Trucking site is partially captured in 3 HEX's, with average workplace VMT's per job ranging from 18.3 to 23.9. SACOG's HEX methodology estimates that the regional average workplace VMT per job is 18.3. This means that the proposed project is in an area where average VMT per worker is between 100% and 131% of the regional average and would exceed the VMT impact threshold of 15.5. This finding is reasonable given that the proposed project is in a rural, low-density area and the estimated average trip length is 33.3 vehicle-miles. Therefore, the proposed Legend Trucking project's impact to VMT is considered significant.

Recommended Improvements

Improvements that would reduce VMT must result in one of two outcomes – a decrease in average trip length or a decrease in trip generation. The proposed project's remote location and specialized land use type would limit the range and effectiveness of potential VMT mitigation options, particularly those that are commonly applicable in urban or suburban settings (e.g., co-locating complementary land uses, providing subsidized transit passes, improving pedestrian/bicycle networks, managing parking supply, etc.). An improvement is nonetheless presented below. As mentioned previously, CEQA does not apply and the County ultimately has discretion on any conditions of approval related to Legend Trucking's VMT impact.

Recommended Improvement 1: Transportation Demand Management (TDM) Program. The project applicant would develop and implement a TDM program to reduce the number of daily vehicle trips made to the project site, and submit the TDM Program to Sutter County for review and approval. The TDM Program would identify trip reduction strategies as well as mechanisms for funding and overseeing the delivery of trip reduction programs and strategies. The TDM Program would be designed to achieve the following trip reduction:

- Reduce workplace VMT per job to a level 15% below the regional average

Trip reduction strategies may include, but are not limited to, the following.

- Develop an employer-led program that considers:
    - Carpooling encouragement
    - Ride-matching assistance
    - Part-time or contract transportation coordinator
    - Vanpool assistance
- Make ad hoc payment towards active transportation projects, which reduce VMT, elsewhere in Sutter County

Given the project's land use type and its location in rural Sutter County, the effectiveness of TDM measures to reduce project-generated VMT to a level 15% below regional average VMT per employee is not certain. For this reason, we conclude that implementation of Recommended Improvement 1 would not reduce workplace VMT per job to a less-than-significant level.

FEHR PEERS

ATTACHMENT A:

TECHNICAL CALCULATIONS

1001 K Street | 3rd Floor | Sacramento, CA 95814 | (916) 329-7332 | Fax (916) 773-2015
www.fehrandpeers.com

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	5	1	4	14	4	724	2	9	954	2
Future Vol, veh/h	3	3	5	1	4	14	4	724	2	9	954	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	4	4	7	1	6	20	4	778	2	10	1026	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1447	1835	514	1322	1835	390	1028	0	0	780	0	0
Stage 1	1047	1047	-	787	787	-	-	-	-	-	-	-
Stage 2	400	788	-	535	1048	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	84	67	480	105	67	581	588	-	-	795	-	-
Stage 1	226	282	-	330	378	-	-	-	-	-	-	-
Stage 2	571	378	-	472	282	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	66	480	97	66	581	588	-	-	795	-	-
Mov Cap-2 Maneuver	75	66	-	97	66	-	-	-	-	-	-	-
Stage 1	224	278	-	328	375	-	-	-	-	-	-	-
Stage 2	539	375	-	452	278	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	41.2	25.8	0.1	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	588	-	-	115	200	795	-	-
HCM Lane V/C Ratio	0.007	-	-	0.137	0.136	0.012	-	-
HCM Control Delay (s)	11.2	-	-	41.2	25.8	9.6	-	-
HCM Lane LOS	B	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	3	1	15	0	715	4	27	933	0
Future Vol, veh/h	0	2	0	3	1	15	0	715	4	27	933	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	94	94	94	94	94	94
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	0	3	0	4	1	21	0	761	4	29	993	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1432	1816	497	1319	1814	383	993	0	0	765	0	0
Stage 1	1051	1051	-	763	763	-	-	-	-	-	-	-
Stage 2	381	765	-	556	1051	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	86	69	493	105	69	587	608	-	-	806	-	-
Stage 1	225	281	-	341	388	-	-	-	-	-	-	-
Stage 2	587	387	-	458	281	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	79	67	493	99	67	587	608	-	-	806	-	-
Mov Cap-2 Maneuver	79	67	-	99	67	-	-	-	-	-	-	-
Stage 1	225	271	-	341	388	-	-	-	-	-	-	-
Stage 2	563	387	-	437	271	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	61.1	19.9	0	0.3
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	608	-	-	67	268	806	-	-
HCM Lane V/C Ratio	-	-	-	0.043	0.101	0.036	-	-
HCM Control Delay (s)	0	-	-	61.1	19.9	9.6	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	49	7	19	25	64	5	617	12	52	868	16
Future Volume (veh/h)	38	49	7	19	25	64	5	617	12	52	868	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1586	1599	1097	1611	1547	1611	1611	1380	1547	1599	1573	1483
Adj Flow Rate, veh/h	42	54	6	21	27	21	5	678	12	57	954	18
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	4	43	3	8	3	3	21	8	4	6	13
Cap, veh/h	113	98	9	88	77	47	12	1647	29	82	2013	38
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.01	0.62	0.62	0.05	0.67	0.67
Sat Flow, veh/h	457	899	85	271	709	429	1535	2635	47	1522	3000	57
Grp Volume(v), veh/h	102	0	0	69	0	0	5	337	353	57	475	497
Grp Sat Flow(s),veh/h/ln	1441	0	0	1410	0	0	1535	1311	1371	1522	1494	1562
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.0	0.3	10.4	10.4	2.9	12.3	12.3
Cycle Q Clear(g_c), s	5.2	0.0	0.0	3.5	0.0	0.0	0.3	10.4	10.4	2.9	12.3	12.3
Prop In Lane	0.41		0.06	0.30		0.30	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	220	0	0	212	0	0	12	819	857	82	1002	1048
V/C Ratio(X)	0.46	0.00	0.00	0.33	0.00	0.00	0.41	0.41	0.41	0.70	0.47	0.47
Avail Cap(c_a), veh/h	581	0	0	559	0	0	384	819	857	381	1002	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	33.4	0.0	0.0	39.5	7.6	7.6	37.2	6.4	6.4
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.7	0.0	0.0	15.8	1.5	1.5	3.9	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	0.0	0.1	2.3	2.4	1.1	2.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	0.0	34.0	0.0	0.0	55.3	9.1	9.0	41.1	8.0	7.9
LnGrp LOS	D	A	A	C	A	A	E	A	A	D	A	A
Approach Vol, veh/h		102			69			695			1029	
Approach Delay, s/veh		35.1			34.0			9.4			9.8	
Approach LOS		D			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	57.0		13.7	5.6	60.7		13.7
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5
Max Green Setting (Gmax), s	* 20	* 50		* 30	* 20	* 50		* 30
Max Q Clear Time (g_c+I1), s	4.9	12.4		7.2	2.3	14.3		5.5
Green Ext Time (p_c), s	0.0	1.0		0.4	0.0	1.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	3	44	12	2	17	11	611	15	38	842	14
Future Vol, veh/h	6	3	44	12	2	17	11	611	15	38	842	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	500	-	385	450	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	5	33	3	24	9	20	20	3	5	14
Mvmt Flow	6	3	46	13	2	18	11	636	16	40	877	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1306	1623	446	1178	1630	318	892	0	0	636	0	0
Stage 1	965	965	-	658	658	-	-	-	-	-	-	-
Stage 2	341	658	-	520	972	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	7	8.16	6.56	7.38	4.28	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	7.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	7.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.35	3.83	4.03	3.54	2.29	-	-	2.23	-	-
Pot Cap-1 Maneuver	116	101	552	114	100	617	713	-	-	937	-	-
Stage 1	272	329	-	353	457	-	-	-	-	-	-	-
Stage 2	645	457	-	435	327	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	106	95	552	97	94	617	713	-	-	937	-	-
Mov Cap-2 Maneuver	106	95	-	97	94	-	-	-	-	-	-	-
Stage 1	268	315	-	348	450	-	-	-	-	-	-	-
Stage 2	614	450	-	378	313	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.8	29.3	0.2	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	713	-	-	316	180	937	-	-
HCM Lane V/C Ratio	0.016	-	-	0.175	0.179	0.042	-	-
HCM Control Delay (s)	10.1	-	-	18.8	29.3	9	-	-
HCM Lane LOS	B	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.6	0.1	-	-

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	18	16	46	2	70	4	10	49	2	18	55	54
Future Vol, veh/h	18	16	46	2	70	4	10	49	2	18	55	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	4	4	4	12	12	12	3	3	3
Mvmt Flow	20	17	50	2	76	4	11	53	2	20	60	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8	8.1	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	23%	3%	14%
Vol Thru, %	80%	20%	92%	43%
Vol Right, %	3%	57%	5%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	80	76	127
LT Vol	10	18	2	18
Through Vol	49	16	70	55
RT Vol	2	46	4	54
Lane Flow Rate	66	87	83	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.086	0.102	0.103	0.16
Departure Headway (Hd)	4.644	4.204	4.494	4.182
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	854	799	860
Service Time	2.662	2.221	2.512	2.198
HCM Lane V/C Ratio	0.085	0.102	0.104	0.16
HCM Control Delay	8.1	7.7	8	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.3	0.6

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	19	0	5	0	0	0	8	3	0	0	4	17
Future Vol, veh/h	19	0	5	0	0	0	8	3	0	0	4	17
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	26	0	7	0	0	0	11	4	0	0	5	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.4	6.8
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	73%	79%	0%	0%
Vol Thru, %	27%	0%	100%	19%
Vol Right, %	0%	21%	0%	81%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	24	0	21
LT Vol	8	19	0	0
Through Vol	3	0	0	4
RT Vol	0	5	0	17
Lane Flow Rate	15	32	0	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.018	0.038	0	0.029
Departure Headway (Hd)	4.311	4.194	4.186	3.669
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	831	855	0	976
Service Time	2.332	2.212	2.211	1.691
HCM Lane V/C Ratio	0.018	0.037	0	0.029
HCM Control Delay	7.4	7.4	7.2	6.8
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.1	0	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	5	3	0	20	8	1218	9	12	736	9
Future Vol, veh/h	1	2	5	3	0	20	8	1218	9	12	736	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	1	3	7	4	0	29	9	1310	10	13	791	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1495	2160	401	1756	2160	660	801	0	0	1320	0	0
Stage 1	822	822	-	1333	1333	-	-	-	-	-	-	-
Stage 2	673	1338	-	423	827	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	81	44	585	51	44	394	793	-	-	484	-	-
Stage 1	324	375	-	156	212	-	-	-	-	-	-	-
Stage 2	399	211	-	566	373	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	42	585	46	42	394	793	-	-	484	-	-
Mov Cap-2 Maneuver	73	42	-	46	42	-	-	-	-	-	-	-
Stage 1	320	365	-	154	210	-	-	-	-	-	-	-
Stage 2	366	209	-	540	363	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.7	26.8	0.1	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	793	-	-	115	198	484	-	-
HCM Lane V/C Ratio	0.011	-	-	0.099	0.166	0.027	-	-
HCM Control Delay (s)	9.6	-	-	39.7	26.8	12.6	-	-
HCM Lane LOS	A	-	-	E	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	4	2	10	3	1225	6	9	733	2
Future Vol, veh/h	0	0	0	4	2	10	3	1225	6	9	733	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	0	0	0	6	3	14	3	1332	7	10	797	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1492	2163	400	1761	2161	670	799	0	0	1339	0	0
Stage 1	818	818	-	1342	1342	-	-	-	-	-	-	-
Stage 2	674	1345	-	419	819	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	81	44	586	51	44	388	794	-	-	475	-	-
Stage 1	326	376	-	153	210	-	-	-	-	-	-	-
Stage 2	399	209	-	569	376	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	43	586	50	43	388	794	-	-	475	-	-
Mov Cap-2 Maneuver	73	43	-	50	43	-	-	-	-	-	-	-
Stage 1	325	368	-	152	209	-	-	-	-	-	-	-
Stage 2	378	208	-	557	368	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	48.6	0	0.2
HCM LOS	A	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	794	-	-	-	105	475	-	-
HCM Lane V/C Ratio	0.004	-	-	-	0.218	0.021	-	-
HCM Control Delay (s)	9.6	-	-	0	48.6	12.7	-	-
HCM Lane LOS	A	-	-	A	E	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.8	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	21	2	19	49	40	14	1179	15	19	703	15
Future Volume (veh/h)	15	21	2	19	49	40	14	1179	15	19	703	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1586	363	1650	1599	1650	1650	1586	1650	1508	1521	1483
Adj Flow Rate, veh/h	15	22	1	20	51	20	14	1215	15	20	725	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	5	100	0	4	0	0	5	0	11	10	13
Cap, veh/h	99	92	3	77	78	27	32	2019	25	39	1942	37
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.66	0.66	0.03	0.67	0.67
Sat Flow, veh/h	378	1089	40	222	920	322	1571	3048	38	1437	2900	56
Grp Volume(v), veh/h	38	0	0	91	0	0	14	600	630	20	361	378
Grp Sat Flow(s),veh/h/ln	1506	0	0	1464	0	0	1571	1506	1579	1437	1445	1511
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	0.0	0.7	16.9	16.9	1.0	8.3	8.3
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.5	0.0	0.0	0.7	16.9	16.9	1.0	8.3	8.3
Prop In Lane	0.39		0.03	0.22		0.22	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	194	0	0	182	0	0	32	998	1046	39	968	1012
V/C Ratio(X)	0.20	0.00	0.00	0.50	0.00	0.00	0.44	0.60	0.60	0.51	0.37	0.37
Avail Cap(c_a), veh/h	620	0	0	630	0	0	417	998	1046	381	968	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	33.6	0.0	0.0	36.5	7.1	7.1	36.2	5.5	5.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.6	0.0	0.0	7.0	2.7	2.6	3.8	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.6	0.0	0.0	0.3	3.8	3.9	0.4	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	0.0	35.2	0.0	0.0	43.5	9.8	9.7	40.0	6.6	6.5
LnGrp LOS	C	A	A	D	A	A	D	A	A	D	A	A
Approach Vol, veh/h		38			91			1244			759	
Approach Delay, s/veh		32.7			35.2			10.1			7.5	
Approach LOS		C			D			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	57.0		11.4	6.5	57.5		11.4				
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5				
Max Green Setting (Gmax), s	* 20	* 50		* 30	* 20	* 50		* 30				
Max Q Clear Time (g_c+I1), s	3.0	18.9		3.7	2.7	10.3		6.5				
Green Ext Time (p_c), s	0.0	2.0		0.1	0.0	1.1		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			10.7									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	2	35	14	0	25	65	1179	20	22	690	12
Future Vol, veh/h	4	2	35	14	0	25	65	1179	20	22	690	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	500	-	385	450	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	100	26	36	0	16	35	5	40	0	12	8
Mvmt Flow	4	2	36	14	0	26	66	1203	20	22	704	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1488	2089	358	1732	2095	602	716	0	0	1203	0	0
Stage 1	754	754	-	1335	1335	-	-	-	-	-	-	-
Stage 2	734	1335	-	397	760	-	-	-	-	-	-	-
Critical Hdwy	7.5	8.5	7.42	8.22	6.5	7.22	4.8	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	7.5	-	7.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	7.5	-	7.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	5	3.56	3.86	4	3.46	2.55	-	-	2.2	-	-
Pot Cap-1 Maneuver	88	16	574	39	53	410	693	-	-	587	-	-
Stage 1	372	241	-	121	225	-	-	-	-	-	-	-
Stage 2	382	98	-	517	417	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	74	14	574	29	46	410	693	-	-	587	-	-
Mov Cap-2 Maneuver	74	14	-	29	46	-	-	-	-	-	-	-
Stage 1	337	232	-	110	204	-	-	-	-	-	-	-
Stage 2	324	89	-	463	402	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.5	104.6	0.6	0.3
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	159	72	587	-	-
HCM Lane V/C Ratio	0.096	-	-	0.263	0.553	0.038	-	-
HCM Control Delay (s)	10.7	-	-	35.5	104.6	11.4	-	-
HCM Lane LOS	B	-	-	E	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1	2.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	50	32	54	33	25	6	53	48	17	6	70	23
Future Vol, veh/h	50	32	54	33	25	6	53	48	17	6	70	23
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	9	9	9	29	29	29	3	3	3
Mvmt Flow	66	42	71	43	33	8	70	63	22	8	92	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	8.8	9.7	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	37%	52%	6%
Vol Thru, %	41%	24%	39%	71%
Vol Right, %	14%	40%	9%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	118	136	64	99
LT Vol	53	50	33	6
Through Vol	48	32	25	70
RT Vol	17	54	6	23
Lane Flow Rate	155	179	84	130
Geometry Grp	1	1	1	1
Degree of Util (X)	0.224	0.229	0.118	0.169
Departure Headway (Hd)	5.183	4.607	5.031	4.661
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	691	777	709	766
Service Time	3.232	2.652	3.084	2.711
HCM Lane V/C Ratio	0.224	0.23	0.118	0.17
HCM Control Delay	9.7	9	8.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.9	0.4	0.6

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	1	5	0	0	1	7	6	0	0	6	13
Future Vol, veh/h	19	1	5	0	0	1	7	6	0	0	6	13
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	22	22	22	22	22	22	22	22	22	22	22	22
Mvmt Flow	25	1	7	0	0	1	9	8	0	0	8	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	6.8	7.6	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	54%	76%	0%	0%
Vol Thru, %	46%	4%	0%	32%
Vol Right, %	0%	20%	100%	68%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	25	1	19
LT Vol	7	19	0	0
Through Vol	6	1	0	6
RT Vol	0	5	1	13
Lane Flow Rate	17	33	1	25
Geometry Grp	1	1	1	1
Degree of Util (X)	0.021	0.04	0.001	0.027
Departure Headway (Hd)	4.459	4.379	3.771	3.935
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	803	818	947	909
Service Time	2.485	2.401	1.802	1.962
HCM Lane V/C Ratio	0.021	0.04	0.001	0.028
HCM Control Delay	7.6	7.6	6.8	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	3	5	1	4	14	4	731	2	9	985	2
Future Vol, veh/h	3	3	5	1	4	14	4	731	2	9	985	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	4	4	7	1	6	20	4	786	2	10	1059	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1484	1876	531	1347	1876	394	1061	0	0	788	0	0
Stage 1	1080	1080	-	795	795	-	-	-	-	-	-	-
Stage 2	404	796	-	552	1081	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	79	63	468	100	63	578	570	-	-	789	-	-
Stage 1	216	272	-	326	375	-	-	-	-	-	-	-
Stage 2	568	374	-	461	272	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	70	62	468	92	62	578	570	-	-	789	-	-
Mov Cap-2 Maneuver	70	62	-	92	62	-	-	-	-	-	-	-
Stage 1	214	268	-	324	372	-	-	-	-	-	-	-
Stage 2	536	371	-	441	268	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	43.9	26.9	0.1	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	570	-	-	108	191	789	-	-
HCM Lane V/C Ratio	0.008	-	-	0.146	0.142	0.012	-	-
HCM Control Delay (s)	11.4	-	-	43.9	26.9	9.6	-	-
HCM Lane LOS	B	-	-	E	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	3	1	15	0	722	4	27	964	0
Future Vol, veh/h	0	2	0	3	1	15	0	722	4	27	964	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	94	94	94	94	94	94
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	0	3	0	4	1	21	0	768	4	29	1026	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1469	1856	513	1343	1854	386	1026	0	0	772	0	0
Stage 1	1084	1084	-	770	770	-	-	-	-	-	-	-
Stage 2	385	772	-	573	1084	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	81	65	481	101	65	585	589	-	-	801	-	-
Stage 1	215	271	-	338	385	-	-	-	-	-	-	-
Stage 2	583	384	-	448	271	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	63	481	95	63	585	589	-	-	801	-	-
Mov Cap-2 Maneuver	75	63	-	95	63	-	-	-	-	-	-	-
Stage 1	215	261	-	338	385	-	-	-	-	-	-	-
Stage 2	560	384	-	427	261	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	64.8	20.5	0	0.3
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	589	-	-	63	260	801	-	-
HCM Lane V/C Ratio	-	-	-	0.045	0.104	0.036	-	-
HCM Control Delay (s)	0	-	-	64.8	20.5	9.7	-	-
HCM Lane LOS	A	-	-	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	49	7	19	25	64	5	624	12	52	899	16
Future Volume (veh/h)	38	49	7	19	25	64	5	624	12	52	899	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1586	1599	1097	1611	1547	1611	1611	1380	1547	1599	1573	1483
Adj Flow Rate, veh/h	42	54	6	21	27	21	5	686	12	57	988	18
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	4	43	3	8	3	3	21	8	4	6	13
Cap, veh/h	113	98	9	88	77	47	12	1647	29	82	2014	37
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.01	0.62	0.62	0.05	0.67	0.67
Sat Flow, veh/h	457	899	85	271	709	429	1535	2636	46	1522	3002	55
Grp Volume(v), veh/h	102	0	0	69	0	0	5	341	357	57	492	514
Grp Sat Flow(s),veh/h/ln	1441	0	0	1410	0	0	1535	1311	1371	1522	1494	1563
Q Serve(g_s), s	1.7	0.0	0.0	0.0	0.0	0.0	0.3	10.6	10.6	2.9	12.9	12.9
Cycle Q Clear(g_c), s	5.2	0.0	0.0	3.5	0.0	0.0	0.3	10.6	10.6	2.9	12.9	12.9
Prop In Lane	0.41		0.06	0.30		0.30	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	220	0	0	212	0	0	12	819	857	82	1002	1048
V/C Ratio(X)	0.46	0.00	0.00	0.33	0.00	0.00	0.41	0.42	0.42	0.70	0.49	0.49
Avail Cap(c_a), veh/h	581	0	0	559	0	0	384	819	857	381	1002	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	33.4	0.0	0.0	39.5	7.6	7.6	37.2	6.5	6.5
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.7	0.0	0.0	15.8	1.6	1.5	3.9	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	0.0	0.1	2.4	2.4	1.1	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	0.0	34.0	0.0	0.0	55.3	9.2	9.1	41.1	8.2	8.1
LnGrp LOS	D	A	A	C	A	A	E	A	A	D	A	A
Approach Vol, veh/h		102			69			703			1063	
Approach Delay, s/veh		35.1			34.0			9.5			9.9	
Approach LOS		D			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	57.0		13.7	5.6	60.7		13.7				
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5				
Max Green Setting (Gmax), s	* 20	* 50		* 30	* 20	* 50		* 30				
Max Q Clear Time (g_c+I1), s	4.9	12.6		7.2	2.3	14.9		5.5				
Green Ext Time (p_c), s	0.0	1.0		0.4	0.0	1.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			11.9									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	4	44	14	2	24	11	611	25	69	842	14
Future Vol, veh/h	6	4	44	14	2	24	11	611	25	69	842	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	500	-	385	450	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	3	3	5	33	3	24	9	20	20	3	5	14
Mvmt Flow	6	4	46	15	2	25	11	636	26	72	877	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1370	1687	446	1243	1694	318	892	0	0	636	0	0
Stage 1	1029	1029	-	658	658	-	-	-	-	-	-	-
Stage 2	341	658	-	585	1036	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	7	8.16	6.56	7.38	4.28	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	7.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	7.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.35	3.83	4.03	3.54	2.29	-	-	2.23	-	-
Pot Cap-1 Maneuver	104	92	552	101	91	617	713	-	-	937	-	-
Stage 1	248	307	-	353	457	-	-	-	-	-	-	-
Stage 2	645	457	-	394	305	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	91	84	552	83	83	617	713	-	-	937	-	-
Mov Cap-2 Maneuver	91	84	-	83	83	-	-	-	-	-	-	-
Stage 1	244	283	-	348	450	-	-	-	-	-	-	-
Stage 2	606	450	-	329	282	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	32.3	0.2	0.7
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	713	-	-	279	173	937	-	-
HCM Lane V/C Ratio	0.016	-	-	0.202	0.241	0.077	-	-
HCM Control Delay (s)	10.1	-	-	21.1	32.3	9.2	-	-
HCM Lane LOS	B	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.9	0.2	-	-

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	18	16	46	4	70	4	10	50	2	18	57	54
Future Vol, veh/h	18	16	46	4	70	4	10	50	2	18	57	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	4	4	4	12	12	12	3	3	3
Mvmt Flow	20	17	50	4	76	4	11	54	2	20	62	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8.1	8.1	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	23%	5%	14%
Vol Thru, %	81%	20%	90%	44%
Vol Right, %	3%	57%	5%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	80	78	129
LT Vol	10	18	4	18
Through Vol	50	16	70	57
RT Vol	2	46	4	54
Lane Flow Rate	67	87	85	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.087	0.102	0.106	0.163
Departure Headway (Hd)	4.653	4.217	4.51	4.193
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	852	797	858
Service Time	2.67	2.231	2.525	2.208
HCM Lane V/C Ratio	0.087	0.102	0.107	0.163
HCM Control Delay	8.1	7.7	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.4	0.6

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	20	0	5	0	0	0	8	3	0	0	4	21
Future Vol, veh/h	20	0	5	0	0	0	8	3	0	0	4	21
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	11	11	11	11	11	11	11	11	11	11	11	11
Mvmt Flow	27	0	7	0	0	0	11	4	0	0	5	28
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	0	7.4	6.8
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	73%	80%	0%	0%
Vol Thru, %	27%	0%	100%	16%
Vol Right, %	0%	20%	0%	84%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	25	0	25
LT Vol	8	20	0	0
Through Vol	3	0	0	4
RT Vol	0	5	0	21
Lane Flow Rate	15	34	0	34
Geometry Grp	1	1	1	1
Degree of Util (X)	0.018	0.04	0	0.034
Departure Headway (Hd)	4.317	4.211	4.197	3.653
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	829	852	0	980
Service Time	2.341	2.228	2.223	1.677
HCM Lane V/C Ratio	0.018	0.04	0	0.035
HCM Control Delay	7.4	7.4	7.2	6.8
HCM Lane LOS	A	A	N	A
HCM 95th-tile Q	0.1	0.1	0	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	5	3	0	20	8	1250	9	12	747	9
Future Vol, veh/h	1	2	5	3	0	20	8	1250	9	12	747	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	1	3	7	4	0	29	9	1344	10	13	803	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1524	2206	407	1796	2206	677	813	0	0	1354	0	0
Stage 1	834	834	-	1367	1367	-	-	-	-	-	-	-
Stage 2	690	1372	-	429	839	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	77	41	580	48	41	384	784	-	-	469	-	-
Stage 1	318	370	-	148	204	-	-	-	-	-	-	-
Stage 2	390	203	-	561	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	39	580	43	39	384	784	-	-	469	-	-
Mov Cap-2 Maneuver	69	39	-	43	39	-	-	-	-	-	-	-
Stage 1	315	360	-	146	202	-	-	-	-	-	-	-
Stage 2	357	201	-	534	358	-	-	-	-	-	-	-

Approach	EB			WB			NB			SB
HCM Control Delay, s	42.2			28			0.1			0.2
HCM LOS	E			D						

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	784	-	-	108	189	469	-	-
HCM Lane V/C Ratio	0.011	-	-	0.106	0.174	0.028	-	-
HCM Control Delay (s)	9.6	-	-	42.2	28	12.9	-	-
HCM Lane LOS	A	-	-	E	D	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	4	2	10	3	1257	6	9	744	2
Future Vol, veh/h	0	0	0	4	2	10	3	1257	6	9	744	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	0	0	0	6	3	14	3	1366	7	10	809	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1521	2209	406	1801	2207	687	811	0	0	1373	0	0
Stage 1	830	830	-	1376	1376	-	-	-	-	-	-	-
Stage 2	691	1379	-	425	831	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	77	41	580	47	41	378	786	-	-	461	-	-
Stage 1	320	371	-	146	202	-	-	-	-	-	-	-
Stage 2	389	201	-	564	371	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	40	580	46	40	378	786	-	-	461	-	-
Mov Cap-2 Maneuver	69	40	-	46	40	-	-	-	-	-	-	-
Stage 1	319	363	-	145	201	-	-	-	-	-	-	-
Stage 2	368	200	-	552	363	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	52.6	0	0.2
HCM LOS	A	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	786	-	-	-	98	461	-	-
HCM Lane V/C Ratio	0.004	-	-	-	0.233	0.021	-	-
HCM Control Delay (s)	9.6	-	-	0	52.6	13	-	-
HCM Lane LOS	A	-	-	A	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.8	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	21	2	19	49	40	14	1211	15	19	714	15
Future Volume (veh/h)	15	21	2	19	49	40	14	1211	15	19	714	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1560	1586	363	1650	1599	1650	1650	1586	1650	1508	1521	1483
Adj Flow Rate, veh/h	15	22	1	20	51	20	14	1248	15	20	736	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	7	5	100	0	4	0	0	5	0	11	10	13
Cap, veh/h	99	92	3	77	78	27	32	2020	24	39	1943	37
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.66	0.66	0.03	0.67	0.67
Sat Flow, veh/h	378	1089	40	222	920	322	1571	3049	37	1437	2901	55
Grp Volume(v), veh/h	38	0	0	91	0	0	14	617	646	20	367	383
Grp Sat Flow(s),veh/h/ln	1506	0	0	1464	0	0	1571	1506	1579	1437	1445	1511
Q Serve(g_s), s	0.0	0.0	0.0	2.6	0.0	0.0	0.7	17.6	17.6	1.0	8.5	8.5
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.5	0.0	0.0	0.7	17.6	17.6	1.0	8.5	8.5
Prop In Lane	0.39		0.03	0.22		0.22	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	194	0	0	182	0	0	32	998	1046	39	968	1012
V/C Ratio(X)	0.20	0.00	0.00	0.50	0.00	0.00	0.44	0.62	0.62	0.51	0.38	0.38
Avail Cap(c_a), veh/h	620	0	0	630	0	0	417	998	1046	381	968	1012
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	33.6	0.0	0.0	36.5	7.3	7.3	36.2	5.5	5.5
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.6	0.0	0.0	7.0	2.9	2.7	3.8	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.6	0.0	0.0	0.3	4.0	4.1	0.4	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	0.0	35.2	0.0	0.0	43.5	10.1	10.0	40.0	6.6	6.6
LnGrp LOS	C	A	A	D	A	A	D	B	B	D	A	A
Approach Vol, veh/h		38			91			1277			770	
Approach Delay, s/veh		32.7			35.2			10.4			7.5	
Approach LOS		C			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	57.0		11.4	6.5	57.5		11.4
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5
Max Green Setting (Gmax), s	* 20	* 50		* 30	* 20	* 50		* 30
Max Q Clear Time (g_c+I1), s	3.0	19.6		3.7	2.7	10.5		6.5
Green Ext Time (p_c), s	0.0	2.0		0.1	0.0	1.1		0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	10.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	35	24	1	57	65	1179	24	33	690	12
Future Vol, veh/h	4	3	35	24	1	57	65	1179	24	33	690	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	500	-	385	450	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	100	26	36	0	16	35	5	40	0	12	8
Mvmt Flow	4	3	36	24	1	58	66	1203	24	34	704	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1512	2113	358	1757	2119	602	716	0	0	1203	0	0
Stage 1	778	778	-	1335	1335	-	-	-	-	-	-	-
Stage 2	734	1335	-	422	784	-	-	-	-	-	-	-
Critical Hdwy	7.5	8.5	7.42	8.22	6.5	7.22	4.8	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	7.5	-	7.22	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	7.5	-	7.22	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	5	3.56	3.86	4	3.46	2.55	-	-	2.2	-	-
Pot Cap-1 Maneuver	84	15	574	38	51	410	693	-	-	587	-	-
Stage 1	360	233	-	121	225	-	-	-	-	-	-	-
Stage 2	382	98	-	497	407	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	63	13	574	26	44	410	693	-	-	587	-	-
Mov Cap-2 Maneuver	63	13	-	26	44	-	-	-	-	-	-	-
Stage 1	326	219	-	110	204	-	-	-	-	-	-	-
Stage 2	295	89	-	433	383	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	52	230	0.6	0.5
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	118	76	587	-	-
HCM Lane V/C Ratio	0.096	-	-	0.363	1.101	0.057	-	-
HCM Control Delay (s)	10.7	-	-	52	230	11.5	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.5	6.1	0.2	-	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	32	54	34	25	6	53	50	19	6	71	23
Future Vol, veh/h	50	32	54	34	25	6	53	50	19	6	71	23
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	3	3	3	9	9	9	29	29	29	3	3	3
Mvmt Flow	66	42	71	45	33	8	70	66	25	8	93	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.8	9.8	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	37%	52%	6%
Vol Thru, %	41%	24%	38%	71%
Vol Right, %	16%	40%	9%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	136	65	100
LT Vol	53	50	34	6
Through Vol	50	32	25	71
RT Vol	19	54	6	23
Lane Flow Rate	161	179	86	132
Geometry Grp	1	1	1	1
Degree of Util (X)	0.231	0.23	0.12	0.171
Departure Headway (Hd)	5.181	4.626	5.052	4.675
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	690	773	706	764
Service Time	3.23	2.672	3.105	2.725
HCM Lane V/C Ratio	0.233	0.232	0.122	0.173
HCM Control Delay	9.8	9.1	8.8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.9	0.4	0.6

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	23	1	5	0	0	1	7	6	0	0	6	15
Future Vol, veh/h	23	1	5	0	0	1	7	6	0	0	6	15
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Heavy Vehicles, %	22	22	22	22	22	22	22	22	22	22	22	22
Mvmt Flow	30	1	7	0	0	1	9	8	0	0	8	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	6.8	7.6	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	54%	79%	0%	0%
Vol Thru, %	46%	3%	0%	29%
Vol Right, %	0%	17%	100%	71%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	29	1	21
LT Vol	7	23	0	0
Through Vol	6	1	0	6
RT Vol	0	5	1	15
Lane Flow Rate	17	38	1	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.021	0.047	0.001	0.03
Departure Headway (Hd)	4.472	4.408	3.781	3.927
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	813	944	910
Service Time	2.502	2.43	1.813	1.957
HCM Lane V/C Ratio	0.021	0.047	0.001	0.031
HCM Control Delay	7.6	7.6	6.8	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0	0.1

Intersection	
Intersection Delay, s/veh	6.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	15	27	792	1071
Demand Flow Rate, veh/h	16	30	927	1167
Vehicles Circulating, veh/h	1166	929	19	13
Vehicles Exiting, veh/h	14	17	1163	946
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.9	6.7	6.4	7.1
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	16	30	436	491	548	619
Cap Entry Lane, veh/h	527	645	1326	1397	1334	1405
Entry HV Adj Factor	0.911	0.908	0.854	0.855	0.918	0.917
Flow Entry, veh/h	15	27	372	420	503	567
Cap Entry, veh/h	480	586	1133	1195	1225	1288
V/C Ratio	0.030	0.047	0.329	0.351	0.411	0.441
Control Delay, s/veh	7.9	6.7	6.4	6.4	7.0	7.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	2	2	2

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	11	33	1363	826
Demand Flow Rate, veh/h	11	35	1446	900
Vehicles Circulating, veh/h	893	1436	18	14
Vehicles Exiting, veh/h	21	28	886	1457
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.7	10.4	8.6	5.9
Approach LOS	A	B	A	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	11	35	680	766	423	477
Cap Entry Lane, veh/h	665	419	1328	1399	1333	1403
Entry HV Adj Factor	0.982	0.943	0.942	0.943	0.918	0.918
Flow Entry, veh/h	11	33	641	723	388	438
Cap Entry, veh/h	653	395	1251	1319	1223	1288
V/C Ratio	0.017	0.084	0.512	0.548	0.317	0.340
Control Delay, s/veh	5.7	10.4	8.4	8.7	5.9	5.9
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	0	3	3	1	2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	11	0	0	19	8	734	5	9	986	6
Future Vol, veh/h	0	0	11	0	0	19	8	734	5	9	986	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	0	0	16	0	0	27	9	789	5	10	1060	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1496	1895	533	1360	1896	397	1066	0	0	794	0	0
Stage 1	1083	1083	-	810	810	-	-	-	-	-	-	-
Stage 2	413	812	-	550	1086	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	77	62	466	98	61	575	568	-	-	785	-	-
Stage 1	215	271	-	319	368	-	-	-	-	-	-	-
Stage 2	561	368	-	462	270	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	72	60	466	93	59	575	568	-	-	785	-	-
Mov Cap-2 Maneuver	72	60	-	93	59	-	-	-	-	-	-	-
Stage 1	212	267	-	314	362	-	-	-	-	-	-	-
Stage 2	526	362	-	441	266	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	11.6	0.1	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	568	-	-	466	575	785	-	-
HCM Lane V/C Ratio	0.015	-	-	0.034	0.047	0.012	-	-
HCM Control Delay (s)	11.4	-	-	13	11.6	9.6	-	-
HCM Lane LOS	B	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	8	0	0	23	14	1251	11	12	750	9
Future Vol, veh/h	0	0	8	0	0	23	14	1251	11	12	750	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	435	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	93	93	93	93	93	93
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	0	0	11	0	0	33	15	1345	12	13	806	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1540	2224	408	1810	2223	679	816	0	0	1357	0	0
Stage 1	837	837	-	1381	1381	-	-	-	-	-	-	-
Stage 2	703	1387	-	429	842	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	75	40	579	47	40	383	782	-	-	468	-	-
Stage 1	317	369	-	145	201	-	-	-	-	-	-	-
Stage 2	383	199	-	561	367	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	66	38	579	44	38	383	782	-	-	468	-	-
Mov Cap-2 Maneuver	66	38	-	44	38	-	-	-	-	-	-	-
Stage 1	311	359	-	142	197	-	-	-	-	-	-	-
Stage 2	343	195	-	535	357	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	15.3	0.1	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	782	-	-	579	383	468	-	-
HCM Lane V/C Ratio	0.019	-	-	0.02	0.086	0.028	-	-
HCM Control Delay (s)	9.7	-	-	11.3	15.3	12.9	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	3	26	772	1055
Demand Flow Rate, veh/h	3	29	904	1149
Vehicles Circulating, veh/h	1153	899	34	5
Vehicles Exiting, veh/h	1	39	1122	923
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.6	6.6	6.4	6.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	3	29	425	479	540	609
Cap Entry Lane, veh/h	533	661	1308	1380	1344	1414
Entry HV Adj Factor	0.893	0.893	0.854	0.855	0.918	0.918
Flow Entry, veh/h	3	26	363	409	496	559
Cap Entry, veh/h	476	590	1117	1179	1233	1298
V/C Ratio	0.006	0.044	0.325	0.347	0.402	0.431
Control Delay, s/veh	7.6	6.6	6.4	6.4	6.9	7.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	2	2	2

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	0	23	1376	821
Demand Flow Rate, veh/h	0	24	1458	895
Vehicles Circulating, veh/h	899	1451	11	12
Vehicles Exiting, veh/h	8	18	888	1463
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	10.0	8.6	5.9
Approach LOS	-	B	A	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	0	24	685	773	421	474
Cap Entry Lane, veh/h	661	414	1336	1407	1335	1406
Entry HV Adj Factor	1.000	0.950	0.944	0.943	0.917	0.918
Flow Entry, veh/h	0	23	647	729	386	435
Cap Entry, veh/h	661	393	1262	1327	1224	1291
V/C Ratio	0.000	0.058	0.513	0.549	0.315	0.337
Control Delay, s/veh	5.4	10.0	8.4	8.7	5.9	5.9
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	0	3	3	1	2

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	0	0	19	0	722	6	33	967	1
Future Vol, veh/h	0	0	2	0	0	19	0	722	6	33	967	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	94	94	94	94	94	94
Heavy Vehicles, %	12	12	12	12	12	12	17	17	17	8	8	8
Mvmt Flow	0	0	3	0	0	27	0	768	6	35	1029	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1484	1874	515	1356	1871	387	1030	0	0	774	0	0
Stage 1	1100	1100	-	771	771	-	-	-	-	-	-	-
Stage 2	384	774	-	585	1100	-	-	-	-	-	-	-
Critical Hdwy	7.74	6.74	7.14	7.74	6.74	7.14	4.44	-	-	4.26	-	-
Critical Hdwy Stg 1	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.74	-	6.74	5.74	-	-	-	-	-	-	-
Follow-up Hdwy	3.62	4.12	3.42	3.62	4.12	3.42	2.37	-	-	2.28	-	-
Pot Cap-1 Maneuver	79	64	479	99	64	584	587	-	-	799	-	-
Stage 1	210	266	-	337	385	-	-	-	-	-	-	-
Stage 2	584	383	-	440	266	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	61	479	95	61	584	587	-	-	799	-	-
Mov Cap-2 Maneuver	73	61	-	95	61	-	-	-	-	-	-	-
Stage 1	210	254	-	337	385	-	-	-	-	-	-	-
Stage 2	557	383	-	418	254	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	11.5	0	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	587	-	-	479	584	799	-	-
HCM Lane V/C Ratio	-	-	-	0.006	0.046	0.044	-	-
HCM Control Delay (s)	0	-	-	12.6	11.5	9.7	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	16	3	1257	6	12	748	4
Future Vol, veh/h	0	0	0	0	0	16	3	1257	6	12	748	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	500	-	-	435	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	92	92	92	92	92	92
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	9	9	9
Mvmt Flow	0	0	0	0	0	23	3	1366	7	13	813	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1530	2220	409	1809	2219	687	817	0	0	1373	0	0
Stage 1	841	841	-	1376	1376	-	-	-	-	-	-	-
Stage 2	689	1379	-	433	843	-	-	-	-	-	-	-
Critical Hdwy	7.64	6.64	7.04	7.64	6.64	7.04	4.22	-	-	4.28	-	-
Critical Hdwy Stg 1	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.64	5.64	-	6.64	5.64	-	-	-	-	-	-	-
Follow-up Hdwy	3.57	4.07	3.37	3.57	4.07	3.37	2.26	-	-	2.29	-	-
Pot Cap-1 Maneuver	76	40	578	47	40	378	781	-	-	461	-	-
Stage 1	315	367	-	146	202	-	-	-	-	-	-	-
Stage 2	391	201	-	558	366	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	70	39	578	46	39	378	781	-	-	461	-	-
Mov Cap-2 Maneuver	70	39	-	46	39	-	-	-	-	-	-	-
Stage 1	314	357	-	145	201	-	-	-	-	-	-	-
Stage 2	366	200	-	542	356	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	15.1	0	0.2
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	781	-	-	-	378	461	-	-
HCM Lane V/C Ratio	0.004	-	-	-	0.06	0.028	-	-
HCM Control Delay (s)	9.6	-	-	0	15.1	13	-	-
HCM Lane LOS	A	-	-	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1	-	-

Intersection	
Intersection Delay, s/veh	6.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	2	2
Conflicting Circle Lanes	2	2	1	1
Adj Approach Flow, veh/h	56	42	673	964
Demand Flow Rate, veh/h	59	54	808	1022
Vehicles Circulating, veh/h	1025	781	95	34
Vehicles Exiting, veh/h	31	122	989	801
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.6	7.2	6.4	6.3
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535
Critical Headway, s	4.328	4.328	4.544	4.544	4.544	4.544
Entry Flow, veh/h	59	54	380	428	480	542
Cap Entry Lane, veh/h	594	731	1302	1302	1377	1377
Entry HV Adj Factor	0.949	0.777	0.832	0.833	0.944	0.943
Flow Entry, veh/h	56	42	316	357	453	511
Cap Entry, veh/h	564	568	1084	1085	1300	1298
V/C Ratio	0.099	0.074	0.292	0.329	0.349	0.394
Control Delay, s/veh	7.6	7.2	6.1	6.6	6.0	6.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	2	2

Intersection								
Intersection Delay, s/veh	8.2							
Intersection LOS	A							

Approach		EB		WB		NB		SB
Entry Lanes		1		1		2		2
Conflicting Circle Lanes		2		2		2		2
Adj Approach Flow, veh/h		43		83		1293		750
Demand Flow Rate, veh/h		55		108		1386		838
Vehicles Circulating, veh/h		859		1356		47		125
Vehicles Exiting, veh/h		104		77		867		1339
Ped Vol Crossing Leg, #/h		0		0		0		0
Ped Cap Adj		1.000		1.000		1.000		1.000
Approach Delay, s/veh		7.7		14.9		8.6		6.6
Approach LOS		A		B		A		A

Lane	Left	Left	Left	Right	Left	Right
Designated Moves	LTR	LTR	LT	TR	LT	TR
Assumed Moves	LTR	LTR	LT	TR	LT	TR
RT Channelized						
Lane Util	1.000	1.000	0.470	0.530	0.470	0.530
Follow-Up Headway, s	2.535	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	55	108	651	735	394	444
Cap Entry Lane, veh/h	684	448	1293	1364	1203	1277
Entry HV Adj Factor	0.782	0.769	0.933	0.932	0.894	0.895
Flow Entry, veh/h	43	83	608	685	352	397
Cap Entry, veh/h	535	345	1207	1272	1076	1143
V/C Ratio	0.080	0.241	0.504	0.539	0.327	0.348
Control Delay, s/veh	7.7	14.9	8.5	8.8	6.6	6.6
LOS	A	B	A	A	A	A
95th %tile Queue, veh	0	1	3	3	1	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	44	14	2	24	11	611	25	69	842	14
Future Volume (veh/h)	6	4	44	14	2	24	11	611	25	69	842	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1530	1826	1366	1856	1500	1767	1604	1515	1663	1826	1693
Adj Flow Rate, veh/h	6	4	5	15	2	4	11	636	19	72	877	7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	25	5	36	3	27	9	20	26	16	5	14
Cap, veh/h	96	11	13	131	4	9	28	1926	811	108	2412	19
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.63	0.63	0.07	0.68	0.68
Sat Flow, veh/h	549	366	457	1123	150	299	1682	3047	1284	1584	3527	28
Grp Volume(v), veh/h	15	0	0	21	0	0	11	636	19	72	431	453
Grp Sat Flow(s),veh/h/ln	1372	0	0	1572	0	0	1682	1523	1284	1584	1735	1821
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.4	6.1	0.3	2.8	6.6	6.6
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.7	0.0	0.0	0.4	6.1	0.3	2.8	6.6	6.6
Prop In Lane	0.40		0.33	0.71		0.19	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	120	0	0	144	0	0	28	1926	811	108	1186	1245
V/C Ratio(X)	0.12	0.00	0.00	0.15	0.00	0.00	0.39	0.33	0.02	0.67	0.36	0.36
Avail Cap(c_a), veh/h	777	0	0	891	0	0	161	1926	811	302	1186	1245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	0.0	30.0	0.0	0.0	30.6	5.4	4.3	28.6	4.2	4.2
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	6.5	0.5	0.1	2.6	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.3	0.0	0.0	0.2	1.1	0.1	1.0	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	0.0	30.3	0.0	0.0	37.1	5.8	4.4	31.2	5.1	5.0
LnGrp LOS	C	A	A	C	A	A	D	A	A	C	A	A
Approach Vol, veh/h		15			21			666			956	
Approach Delay, s/veh		30.3			30.3			6.3			7.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	46.8		6.8	6.0	50.0		6.8				
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5				
Max Green Setting (Gmax), s	* 12	* 37		* 34	* 6	* 43		* 34				
Max Q Clear Time (g_c+I1), s	4.8	8.1		2.6	2.4	8.6		2.7				
Green Ext Time (p_c), s	0.0	1.3		0.0	0.0	1.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			7.2
HCM 6th LOS			A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	3	35	24	1	57	65	1179	24	33	690	12
Future Volume (veh/h)	4	3	35	24	1	57	65	1179	24	33	690	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	418	1515	1278	418	1530	1381	1826	1292	1752	1722	1781
Adj Flow Rate, veh/h	4	3	3	24	1	20	66	1203	18	34	704	12
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	100	26	42	100	25	35	5	41	10	12	8
Cap, veh/h	82	10	7	93	1	9	84	2238	706	70	2053	35
Arrive On Green	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.65	0.65	0.04	0.62	0.62
Sat Flow, veh/h	110	174	122	177	24	161	1316	3469	1095	1668	3292	56
Grp Volume(v), veh/h	10	0	0	45	0	0	66	1203	18	34	350	366
Grp Sat Flow(s),veh/h/ln	405	0	0	362	0	0	1316	1735	1095	1668	1636	1712
Q Serve(g_s), s	0.0	0.0	0.0	2.3	0.0	0.0	3.3	12.6	0.4	1.3	6.8	6.8
Cycle Q Clear(g_c), s	1.6	0.0	0.0	3.9	0.0	0.0	3.3	12.6	0.4	1.3	6.8	6.8
Prop In Lane	0.40		0.30	0.53		0.44	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	99	0	0	104	0	0	84	2238	706	70	1020	1068
V/C Ratio(X)	0.10	0.00	0.00	0.43	0.00	0.00	0.79	0.54	0.03	0.48	0.34	0.34
Avail Cap(c_a), veh/h	258	0	0	254	0	0	237	2238	706	150	1020	1068
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	32.4	0.0	0.0	30.8	6.4	4.3	31.2	6.0	6.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	2.1	0.0	0.0	11.6	0.9	0.1	1.9	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.8	0.0	0.0	1.2	2.6	0.1	0.5	1.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	0.0	34.5	0.0	0.0	42.4	7.4	4.3	33.1	6.9	6.9
LnGrp LOS	C	A	A	C	A	A	D	A	A	C	A	A
Approach Vol, veh/h		10			45			1287			750	
Approach Delay, s/veh		30.7			34.5			9.1			8.1	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	50.0		8.9	9.2	48.6		8.9				
Change Period (Y+Rc), s	* 5	* 7		* 5	* 5	* 7		* 5				
Max Green Setting (Gmax), s	* 6	* 43		* 34	* 12	* 37		* 34				
Max Q Clear Time (g_c+I1), s	3.3	14.6		3.6	5.3	8.8		5.9				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	1.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			9.4
HCM 6th LOS			A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: SR 99 & Reed Rd

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	R	LT	R	L	L	TR
Maximum Queue (ft)	39	47	37	47	23	27	1
Average Queue (ft)	6	5	6	12	1	3	0
95th Queue (ft)	27	27	27	39	11	15	1
Link Distance (ft)	670		821			617	617
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		25	435		
Storage Blk Time (%)	2	1	2	2			
Queuing Penalty (veh)	0	0	0	0			

Intersection: 2: SR 99 & Walnut Ave

Movement	EB	WB	WB	SB
Directions Served	LT	LT	R	L
Maximum Queue (ft)	30	47	58	48
Average Queue (ft)	2	6	11	8
95th Queue (ft)	16	28	39	30
Link Distance (ft)	666	736		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			25	435
Storage Blk Time (%)	1	2	2	
Queuing Penalty (veh)	0	0	0	

Intersection: 3: SR 99 & Barry Rd

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	162	132	32	200	224	44	105	176	182	45
Average Queue (ft)	62	49	3	77	87	4	39	73	79	6
95th Queue (ft)	124	100	19	158	175	23	83	146	159	28
Link Distance (ft)	428	2541		2623	2623			1282	1282	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			435			25	370			25
Storage Blk Time (%)					21	0			16	0
Queuing Penalty (veh)					3	1			3	2

Intersection: 4: SR 99 & Oswald Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	R	L	L
Maximum Queue (ft)	55	55	70	69	29	37
Average Queue (ft)	12	25	13	18	4	8
95th Queue (ft)	41	53	49	54	19	26
Link Distance (ft)	440		1948			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		25		25	500	450
Storage Blk Time (%)	4	6	5	2		
Queuing Penalty (veh)	2	1	1	0		

Intersection: 5: Railroad Ave & Barry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	63	68	57	83
Average Queue (ft)	22	33	20	38
95th Queue (ft)	52	57	43	62
Link Distance (ft)	2541	418	2652	1049
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Railroad Ave & Oswald Rd

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	57	46	62
Average Queue (ft)	18	10	16
95th Queue (ft)	48	35	45
Link Distance (ft)	1948	580	2652
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 12

Intersection: 1: Hwy 99 & Reed Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	LT	R	L	TR	L
Maximum Queue (ft)	33	32	48	55	20	4	37
Average Queue (ft)	4	6	5	16	2	0	5
95th Queue (ft)	22	26	26	45	11	4	22
Link Distance (ft)	670		821			1222	617
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		25	435		
Storage Blk Time (%)	3	0	3	5			
Queuing Penalty (veh)	0	0	1	0			

Intersection: 2: Hwy 99 & Walnut Ave

Movement	WB	WB	NB	SB
Directions Served	LT	R	L	L
Maximum Queue (ft)	42	54	12	32
Average Queue (ft)	6	12	1	3
95th Queue (ft)	28	40	6	19
Link Distance (ft)	736			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25	500	435
Storage Blk Time (%)	4	3		
Queuing Penalty (veh)	0	0		

Intersection: 3: Hwy 99 & Barry Rd

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	98	130	51	206	207	34	69	128	142	51
Average Queue (ft)	29	56	11	77	90	4	19	49	49	6
95th Queue (ft)	71	109	35	159	172	20	54	104	113	30
Link Distance (ft)	428	2541		2623	2623			1282	1282	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			435			25	370			25
Storage Blk Time (%)					17	0			9	0
Queuing Penalty (veh)					3	1			1	1

Intersection: 4: Hwy 99 & Oswald Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	L	T	TR
Maximum Queue (ft)	73	69	101	65	104	8	2	36	4	3
Average Queue (ft)	12	33	25	22	27	0	0	8	0	0
95th Queue (ft)	53	70	80	55	73	6	2	26	2	2
Link Distance (ft)	440		1948			1430	1430		2623	2623
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		25		25	500			450		
Storage Blk Time (%)	5	6	14	4						
Queuing Penalty (veh)	2	0	4	1						

Intersection: 5: Railroad Ave & Barry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	80	69	85	69
Average Queue (ft)	34	31	40	34
95th Queue (ft)	64	59	74	55
Link Distance (ft)	2541	418	2650	1049
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Railroad Ave & Oswald Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	69	22	68	62
Average Queue (ft)	20	1	14	16
95th Queue (ft)	57	12	48	47
Link Distance (ft)	1948	200	582	2650
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 14

Intersection: 1: SR 99 & Reed Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	LT	R	L	TR	L
Maximum Queue (ft)	39	41	34	58	26	5	34
Average Queue (ft)	6	4	4	13	2	0	3
95th Queue (ft)	28	23	21	42	13	5	19
Link Distance (ft)	670		821			1222	617
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		15		15	435		
Storage Blk Time (%)	3	0	1	2			
Queuing Penalty (veh)	0	0	0	0			

Intersection: 2: SR 99 & Walnut Ave

Movement	EB	WB	WB	SB
Directions Served	LT	LT	R	L
Maximum Queue (ft)	29	43	64	35
Average Queue (ft)	2	5	16	7
95th Queue (ft)	15	27	50	26
Link Distance (ft)	666	736		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			15	435
Storage Blk Time (%)	1	2	2	
Queuing Penalty (veh)	0	0	0	

Intersection: 3: SR 99 & Barry Rd

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	157	138	23	219	215	44	105	191	197	40
Average Queue (ft)	62	50	3	86	89	5	42	79	80	5
95th Queue (ft)	121	103	17	175	182	24	86	160	164	24
Link Distance (ft)	428	2541		2623	2623			1282	1282	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			435			15	370			15
Storage Blk Time (%)					19	0			15	0
Queuing Penalty (veh)					2	1			2	1

Intersection: 4: SR 99 & Oswald Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	TR
Maximum Queue (ft)	64	62	95	69	28	3	6	5	79	1
Average Queue (ft)	12	27	20	21	3	0	0	0	21	0
95th Queue (ft)	43	54	67	60	17	2	5	5	56	1
Link Distance (ft)	440		1948			569	569			2623
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)		15		10	500			385	450	
Storage Blk Time (%)	3	7	7	2						
Queuing Penalty (veh)	1	1	2	0						

Intersection: 5: Railroad Ave & Barry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	69	57	76
Average Queue (ft)	22	33	23	38
95th Queue (ft)	52	56	49	62
Link Distance (ft)	2541	418	2652	1049
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Railroad Ave & Oswald Rd

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	63	41	57
Average Queue (ft)	20	9	15
95th Queue (ft)	51	34	43
Link Distance (ft)	1948	580	2652
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 12

Intersection: 1: Hwy 99 & Reed Rd

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	LT	R	L	TR	L
Maximum Queue (ft)	28	32	46	49	22	1	27
Average Queue (ft)	2	5	4	17	2	0	4
95th Queue (ft)	15	23	25	45	13	1	18
Link Distance (ft)	670		821			1222	617
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		25	435		
Storage Blk Time (%)	1	0	3	4			
Queuing Penalty (veh)	0	0	1	0			

Intersection: 2: Hwy 99 & Walnut Ave

Movement	WB	WB	NB	SB
Directions Served	LT	R	L	L
Maximum Queue (ft)	59	55	20	24
Average Queue (ft)	9	12	1	4
95th Queue (ft)	37	40	10	17
Link Distance (ft)	736			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25	500	435
Storage Blk Time (%)	5	3		
Queuing Penalty (veh)	1	0		

Intersection: 3: Hwy 99 & Barry Rd

Movement	EB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	T	R	L	T	T	R
Maximum Queue (ft)	91	134	47	199	228	33	77	126	147	40
Average Queue (ft)	30	57	12	74	90	4	17	49	51	5
95th Queue (ft)	72	108	36	152	174	20	52	99	112	23
Link Distance (ft)	428	2541		2623	2623			1282	1282	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)			435			25	370			25
Storage Blk Time (%)					17	0			10	0
Queuing Penalty (veh)					3	1			1	1

Intersection: 4: Hwy 99 & Oswald Rd

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	112	69	297	69	90	7	4	14	48	2	8
Average Queue (ft)	17	30	80	37	27	0	0	0	11	0	0
95th Queue (ft)	72	67	252	75	72	4	2	8	34	2	5
Link Distance (ft)	440		1948			1430	1430			2623	2623
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)		25		25	500			385	450		
Storage Blk Time (%)	6	6	30	10							
Queuing Penalty (veh)	2	0	17	2							

Intersection: 5: Railroad Ave & Barry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	78	68	97	73
Average Queue (ft)	34	33	39	35
95th Queue (ft)	63	62	76	57
Link Distance (ft)	2541	418	2650	1049
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Railroad Ave & Oswald Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	12	64	62
Average Queue (ft)	24	0	13	16
95th Queue (ft)	62	7	46	49
Link Distance (ft)	1948	200	582	2650
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 30

ATTACHMENT B
EXISTING CONDITIONS AND PERMITTED OPERATIONS MATRIX

	Permit Condition	Yard Conditions
Sandhu Brothers		
Permitted Use	General Plan designation: Industrial	Operation of a truck yard is permitted under this use.
	Zoning designation: Light Industrial : Planned Development (M-1:PD)	Operation of a truck yard is permitted under this use.
	Commercial trucking terminal as described in the application and project staff report.	Operation of Sandhu Brothers is consistent with a commercial trucking terminal.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	Truck tractors and trailers shall be parked and truck morning operations shall be conducted in the northwest portion of the site between the maintenance shop and Highway 99.	Based on site photos and images available on Google Maps, trucks are parked are in the northwestern corner of the property. **However, observations made by County staff indicate that some trucks and equipment are parked southeast of the onsite maintenance shop,**
	All areas to be used for truck and other vehicle parking, accessways, and vehicle movements shall be graveled to reduce on-site dust emissions pursuant to Zoning Code Section 1500-8118(f)(2).	Photos taken during the site visit indicate that the northwestern portion of the site has been graveled. Information provided by County staff indicates that the driveway is paved.
	Street paving shall be required along the property frontage of Walnut Avenue… The new roadway shall consist of a 0.2' overlay and 8" of Class II AB for base. Reinforcing fabric shall be used under all street paving.	A Google Maps image from April 2019 shows that the driveway to the property and the street in front of the property has been paved. Information provided by County staff confirms this finding and indicates that the driveway is paved and in good condition, extending from Walnut Avenue to a point approximately 30 feet past the front gate of the yard.
Hours of Operation	Vehicle maintenance and truck traffic to be limited to the hours between 7am and 10pm	Actual hours of operation could not be determined based on information collected during the site visit.
	Truck traffic shall return to the property by 11:00pm.	Actual hours of operation could not be determined based on information collected during the site visit.
Noise	N/A	N/A
Drainage	Install an on-site retention/detention pond to hold storm waters as specified by the drainage plan.	A drainage ditch was observed during the site visit adjacent to Highway 99 on the western side of the site. It is unclear whether this fulfills the requirement for an onsite retention/detention pond.
Pollutant Discharge	N/A	N/A
Lighting	N/A	N/A
Site Conditions	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment	**Tires and a materials stockpile were observed near the northern boundary of the site.** No trash was noted during the site visit.

Permits Needed	Prior to start of construction of any on-site improvements, the applicant shall obtain a Construction Activities Storm Water General Permit from the California Regional Water Quality Control Board (CRWQCB).	The State Water Resources Control Board (State Water Board) Stormwater Multiple Application Report and Tracking System (SMARTS) database does not show any permits associated with this property.
	The applicant shall obtain a state storm water permit meeting all Central Valley Regional Water Wuality Control Board (CVRWQCB) standards for storm water through Best Management Practices (BMPs) and measures as outlined in the National Pollutant Discharge Elimination System (NPDES) permit requirements.	
	At least 120 days prior to the discharging of waste water from the property, the property owner shall obtain a waste discharge requirement permit from the CRWQCB.	
Other	All major vehicle maintenance shall be conducted inside of the repair shop/facility. Minor maintenance activities may occur outside the repair shop/facility.	Could not be determined based on information collected during the site visit.
	The truck route to and from the facility shall be restricted to "from SR 99, east on Walnut Avenue to the facility entrance and reverse."	Could not be determined based on information collected during the site visit.
Nar Heer #1		
Permitted Use	General Plan Designation: Industrial (IND)	Operation of a truck yard is permitted under this use.
	Zoning Designation: Light Industrial (M-1)	Operation of a truck yard is permitted under this use.
Permitted Number of Trucks	A maximum of 26 trucks and trailers shall be parked on the property at any given time.	Ten trucks were observed onsite during the site visit.
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	Proposed parking lot area for truck driver's personal vehicles shall be located in the Southeast corner of the property, as shown on the site plan, and shall be paved in accordance with the requirements of Zoning Code Section 1500-20-080B.1.b. Required parking and circulation areas for industrial use types shall have paved surfacing based upon the recommendations of a geotechnical analysis for pavement thickness. At a minimum, these use types shall have 3.5 inches of asphalt concrete over 8 inches of class 2 aggregate base.	Parking area for personal vehicles was observed during the site visit in the southeastern corner of the site. It was not clear from observations made during the site visit where the truck trailers equipped with TRUs were parked. According to a Google Maps image from August 2019 and information provided by County staff, both the parking area at the southern portion of the property and the driveway ~~is~~ are paved.
	Truck trailers equipped with refrigeration units shall be parked on the east property line abutting State Highway 99, outside of the required landscape area and proposed parking lot area, as shown on approved site plan.	It is unclear based on site observations whether or not TRUs are parked solely along the eastern property line.
	The proposed commercial truck and trailer parking area shall be required to be maintained with gravel surfacing in accordance with County standards.	Based on Google Maps aerial photos, the site appears to be graveled. This finding was confirmed by County staff.
	Driveway entrance shall be paved.	According to a Google Maps image from August 2019, the driveway appears to be paved. This finding was confirmed by County staff.

Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	Discharge of fuels, oils, other petroleum products, chemicals, or hazardous materials, into the on-site disposal system is prohibited.	No signs of discharge of fuels, oils, petroleum products, detergents, cleaners, or chemicals were observed onsite during the site visit.
	Discharge of fuels, oils, other petroleum products, detergents, cleaners, or chemicals to the surface of the ground or to drainage ways on or adjacent to the site is prohibited.	
Lighting	Parking lot lighting shall not exceed 20 feet in total height. All new lighting will be required to limit spillover to any adjacent property or roadway.	The only lights onsite are affixed to the top of the Nor Cal Pump and Well Drilling building, as well as a security light at the front gate of the property. These lights do not spill onto Barry Road or adjacent properties.
Site Conditions	Site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, or equipment.	No debris was observed on-site during the site visit.
Permits Needed	The applicant shall obtain all required permits from the CVRWQCB if necessary.	The State Water Board SMARTS database does not show any permits associated with this property.
	If the project size is more than one acre, the applicant shall prepare and submit a Stormwater Pollution and Prevention Plan (SWPPP).	
	If the project size is more than one acre, a Notice of Intent (NOI) must be filed to obtain coverage under the California State Water Resources General Construction Activity Permit.	
Legend Transportation		
Permitted Use	Zoning designation: Light Industrial (M-1)	Operation of a truck yard is permitted under this use.
	Use Permit allows for existing mobile home to remain as a caretaker unit.	Caretaker unit listed in the southeastern corner of the site.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A

Parking & Surfacing Requirements[c]	All accessways and required parking areas shall be improved with either 4 inches of Class 2 aggregate base or 7 inches of Butte Rock base with a 3/4-inch maximum grading requirement, and such areas shall be paved with 2 inches of asphalt concrete with 1/2-inch grade requirement. This requirement is the minimum thickness required by the Zoning Code and is a requirement intended primarily for standard passenger vehicles, and should be increased to adequately accommodate heavy truck traffic and to avoid deteriorating over time. Driveway extending from the entrance at Oswald Road to the employee/customer parking lot areas shall be a minimum of 22 feet in width or wider to provide adequate area for trucks to safely pass each other and remain on the pavement while entering or exiting the property. The applicant shall add additional parking spaces to provide sufficient parking for all employee, driver, and customer vehicles parked on-site, separate from the truck parking area, and complying with the surfacing requirements noted above, so these vehicles are not parking on unpaved surfaces. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. Surfacing of the truck parking area shall be maintained with material sufficient to mitigate potential dust impacts to neighboring properties.	According to photos taken during the site visit, parking areas have not been graveled. Information provided by County staff indicates that a small parking lot adjacent to the exiting building was paved and striped; however, **most vehicles park in the unpaved, unmarked area south of the building/parking lot area.** ~~It is unclear whether automobile parking spaces have been striped or marked to delineate parking spaces and accessways.~~ Based on a Google Maps image from April 2019, the driveway to the site has been paved; **however, information provided by County staff indicates that the original paved driveway has been fenced off and does not extend to the paved customer parking lot adjacent to the existing building**~~.~~ **Instead the driveway to the site is gravel-surfaced.** Based on a Google Maps image from May 2019, passenger cars are parked in the central eastern portion of the site, east of onsite office trailers and south of the existing maintenance building. This finding was confirmed by County staff. **Observations made by County staff indicate that most vehicles onsite are parked on the unpaved, unmarked area south of the building/parking lot area.**
	Driveway entrance shall be paved. The minimum width for a commercial driveway entrance is 35 feet.	~~It is unclear whether pavement extends to the employee and customer parking area.~~**Information provided by County staff indicates that the original paved driveway has been fenced off and does not extend to the paved customer parking lot adjacent to the existing building. Instead, the driveway to the site is gravel-surfaced.**
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	N/A	N/A
Lighting	Open lots and access thereto for use by the general public shall have one foot-candle of light on the entire paved area from dusk to the end of business. All exterior doors during hours of darkness shall have one foot-candle of light.	The maintenance building has lights on the front and back (northern and southern sides) of the building, presumably lighting exterior doors. **The lights do not have shielding; however, they are angled downwards and do not cause light to spill over the site boundary.**
	All exterior doors shall have one foot-candle of light.	
	Light pole height in parking areas shall be limited to a maximum height of 18 feet.	
	All lighting shall be shielded to limit glare onto public rights of way and adjoining properties.	
Site Conditions	All required parking facilities including striping, handicapped parking and bicycle parking areas shall be maintained, and kept free of litter and debris	**Debris and trash were observed along the northern boundary of the site.**

	The site including the caretaker mobile home unit shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	
Permits Needed	If the site is more than one acre, the applicant shall prepare and submit a SWPPP, unless waived by the State, to be executed through all phases of grading and construction.	The State Water Board SMARTS database does not show any permits associated with this property.
	If the project size is more than one acre, an NOI must be filed to obtain coverage under the California State Water Resources General Construction Activity Storm Water Permit.	
Other	Truck repair must be conducted inside of the existing repair shop or the proposed new buildings to be constructed.	Could not be determined based on information collected during the site visit.
Northern Carriers		
Permitted Use	Truck yard and terminal for trucks that exclusively transport agricultural products. Trucks using this facility shall not haul manufactured or processed goods, materials, or products.	Nature of trucking activity could not be determined based on information collected during the site visit.
Permitted Number of Trucks	Outdoor storage of a maximum of 11 truck tractors with trailers.	Six trucks were observed onsite during the site visit.
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	N/A	N/A
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	The discharge of fuels, oils, other petroleum products, chemicals, or hazardous materials, into the on-site sewage disposal system is prohibited.	No signs of pollutant discharge or leaking vehicles observed on the site.
Lighting	All outdoor lighting shall be installed so as not to shine on adjacent properties. If needed, shielded or cut-off lighting style shall be utilized.	Only one shielded, dim light in the center of the site that is angled downward, and another light on the possible residential unit in the northwestern corner of the property were observed. These lights do not spill onto adjacent properties.
Site Conditions	The site shall be maintained in a clean condition and kept free of weeds, garbage, debris, salvage materials, and junk.	No junk, salvage materials, garbage, or debris were observed onsite.
Permits Needed	N/A	N/A
3894 Railroad Avenue		
Permitted Use	Zoning Designation: Industrial (IND)	At the time of the permit application, parking of trucks was a “permitted use” under industrial zoning.

Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	N/A	N/A
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	N/A	N/A
Lighting	All exterior doors during hours of darkness shall have one foot-candle of light. All exterior night security lighting shall be shielded to limit glare onto public rights-of-way and adjoining properties.	The western, eastern, and southern sides of the maintenance building have lights that are angled onto the site, presumably lighting exterior doors. **Light shields were not observed during the site visit; however, the lights are angled to direct light onto the site so that light does not spillover into adjacent properties**.
Site Conditions	N/A	N/A
Permits Needed	N/A	N/A
Other	All uses shall be conducted within a building or enclosed within a solid wall or fence of a type approved by the Planning Commission. No outdoor storage or activities will be permitted.	No outdoor storage was observed onsite.
3936 Railroad Avenue		
Permitted Use	Zoning Designation: Industrial (IND)	At the time of the permit application, parking of trucks was a "permitted use" under industrial zoning.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	N/A	N/A
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	N/A	N/A
Lighting	All exterior doors during hours of darkness shall have one foot-candle of light.	The maintenance building has lights on both the south and east sides of the building. **Neither of**

	All exterior night security lighting shall be shielded to limit glare onto public rights-of-way and adjoining properties.	**these lights are shielded, but they are pointed towards the site.** There is no light spillover onto adjacent properties.
Site Conditions	N/A	N/A
Permits Needed	N/A	N/A
Other	All uses shall be conducted within a building or enclosed within a solid wall or fence of a type approved by the Planning Commission. No outdoor storage or activities will be permitted.	Outdoor storage activities were not noted by the environmental consultant during the site visit.
Sangha Trucking		
Permitted Use	Zoning designation: Light Industrial (M-1)	The Site includes a commercial truck and trailer repair facility including a 6,500 square foot truck repair shop building containing an office, reception area, and bathrooms, with additional light storage space. These operations are consistent with the Light Industrial (M-1) zoning designation.
	The repair shop shall not be used for residential purpose.	Could not be determined based on information collected during the site visit.
	The light storage area shall only be used for storage purposes.	Could not be determined based on information collected during the site visit.
	The property shall be developed in accordance with the approved design review site plan, usage statement, and elevation drawings.	Could not be determined based on information collected during the site visit.
	Permanent restroom facilities shall be provided for onsite staff and truck drivers.	Could not be determined based on information collected during the site visit.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	All commercial trucks and trailers shall only be parked within the designated and screened truck parking area located at the western portion of the property. Employee vehicles shall be parked within the designated paved parking area located adjacent to the repair shop.	Based on Google Map images from April 2019, trucks and cars are parked to the west of the maintenance shop. **It appears that passenger vehicles and heavy trucks are interspersed throughout the parking area**. Information provided by County staff confirmed that trucks are parked to the west of the existing maintenance shop in the designated truck parking area. **Although passenger automobiles are required to be parked within the paved parking area, this does not always occur and vehicles are parked next to where the trucks are parked since it is closer for the driver**.~~; however, it is unclear where the employee passenger vehicles are parked.~~

	All access ways and required parking areas shall be improved with either 4 inches of Class 2 aggregate base or 7 inches of Butte Rock base with a 3/4-inch maximum grading requirement and such areas shall be paved with 2 inches of asphalt concrete with one-half (1/2) inch grade requirement. This is the minimum thickness required by the Zoning Code, is a requirement intended primarily for standard passenger vehicles, and should be increased to adequately accommodate heavy truck traffic to avoid deteriorating over time. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. The designated employee parking spaces shall not be less than 9' x 18' in size and shall be provided with a minimum 27' back up paved access way in accordance with Zoning Code requirements.	Automobile parking and circulation areas on-site are either graveled or paved. Information provided by County staff indicates that both driveways into the site are paved. The eastern driveway leads to the paved parked area around the maintenance shop, while the western driveway leads into the graveled truck parking area. It appears that automobile parking areas show striping.
	The designated vehicle storage area (truck parking area) shall be surfaced and maintained with a minimum of 6 inches of Class 2 aggregate base in accordance with Zoning Code Section 1500-8118(f)(2).	Based on site photos, it appears that parking areas on-site are either graveled or paved. Information provided by County staff confirmed that the truck parking area is graveled.
	Driveway entrance shall be paved. The minimum width for a commercial drive entrance is 35 feet.	Based on Google Maps image from April 2019 and site photos taken by the environmental consultant, the driveway of the site is paved. Information provided by County staff confirmed that both driveways into the site are paved.
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	An authorized professional shall design a non-residential on-site sewage system.	Status of this permit condition could not be determined based on information collected during the site visit.
Pollutant Discharge	The discharge of fuels, oils, other petroleum products, chemicals, or hazardous materials into the on-site sewage disposal system is prohibited.	**There are approximately two to three, two-square-foot patches of possible oil stains in one empty parking spot onsite.**
	The discharge of fuels, oils, other petroleum products, detergents, cleaners, or chemicals to the surface of the ground or to drainage ways on or adjacent to the site is prohibited.	
Lighting	Open lots and access thereto for use by the general public shall have one foot-candle of light on the entire paved area from dusk to the end of business. All exterior doors during hours of darkness shall have one foot-candle of light. The final site lighting plan shall be prepared, submitted, and approved by the Planning Division demonstrating that project lighting will not spill onto adjoining properties or rights of way. All lighting shall be shielded to limit glare onto public rights of way and adjoining properties.	There are two to three lights along the top of each side of the maintenance building; **six, 20-30-foot poles with two lights along the site**; and one light pole in the NE corner of the site. **Light shields were not noted by the environmental consultant during the site visit.** Lights are bright but are angled onto the site and do not spill onto the street or to other properties.
	Any future light pole height in parking areas shall be limited to a height of 18 feet.	
	All security or parking lot lighting within the site plan shall be designed to ensure minimal spillage of light onto the public right of way and adjacent properties.	

	All lighting shall be shielded to limit glare onto public rights of way and adjoining properties.	
Site Conditions	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and inoperable equipment.	**Trash was observed on-site along the northern boundary of the site. In addition, there is a stockpile of tires and other materials near the maintenance building.**
Permits Needed	If the project size is more than one acre, the applicant shall file a NOI to obtain coverage under the California State Water Resources - General Construction Activity Storm Water Permit.	The State Water Board SMARTS database shows that the site has a SWPPP. Since construction has been completed, the Water Board has issued a Notice of Termination for the construction permit.
	If the project size is more than one acre, the applicant shall prepare and submit a SWPPP, unless waived by the State, to be executed through all phases of grading and project construction.	
Other	There shall be no truck repairs conducted outside the proposed building.	Could not be determined based on information collected during the site visit.
	All trucks queueing for repair shall be parked on the truck parking area and shall not wait within or near the driveway to the south of the repair shop, facing Oswald Road.	Based on Google Maps images from April 2019, trucks awaiting repair are parked to the east of the repair shop and do not obstruct the driveway entrance to the site. This finding was confirmed by County staff.
Nar Heer #2		
Permitted Use	Zoning designation: Light Industrial (M-1)	The Site is developed with a 4,000-square-foot agricultural building used as a shop building and a gravel outdoor storage area which is used by a trucking company. These uses are consistent with the Light Industrial (M-1) zoning designation.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	All storage and parking of trucks shall occur behind the solid fencing.	Based on Google Maps images from April 2019, trucks are parked behind covered fencing and obscured from street view on Oswald Road by large trees. Observations made by County staff confirmed this finding.
	All parking spaces, truck parking areas, and maneuvering area shall be paved in accordance with Zoning Code Section 1500-8118 (f)(1).	According to information provided by the County, paved automobile parking areas are located onsite, adjacent to Oswald Road. The site plan included as Attachment A to the Board Staff Report from September 2008 for this yard shows paved parking along Oswald Road for automobiles but a "gravel" equipment yard in the back. Recent photos indicate that truck parking areas on the site may have been graveled in the past, but gravel is sparse.
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A

Pollutant Discharge	The discharge of fuels, oils, other petroleum products, chemicals, or hazardous materials into the on-site sewage disposal system is prohibited.	No leaking trucks were observed onsite; however**, slight soil discoloration was noted in the southern portion of the site, and oil stains were seen in a few parking spots.**
Lighting	All exterior lighting shall be hooded and/or shielded to direct lighting downward on to the subject property and to keep lighting from spilling onto adjoining properties and roads.	The site has dim lights on the north and south ends of the maintenance building and also has a 20-30-foot pole in the center of the site facing south. **The environmental consultant did not note that on-site lighting was shielded**. Lights do not spill over into adjacent properties or roads.
Site Conditions	N/A	N/A
Permits Needed	N/A	N/A
Money Dhami		
Permitted Use	General Plan designation: Industrial (IND) Zoning designation: Light Industrial (M-1)	The site is developed with 4 single-family residences and a garage/accessory structures. The yard is consistent with the GP and zoning designations.
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	All accessways and required parking areas, shall be improved with either four (4) inches of Class 2 aggregate base or seven (7) inches of Butte Rock base with a 3/4-inch maximum grading requirement and such areas shall be paved with 2 inches of asphalt concrete with one-half (1/2) inch grade requirement. Automobile parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops. Parking areas shall be striped or otherwise marked to delineate the parking spaces and access ways along with bumper or wheel stops.	Project site plans included in as an attachment to a 2008 Planning Commission Staff report show that the automobile parking area along Oswald Road would be paved, while the equipment yard South of the automobile parking lot would be graveled. Based on information provided by the County, automobile parking areas located between Oswald Road and the truck parking area have been paved. Based on site photos taken during the site visit, it appears that the site is graveled.
	Driveway entrance shall be paved. The minimum width for a commercial driveway entrance is 35 feet.	Based on Google Maps images from April 2019, the driveway to the site is paved. This finding was confirmed by County staff.
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	N/A	N/A
Lighting	Light pole height in parking areas shall be limited to a maximum height of 18 feet. Open lots and access thereto for use by the general public shall have one foot-candle of light on the entire paved area from dusk to the end of business. All exterior doors during hours of darkness shall have one foot-candle of light.	**As observed by the environmental consultant during the site visit, there are no lights on the property. This is inconsistent with the conditions of approval that require that all exterior doors during hours of darkness have one foot-candle of light.**

	All exterior doors during hours of darkness shall have one foot-candle of light. All lighting shall be shielded to limit glare onto public rights of way and adjoining properties. A final site lighting plan shall be prepared, submitted and approved by the Planning Division demonstrating that project lighting will not spill onto adjoining properties or rights of way.	
	All lighting shall be shielded to limit glare onto public rights of way and adjoining properties.	
Site Conditions	Planting areas shall be kept free from weeds, debris, and undesirable materials which may be detrimental to safety, drainage or appearance.	No signs of trash/debris were noted during the environmental consultants site visit; **however, observations made by County staff note that trash is present onsite and that tires are stored in two different locations within the truck yard.** In addition, landscaping/mulch along the front of the site needs to be replaced and new bender board needs to be installed. Oleander along the west property line is in good shape but general weeding is needed~~.~~
	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	
	All required parking facilities including striping, handicapped parking, and bicycle parking areas shall be maintained, and kept free of litter and debris.	
Permits Needed	If the project size is more than one acre, the applicant shall prepare and submit a SWPPP, unless waived by the state, to be executed through all phases of grading and project construction.	The State Water Board SMARTS database does not show any permits associated with this property.
	If the project size is more than one acre, an NOI must be filed to obtain coverage under the California State Water Resources General Construction Activity Storm Water Permit.	
Parm Bains		
Permitted Use	General Plan designation: Industrial (IND)	The Site is developed with gas and diesel fuel pumps, a convenience store, and a truck terminal consisting of an office, tire shop, truck scales, and a truck parking area. This is consistent with the general plan designation and zoning designation.
	Land Use designation: Light Industrial (M-1)	
Permitted Number of Trucks	N/A	N/A
Permitted Number of Transportation Refrigeration Units	N/A	N/A
Parking & Surfacing Requirements[c]	N/A	N/A
Hours of Operation	N/A	N/A
Noise	N/A	N/A
Drainage	N/A	N/A
Pollutant Discharge	N/A	N/A
Lighting	N/A	N/A
Site Conditions	Planting areas shall be kept free from weeds, debris, and undesirable materials which may be detrimental to safety, drainage or appearance.	No signs of trash/debris were noted during the site visit.

	The site shall be maintained in a neat and orderly fashion, free of debris, salvage materials, and equipment.	
Permits Needed	The applicant shall obtain all required permits from the CVRWQCB.	The State Water Board SMARTS database does not show any permits associated with this property.

NOTES:

[a] The permit conditions listed above are not exhaustive.
b Bold text indicates that truck yards may be operating in violation of their applicable permit conditions.
c Historically, truck parking areas have been allowed to be graveled; however, automobile parking areas are required to be paved, striped and landscaped per County ordinance. A new county ordinance was adopted in June 2019 which requires that all proposed large general truck yards are paved.

SOURCES:

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Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* September 9, 2014.
Sutter County. *Conditions of Approval Project #05-089 – Northern Carriers.* As approved by the Board of Supervisors on September 19, 2006.
Sutter County Community Services Department, 2006. *Planning Application No. 06-055; Design Review for structures to be located on Assessor's Parcels 23-074-014 and -015.* October 31, 2006.
Sutter County Development Services Department, 2016. *Project #15-019, Design Review; 909 Oswald Road, approximately 375 feet east of State Highway 99, Yuba City, APN 23-072-039.* May 18, 2016.
Sutter County, 2011. *Board of Supervisors Agenda Item.* March 15, 2011.
Sutter County, 2008. *Board of Supervisors Agenda Item.* September 2, 2008.
Sutter County Development Services Department, 2014. *Board of Supervisors Agenda Item.* June 10, 2014.
Sutter County Development Services Department. *Board of Supervisors Agenda Item.* January 26, 2016.