CITY OF MERCED
PLANNING & PERMITTING DIVISION

TYPE OF PROPOSAL: General Plan Amendment #23-02/Site Utilization Plan Revision #3 (Planned Development #12)/Site Plan Review Permit #516/Conditional Use Permit #1274

INITIAL STUDY: #23-08

DATE RECEIVED: March 8, 2023 (date application determined to be complete)

LOCATION: 1965 W. Olive Avenue

ASSESSOR'S PARCEL NUMBERS: 058-030-005

(SEE ATTACHED MAP AT ATTACHMENTS A)

Please forward any written comments by July 5, 2023 to:

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PROJECT DESCRIPTION

The Project site consists of an approximate 6.02-acre parcel (APN: 058-030-005) located at 1965 W. Olive Avenue (Attachment A), generally located on the north side of Olive Avenue, 725 feet east of Highway 59. The subject site has a General Plan designation of Commercial Office (CO), and a Zoning classification of Planned Development (P-D) #12. The subject site is generally surrounded by commercial/light industrial uses to the west and south (across Olive Avenue), a small pocket park to the north (Old Fahrens Park), and single-family/multi-family homes to the east.

The applicant is requesting approval to develop a self-storage facility with approximately 440 storage units, and a long-term boat and recreational vehicle parking facility with approximately 170 spaces. The current General Plan designation of Commercial Office (C)O) is intended for professional offices, medical offices, and other professional services. The parcel would remain singular (no parcel map), with vehicle access from one driveway along Olive Avenue.

The proposed project would include a self-storage facility with approximately 440 storage units, and a long-term boat and recreational vehicle parking facility with approximately 170 spaces. The applicant has provided a site plan, floor plans, and elevations for this proposal. The front (or southern) portion of the development along Olive Avenue would be reserved for the self storage. The elevations are shown at Attachment B which illustrates the proposed structures. The tallest structure would be the office which would be approximately 22 feet tall with the exterior consisting of terracotta tile roofing, walls with stucco finish with stone veneer columns, and storefront windows. The storage units would range in dimensions between 5 feet by 5 feet, and 10 feet by 25 feet. The storage units would have a metal finish and a sloped roof from 11 feet to 10 feet, and other similar angled heights. A 12-foot-tall block wall would be placed along the eastern property line between the project site and the homes to the east. The north and south property lines would be secured with a wrought iron perimeter fence. The southern portion of the project site would be secured with gates that restrict access. The northern portion of the subject site (approximately 4 acres) would be dedicated for long-term boat and recreational vehicle parking with approximately 171 parking stalls with spaces ranging in size between 10 feet by 28 feet, and 12 feet by 58 feet. The long-term parking stalls would consist of gravel or other impervious surface, but the driving aisles to said stalls would be paved with an impervious surface.

Project Location

The subject site is located within the northwest quadrant of Merced. The subject site is surrounded by commercial/light industrial uses to the west and south (across Olive Avenue), a small pocket park to the north (Old Fahrens Park), and single-family/multi-family homes to the east. The table below identifies the surrounding uses:

Table 1 Surrounding Uses (Refer to Attachment A)

Surrounding Land	Existing Use of Land	Zoning Designation	City General Plan Land Use Designation
North	Old Fahren's Park	Low Density Residential (R-1-6)	Parks and Open Space (P-OS)
South	Walmart (across Olive Avenue)	Planned Development (P-D #16)	Regional/Community Commercial (RC)
East	Blue Fire	Planned Development (P-D) #12	Light Industrial (IL)
West	Single-Family Subdivision	Residential Planned Development (R-P-D) #39	Low Density Residential (LD)

1. INITIAL FINDINGS

A. The proposal is a project as defined by CEQA Guidelines Section 15378.

B. The Project is not a ministerial or emergency project as defined under CEQA Guidelines (Sections 15369 and 15369).

C. The Project is therefore discretionary and subject to CEQA (Section 15357).

D. The Project is not Categorically Exempt.

E. The Project is not Statutorily Exempt.

F. Therefore, an Environmental Checklist has been required and filed.

2. CHECKLIST FINDINGS

A. An on-site inspection was made by this reviewer on June 8, 2023.

B. The checklist was prepared on March 8, 2023.

C. The *Merced Vision 2030 General Plan* and its associated Environmental Impact Report [EIR (SCH# 2008071069)] were certified in January 2012. The document comprehensively examined the potential environmental impacts that may occur as a result of build-out of the 28,576-acre Merced (SUDP/SOI). For those significant environmental impacts (Loss of Agricultural Soils and Air Quality) for which no mitigation measures were available, the City adopted a Statement of Overriding Considerations (City Council Resolution #2011-63). This document herein incorporates by reference the *Merced Vision 2030 General Plan, the General Plan Program EIR* (SCH# 2008071069), and Resolution #2011-63.

As a subsequent development project within the SUDP/SOI, many potential environmental effects of the Project have been previously considered at the program level and addressed within the General Plan and associated EIR. (Copies of the General Plan and its EIR are available for review at the City of Merced Planning and Permitting Division, 678 West 18th Street, Merced, CA 95340.) As a second tier environmental document, Initial Study #22-32 plans to incorporate goals and policies to implement actions of the *Merced Vision 2030 General Plan*, along with mitigation measures from the General Plan EIR, as mitigation for potential impacts of the Project.

Project-level environmental impacts and mitigation measures (if applicable) have been identified through site-specific review by City staff. This study also utilizes existing technical information contained in prior documents and incorporates this information into this study.

3. ENVIRONMENTAL IMPACTS:

Will the proposed project result in significant impacts in any of the listed categories? Significant impacts are those that are substantial, or potentially substantial, changes that may adversely affect the physical conditions within the area affected by the Project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. (Section 15372, State CEQA Guidelines. Appendix G of the Guidelines contains examples of possible significant effects.)

A narrative description of all "potentially significant," "negative declaration: potentially significant unless mitigation incorporated," and "less than significant impact" answers are provided within this Initial Study.

A. Aesthetics

SETTING AND DESCRIPTION

The project site is located in northwest Merced, approximately one and a half miles northwest of Downtown and one mile northeast of Highway 99. The project site consists of an undeveloped lot totaling approximately 6 acres. The terrain is generally flat. The site is generally surrounded by commercial/light industrial uses to the west and south (across Olive Avenue), a park to the north (Fahrens Park), and single-family/multi-family homes to the east. These buildings and structures range in height, between 15 and 35 feet.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
A. <u>Aesthetics.</u> Will the Project:				
1) Have a substantial adverse effect on a scenic vista?				✓
2) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✓
3) Substantially degrade the existing visual character or quality of the site and its surroundings?			✓	
4) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			✓	

1) **No Impact**

No designated scenic vistas exist on the project site or in the project area. Therefore, no impacts in this regard would occur with this development.

2) **No Impact**

There are no officially designated State Scenic Highways or Routes in the project vicinity. Therefore, the Project would have no impact on scenic resources, such as rock outcroppings, trees, or historic buildings within a scenic highway.

3) **Less-Than-Significant Impact**

The proposed Project would transform the site from a mostly undeveloped site to a fully developed site. Undeveloped lots tend to lead to concerns regarding weed abatement, waste drop-off, and general dilapidation. The proposed buildings, parking, and streets

would fully develop the site. The units would add architectural interest with the use of stucco, and stone veneers. Based on these factors, this impact is considered to be less than significant.

4) **Less Than Significant**

Construction of the proposed project and off-site improvements include new lighting on the buildings and throughout the site. This new lighting could be a source of light or glare that would affect the views in the area. However, the City of Merced has adopted the California Green Building Standards Code (CGBSC) as Section 17.07 of the Merced Municipal Code. As administered by the City, the Green Building Standards Code prohibits the spillage of light from one lot to another. This would prevent new glare effects on the existing buildings surrounding the project site.

B. Agriculture Resources

SETTING AND DESCRIPTION

Merced County is among the largest agriculture producing Counties in California (ranked fifth), with a gross income of more than $4.4 billion. The County's leading agriculture commodities include milk, almonds, cattle and calves, chickens, sweet potatoes, and tomatoes.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
B. <u>Agriculture Resources.</u> Will the Project:				
1) 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-agriculture?			✓	
2) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
3) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?			✓	
4) Cause development of non-agricultural uses within 1,000 feet of agriculturally zoned property (Right-to-Farm)?				✓

1) **Less than Significant Impact**

The project site is located within the City Limits of Merced. The California Department of Conservation prepares Important Farmland Maps through its Farmlands Mapping and Monitoring Program (FMMP). The system of classifying areas is based on soil type and

use. According to the Merced County Important Farmlands Map, the project site is classified as "Vacant or Disturbed Land". The conversion of this land from an undeveloped lot (not being used for agricultural purposes) to a developed urban parcel was analyzed as part of the Environmental Review for the *Merced Vision 2030 General Plan*. The development of self-storage and boat/recreational vehicle long-term parking on "Vacant or Disturbed Land" that is not being used for agricultural purposes is considered to have less than significant impact. Therefore, CEQA requires no further review.

2) **No Impact**

There are no Williamson Act contract lands in this area and the land is not being used for agricultural uses. Therefore, there is no impact.

3) **Less-Than-Significant Impact**

Refer to Item #1 above.

4) **No Impact**

The nearest land being used for farming is located approximately one mile northwest of the subject site (within County jurisdiction). The proposed development would not affect farming operations as the farm site is located on a separate parcel.

C. Air Quality

SETTING AND DESCRIPTION

The project site is in the San Joaquin Valley Air Basin (SJVAB), which includes the southern half of the Central Valley and is approximately 250 miles long and an average of 35 miles wide. The Coast Ranges, which have an average height of 3,000 feet, serve as the western border of the SJVAB. The San Emigdio Mountains, part of the Coast Ranges, and the Tehachapi Mountains, part of the Sierra Nevada, are both south of the SJVAB. The Sierra Nevada extends in a northwesterly direction and forms the air basin's eastern boundary. The SJVAB is mostly flat with a downward gradient to the northwest.

The climate of the SJVAB is heavily influenced by the presence of these mountain ranges. The mountain ranges to the west and south induce winter storms from the Pacific Ocean to release precipitation on the western slopes, producing a partial rain shadow over the valley. A rain shadow is defined as the region on the leeward side of a mountain where noticeably less precipitation occurs because clouds and precipitation on the windward side remove moisture from the air. In addition, the mountain ranges block the free circulation of air to the east and entrap stable air in the Central Valley for extended periods during the cooler months.

Winters in the SJVAB are mild and fairly humid, and summers are hot, dry, and typically cloudless. During the summer, a high-pressure cell is centered over the northeastern Pacific, resulting in stable meteorological conditions and steady northwesterly winds.

For additional information see Appendix A at Attachment B for combined studies on Air Quality, and Green House Gas Emissions.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
C. <u>Air Quality.</u> Would the project:				
1) Conflict with or obstruct implementation of the applicable air quality plan?			✓	
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O_3 precursors)?			✓	
3) Expose sensitive receptors to substantial pollutant concentrations?			✓	
4) Create objectionable odors affecting a substantial number of people?			✓	

Impacts are evaluated below on the basis of both State CEQA Guidelines Appendix G criteria and SJVAPCD significance criteria.

SJVAPCD's thresholds for determining environmental significance separate a project's short-term emissions from long-term emissions. The short-term emissions are related mainly to the construction phase of a project. For this project, the long-term emissions are related primarily to household trips.

1) **Less-than-Significant Impact**

Thresholds of significance applied in this report are from the San Joaquin Valley Air Pollution Control District (SJVAPCD) is "Guidance for Assessing and Mitigating Air Quality Impacts" (GAMAQI) (San Joaquin Valley Air Pollution Control District 2015). These thresholds define an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Project-related emission levels which exceed any of the thresholds of significance means the project-related effect will normally be considered significant. Project related emissions at or below the thresholds of significance means the project-related effect normally will be considered to be less than significant.

The SJVAPCD has established thresholds of significance for criteria pollutant emissions generated during construction and operation of projects. These Thresholds may be found in Table 1 of the Air Quality analysis at Appendix A. The significance thresholds presented in the SJVAPCD GAMAQI are based on the attainment status of the San Joaquin Valley Air Basin in regard to air quality standards for specific criteria pollutants. Because the air quality standards are set at concentrations that protect public health with

an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

For a project to be consistent with SJVAPCD air quality plans, the pollutants emitted from a project should not exceed the SJVAPCD emission thresholds or cause a significant impact on air quality. As shown on Tables 2 and 3 of the Air Quality Analysis at Attachment C, both the construction and operational emissions are below the thresholds of significance for the SJVAPCD air quality plans.

2) **Less-than-Significant Impact**

Although SJVAPCD does not have any quantitative cumulative significant criteria, air quality is cumulative in nature. CAAQS are predicated on past, present, and future emissions; therefore, if project-related emission are found to have a less-than-significant impact in the near-term conditions, then cumulative impacts would also be less-than-significant. Project-related air quality impacts were found to be less- than-significant in the near-term conditions; therefore, the project would not adversely affect regional air quality in the future. Therefore, this impact would be less than significant.

3) **Less-than-Significant Impact**

Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, based on the findings of the Air Quality Analysis at Appendix A indicates the construction emissions would not exceed the SJVAPCD construction threshold levels. Additionally, the Analysis indicates that operational emissions would not exceed the SJVAPCD threshold levels. Therefore, this impact is considered less than significant.

4) **Less-than-Significant Impact**

Given the use of heavy equipment during construction, the time of day heavy equipment would be operated, and the distance to the nearest sensitive receptor, the project would not emit objectionable odors that would be adversely affect a substantial number of people. Operation of the project would not emit odors. Therefore, construction and operation of the project would have a less-than-significant impact associated with odors. This impact would be less than significant.

D. Biological Resources

SETTING AND DESCRIPTION

The project site is located in northwest Merced, approximately one and a half miles northwest of Downtown and one mile northeast of Highway 99. The site is generally surrounded by commercial uses to the west and south (across Olive Avenue), a pocket park to the north (Old Fahrens Park), and single-family homes to the east. The project site does not contain any creeks, or other wetland areas on private property. Black Rascal Creek adjacent to the Old Fahrens Park is located north of the subject site outside of subject site's boundary lines.

The general project area is located in the Central California Valley eco-region (Omernik 1987). This eco-region is characterized by flat, intensively farmed plains with long, hot, dry summers and cool, wet winters (14-20 inches of precipitation per year). The Central California Valley eco-region includes the Sacramento Valley to the north, the San Joaquin Valley to the south, and it ranges between the Sierra Nevada Foothills to the east and the Coastal Range foothills to the west. Nearly half of the eco-region is actively farmed, and about three-fourths of that farmed land is irrigated.

The biological resources evaluation, prepared as part of the *Merced Vision 2030 General Plan Program Environmental Impact Report* (EIR), does not identify the project area as containing any seasonal or non-seasonal wetland or vernal pool areas. Given the adjacent, built-up, urban land uses/agricultural uses and major roadways, no form of unique, rare or endangered species of plant and/or animal life could be sustained on the subject site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
D. <u>Biological Resources.</u> Would the Project:				
1) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				✓
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			✓	
3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				✓
4) 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?				✓
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			✓	
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				✓

1) **No Impact**

The proposed project would not have any direct effects on animal life by changing the diversity of species, number of species, reducing the range of any rare or endangered species, introducing any new species, or leading to deterioration of existing fish or wildlife habitat. Although the *Merced Vision 2030 General Plan* identifies several species of plant and animal life that exist within the City's urban boundaries, the subject site does not contain any rare or endangered species of plant or animal life.

2) **Less-than -Significant Impact**

The proposed project would not have any direct effects on riparian habitat or any other sensitive natural community. The City General Plan identifies Bear, Black Rascal, Cottonwood, Miles, Fahrens, and Owens Creeks within the City's growth area. The subject site is approximately 0.5 miles from Bear Creek. Black Rascal Creek is approximately 100 feet north of subject site. These creeks are Waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), the California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board. As previously mentioned, Black Rascal Creek is located north of the subject site outside of subject site's boundary lines. The proposal would have to comply with Merced Municipal Code Chapter 20.34 – Creek Buffers, which is intended to reduce the risks to property owners and the public from erosion and flooding, protect and enhance chemical, physical, and biological integrity of water resources in the City, minimize pollutants entering water bodies from urban stormwater runoff, and preserve riparian vegetation and protect vegetation fand protect wildlife habitats and wildlife corridors along natural drainage ways.

Any proposed "fill" of that waterway would be subject to permits from ACOE, CDFW, and the Regional Water Quality Control Board. No such "fill" or disturbance of the waterway is proposed as part of this development. The City's General Plan requires the preservation of the creek in its natural state. No riparian habitat identified in CDFW or USFW plans are present on the project site. Therefore, the Project would have a less-than-significant impact on riparian habitat.

3) **No Impact**

The project site would not have any direct effect on wetlands as no wetlands have been identified in the project area. As shown in item #1 above, the proposal would be required to comply with Merced Municipal Code Chapter 20.34 – Creek Buffers.

4) **No Impact**

The Project would not have any adverse effects on any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridor, or impede the use of native wildlife nursery sites. As shown in item #1 above, the proposal would be required to comply with Merced Municipal Code Chapter 20.34 – Creek Buffers.

5) **Less Than Significant Impact**

The Project would not interfere with any local policies or ordinances protecting biological resources such as tree preservation policy or ordinance. The City requires the planting and maintenance of street trees along all streets and parking lot trees in parking lots, but has no other tree preservation ordinances.

6) **No Impact**

The proposed project would not conflict with the provisions of a habitat conservation plan. There are no adopted Habitat Conservation Plans, Natural Conservation Community Plan, or other approved local, regional, or state Habitat Conservation Plan for the City of Merced or Merced County.

E. Cultural Resources

SETTING AND DESCRIPTION

The City of Merced area lies within the ethnographic territory of the Yokuts people. The Yokuts were members of the Penutian language family which held all of the Central Valley, San Francisco Bay Area, and the Pacific Coast from Marin County to near Point Sur.

Merced County was first explored by Gabriel Moraga in 1806, when he named the Merced River, "El Rio de Nuestra Senra de la Merced." Moraga's explorations were designed to locate appropriate sites for an inland chain of missions. Moraga explored the region again in 1808 and 1810.

Archaeology

Archaeological sites are defined as locations containing significant levels of resources that identify human activity. Very little archaeological survey work has been conducted within the City or its surrounding areas. Creeks, drainage, and sloughs exist in the northern expansion area of the City, and Bear Creek and Cottonwood Creek pass through the developed area. Archaeological sites in the Central Valley are commonly located adjacent to waterways and represent potential for significant archaeological resources.

Paleontological sites are those that show evidence of pre-human existence. They are small outcroppings visible on the earth's surface. While the surface outcroppings are important indications of paleontological resources, it is the geological formations that are the most important. There are no known sites within the project area known to contain paleontological resources of significance.

Historic Resources

In 1985, in response to community concerns over the loss of some of the City's historic resources, and the perceived threats to many remaining resources, a survey of historic buildings was undertaken in the City. The survey focused on pre-1941 districts, buildings, structures, and objects of historical, architectural, and cultural significance. The survey area included a roughly four square-mile area of the central portion of the City.

The National Register of Historic Places, the California Historical Landmarks List, and the California Inventory of Historic Resources identify several sites within the City of Merced. These sites are listed on the Merced Historical Site Survey and are maintained by the Merced Historical Society. There are no listed historical sites on the project site.

According to the environmental review conducted for the General Plan, there are no listed historical sites and no known locations within the project area that contain sites of paleontologic or archeological significance. The General Plan (Implementation Action SD-2.1.a) requires that the City utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
E. <u>Cultural Resources.</u> Would the Project:				
1) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?			✓	
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?			✓	
3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			✓	
4) Disturb any human remains, including those interred outside of formal cemeteries?			✓	

1) **Less-than-Significant Impact**

The Project would not alter or destroy any known historic or archaeological site, building, structure, or object; nor would it alter or affect unique ethnic cultural values or restrict religious or sacred uses. According to the environmental review conducted for the General Plan, there are no listed historical sites and no known locations within the project area that contain sites of historical or archeological significance. The General Plan (Implementation Action SD-2.1.a) requires that the City utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation.

2) **Less-than-Significant Impact**

The Project would not alter or destroy any known prehistoric or archaeological site, building, structure, or object; nor would it alter or affect unique ethnic cultural values or restrict religious or sacred uses. According to the environmental review conducted for the General Plan, there are no listed historical sites and no known locations within the project area that contain sites of historical or archeological significance. The General Plan (Implementation Action SD-2.1.a) requires that the City utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation.

3) **Less-than-Significant Impact**

The Project would not alter or destroy any paleontological resource, site, or unique geological feature. According to the environmental review conducted for the General Plan, there are no listed historical sites and no known locations within the project area that contain sites of paleontological significance. The General Plan (Implementation Action SD-2.1.a) requires that the City utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation.

4) **Less-than-Significant Impact**

The proposed project would not disturb any known human remains, including those interred outside of formal cemeteries; nor would it alter or affect unique ethnic cultural values or restrict religious or sacred uses. There are no known cemeteries in the project area. Excavation of the site would be needed to construct the proposed project, so it is possible that human remains would be discovered. However, Section 7050.5 of the California Health and Safety Code requires that if human remains are discovered during the construction phase of a development, all work must stop in the immediate vicinity of the find and the County Coroner must be notified. If the remains are determined to be Native American, the Coroner will notify the Native American Heritage Commission, which in turn will inform a most likely descendant. The descendant will then recommend to the landowner the appropriate method for the disposition of the remains and any associated grave goods. Additionally, the City's General Plan (Implementing Action SD-2.1.a) requires that the City utilize standard practices for preserving archeological materials that are unearthed during construction, as prescribed by the State Office of Historic Preservation. By following the requirements of the Health and Safety Code and Compliance with the City's General Plan, this potential impact would be less than significant.

F. Geology and Soils

SETTING AND DESCRIPTION

The City of Merced is located approximately 150 miles southeast of San Francisco along the east side of the southern portion of the Great Valley Geomorphic Province, more commonly referred to as the San Joaquin Valley. The valley is a broad lowland bounded by the Sierra Nevada to the east and Coastal Ranges to the west. The San Joaquin Valley has been filled with a thick sequence of sedimentary deposits from Jurassic to recent age. A review of the geological map indicates that the area around Merced is primarily underlain by the Pleistocene Modesto and Riverbank Formations with Holocene alluvial deposits in the drainages. Miocene-Pliocene Mehrten and Pliocene Laguna Formation materials are present in outcrops on the east side of the SUDP/SOI. Modesto and Riverbank Formation deposits are characterized by sand and silt alluvium derived from weathering of rocks deposited east of the SUDP/SOI. The Laguna Formation is made up of consolidated gravel sand and silt alluvium and the Mehrten Formation is generally a well consolidated andesitic mudflow breccia conglomerate.

Faults and Seismicity

A fault, or a fracture in the crust of the earth along which rocks on one side have moved relative to those on the other side, are an indication of past seismic activity. It is assumed that those that have been active recently are the most likely to be active in the future, although even inactive faults may not be "dead." "Potentially Active" faults are those that have been active during the past two million years or during the Quaternary Period. "Active" faults are those that have been active within the past 11,000 years. Earthquakes originate where movement or slippage occurs along an active fault. These movements generate shock waves that result in ground shaking.

Based on review of geologic maps and reports for the area, there are no known "active" or "potentially active" faults, or Alquist-Priolo Earthquake Fault Zones (formerly referred to as a Special Studies Zone) in the SUDP/SOI. In order to determine the distance of known active

faults within 50 miles of the Site, the computer program EZ-FRISK was used in the General Plan update.

Soils

Soil properties can influence the development of building sites, including site selection, structural design, construction, performance after construction, and maintenance. Soil properties that affect the load-supporting capacity of an area include depth to groundwater, ponding, flooding, subsidence, shrink-swell potential, and compressibility.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
F. <u>Geology and Soils.</u> Would the Project:				
1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
a) 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?			✓	
b) Strong seismic ground shaking?			✓	
c) Seismic-related ground failure, including liquefaction?			✓	
d) Landslides?			✓	
2) Result in substantial soil erosion or loss of topsoil?			✓	
3) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			✓	
4) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			✓	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
5) 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?				✓

1) **Less than Significant Impact**

The project site is not located within a mapped fault hazard zone, and there is no record or evidence of faulting on the project site (City of Merced General Plan Figure 11.1). Because no faults underlie the project site, no people or structures would be exposed to substantial adverse effects related to earthquake rupture.

According to the City's *Merced Vision 2030 General Plan* EIR*,* the probability of soil liquefaction occurring within the City of Merced is considered to be a low to moderate hazard; however, a detailed geotechnical engineering investigation would be required for the project in compliance with the California Building Code (CBC).

There would be no exposure to any geological hazards in the project area.

Ground shaking of moderate severity may be expected to be experienced on the project site during a large seismic event. All building permits are reviewed to ensure compliance with the California Building Code (CBC). In addition, the City enforces the provisions of the Alquist Priolo Special Study Zones Act that limit development in areas identified as having special seismic hazards. All new structures shall be designed and built-in accordance with the standards of the California Building Code.

APPLICABLE GENERAL PLAN GOALS AND POLICIES

The City's *Merced Vision 2030 General Plan* contains policies that address seismic safety.

Goal Area S-2: Seismic Safety:	
Goal: Reasonable Safety for City Residents from the Hazards of Earthquake and Other Geologic Activity	
Policies	
S-2.1	Restrict urban development in all areas with potential ground failure characteristics.

The Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

Landslides generally occur on slopes of 15 percent or greater. The project site's topography is generally of slopes between 0 and 3 percent, which are considered insufficient to produce hazards other than minor sliding during seismic activity.

Therefore, no hazardous conditions related to seismic ground shaking would occur with the implementation of the Project. Additionally, the implementation of the project would

not lead to offsite effects related to hazards related to seismic groundshaking, nor would any existing off-site hazards be exacerbated.

2) **Less-Than-Significant Impact**

Construction associated with the proposed project could result in temporary soil erosion and the loss of topsoil due to construction activities, including clearing, grading, site preparation activities, and installation of the proposed buildings and other improvements. The City of Merced enforces a Storm Water Management Program in compliance with the Federal Clean Water Act. All construction activities are required to comply with the City's Erosion and Sediment Control Ordinance (MMC §15.50.120.B), including the implementation of Best Management Practices (BMPs) to limit the discharge of sediment.

3) **Less Than Significant Impact**

The City of Merced is located in the Valley area of Merced County and is, therefore, less likely to experience landslides than other areas in the County. The probability of soil liquefaction actually taking place anywhere in the City of Merced is considered to be a low hazard. Soil types in the area are not conducive to liquefaction because they are either too coarse or too high in clay content. According to the *Merced Vision 2030 General Plan* EIR, no significant free face failures were observed within this area and the potential for lurch cracking and lateral spreading is, therefore, very low within this area.

4) **Less-Than-Significant**

Expansive soils are those possessing clay particles that react to moisture changes by shrinking (when they dry) or swelling (when they become wet). Expansive soils can also consist of silty to sandy clay. The extent of shrinking and swelling is influenced by the environment, extent of wet or dry cycles, and by the amount of clay in the soil. This physical change in the soils can react unfavorably with building foundations, concrete walkways, swimming pools, roadways, and masonry walls.

Implementation of General Plan Policies, adherence to the Alquist-Priolo Act, and enforcement of the California Building Code (CBC) Standards would reduce the effect of this hazard on new buildings and infrastructure associated with the proposed development. This would reduce potential impacts to a less-than-significant level.

5) **No Impact**

The project site would 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. However, the proposed project would be served by the City's sewer system. No new septic systems are allowed within the City Limits and any existing systems will need to be removed upon demolition of the current home on the site.

G. Hazards and Hazardous Materials

SETTING AND DESCRIPTION

Hazardous Materials

A substance may be considered hazardous due to a number of criteria, including toxicity, ignitability, corrosivity, or reactivity. The term "hazardous material" is defined in law as any material that, because of quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.

Wildland and Urban Fire Hazards

Both urban and wildland fire hazard potential exists in the City of Merced and surrounding areas, creating the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, or industrial structures due to human activities. Wildland fires affect grassland, brush or woodlands, and any structures on or near these fires. Such fires can result from either human made or natural causes.

Urban fires comprise the majority of fires in the City of Merced. The site is adjacent to undeveloped ag land which could be a source for a wildland fire. However, the City of Merced Fire Department has procedures in place to address the issue of wildland fires, so no additional mitigation would be necessary.

Airport Safety

The City of Merced is impacted by the presence of two airports-Merced Regional Airport, which is in the southwest corner of the City, and Castle Airport (the former Castle Air Force Base), located approximately five miles northwest of the subject site.

The continued operation of the Merced Regional Airport involves various hazards to both flight (physical obstructions in the airspace or land use characteristics which affect flight safety) and safety on the ground (damage due to an aircraft accident). Growth is restricted around the Regional Airport in the southwest corner of the City due to the noise and safety hazards associated with the flight path.

Castle Airport also impacts the City. Portions of the northwest part of the City's SUDP/SOI and the incorporated City are within Castle's safety zones. The primary impact is due to noise (Zones C and D), though small areas have density restrictions (Zone B2). The military discontinued operations at Castle in 1995. One important criterion for determining the various zones is the noise factor. Military aircraft are designed solely for performance, whereas civilian aircraft have extensive design features to control noise.

Potential hazards to flight include physical obstructions and other land use characteristics that can affect flight safety, which include: visual hazards such as distracting lights, glare, and sources of smoke; electronic interference with aircraft instruments or radio communications; and uses which may attract flocks of birds. In order to safeguard an airport's long-term usability, preventing encroachment of objects into the surrounding airspace is imperative.

According to the Merced County Airport Land Use Compatibility Plan, the project site is not located in any restricted safety zones for either airport, and no aircraft overflight, air safety, or noise concerns are identified.

Railroad

Hazardous materials are regularly shipped on the BNSF and SP/UP Railroad lines that pass through the City. While unlikely, an incident involving the derailment of a train could result in the spillage of cargo from the train in transporting. The spillage of hazardous materials could have devastating results. The City has little to no control over the types of materials shipped via the rail lines. There is also a safety concern for pedestrians along the tracks and vehicles utilizing at-grade crossings. The design and operation of at-grade crossings allows the City some control over rail-related hazards. Ensuring proper gate operation at the crossings is the most effective strategy to avoid collision and possible derailments. The Atishon Topeka and Santa Fe Railroad is approximately 0.15 miles from the site and Union Pacific Railroad is over 0.85 miles away.

Public Protection and Disaster Planning

Hospitals, ambulance companies, and fire districts provide medical emergency services. Considerable thought and planning have gone into efforts to improve responses to day-to-day emergencies and planning for a general disaster response capability.

The City's Emergency Plan and the County Hazardous Waste Management Plan both deal with detailed emergency response procedures under various conditions for hazardous material spills. The City also works with the State Department of Health Services to establish cleanup plans and to monitor the cleanup of known hazardous waste sites within the City.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
G. <u>Hazards and Hazardous Materials.</u> Would the Project:				
1) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
2) 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?			✓	
3) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			✓	
4) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			✓	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			✓	
6) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?			✓	
7) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			✓	
8) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			✓	

1) **Less-Than-Significant Impact**

Construction activities associated with the proposed project would involve the use, storage, transport, and disposal of oil, gasoline, diesel fuel, paints, solvents, and other hazardous materials. The Project would be required to adhere to all applicable federal and state health and safety standards. Construction activity must also be in compliance with the California Occupational Safety and Health Administration regulations (Occupational Safety and Health Act of 1970). Compliance with these requirements would reduce the risk of hazards to the public to a less-than-significant level.

2) **Less-Than-Significant Impact**

Construction on the project site would be reviewed for the use of hazardous materials at the building permit stage. Implementation of Fire Department and Building Code regulations for hazardous materials, as well as implementation of federal and state requirements, would reduce any risk caused by a future use on the site from hazardous materials to a less than-significant-level.

APPLICABLE GENERAL PLAN GOALS AND POLICIES

The City of Merced *Vision 2030 General Plan* contains policies that address hazardous materials.

Goal Area S-7: Hazardous Materials	
Goal: Hazardous Materials Safety for City Residents	
Policies	
S-2.1	Prevent injuries and environmental contamination due to the uncontrolled release of hazardous materials.
Implementing Actions:	

7.1.a	Support Merced County in carrying out and enforcing the Merced County Hazardous Waste Management Plan.
7.1.b	Continue to update and enforce local ordinances regulating the permitted use and storage of hazardous gases, liquids, and solids.
7.1.d	Provide continuing training for hazardous materials enforcement and response personnel.

3) **Less-Than-Significant Impact**

The nearest school is John C. Fremont Elementary School, located on the southeast corner of S Street and W. 22nd Street. The subject site is about 1 mile from this school. There are no existing or proposed schools within ¼ mile of the site. Given the California Building Code protective measures required during the construction process, this developments impacts would be less than significant. Post-construction the site would be used for dwelling purposes only.

4) **Less-Than-Significant Impact**

No project actions or operations would result in the release of hazardous materials that could affect the public or the environment, and no significant hazard to the public or the environment would result with project implementation. This potential impact is less than significant.

5) **Less-Than-Significant Impact**

The project site is located about two miles northeast from the Merced Regional Airport. The approximate 6-acre site is surrounded by existing residential uses, commercial uses, industrial uses, or open space. Given the land use designation and surrounding land use, the potential impact is less than significant.

6) **Less-Than-Significant Impact**

The closest private airstrip to the site is approximately 9 miles away. There would be no hazard to people living or working on the project site.

7) **Less-Than-Significant Impact**

The proposed project will not adversely affect any adopted emergency response plan or emergency evacuation plan. No additional impacts would result from the development of the project area over and above `those already evaluated by the EIR prepared for the *Merced Vision 2030 General Plan.*

APPLICABLE GENERAL PLAN GOALS AND POLICIES:
The *Merced Vision 2030 General Plan* contains policies that address disaster preparedness.

Goal Area S-1: Disaster Preparedness	
Goal: General Disaster Preparedness	
Policies	
S-1.1	Develop and maintain emergency preparedness procedures for the City.

Implementing Actions:	
1.1.a	Keep up-to-date through annual review the City's existing Emergency Plan and coordinate with the countywide Emergency Plan.
1.1.b	Prepare route capacity studies and determine evacuation procedures and routes for different types of disasters, including means for notifying residents of a need to evacuate because of a severe hazard as soon as possible.
7.1.d	Provide continuing training for hazardous materials enforcement and response personnel.

8) **Less-Than-Significant Impact**

According to the EIR prepared for the *Merced Vision 2030 General Plan*, the risk for wildland fire within the City of Merced is minimal. According to the Cal Fire website, the Merced County Fire Hazard Severity Zone Map shows the project site is designated as a "Local Responsibility Area" (LRA) with a Hazard Classification of "LRA Unzoned."

The City of Merced Fire Department is the responsible agency for responding to fires at the subject site. The project site is served by Station #53 located on 800 Loughborough Drive (approximately 1 mile southeast from the project site).

The site is not near agricultural land that could be susceptible to wildland fires. The City of Merced Fire Department has procedures in place to address the issue of wildland fires, so no additional mitigation would be necessary. This potential impact is less than significant.

H. Hydrology and Water Quality

SETTING AND DESCRIPTION

Water Supplies and Facilities

The City's water supply system consists of 22 wells and 14 pumping stations equipped with variable speed pumps that attempt to maintain 45 to 50 psi (pounds per square inch) nominal water pressure. The City is required to meet State Health pressure requirements, which call for a minimum of 20 psi at every service connection under the annual peak hour condition and maintenance of the annual average day demand plus fire flow, whichever is stricter. The project site would be serviced by the utilities within Olive Avenue.

Storm Drainage/Flooding

In accordance with the adopted *City of Merced Standard Designs of Common Engineering Structures*, percolation/detention basins are designed to temporarily collect runoff so that it can be metered at acceptable rates into canals and streams that have limited capacity. The project would be required to adhere to the Post Construction Standards for compliance with the City's Phase II MS4 permit issued by the state of California.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
H. <u>Hydrology and Water Quality.</u> Would the Project:				
1) Violate any water quality standards or waste discharge requirements?			✓	
2) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			✓	
3) 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:			✓	
a) result in a substantial erosion or siltation on- or off-site;			✓	
b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			✓	
c) 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; orPles			✓	
d) impede or redirect flood flows?			✓	
4) In flood hazard, tsunami, or seiche zones, risk of pollutants due to project inundation?			✓	
5) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			✓	

1) **Less-Than-Significant Impact**

The Project is not expected to violate any water quality standards or waste discharge requirements during construction or operation. In addition to compliance with standard construction provisions, the Project shall be required to comply with the Merced Storm Water Master Plan and the Storm Water Management Plan, and obtain all required permits for water discharge. During project operations, the City has developed requirements to minimize the impact to storm water quality caused by development and redevelopment. The increase in impervious areas caused by development can cause an increase in the type and quantity of pollutants in storm water runoff. Prior planning and design to minimize pollutants in runoff from these areas is an important component to storm water quality management. These standards are set forth in the City's Post-

Construction Standards Plan and provide guidance for post-construction design measures to ensure that storm water quality is maintained. Compliance with these requirements and permits would reduce the impact to a less than significant level.

APPLICABLE GENERAL PLAN GOALS AND POLICIES:
The *Merced Vision 2030 General Plan* contains policies that address Water Quality and Storm Drainage.

Goal Area P-5: Storm Drainage and Flood Control	
Goal: An Adequate Storm Drainage Collection and Disposal System in Merced	
Policies	
P-5.1	Provide effective storm drainage facilities for future development.
P-5.2	Integrate drainage facilities with bike paths, sidewalks, recreation facilities, agricultural activities, groundwater recharge, and landscaping.

Implementing Actions:	
5.1.a	Continue to implement the City's Storm Water Master Plan and the Storm Water Management Plan and its control measures.
5.1.c	Continue to require all development to comply with the Storm Water Master Plan and any subsequent updates.

2) **Less-Than-Significant Impact**

The City of Merced is primarily dependent on groundwater sources that draw from the San Joaquin aquifer. The City has 22 active well sites with one under construction, and 14 pumping stations, which provide service to meet peak hour urban level conditions and the average daily demand plus fire flows.

According to the City of Merced Water Master Plan, the estimated average peak water demand is 23.1 mgd.

The proposed project is estimated to use approximately 120 gallons of water per day (office for site). This would represent 0.000519% of the estimated average daily water consumption. Although development of the site would restrict onsite recharge where new impervious surface areas are created, all alterations to groundwater flow would be captured and routed to the storm water percolation ponds or pervious surfaces with no substantial net loss in recharge potential anticipated. This reduces this impact to a less-than-significant level.

3) **Less-Than-Significant Impact**

The proposed project would result in modifications to the existing drainage pattern on the site. If required by the City's Engineering Department, the project will be designed to capture all surface water runoff onsite and then drain into the City's existing storm drainage system.

The project site is currently vacant and consists of pervious surfaces. The proposed project would create impervious surfaces over a large portion of the project site, thereby preventing precipitation from infiltrating and causing it to pond or runoff. However,

stormwater flows would be contained onsite and piped or conveyed to the City's stormwater system, there would be no potential for increased erosion or sedimentation.

Developed storm drainage facilities in the area are adequate to handle this minor increase in flows. The Project would not result in a substantial alteration of drainage in the area, and no offsite uses would be affected by the proposed changes. All potential impacts are less than significant.

Regarding flood flows, a portion of the proposed project is located within a floodway from the Black Rascal Creek to the north. This portion of the project would not have any buildings and be used for boat and recreational vehicle storage purposes. Within this floodway, the applicant would like to install a block wall along the eastern property line, and a rod iron fence along the northern, and western property lines. However, doing so would require a No Rise Certificate showing that the fence would not increase the flood heights. If not, the applicant would not be able to install any fencing within this area.

The southern portion of the project would be outside the floodway and dedicated for the self-storage facility. This portion of the project may alter the existing drainage pattern of the site, but not in a manner that would result in flooding. The site is currently mostly vacant and any construction on the site would alter the drainage pattern and reduce the absorption capability of the site. There are no streams or rivers that would be affected. All storm runoff would be captured onsite and conveyed through pipes to the City's stormwater system. Any changes to the site would drain into the City's existing storm drain system which would prevent any onsite or offsite flooding. This potential impact is less than significant.

4) **Less-Than-Significant Impact**

The proposed project is located approximately 80 miles from the Pacific Ocean, distant from any large lakes, and are within the inundation zones for Lake Yosemite or Bear Reservoir at an elevation ranging from approximately 173 feet above MSL. According to the City's General Plan Safety Element, the City of Merced is not subject to inundation by tsunami, seiche, or mudflow. This potential impact is less than significant.

5) **Less-Than-Significant Impact**

The proposed project would not obstruct or conflict with the implementation of a water quality control plan or sustainable groundwater management plan. The project would be required to comply with all City of Merced standards and Master Plan requirements for groundwater and water quality control. This impact is less than significant.

I. Land Use and Planning

SETTING AND DESCRIPTION

The project site is located within the City Limits of Merced and within its Specific Urban Development Plan and Sphere of Influence (SUDP/SOI).

SURROUNDING USES

Refer to Page 2 of this Initial Study and the map at Attachment A for the surrounding land uses.

Current Use

The project site is approximately 6 acres of undeveloped land located on the north side of Olive Avenue, approximately 750 feet east of Highway 59.

The project site is currently has a Zoning classification of Planned Development (P-D) #12 and a General Plan designation of Commercial Office (CO). The existing land use designations for this site allows for medical and professional offices. The proposed land use amendment would transition the site with new planned development standards to allow for a self-storage facility and a long-term parking facility for boats and recreational vehicles. This would be achieved with the Site Utilization Plan Revision to Planned Development (P-D) #12 (along with Site Plan Review Permit #516), and the proposed General Plan designation of Business Park (BP) with a Conditional Use Permit to allow for a live/work unit for the onsite manager.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. <u>Land Use and Planning.</u> Would the Project:				
1) Physically divide an established community?			✓	
2) 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?			✓	

1) **Less-Than-Significant Impact**

The project site is within the boundaries of the Merced City Limits. It would not physically divide the community as it is already part of the City. This proposal does not include the creation of streets or barriers. This potential impact is less than significant.

2) **Less-Than-Significant Impact**

The project site is currently has a Zoning classification of Planned Development (P-D) #12 and a General Plan designation of Office Commercial (CO). The existing land use designations for this site would allow for medical and professional offices. The proposed land use amendment would transition the site with new planned development standards to allow for a self-storage facility and a long term parking facility for boats and recreational vehicles. This would be achieved with the site utilization plan revision to Planned Development (P-D) #12 (along with Site Plan Review Permit #516), proposed General Plan designation of Business Park (BP), and a Conditional Use Permit for a live/work unit for the onsite manager. Business Park is similar to a hybrid of light industrial and office commercial. The subject site would be a buffer between the

industrial uses to the west and the residential uses to the east. Therefore, this impact is less than significant.

J. Mineral Resources

SETTING AND DESCRIPTION

The City of Merced does not contain any mineral resources that require managed production according to the State Mining and Geology Board. Based on observed site conditions and review of geological maps for the area, economic deposits of precious or base metals are not expected to underlie the City of Merced or the project site. According to the California Geological Survey, Aggregate Availability in California - Map Sheet 52, minor aggregate production occurs west and north of the City of Merced, but economic deposits of aggregate minerals are not mined within the immediate vicinity of the SUDP/SOI. Commercial deposits of oil and gas are not known to occur within the SUDP/SOI or immediate vicinity.

According to the Merced County General Plan Background Report (June 21, 2007), very few traditional hard rock mines exist in the County. The County's mineral resources are almost all sand and gravel mining operations. Approximately 38 square miles of Merced County, in 10 aggregate resource areas (ARA), have been classified by the California Division of Mines and Geology for aggregate. The 10 identified resource areas contain an estimated 1.18 billion tons of concrete resources with approximately 574 million tons in Western Merced County and approximately 605 million tons in Eastern Merced County. Based on available production data and population projections, the Division of Mines and Geology estimated that 144 million tons of aggregate would be needed to satisfy the projected demand for construction aggregate in the County through the year 2049. The available supply of aggregate in Merced County substantially exceeds the current and projected demand.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
J. <u>Mineral Resources.</u> Would the Project:				
1) 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?				✓
2) 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?				✓

1) **No Impact**

   No mineral resources occur within City Limits, SUDP/SOI, or within the project site, so no impact.

2) **No Impact**

   See #1 above.

K. Noise

SETTING AND DESCRIPTION

Potential noise impacts of the proposed project can be categorized as those resulting from construction and those from operational activities. Construction noise would have a short-term effect; operational noise would continue throughout the lifetime of the project. Construction associated with the development of the project would increase noise levels temporarily during construction. Operational noise associated with the development would occur intermittently with the continued operation of the proposed project.

Some land uses are considered more sensitive to noise levels than other uses. Sensitive land uses can include residences, schools, nursing homes, hospitals, and some public facilities, such as libraries. The noise level experienced at the receptor depends on the distance between the source and the receptor, the presence or absence of noise barriers and other shielding devices, and the amount of noise attenuation (lessening) provided by the intervening terrain. For line sources such as motor or vehicular traffic, noise decreases by about 3.0 to 4.5A –weighted decibels (dBA) for every doubling of the distance from the roadway.

Noise from Other Existing Sources

Vehicular noise from Olive Avenue and Fahrens Park would be the primary existing noise source at the project site. The nearest railroad corridor is approximately 750 feet south from the project site. The site is surrounded by various residential properties that generate operational noise on a daily basis. There are several commercial and industrial uses located 200 feet east of the project site. The subject site is a buffer between the industrial uses to the west and the residential uses to the east. The subject site currently has a land use designation reserved for medical and professional office. The approval of the land use changes would still act as a buffer between the industrial and residential designations with a Business Park General Plan designation which is somewhat of a hybrid between light industrial and office commercial.

According to the *Merced Vision 2030 General Plan,* noise exposure not exceeding 45 dB is considered to be a “normally acceptable” noise level for residential uses.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
K. Noise. Would the Project result in:				
1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			✓	
2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			✓	
3) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			✓	

1) **Less Than Significant**

Construction Noise

Construction of the Project would temporarily increase noise levels in the area during the construction period. Therefore, the noise from construction may be steady for a few months and then cease all together. Construction activities, including site preparation and grading, building construction, and sidewalk and street improvements would be considered an intermittent noise impact throughout the construction period. These activities could result in various effects on sensitive receptors, depending on the presence of intervening barriers or other insulating materials. The effects will be short term and would result in a less than significant impact.

Operational Noise

Operational noise would be the main noise source expected from the proposed project. Traffic coming to and from the project site would generate the most noise. The subject site is a buffer between the industrial uses to the west and the residential uses to the east. The approval of the land use change to Business Park would still act as a buffer between these two zones. The subject site has a land use designation reserved for medical and professional offices. The noise from the proposed self storage, and long-term boat and recreational vehicle parking would be reduced by the proposed approximately 10-foot-tall block wall along the eastern property line between the subject site and residential properties to the east. Implementation of the Project would not lead to continued offsite effects related to noise generated by the Project. Given the noise from similar low industrial and commercial zones near the subject site, this potential impact is less than significant.

2) **Less-Than-Significant Impact**

Implementation of the proposed project would not result in the generation of any ground borne vibration or noise. This is a less-than-significant impact.

3) **Less-Than-Significant Impact**

The project site is located within 2 miles southeast from active areas of the Merced Regional Airport and approximately 5 miles east from the Castle Airport. The airstrip has a flight pattern that goes northwest/southeast, which may fly directly over the project site, however, given the distance between the project site and the airports, there should be less-than-significant impact. Given its location, the private airstrip should not pose a hazard to the project development. Therefore, no population working or living at the site would be exposed to excessive levels of aircraft noise. This potential impact is less than significant.

L. Population and Housing

SETTING AND DESCRIPTION

The proposed project would change the General Plan designation from Commercial Office (CO) to Business Park (BP) for a singular vacant parcel approximately 6-acres in size.

Expected Population and Employment Growth

According to the State Department of Finance population estimates for 2023, the City of Merced's population was estimated to be 90,116. Population projections estimate that the Merced SUDP area will have a significant population of 159,900 by the Year 2030.

According to the *Merced Vision 2030 General Plan*, the City of Merced is expected to experience significant population and employment growth by the Year 2030.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
L. <u>Population and Housing.</u> Would the Project:				
1) 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)?			✓	
2) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?			✓	

1) **Less-Than-Significant Impact**

   Temporary construction-related jobs would result due to the construction of the project, but it is unlikely that construction workers would need to relocate to Merced in order to work temporarily onsite. It is not anticipated that this project will create a large number of jobs causing an increase in population over the long term. Therefore, this is a less than significant impact.

2) **Less-Than-Significant Impact**

   There is only 1 live/work unit proposed for this site, resulting in less-than-significant impact.

M. Public Services

SETTING AND DESCRIPTION

Fire Protection

The City of Merced Fire Department provides fire protection, rescue, and emergency medical services from five fire stations throughout the urban area. Fire Station #53 is located at 800 Loughborough Drive approximately 1 mile from the project site. This Station would serve the proposed project.

Police Protection

The City of Merced Police Department provides police protection for the entire City. The Police Department employs a mixture of sworn officers, non-sworn officer positions (clerical, etc.), and unpaid volunteers (VIP). The service standard used for planning future police facilities is approximately 1.37 sworn officers per 1,000 population, per the Public Facilities Financing Plan.

Schools

The public school system in Merced is served by three districts: 1) Merced City School District (elementary and middle schools); 2) Merced Union High School District (MUHSD); and, 3) Weaver Union School District (serving a small area in the southeastern part of the City with elementary schools). The districts include various elementary schools, middle (junior high) schools, and high schools.

As the City grows, new schools will need to be built to serve our growing population. According to the Development Fee Justification Study for the MUHSD, Merced City Schools students are generated by new development at the following rate:

Table 6 Student Generation Rates		
Commercial/Industrial Category	**Elementary (K-8) (Students per 1,000 sq.ft.)**	**High School (9-12) (Students per 1,000 sq.ft.)**
Retail	0.13	0.038
Restaurants	0.00	0.157
Offices	0.28	0.048
Services	0.06	0.022
Wholesale/Warehouse	0.19	0.016
Industrial	0.30	0.147
Multi-Family	0.559 (per unit)	0.109 (per unit)

The proposed self-storage and long-term boat and recreational vehicle parking facilities are not a category from the above Table 6, however the closest category would be Wholesale/Warehouse as these uses typically include large storage areas (the proposed self-storage facility would likely generate less students as there are less employees compared to wholesale/warehouse). Based on the table above (using Wholesale/Warehouse category), the 62,641 square foot storage facility would generate 12 K-8 students and 1 high school student.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
M. <u>Public Services.</u> Would the Project:				
1) 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 following public services:				
a) Fire Protection?			✓	
b) Police Protection?			✓	
c) Schools?			✓	
d) Parks?			✓	
e) Other Public Facilities?			✓	

1) **Less Than Significant**

a) Fire Protection

The project site would be served by Fire Station #53, located at 800 Loughborough Drive (approximately 1 mile from the project site). The response from this station would meet the desired response time of 4 to 6 minutes, citywide, 90 percent of the time, within the financial constraints of the City. The proposed change in land use designation would not affect fire protection services, and no new or modified fire facilities would be needed. Any changes to the building or site would be required to meet all requirements of the

California Fire Code and the Merced Municipal Code. Compliance with these requirements would reduce any future impacts to a less than significant level.

At the time a building permit is issued, the developer would be required to pay impact fees according to the City Public Facilities Financing Plan (PFFP). A portion of this fee goes to cover the city's costs for fire protection such as fire stations, etc. In addition, the developer may be required to annex into the City's Community Facilities District for Services. This would result in an assessment paid with property taxes in which a portion of the tax would go to pay for fire protection services. Compliance with all Fire, Building, and Municipal Code requirements as well as payment of the Public Facility Impact Fees, and annexation into the City's CFD for services would reduce any potential impacts to a less than significant level.

b) **Police Protection**

The site would be served by the City Police Department. The development of the vacant project site could result in more calls to the site. Implementation of the proposed project would not require any new or modified police facilities.

The same requirements for paying Public Facility Impact Fees and potentially annexation into the City's Community Facilities District for Services would apply with a portion of the fees and taxes collected going toward the costs for police protection. Therefore, this potential impact is reduced to a less-than-significant level.

c) Schools

The project site is located within the boundaries of the Merced City School District and Merced Union High School District. Based on the table and discussion provided in the "Settings and Description" section above, the proposed development would likely generate additional students to the school system. As appropriate, the developer would be required to pay all fees due under the Leroy F. Greene School Facilities Act of 1988. Once these fees are paid, the satisfaction of the developer of his statutory fee under California Government Code §65995 is deemed "full and complete mitigation" of school impacts. This potential impact is less than significant**.**

d) Parks

The old Fahrens Park (a small pocket park) is located directly north of the site. This storage facility may slightly increase the use of neighborhood or regional parks.

Payment of the fees required under the Public Facilities Financing Plan (PFFP) as described above would be required at time of building permit issuance to help fund future parks and maintenance of existing parks would be required at the building permit stage. The payment of fees would reduce this potential impact to less than significant.

e) Other Public Facilities

The development of the Project could impact the maintenance of public facilities and could generate impacts to other governmental services. Payment of the fees required under the Public Facilities Financing Plan (PFFP) as described above would mitigate these impacts to a less than significant level.

N. Recreation

SETTING AND DESCRIPTION

The City of Merced has a well-developed network of parks and recreation facilities. Several City parks and recreation facilities are located within a one-mile radius of the project site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
N. Recreation. Would the Project:				
1) Increase the use of neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			✓	
2) 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?				✓

1) **Less the Significant Impact**

Development of the Project may increase the use of neighborhood or regional parks. However, payment of the required development fees at the building permit stage would reduce the potential impacts to a less than significant level.

2) **No Impact**

The Project does not include recreational facilities and is not responsible for the construction or expansion of any recreational facilities.

O. Transportation/Traffic

SETTING AND DESCRIPTION

Roadway System

The project site is located in northwest Merced, approximately one and a half miles northwest of Downtown and one mile northeast of Highway 99. The project site consists of an undeveloped lot totaling approximately 6 acres. The project site fronts an arterial road (Olive Avenue), with the nearest north-south roads being State Route 59 (expressway) and Loughborough Drive (collector road) both designed to carry large volumes of traffic traversing through a large portion of the community. State Route 59 has access to Highway 99 that connects Merced with other regional communities throughout the State.

Transit Service

The Transit Joint Powers Authority for Merced County has jurisdiction over public transit in Merced County and operates The Bus. The Bus provides transportation for residents traveling within Merced and outside the City within neighboring communities such as Planada, Atwater, and Livingston.

Vehicle Miles Traveled

Senate Bill (SB) 743 directs the Governor's Office of Planning and Research (OPR) to develop new guidelines for assessing transportation-related impacts that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099[b][1]). These new guidelines will replace automobile delay, as described through level of service (LOS), with more appropriate criteria and metrics based on travel demand, such as "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated" (Public Resources Code Section 21099[b][1]). The State CEQA Guidelines are expected to be amended to include guidance for measuring travel demand and to recommend that delays related to congestion no longer be considered a significant impact under CEQA (OPR 2016).

Vehicle Miles Traveled Analysis

The Office of Planning and Research (OPR) advisory suggests that the VMT contribution of small projects need not be considered significant. OPR suggests that agencies can find projects generating fewer than 110 vehicles trips a day to be less than significant. The Olive Avenue Mini-Storage project is comprised of land uses estimated to generate 74 vehicle trips per day. As this trip generation estimate falls below the 110 daily trip threshold identified by OPR the proposed project qualifies as a "small project" that can be assumed to have a less than significant impact on regional VMT.

For additional information see Appendix B at Attachment D for the study on Vehicle Miles Traveled and Level of Service.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
O. <u>Transportation/Traffic.</u> Would the project:				
1) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			✓	

2) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b)?			✓	
3) Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?				✓
4) Result in inadequate emergency access?			✓	

1) **Less-than-Significant Impact**

The existing system of pedestrian and bicycle facilities in this area include sidewalks and Class 1 bike paths, but pedestrians and bicyclists use paved shoulders elsewhere. A sidewalk is present along the project's Olive Avenue frontage, and a Class 1 trail is existing along State Route 59 north of Olive Avenue. Recent Caltrans improvements have included high visibility crosswalks at the intersection of Olive Avenue/Santa Fe Drive and State Route 59. The proposed mini storage would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

2) **Less-than-Significant Impact**

The project would be constructed as an infill development surrounded by existing adequate infrastructure. The Institute of Transportation Engineers (ITE) presented in the publication Trip Generation Manual, 11th Edition (2021), calculates the project to generate 74 trips on a daily basis, with five trips in the a.m. peak hours, and eight trips in the p.m. peak hours. The project would not result in a change in air traffic patterns, including air traffic associated with any airports.

As previously described in this section, a VMT analysis was prepared for this project by KDA. Based on guidance provided by OPR, both the self-storage facility would be screened out as a small project and not require further VMT analysis. Therefore, this impact is less than significant. Details regarding the criteria provided by OPR can be found in the traffic analysis at Appendix B.

Per CEQA Guidelines Section 15064.3 alternative modes of transportation are being assessed. Route M1 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. This route operates along:

- State Route 59 north and south of Olive Avenue

- Olive Avenue east of Loughborough Drive
- Loughborough Drive south of Olive Avenue

Route M2 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. This route operates along Loughborough Drive north and south of Olive Avenue. The Amtrak (passenger train service) is located within 1.5 miles providing services to the greater California area and connections to travel across the county. The closest airport is Merced Regional Airport, located approximately 2 miles southwest of the project site.

3) **No Impact**

The project site is surrounded by mostly developed lots along a developed arterial road (Olive Avenue). The proposal does not require changes to the existing street network. Therefore, no impact would occur.

4) **Less-than-Significant Impact**

The subject site is an approximate 6-acre parcel on mostly developed parcels along an arterial road (Olive Avenue). There is currently no missing infrastructure of roads or utilities between the subject site and City infrastructure. The Fire and Police departments reviewed this proposal and are not requesting additional access points to this site. Therefore, project construction and operation would not pose a significant obstacle to emergency response vehicles. This impact on emergency access would be less than significant.

SETTING AND DESCRIPTION

P. Water

The City's water system is composed of 22 groundwater production wells located throughout the City, and approximately 350 miles of main lines. Well pump operators ensure reliability and adequate system pressure at all times to satisfy customer demand. Diesel powered generators help maintain uninterrupted operations during power outages. The City of Merced water system delivers more than 24 million gallons of drinking water per day to approximately 20,733 residential, commercial, and industrial customer locations. The City is required to meet State Health pressure requirements, which call for a minimum of 20 psi at every service connection under the annual peak hour condition and maintenance of the annual average daily demand plus fire flow, whichever is stricter. The City of Merced Water Division is operated by the Public Works Department.

The City of Merced's wells have an average depth of 414 feet and range in depth from 161 feet to 800 feet. The depth of these wells would suggest that the City of Merced is primarily drawing water from a deep aquifer associated with the Mehrten geological formation. Increasing urban demand and associated population growth, along with an increased shift by agricultural users from surface water to groundwater and prolonged drought have resulted in declining groundwater levels due to overdraft. This condition was recognized by the City of Merced and

the Merced Irrigation District (MID) in 1993, at which time the two entities began a two-year planning process to ensure a safe and reliable water supply for Eastern Merced County through the year 2030. Integrated Regional Water Planning continues today through various efforts.

Wastewater

Wastewater (sanitary sewer) collection and treatment in the Merced urban area is provided by the City of Merced. The wastewater collection system handles wastewater generated by residential, commercial, and industrial uses in the City.

The City Wastewater Treatment Plant (WWTP), located in the southwest part of the City about two miles south of the airport, has been periodically expanded and upgraded to meet the needs of the City's growing population and new industry. The City's wastewater treatment facility has a capacity of 11.5 million gallons per day (mgd); with an average flow of 8.5 mgd. The City has recently completed an expansion project to increase capacity to 12 mgd and upgrade to tertiary treatment with the addition of filtration and ultraviolet disinfection. Future improvements would add another 8 mgd in capacity (in increments of 4 mgd), for a total of 20 mgd. This design capacity can support a population of approximately 174,000. The collection system will also need to be expanded as development occurs.

Treated effluent is disposed of in several ways depending on the time of year. Most of the treated effluent (75% average) is discharged to Hartley Slough throughout the year. The remaining treated effluent is delivered to a land application area and the on-site City-owned wetland area south of the treatment plant.

Storm Drainage

The *Draft City of Merced Storm Drainage Master Plan* addresses the collection and disposal of surface water runoff in the City's SUDP. The study addresses both the collection and disposal of storm water. Systems of storm drain pipes and catch basins are laid out, sized, and costed in the plan to serve present and projected urban land uses.

It is the responsibility of the developer to ensure that utilities, including storm water and drainage facilities, are installed in compliance with City regulations and other applicable regulations. Necessary arrangements with the utility companies or other agencies will be made for such installation, according to the specifications of the governing agency and the City [(Ord. 1342 § 2 (part), 1980: prior code § 25.21(f)).] The disposal system is mainly composed of MID facilities, including water distribution canals and laterals, drains, and natural channels that traverse the area.

The City of Merced has been involved in developing a Storm Water Management Plan (SWMP) to fulfill requirements of storm water discharges from Small Municipal Separate Storm Sewer System (MS4) operators in accordance with Section 402(p) of the Federal Clean Water Act (CWA). The SWMP was developed to also comply with General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ.

Solid Waste

The City of Merced is served by the State Route 59 Landfill and the State Route 59 Compost Facility, located at 6040 North Highway 59. The County of Merced is the contracting agency for landfill operations and maintenance, as the facilities are owned by the Merced County Association of Governments. The City of Merced provides services for all refuse pick-up within

the City limits and franchise hauling companies collect in the unincorporated areas. In addition to these two landfill sites, there is one private disposal facility, the Flintkote County Disposal Site, at State Route 59 and the Merced River. This site is restricted to concrete and earth material.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
P. Utilities and Service Systems. Would the Project:				
1) 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?			✓	
2) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			✓	
3) 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?			✓	
4) 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?			✓	
5) Comply with federal, state, and local statutes and regulations related to solid waste?			✓	

1) Less Than Significant Impact

The City's current water and wastewater system is capable of handling this project within the City of Merced. There is are existing sewer and water lines along Olive Avenue, which would be extended to go through the project site. No significant environmental impacts would result from connecting to the line. This potential impact is less than significant.

2) **Less Than Significant Impact**

No new water facilities are needed for this project. The existing water system is sufficient to serve the development. Potential impacts are less than significant.

3) **Less Than Significant Impact**

Refer to item 1 above.

4) **Less Than Significant Impact**

The City of Merced uses the State Route 59 Landfill. Sufficient capacity is available to serve the future project. According to the *Merced Vision 2030 General Plan* DEIR, the landfill has capacity to serve the City through 2030. Potential impacts are less than significant.

5) **Less Than Significant Impact**

All construction on the site would be required to comply with all local, state, and federal regulations regarding solid waste, including recycling. Potential impacts are less than significant.

Q. Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Q. <u>Tribal Cultural Resources</u> Would the project:				
a) 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:				
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.				✓

Impact Analysis

Would the project:

a) *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:*

   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)?*

   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.*

As stated in the Cultural Resources Section of this Initial Study, improvements associated with the project include site excavation, grading, paving, and construction of buildings. The areas of the project subject to demolition and construction facilities are likely to have been subject to ground disturbance in the past. No tribal resources are known to have occurred or have been identified at the project site or in the vicinity of the project site. However, as noted in the Cultural Resources Section, implementation of Mitigation Measures CUL-1 and CUL-3 would protect previously unrecorded or unknown cultural resources, including Native American artifacts and human remains, should these be encountered during project construction.

In addition, Assembly Bill (AB) 52 provides for consultation between lead agencies and Native American tribal organizations during the CEQA process. Since AB 52 was enacted in July 2015, the City has not been contacted by any California Native American tribes requesting that they be notified when projects are proposed in Merced. No tribes have requested consultation pursuant to Public Resources Code section 21080.3.1. Therefore, it is assumed that no Tribal Cultural Resources would be adversely affected by the project. As a result, no impact would occur.

R. Wildfire

SETTING AND DESCRIPTION

Both urban and wildland fire hazard potential exists in the City of Merced and surrounding areas, creating the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, or industrial structures due to human activities. Wildland fires affect grassland, brush or woodlands, and any structures on or near these fires. Such fires can result from either human made or natural causes.

Urban fires comprise the majority of fires in the City of Merced. The site is surrounded by urban uses. The City of Merced Fire Department has procedures in place to address the issue of wildland fires, so no additional mitigation would be necessary.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
R. **Wildfire.** If located in or near stat responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			✓	
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?				✓

Impact Analysis

Would the project:

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

The project does not include the construction of new roadways or changes to existing roads. The project would also be required to comply with all applicable requirements of the California Fire Code. As such, the project would not impact an adopted emergency response plan or emergency evacuation plan. This impact would be less than significant.

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

According to the California Department of Forestry and Fire Protection, the project site is not located in any fire hazard zone. The areas surrounding the project site are mostly developed, urban land.

There is a low potential for wildland fires within these parameters. Additionally, the California Building Code and the California Fire Codes work together to regulate building construction and related items such as the care of vacant lots and the storage of flammable liquids.

To provide effective fire prevention activities for low hazard occupancies, the Fire Department conducts seasonal hazard removal programs (primarily weed abatement). The City of Merced employs a weed abatement program, which requires property owners to eliminate flammable vegetation and rubbish from their properties. Each property within the City is surveyed each spring and notices are sent to the property owners whose properties have been identified to pose a fire risk. Since inception of this program in 1992, grass or brush related fires within the City have been greatly reduced. A "bulky item" drop off station has been opened near Highway 59 and Yosemite Avenue. Further, staging areas, building areas, and/or areas slated for development using spark-producing equipment are cleared of dried vegetation or other materials that could serve as fuel for combustion; impacts are considered less than significant.

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

The project would be required to repair/replace any missing or damaged infrastructure along their property frontage. However, the on-going maintenance of roadways would fall to the City. All other infrastructure or utilities exist in the area. No additional infrastructure or on-going maintenance would be required that would cause an impact to the environment. This impact is less than significant.

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

The project site and surrounding area is relatively flat with no risk of downslope or downstream flooding or landslides. Therefore, there is no impact.

S. Greenhouse Gas Emissions

SETTING AND DESCRIPTION

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation is absorbed by GHGs; as a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on Earth.

GHGs are present in the atmosphere naturally, are released by natural sources and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. The following GHGs are widely accepted as the principal contributors to human-induced global climate change and are relevant to the project: carbon dioxide (CO_2), methane, and nitrous oxide.

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane is the main component of natural gas and is associated with agricultural practices and landfills. Nitrous oxide is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time the gas remains in the atmosphere (i.e., its atmospheric lifetime). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include methane, which has a GWP of 28, and nitrous oxide, which has a GWP of 265 (IPCC 2013). For example, 1 ton of methane has the same contribution to the greenhouse effect as approximately 28 tons of CO_2. GHGs with lower emissions rates than CO_2 may still contribute to climate change, because they are more effective than CO_2 at absorbing outgoing infrared radiation (i.e., they have high GWPs). The concept of CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

The project applicant provided an Air Quality and Greenhouse Gas study for the proposed project which was prepared by KDA. (Appendix A at Attachment C). The study analyzed the emissions associated with the proposed self-storage facility and long-term vehicle parking. The City of Merced has not developed or adopted a CEQA threshold for determining the significance of GHG emissions at the project-level. The SJVAPCD document Addressing Greenhouse Gas Emission Impacts for New Projects under the California Environmental Quality Act (San Joaquin Valley Air Pollution Control District 2009) presents a tiered approach to analyzing the significance of project-related GHG emissions. This approach was used in the analysis provided at Appendix A at Attachment C.

For additional information see Appendix A at Attachment C for combined studies on Air Quality and Green House Gas Emissions.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
S. <u>Greenhouse Gas Emissions.</u> Would the project:				
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		✓		
2) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			✓	

1) **Less -than-Significant with Mitigation**

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. In December 2009, SJVAPCD adopted the *Final Staff Report Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act* (SJVAPCD 2009). SJVAPCD also developed guidance for land-use agencies to address GHG emission impacts for new development projects. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would have a less-than-significant individual and cumulative impact related to GHG emissions. Projects implementing best performance standards and reducing project-specific GHG emissions by at least 29 percent compared to the business-as-usual condition would have a less-than-significant individual and cumulative impact on global climate change under this guidance. However, models used to estimate GHG emissions now include some of the statewide measures that previously would have been used to evaluate this 29 percent reduction performance standard, so this particular method of comparison is out of date.

To establish the context in which to consider the project's GHG emissions, this analysis used guidance from the adjacent Sacramento Metropolitan Air Quality Management District (SMAQMD) to determine significance. In 2014, SMAQMD adopted a significance threshold for GHG emissions consistent with the goals of Assembly Bill (AB) 32: 1,100 metric tons (MT) CO_2e per year for construction-related and operational emissions (SMAQMD 2014). This significance threshold was developed to assess the consistency of a project's emissions with the statewide framework for reducing GHG emissions.

The impacts associated with GHG emissions generated by the project are related to the emissions from short-term construction and operations. Off-road equipment, materials transport, and worker commutes during construction of the project would generate GHG

emissions. Emissions generated by the project during operations are related to indirect GHG emissions associated with residential uses.

GHG emissions associated with construction of the project are short-term and will cease following completion of construction activity. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Table 4 provides an estimate of project related GHG emission during the construction year and during operation. This impact would be less than significant with mitigation.

Table 4. Greenhouse Gas Emissions

Emissions Category	Carbon Dioxide	Methane	Nitrous Oxide	Refrigerants	Carbon Dioxide Equivalent
Construction-Related Emissions					
Construction Related Emissions	368	0.01	< 0.005	0.04	370
Operational Emissions					
a. Mobile	48.6	< 0.005	< 0.005	0.09	49.9
b. Area	0.74	< 0.005	< 0.005	- -	0.75
c. Energy	118	0.01	< 0.005	- -	118
d. Water	10.8	0.38	0.01	- -	23.1
e Waste	4.3	0.43	0.00	- -	15.0
f. Total Operational Emissions (a + b + c + d + e)	182	0.83	0.01	0.09	207

Source: Emissions values are from the CalEEMod Emissions Model (http:/www/caleemod.com)
Notes: All values are in metric tons per year (MT/yr).
Total may not equal sum of components due to rounding.

Mitigation Measures:

Mitigation Measure GHG-1: The project applicant shall demonstrate compliance with the applicable BPS strategies to the Planning Division prior to the issuance of a building permit. The following BPS strategies are considered to be applicable, feasible, and effective in reducing GHG emissions generated by the project:

The following measure numbers, names and descriptions are from the *SN* APCD document *Final Staff Report - Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA - Appendix J: GHG Emission Reduction Measures - Development Projects* (San Joaquin Valley Air Pollution Control District 2009b). The measures were selected as those considered applicable to the Olive Avenue Mini-Storage project, based on the project location and type of land use.

- **SJVAPCD Measure #5 - Pedestrian Network.** The project will provide a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project's occupancy permits being granted.

- **SJVAPCD Measure #6 - Pedestrian Barriers Minimized.** Site design and building placement will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation will be eliminated. Barriers to pedestrian access of neighboring facilities and sites will be minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas. This measure is not meant to prevent features needed to securely operate a mini-storage facility.

- **SJVAPCD Measure** #7 - **Bus Shelter for Existing Transit Service.** Merced Regional Transit System The Bus Route Ml - Merced West - provides bus service with one-half hour headways. A bus stop for Route Ml is located at the Walmart store at Olive Avenue and Loughborough Drive, directly south of the project site. The project will provide safe and convenient bicycle/pedestrian access to the bus stop and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).

- **SJVAPCD Measure #25 - Light-Colored/High-Albedo Roof Materials.** The project will install light-colored/high/albedo roof materials on the portion of the project containing climate-controlled units. Light-colored/high/albedo roof materials reflect more of the sun's rays, decreasing the amount of heat transferred into a building.

- **SJVAPCD Measure #29 - Non-Roof Surfaces.** The project will provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's

> non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas will have a minimum albedo of 0.3 or greater.

Implementation of Mitigation Measure GHG-1 would implement various BPS strategies recommended by the SN APCD that are applicable to the project to reduce GHG emissions. Overall, the mitigated project would implement GHG reduction strategies in compliance with the *SN* APCD and, therefore, would not be a significant source of GHG emissions

2) **Less-than-Significant Impact**

In 2006, California enacted AB 32, the California Global Warming Solutions Act of 2006 (California Health and Safety Code Section 38500 et seq.). AB 32 establishes regulatory, reporting, and market mechanisms to achieve reductions in GHG emissions and establishes a cap on statewide GHG emissions. It requires that statewide GHG emissions be reduced to 1990 levels by 2020.

In 2008 and 2014, the California Air Resources Board (ARB) approved the Climate Change Scoping Plan (Scoping Plan) and the first update to the Climate Change Scoping Plan: Building on the Framework, respectively (ARB 2008; ARB 2014). In 2016, the state legislature passed Senate Bill SB 32, which established a 2030 GHG emissions reduction target of 40 percent below 1990 levels. In response to SB 32 and the companion legislation of AB 197, ARB approved the Final Proposed 2017 Scoping Plan Update: The Strategy for Achieving California's 2030 GHG Target in November 2017 (ARB 2017). The 2017 Scoping Plan draws from the previous plans to present strategies to reaching California's 2030 GHG reduction target. The project would comply with any mandate or standards set forth by an adopted Scoping Plan Update effecting construction activities and operations.

In 2012, the City of Merced adopted the *Merced Climate Action Plan* to address the reduction of major sources of GHG emissions. The climate action plan established an emissions target of 1990 levels by 2020, commensurate with the State of California's target (City of Merced 2012). To meet this goal, the City adopted values, goals, and strategies to reduce emissions. Goals of the plan include:

- enhanced mobility of all transportation modes;
- sustainable community design;
- water conservation and technology;
- protection of air resources;
- waste reduction;
- increased use of renewable energy sources;
- building energy conservation; and,
- public outreach and involvement.

The project would be consistent with the goals of the *Merced Climate Action Plan*.

As mentioned above, the project would not exceed emissions thresholds adopted by SMAQMD and would be consistent with the applicable requirements of the *Merced Climate Action Plan*. Therefore, the project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant. For additional information see Appendix A at Attachment C. This impact would be less than significant.

T. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
T. <u>Mandatory Findings of Significance.</u> Would the Project:				
1) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			✓	
2) 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 probably future projects?)			✓	
3) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			✓	

1) **Less-Than-Significant Impact**

As previously discussed in this document, the Project does not have the potential to adversely affect biological resources or cultural resources, because such resources are lacking on the project site, and any potential impacts would be avoided with implementation of the mitigation measures and other applicable codes identified in this

report. Also, the Project would not significantly change the existing urban setting of the project area. Thus, this impact would be less than significant.

2) **Less-Than-Significant Impact**

The Program Environmental Impact Report conducted for the *Merced Vision 2030 General Plan, the General Plan Program EIR* (SCH# 2008071069), has recognized that future development and build-out of the SUDP/SOI will result in cumulative and unavoidable impacts in the areas of Air Quality and Loss of Agricultural Soils. In conjunction with this conclusion, the City has adopted a Statement of Overriding Considerations for these impacts (Resolution #2011-63) which is herein incorporated by reference.

The certified General Plan EIR addressed and analyzed cumulative impacts resulting from changing agricultural use to urban uses. No new or unaddressed cumulative impacts will result from the project that have not previously been considered by the certified General Plan EIR or by the Statement of Overriding Considerations, or mitigated by this Expanded Initial Study. This Initial Study does not disclose any new and/or feasible mitigation measures which would lessen the unavoidable and significant cumulative impacts.

The analysis of impacts associated with the development would contribute to the cumulative air quality and agricultural impacts identified in the General Plan EIR. In the case of air quality, emissions from the proposed project would be less than significant. The nature and extent of these impacts, however, falls within the parameters of impacts previously analyzed in the General Plan EIR. No individual or cumulative impacts will be created by the Project that have not previously been considered at the program level by the General Plan EIR or mitigated by this Initial Study.

3) **Less-Than-Significant Impact**

Development anticipated by the *Merced Vision 2030 General Plan* will have significant adverse effects on human beings. These include the incremental degradation of air quality in the San Joaquin Basin, the loss of unique farmland, the incremental increase in traffic, and the increased demand on natural resources, public services, and facilities. However, consistent with the provisions of CEQA previously identified, the analysis of the proposed project is limited to those impacts which are peculiar to the project site or which were not previously identified as significant effects in the prior EIR. The previously-certified General Plan EIR and the Statement of Overriding Considerations addressed those cumulative impacts; hence, there is no requirement to address them again as part of this project.

This previous EIR concluded that these significant adverse impacts are accounted for in the mitigation measures incorporated into the General Plan EIR. In addition, a Statement of Overriding Considerations was adopted by City Council Resolution #2011-63 that indicates that the significant impacts associated with development are offset by the benefits that will be realized in providing necessary jobs for residents of the City. The analysis and mitigation of impacts have been detailed in the Environmental Impact Report prepared for the *Merced Vision 2030 General Plan*, which is incorporated into this document by reference.

While this issue was addressed and resolved with the General Plan EIR in an abundance of caution, in order to fulfill CEQA's mandate to fully disclose potential environmental consequences of projects, this analysis is considered herein. However, as a full disclosure document, this issue is repeated in abbreviated form for purposes of disclosure, even though it was resolved as a part of the General Plan.

Potential impacts associated with the Project's development have been described in this Initial Study. All impacts were determined to be less than significant.

4. ENVIRONMENTAL DETERMINATION

On the basis of this initial environmental evaluation:

X I find that the project could have a significant effect on the environment, and that a MITIGATED NEGATIVE DECLARATION HAS BEEN PREPARED for public review.

June 12, 2023

_____
Francisco Mendoza-Gonzalez, Associate Planner

_____
Julie Nelson, Acting Planning Manager
Environmental Coordinator
City of Merced

5. PREPARERS OF THE INITIAL STUDY

LEAD AGENCY

City of Merced
Planning & Permitting Division
678 West 18th Street
Merced, CA 95340
(209) 385-6929
Francisco Mendoza-Gonzalez, Associate Planner

ATTACHMENTS:

A) Location Map
B) Site Plan/Floor Plans/Elevations
C) Appendix A – Combined Studies for Air Quality, Green House Gas Emissions
D) Appendix B – Vehicle Miles Traveled and Level of Service Study
E) Mitigation Monitoring Program

ATTACHMENT A

ATTACHMENT B

PROJECT DIRECTORY

DEVELOPER:
MERCED SECURITY STORAGE, L.L.C.
515 SOUTH FLOWER STREET 18TH FLOOR
LOS ANGELES, CALIFORNIA 90071
CONTACT: SEAN BRANNAN
E-MAIL: sbrannan@capitalfundingcorp.com

ARCHITECT:
RKAA ARCHITECTS, INC.
2233 EAST THOMAS ROAD
PHOENIX, ARIZONA 85016
CONTACT: JEROD NEGRETTE
PHONE: (602) 955-3900
FAX: (602) 955-0496
E-MAIL: jnegrette@rkaa.com

SITE DATA

EXISTING ZONING:	P-D (PLANNED DEVELOPMENT)
PROPOSED ZONING:	C-G/ GENERAL COMMERCIAL
GENERAL PLAN:	INDUSTRIAL
GROSS SITE AREA:	6.1 ACRES (266,569 S.F.)
NET SITE AREA:	6.0 ACRES (261,360 S.F.)
PARCEL NUMBER:	058-030-005
LOT COVERAGE PROVIDED:	19%
SETBACKS:	
MINIMUM FRONT YARD:	NONE
MINIMUM SIDE YARD:	NONE
HEIGHT MAX:	40'-0"
PROPOSED USE:	SELF SERVICE STORAGE
BUILDING HEIGHT:	22'-0"
BUILDING AREA:	
BUILDING A:	43,850 S.F.
BUILDING B:	7,074 S.F.
BUILDING C:	3,414 S.F.
BUILDING D:	8,303 S.F.
TOTAL BUILDING AREA:	62,641 S.F.
TOTAL PARKING REQUIRED:	10 SPACES

SELF STORAGE (62,641 S.F.)
1 PER 50 STORAGE UNITS (442 / 50 = 9)
1 PER 250 S.F.OF FLOOR AREA OR 1 PER EMPLOYEE

TOTAL PARKING PROVIDED:	5 SPACES
ACCESSIBLE SPACES REQUIRED:	1 SPACES
ACCESSIBLE SPACES PROVIDED:	1 SPACES
BICYCLE SPACES REQUIRED: 2 SPACES	2 SPACE
BICYCLE SPACES PROVIDED:	2 SPACES
RV SPACES PROVIDED:	171 SPACES

GENERAL NOTES

1.) ALL SIGNAGE IS APPROVED THROUGH A SEPARATE PERMIT

FIRE NOTES

1.) 2019 CALIFORNIA FIRE CODE, CITY OF MERCED FIRE CODE AMENDMENTS. 903.2 WHERE REQUIRED. ALL NEW BUILDINGS AND STRUCTURES SHALL BE PROVIDED WITH AN AUTOMATIC SPRINKLER SYSTEM.

2.) AUTOMATIC GATES SHALL BE EQUIPPED WITH DUAL HEAD PREEMPTION RECEIVERS AND KEY SWITCH ON BOTH INSIDE AND OUTSIDE OF GATES.

BUILDING A UNIT MIX
G.S.F = 43,850 S.F.
L.S.F. = 35,577 S.F.

CLIMATE CONTROLLED UNIT MIX SUMMARY

UNIT SIZE	TOTAL	S.F. PER	AREA
INTERIOR STORAGE			
5'X5'	29	25	725
5'X10'	57	50	2850
10'X5'	32	50	1600
10'X10'	132	100	13200
10'x15'	11	150	1650
10'x20'	15	200	3000
SUBTOTAL	276		23025
DRIVE UP STORAGE			
10'X5' NON	1	50	50
10'X10' NON	42	100	4200
10'X15' NON	3	150	450
10'X20' NON	4	200	800
10'X25' NON	28	250	7000
SUBTOTAL	78		12500
TOTAL STORAGE	354		35525

BUILDING B UNIT MIX
G.S.F = 7,074 S.F.
L.S.F. = 7,164 S.F.

NON CONTROLLED UNIT MIX SUMMARY

UNIT SIZE	TOTAL	S.F. PER	AREA
10x25	1	250	250
10x30	22	300	6600
TOTAL	23		6850

RV PARKING

UNCOVERED PARKING

UNIT SIZE	TOTAL	S.F. PER	AREA
10'X28'	65	280	18200
12'X35'	56	420	23520
12'X58'	50	696	34800
TOTAL	171		76520

BUILDING C UNIT MIX
G.S.F = 3,414 S.F.
L.S.F. = 3,354 S.F.

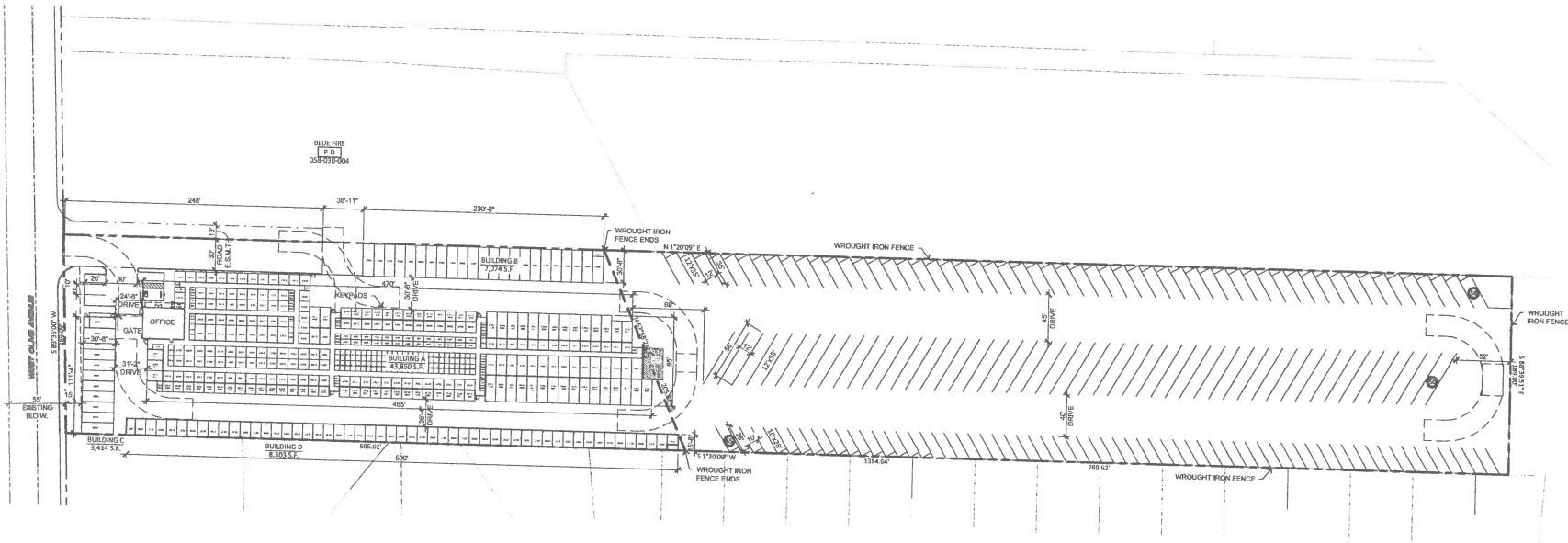
NON CONTROLLED UNIT MIX SUMMARY

UNIT SIZE	TOTAL	S.F. PER	AREA
10X25	1	250	250
10X30	10	300	3000
TOTAL	11		3250

BUILDING D UNIT MIX
G.S.F = 8,303 S.F.
L.S.F. = 8,244 S.F.

NON CONTROLLED UNIT MIX SUMMARY

UNIT SIZE	TOTAL	S.F. PER	AREA
10X10	1	100	100
10X15	53	150	7950
TOTAL	54		8050

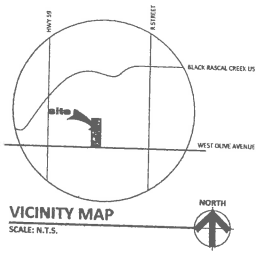


SITE PLAN

SCALE: 1" = 50'-0"

NORTH

0' 20' 40' 80'



VICINITY MAP
SCALE: N.T.S.

MERCED SECURITY STORAGE

1965 WEST OLIVE AVENUE
MERCED, CA 95348
DATE: 02-28-2023 (PRELIMINARY)

SP-1

RKAA# 23003.50

RKAA ARCHITECTS, INC

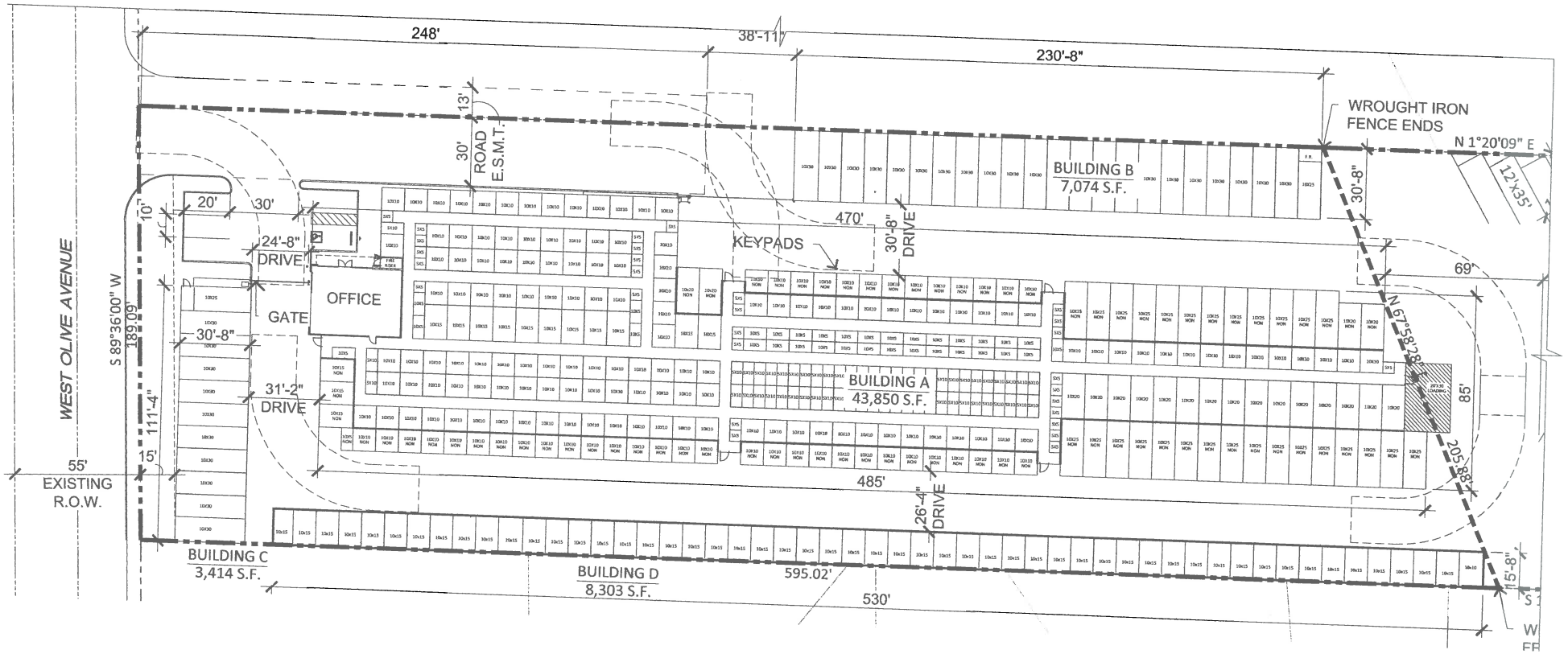
BUILDING A UNIT MIX			
G.S.F = 43,850 S.F.			
L.S.F. = 35,577 S.F.			
CLIMATE CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
INTERIOR STORAGE			
5'X5'	29	25	725
5'X10'	57	50	2850
10'X5'	32	50	1600
10'X10'	132	100	13200
10'x15'	11	150	1650
10'x20'	15	200	3000
SUBTOTAL	276		23025
DRIVE UP STORAGE			
10'X5' NON	1	50	50
10'X10' NON	42	100	4200
10'X15' NON	3	150	450
10'X20' NON	4	200	800
10'X25' NON	28	250	7000
SUBTOTAL	78		12500
TOTAL STORAGE	354		35525

BUILDING B UNIT MIX			
G.S.F = 7,074 S.F.			
L.S.F. = 7,164 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10x25	1	250	250
10x30	22	300	6600
TOTAL	23		6850

RV PARKING			
UNCOVERED PARKING			
UNIT SIZE	TOTAL	S.F. PER	AREA
10'X28'	65	280	18200
12'X35'	56	420	23520
12'X58'	50	696	34800
TOTAL	171		76520

BUILDING C UNIT MIX			
G.S.F = 3,414 S.F.			
L.S.F. = 3,354 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10X25	1	250	250
10X30	10	300	3000
TOTAL	11		3250

BUILDING D UNIT MIX			
G.S.F = 8,303 S.F.			
L.S.F. = 8,244 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10X10	1	100	100
10X15	53	150	7950
TOTAL	54		8050



ENLARGED SITE PLAN

SCALE: 1" = 20'-0"

NORTH

0' 20' 40' 80'

MERCED SECURITY STORAGE

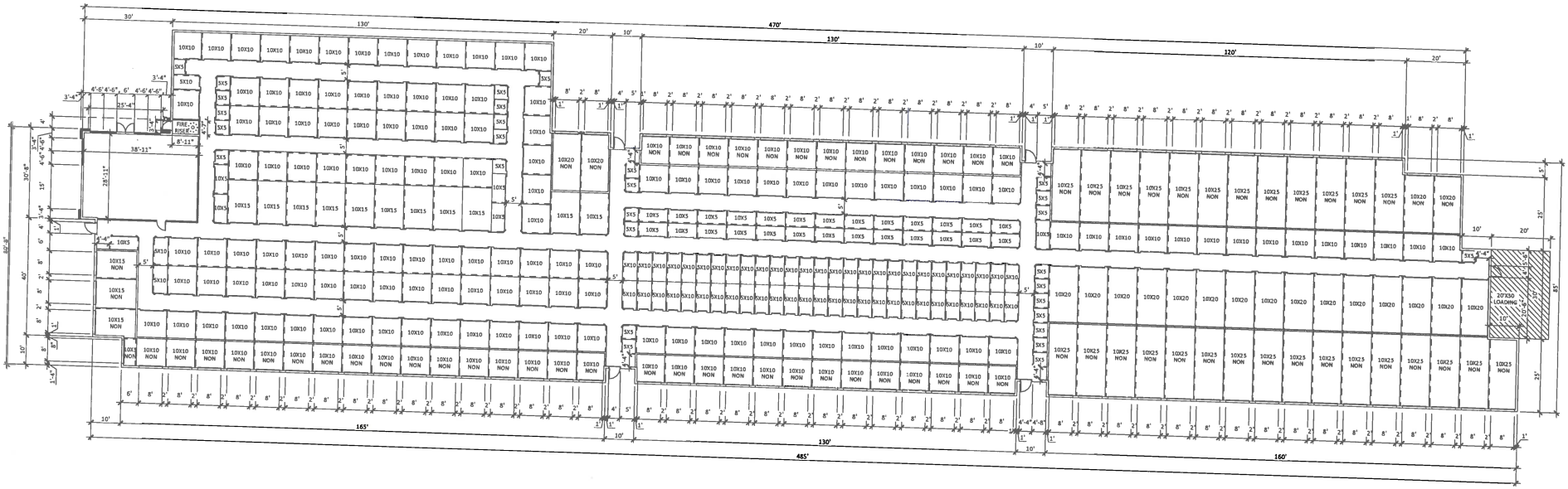
1965 WEST OLIVE AVENUE
MERCED, CA 95348
DATE: 02-28-2023 (PRELIMINARY)

SP-2

RKAA# 23003.50

RKAA ARCHITECTS, INC

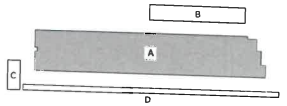
BUILDING A UNIT MIX			
G.S.F = 43,850 S.F.			
L.S.F. = 35,577 S.F.			
CLIMATE CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
INTERIOR STORAGE			
5'X5'	29	25	725
5'X10'	57	50	2850
10'X5'	32	50	1600
10'X10'	132	100	13200
10'x15'	11	150	1650
10'x20'	15	200	3000
SUBTOTAL	276		23025
DRIVE UP STORAGE			
10'X5' NON	1	50	50
10'X10' NON	42	100	4200
10'X15' NON	3	150	450
10'X20' NON	4	200	800
10'X25' NON	28	250	7000
SUBTOTAL	78		12500
TOTAL STORAGE	354		35525



BUILDING A FLOOR PLAN

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

NORTH



KEY MAP

SCALE: NTS

NORTH

MERCED SECURITY STORAGE

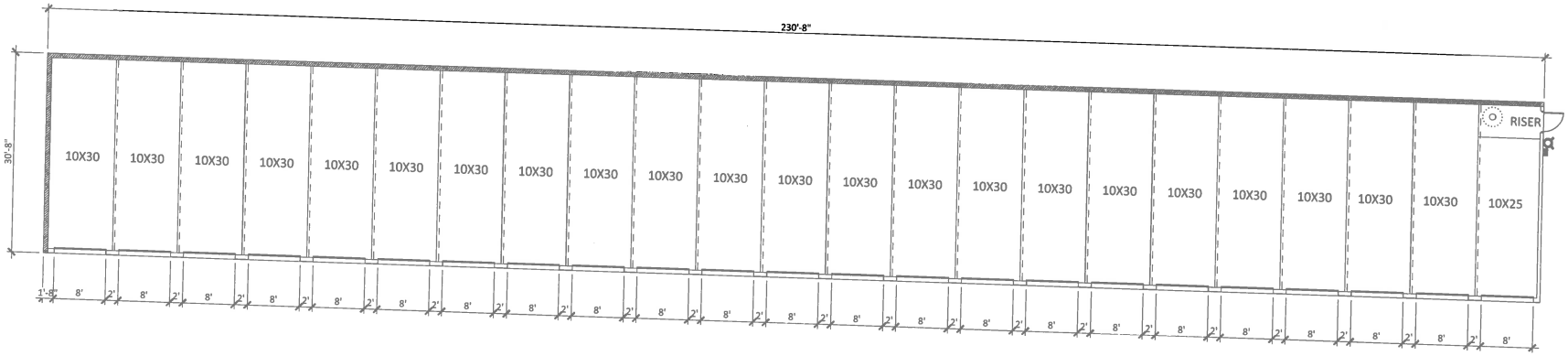
1965 W. OLIVE AVENUE
MERCED, CA 95348
DATE: 02-28-2023 (PRELIMINARY)

FP-A

RKAA# 23003.50

RKAA ARCHITECTS, INC

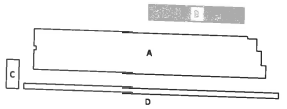
BUILDING B UNIT MIX			
G.S.F = 7,074 S.F.			
L.S.F. = 7,164 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10x25	1	250	250
10x30	22	300	6600
TOTAL	23		6850



BUILDING B FLOOR PLAN

SCALE: 1/8" = 1'-0"

NORTH



KEY MAP

SCALE: NTS

NORTH

MERCED SECURITY STORAGE

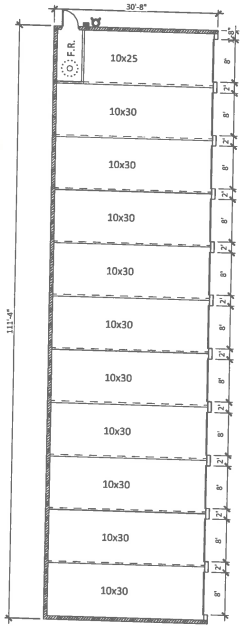
1965 W. OLIVE AVENUE
MERCED, CA 95348
DATE: 02-14-2023 (PRELIMINARY)

FP-B

RKAA# 23003.50

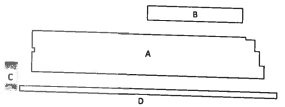
RKAA ARCHITECTS, INC

BUILDING C UNIT MIX			
G.S.F = 3,414 S.F.			
L.S.F. = 3,354 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10X25	1	250	250
10X30	10	300	3000
TOTAL	11		3250



1 **BUILDING C FLOOR PLAN**
SCALE: 3/32" = 1'-0"

NORTH



KEY MAP
SCALE: NTS

NORTH

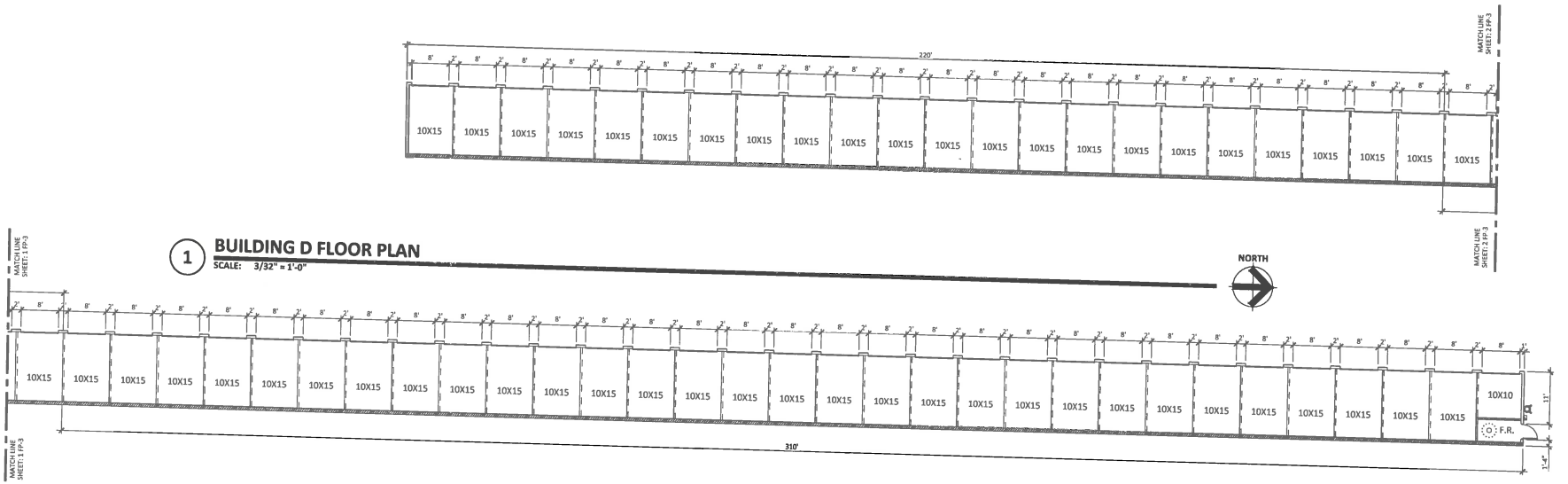
MERCED SECURITY STORAGE
1965 W. OLIVE AVENUE
MERCED, CA 95348
DATE: 02-14-2023 (PRELIMINARY)

FP-C

RKAA# 23003.50

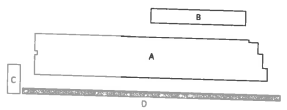
RKAA ARCHITECTS, INC

BUILDING D UNIT MIX			
G.S.F = 8,303 S.F.			
L.S.F. = 8,244 S.F.			
NON CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
10X10	1	100	100
10X15	53	150	7950
TOTAL	54		8050



1 **BUILDING D FLOOR PLAN**
SCALE: 3/32" = 1'-0"

2 **BUILDING D FLOOR PLAN**
SCALE: 3/32" = 1'-0"



KEY MAP
SCALE: NTS

NORTH

MERCED SECURITY STORAGE

1965 W. OLIVE AVENUE
MERCED, CA 95348
DATE: 02-14-2023 (PRELIMINARY)

FP-D

RKAA# 23003.50

RKAA ARCHITECTS, INC

KD Anderson & Associates, Inc.
Transportation Engineers

January 9, 2023

Ms. Kristen Scheidt, P.E., QSD
Project Manager
O'Dell Engineering
1165 Scenic Drive, Suite A
Modesto, CA 95350

Subject: ***Olive Avenue Mini-Storage Project Air Quality Analysis***

Dear Ms. Scheidt:

On behalf of KD Anderson & Associates (KDA), I am pleased to submit this letter report presenting the results of air quality analysis of the Olive Avenue Mini-Storage project. This letter report presents a description of the project, the methods used in the air quality analysis, and the results of the air quality analysis.

PROJECT DESCRIPTION

The following is a brief description of the Olive Avenue Mini-Storage project.

Project Location

The Olive Avenue Mini-Storage Project site is generally located northeast of the intersection of State Route (SR) 59 and Olive Avenue in the City of Merced. As shown in the enclosed **Figure 1**, the site is located on the north side of Olive Avenue approximately 850 feet east of SR 59.

Project Components

The project site is approximately six acres in size. The project would include approximately 51,250 building square feet of mini-storage space on the southern portion of the project site, and approximately four acres of parking on the northern portion of the site.

ATTACHMENT C

Project Construction

Construction of the Olive Avenue Mini-Storage project is expected to begin in May 2023 and be completed at approximately the end of September 2023 (Mooneyham pers. comm.)

SIGNIFICANCE THRESHOLDS

Implementation of the Olive Avenue Mini-Storage project would result in short-term construction activity, which would generate air pollutant emissions. Construction activities such as grading, excavation and travel on unpaved surfaces would generate dust, and could lead to elevated concentrations of inhalable particulate matter smaller than 10 microns in diameter (PM_{10}) and fine particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$). The operation of construction equipment results in exhaust emissions. A substantial portion of the construction equipment would be powered by diesel engines, which produce relatively high levels of nitrogen oxide (NO_x) emissions. The use of architectural coatings results in the release of reactive organic gas (ROG) emissions.

Implementation of the Olive Avenue Mini-Storage project would result in long-term operational activity, which would generate air pollutant emissions. The project would generate motor vehicle trips, which would result in ROG, NO_x, and carbon monoxide (CO) emissions. In addition, area sources of emissions (e.g., maintenance and landscaping equipment) would result in ROG and NO_x emissions.

Criteria Pollutant Emissions

Thresholds of significance applied in this letter report are from the San Joaquin Valley Air Pollution Control District (SJVAPCD) documents *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (San Joaquin Valley Air Pollution Control District 2015a), and *San Joaquin Valley Air Pollution Control District - Air Quality Thresholds of Significance - Criteria Pollutants* (San Joaquin Valley Air Pollution Control District 2015b). These thresholds define an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Project-related emission levels which exceed any of the thresholds of significance means the project-related effect will normally be considered significant. Project-related emissions at or below the thresholds of significance means the project-related effect normally will be considered to be less than significant. The SJVAPCD has established thresholds of significance for criteria pollutant emissions generated during construction and operation of projects as shown in the enclosed **Table 1**.

The significance thresholds presented in the SJVAPCD GAMAQI are based on the attainment status of the San Joaquin Valley Air Basin in regard to air quality standards for specific criteria pollutants. Because the air quality standards are set at concentrations that protect public health

KDA

with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Greenhouse Gas Emissions

The SJVAPCD document *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (San Joaquin Valley Air Pollution Control District 2009a) presents a tiered approach to analyzing the significance of project-related GHG emissions. Project GHG emissions are considered less than significant if they can meet any of the following conditions, evaluated in the order presented:

- the project is exempt from CEQA requirements;
- the project complies with an approved GHG emission reduction plan or GHG mitigation program;
- the project implements Best Performance Standards (BPS); or
- the project demonstrates that specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002 - 2004 baseline period.

The SJVAPCD states,

> "On December 17, 2009, the San Joaquin Valley Air Pollution Control District (District) adopted the guidance: Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and the policy: District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. The guidance and policy rely on the use of performance based standards, otherwise known as Best Performance Standards (BPS), to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA.
>
> "Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual, is required to determine that a project would have a less than cumulatively significant impact. The guidance does not limit a lead agency's authority in establishing its own process and guidance for

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determining significance of project related impacts on global climate change." (San Joaquin Valley Air Pollution Control District 2023)

METHODOLOGY

The following describes methods used to assess project-related impacts on criteria pollutant and GHG emissions.

Criteria pollutant and GHG emissions associated with implementation of the Olive Avenue Mini-Storage project were estimated using the CalEEMod emissions modeling program (California Air Pollution Control Officers Association 2022).

CalEEMod is a land use emissions computer model designed to provide a platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The CalEEMod emissions model contains default data characterizing the construction and operation of projects. The CalEEMod default values were used except where:

- project-specific data are available, and
- updated technical data are available.

More detailed information on the CalEEMod model is available at the internet website http://caleemod.com/. Output files from the CalEEMod model, as applied to the Olive Avenue Mini-Storage project, are presented in the enclosed technical appendix.

AIR QUALITY ANALYSIS RESULTS

The following describes the results of the air quality analysis and the significance of air quality impacts of the Olive Avenue Mini-Storage project.

Construction-Related Criteria Pollutant Emissions

Construction of the Olive Avenue Mini-Storage project would result in the generation of criteria pollutant emissions. The enclosed **Table 2** shows construction-related emissions. During the construction period, construction activity would generate:

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- 2.31 tons per year (tpy) of CO,
- 2.08 tpy of NO_x,
- 0.38 tpy of ROG,
- < 0.005 tpy of SO_x,
- 0.35 tpy of PM_{10}, and
- 0.21 tpy of $PM_{2.5}$.

None of the above values would exceed the SJVAPCD significance thresholds. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Operational Criteria Pollutant Emissions

Operation of the Olive Avenue Mini-Storage project would result in the generation of criteria pollutant emissions. The enclosed **Table 3** shows operational emissions. Operation of the project would result in:

- 0.51 tpy of CO,
- 0.07 tpy of NO_x,
- 0.31 tpy of ROG,
- < 0.005 tpy of SO_x,
- 0.02 tpy of PM_{10}, and
- < 0.005 tpy of $PM_{2.5}$.

None of the above values would exceed the SJVAPCD significance thresholds. Therefore, this impact is considered less than significant, and no mitigation measures are required.

Greenhouse Gas Emissions

Construction and operation of the Olive Avenue Mini-Storage project would result in the generation of GHG emissions. The enclosed **Table 4** shows GHG emissions that would be generated by the project.

As described earlier in the *Significance Thresholds* section, this report applies the tiered approach to determining the significance of GHG emissions impacts presented in the SJVAPCD document *Addressing Greenhouse Gas Emission Impacts for New Projects under the California Environmental Quality Act* (San Joaquin Valley Air Pollution Control District 2009).

The proposed project is not exempt from CEQA requirements, and the City of Merced Climate Action Plan does not qualify as an approved GHG emission reduction plan or GHG mitigation program. Therefore, the first two tiers of the GHG significance criteria would not apply.

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In applying the third tier of the GHG significance threshold, the impact of the Olive Avenue Mini-Storage project on GHG emissions would be considered less than significant if the project implements BPS measures. Mitigation Measure GHG-1 would require the proposed project to implement the following applicable BPS strategies.

Mitigation Measure GHG-1: The project applicant shall demonstrate compliance with the applicable BPS strategies to the Planning Division prior to the issuance of a building permit. The following BPS strategies are considered to be applicable, feasible, and effective in reducing GHG emissions generated by the project:

The following measure numbers, names and descriptions are from the SJVAPCD document *Final Staff Report - Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA - Appendix J: GHG Emission Reduction Measures - Development Projects* (San Joaquin Valley Air Pollution Control District 2009b). The measures were selected as those considered applicable to the Olive Avenue Mini-Storage project, based on the project location and type of land use.

> **SJVAPCD Measure #5 – Pedestrian Network.** The project will provide a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project's occupancy permits being granted.
>
> **SJVAPCD Measure #6 – Pedestrian Barriers Minimized.** Site design and building placement will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation will be eliminated. Barriers to pedestrian access of neighboring facilities and sites will be minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas. This measure is not meant to prevent features needed to securely operate a mini-storage facility.
>
> **SJVAPCD Measure #7 – Bus Shelter for Existing Transit Service.** Merced Regional Transit System The Bus Route M1 – Merced West – provides bus service with one-half hour headways. A bus stop for Route M1 is located at the Walmart store at Olive Avenue and Loughborough Drive, directly south of the project site. The project will provide safe and convenient bicycle/pedestrian access to the bus stop and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).

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SJVAPCD Measure #25 – Light-Colored/High-Albedo Roof Materials. The project will install light-colored/high/albedo roof materials on the portion of the project containing climate-controlled units. Light-colored/high/albedo roof materials reflect more of the sun's rays, decreasing the amount of heat transferred into a building.

SJVAPCD Measure #29 – Non-Roof Surfaces. The project will provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas will have a minimum albedo of 0.3 or greater

Implementation of Mitigation Measure GHG-1 would implement various BPS strategies recommended by the SJVAPCD that are applicable to the project to reduce GHG emissions. Overall, the mitigated project would implement GHG reduction strategies in compliance with the SJVAPCD and, therefore, would not be a significant source of GHG emissions. In addition, the proposed project would implement several measures required by State regulations to reduce GHG emissions, including the following:

- Pavley II (LEV III) Advanced Clean Cars Program,
- California Green Building Code Standards,
- Renewable Portfolio Standard,
- California Model Water Efficient Landscape Ordinance, and
- CalRecycle Waste Diversion and Recycling Mandate.

The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025. The California Green Building Code Standards reduce GHGs by including a variety of different measures, including reduction of construction waste, wastewater, water use, and building energy use. The Renewable Portfolio Standard requires electricity purchased for use at the project site to be composed of at least 33 percent renewable energy. The Water Efficient Landscape Ordinance will reduce outdoor water use by 20 percent, and the CalRecycle Waste Diversion and Recycling Mandate will reduce solid waste production by 25 percent.

Implementation of these measures is expected to allow the State to achieve GHG emission reduction targets. Therefore, with implementation of Mitigation Measure GHG-1 and compliance with State requirements, it is expected that the proposed project would achieve the reductions required by regulations to meet the GHG emissions reduction target.

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Therefore, with implementation of Mitigation Measure GHG-1 and compliance with State regulations, the Olive Avenue Mini-Storage project would not be a significant source of GHG emissions. Therefore, the impact of the project with mitigation would be less than significant.

CLOSING

Thank you for providing KDA with this opportunity to provide you with air quality analysis services on the Olive Avenue Mini-Storage project. Please let me know if you have any questions about this letter report.

Sincerely,

KD Anderson & Associates, Inc.

Wayne Shijo
Project Manager

enclosures

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Bibliography

Publications Cited

California Air Pollution Control Officers Association. 2022. CalEEMod – California Emissions Estimator Model User's Guide – Version 2022.1. Sacramento, CA.

San Joaquin Valley Air Pollution Control District. 2009a. Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. Fresno, CA.

San Joaquin Valley Air Pollution Control District. 2009b. Final Staff Report -Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA - Appendix J: GHG Emission Reduction Measures - Development Projects. Fresno, CA.

San Joaquin Valley Air Pollution Control District. 2015a. Guidance for Assessing and Mitigating Air Quality Impacts. Fresno, CA.

San Joaquin Valley Air Pollution Control District. 2015b. San Joaquin Valley Air Pollution Control District - Air Quality Thresholds of Significance - Criteria Pollutants. Fresno, CA.

San Joaquin Valley Air Pollution Control District. 2023. San Joaquin Valley Air Pollution Control District Internet Website. www.valleyair.org

Personal Communications

Mooneyham, Craig. December 9, 2022 E-mail message to Kristen Scheidt, Project Manager, O'Dell Engineering.

Figure 1. Project Site Location

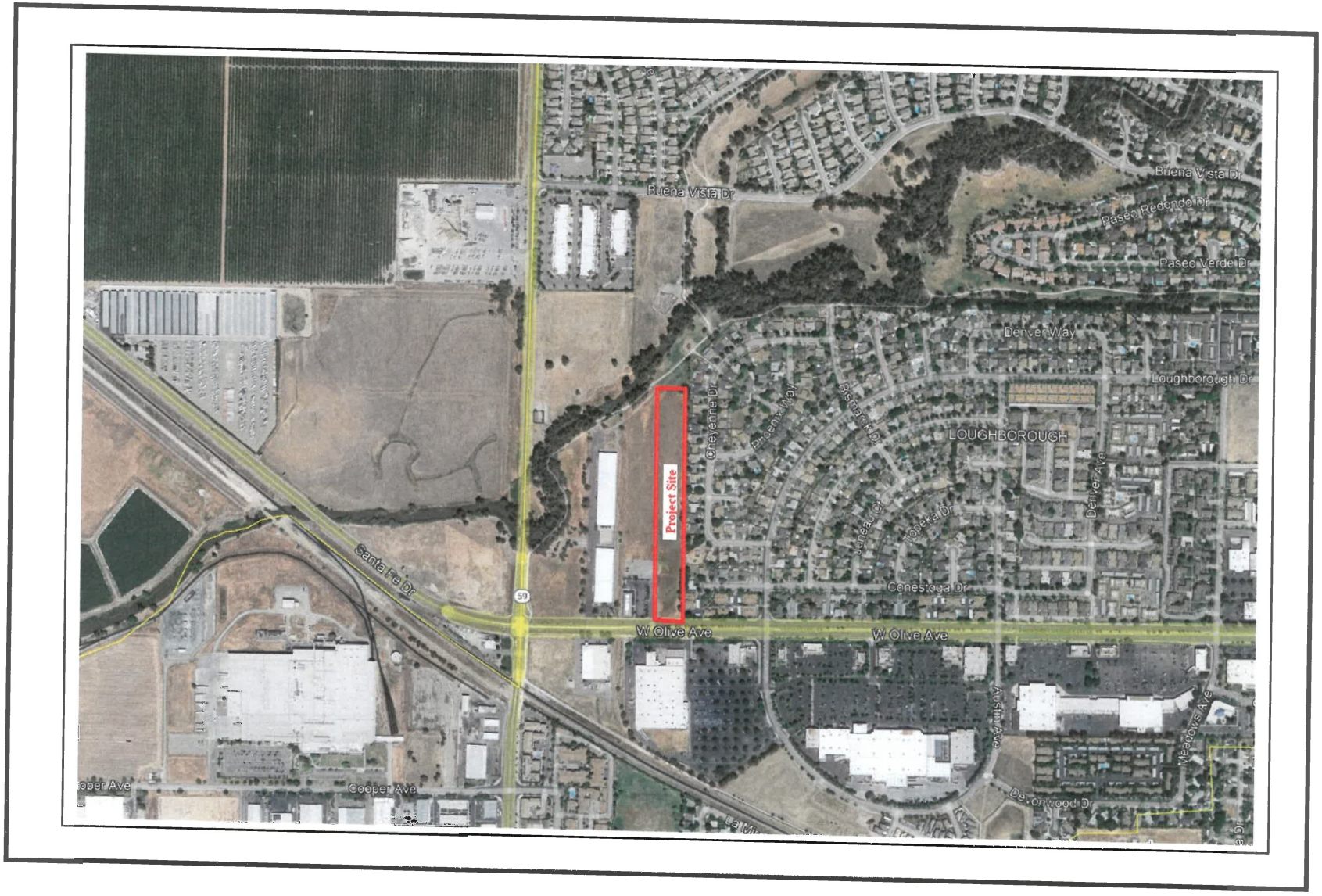

Table 1. San Joaquin Valley Air Pollution Control District Criteria Pollutant Significance Thresholds

Pollutant	Construction Phase Thresholds	Operational Phase Thresholds
Carbon Monoxide (CO)	100	100
Nitrogen Oxides (NO_x)	10	10
Reactive Organic Gases (ROG)	10	10
Sulfur Oxides (SO_x)	27	27
Inhalable Particulate Matter (PM_{10})	15	15
Fine Particulate Matter ($PM_{2.5}$)	15	15

Source: San Joaquin Valley Air Pollution Control District 2015b.
Note: All thresholds are expressed in tons per year.

Table 2. Construction-Related Emissions

Pollutant	Significance Thresholds	Emissions	Significant Impact?
Carbon Monoxide (CO)	100	2.31	No
Nitrogen Oxides (NO_x)	10	2.08	No
Reactive Organic Gases (ROG)	10	0.38	No
Sulfur Oxides (SO_x)	27	< 0.005	No
Inhalable Particulate Matter (PM_{10})	15	0.35	No
Fine Particulate Matter ($PM_{2.5}$)	15	0.21	No

Source: San Joaquin Valley Air Pollution Control District 2015b, and CalEEMod emissions model.
Note: All values are expressed in tons per year.

Table 3. Operational Emissions

Pollutant	Significance Thresholds	Emissions	Significant Impact?
Carbon Monoxide (CO)	100	0.51	No
Nitrogen Oxides (NO_x)	10	0.07	No
Reactive Organic Gases (ROG)	10	0.31	No
Sulfur Oxides (SO_x)	27	< 0.005	No
Inhalable Particulate Matter (PM_{10})	15	0.02	No
Fine Particulate Matter ($PM_{2.5}$)	15	< 0.005	No

Source: San Joaquin Valley Air Pollution Control District 2015b, and CalEEMod emissions model.
Note: All values are expressed in tons per year.

Table 4. Greenhouse Gas Emissions

Emissions Category	Carbon Dioxide	Methane	Nitrous Oxide	Refrigerants	Carbon Dioxide Equivalent
Construction-Related Emissions					
Construction Related Emissions	368	0.01	< 0.005	0.04	370
Operational Emissions					
a. Mobile	48.6	< 0.005	< 0.005	0.09	49.9
b. Area	0.74	< 0.005	< 0.005	- -	0.75
c. Energy	118	0.01	< 0.005	- -	118
d. Water	10.8	0.38	0.01	- -	23.1
e Waste	4.3	0.43	0.00	- -	15.0
f. Total Operational Emissions (a + b + c + d + e)	182	0.83	0.01	0.09	207

Source: Emissions values are from the CalEEMod Emissions Model (http:/www/caleemod.com)
Notes: All values are in metric tons per year (MT/yr).
Total may not equal sum of components due to rounding.

Technical Appendix –
CalEEMod Model Output File

Olive Ave Mini-Storage Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Olive Ave Mini-Storage
Lead Agency	City of Merced
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	23.4
Location	37.31985578685914, -120.5019843427817
County	Merced
City	Merced
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2337
EDFZ	14
Electric Utility	Merced Irrigation District
Gas Utility	Pacific Gas & Electric

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	51.0	1000sqft	1.17	51,000	—	—	—	—
Parking Lot	210	1000sqft	4.82	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.64	8.12	79.6	73.6	0.10	3.61	39.6	43.2	3.32	20.3	23.6	—	10,904	10,904	0.45	0.10	1.44	10,946
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.16	29.8	24.1	27.7	0.05	1.11	0.23	1.33	1.02	0.05	1.07	—	5,190	5,190	0.21	0.08	0.04	5,218
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.48	2.08	11.4	12.7	0.02	0.53	1.41	1.93	0.48	0.67	1.16	—	2,221	2,221	0.09	0.03	0.25	2,233
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.27	0.38	2.08	2.31	< 0.005	0.10	0.26	0.35	0.09	0.12	0.21	—	368	368	0.01	< 0.005	0.04	370
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	9.64	8.12	79.6	73.6	0.10	3.61	39.6	43.2	3.32	20.3	23.6	—	10,904	10,904	0.45	0.10	1.44	10,946
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.16	29.8	24.1	27.7	0.05	1.11	0.23	1.33	1.02	0.05	1.07	—	5,190	5,190	0.21	0.08	0.04	5,218
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.48	2.08	11.4	12.7	0.02	0.53	1.41	1.93	0.48	0.67	1.16	—	2,221	2,221	0.09	0.03	0.25	2,233
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.27	0.38	2.08	2.31	< 0.005	0.10	0.26	0.35	0.09	0.12	0.21	—	368	368	0.01	< 0.005	0.04	370

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.84	1.97	0.41	4.38	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	48.4	1,127	1,175	4.99	0.09	1.47	1,328
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	1.56	0.44	2.07	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	48.4	1,093	1,141	4.99	0.09	0.04	1,293
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.53	1.68	0.37	2.78	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	48.4	1,051	1,100	4.98	0.08	0.54	1,250

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.31	0.07	0.51	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	8.02	174	182	0.83	0.01	0.09	207
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	14.0	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.44	0.41	0.33	2.11	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	364	364	0.02	0.03	1.47	374
Area	0.39	1.55	0.02	2.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.12	9.12	< 0.005	< 0.005	—	9.15
Energy	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	711	711	0.06	0.01	—	715
Water	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Waste	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Total	0.84	1.97	0.41	4.38	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	48.4	1,127	1,175	4.99	0.09	1.47	1,328
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	0.36	0.38	2.02	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	339	339	0.03	0.03	0.04	348
Area	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	711	711	0.06	0.01	—	715
Water	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Waste	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Total	0.39	1.56	0.44	2.07	< 0.005	0.01	0.10	0.11	0.01	0.02	0.03	48.4	1,093	1,141	4.99	0.09	0.04	1,293

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.33	0.31	0.30	1.64	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.02	—	293	293	0.02	0.02	0.54	301
Area	0.19	1.37	0.01	1.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.50	4.50	< 0.005	< 0.005	—	4.51
Energy	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	711	711	0.06	0.01	—	715
Water	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Waste	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Total	0.53	1.68	0.37	2.78	< 0.005	0.01	0.08	0.09	0.01	0.02	0.03	48.4	1,051	1,100	4.98	0.08	0.54	1,250
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.06	0.06	0.30	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	48.6	48.6	< 0.005	< 0.005	0.09	49.9
Area	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.74	0.74	< 0.005	< 0.005	—	0.75
Energy	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	118	118	0.01	< 0.005	—	118
Water	—	—	—	—	—	—	—	—	—	—	—	3.74	7.02	10.8	0.38	0.01	—	23.1
Waste	—	—	—	—	—	—	—	—	—	—	—	4.28	0.00	4.28	0.43	0.00	—	15.0
Total	0.10	0.31	0.07	0.51	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	8.02	174	182	0.83	0.01	0.09	207

3. Construction Emissions Details

3.1. Site Preparation (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.40	7.90	79.5	70.9	0.10	3.61	—	3.61	3.32	—	3.32	—	10,591	10,591	0.43	0.09	—	10,627

Dust From Material Movemen:	—	—	—	—	—	—	39.3	39.3	—	20.2	20.2	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.09	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	146
Dust From Material Movemen:	—	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen:	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.23	0.16	2.65	0.00	0.00	0.02	0.02	0.00	0.00	0.00	—	313	313	0.02	0.01	1.39	319
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	3.95	3.95	< 0.005	< 0.005	0.01	4.01
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Grading (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.86	4.08	40.0	39.4	0.05	1.89	—	1.89	1.73	—	1.73	—	5,916	5,916	0.24	0.05	—	5,936
Dust From Material Movemen:	—	—	—	—	—	—	14.2	14.2	—	6.85	6.85	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.22	2.19	2.16	< 0.005	0.10	—	0.10	0.10	—	0.10	—	324	324	0.01	< 0.005	—	325
Dust From Material Movemen:	—	—	—	—	—	—	0.78	0.78	—	0.38	0.38	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.40	0.39	< 0.005	0.02	—	0.02	0.02	—	0.02	—	53.7	53.7	< 0.005	< 0.005	—	53.9
Dust From Material Movemen:	—	—	—	—	—	—	0.14	0.14	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21	0.20	0.14	2.28	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	269	269	0.01	0.01	1.19	273
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	13.5	13.5	< 0.005	< 0.005	0.03	13.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	2.24	2.24	< 0.005	< 0.005	< 0.005	2.27
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Building Construction (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.01	2.52	23.6	26.3	0.05	1.11	—	1.11	1.02	—	1.02	—	4,795	4,795	0.19	0.04	—	4,811
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.01	2.52	23.6	26.3	0.05	1.11	—	1.11	1.02	—	1.02	—	4,795	4,795	0.19	0.04	—	4,811
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.79	7.44	8.30	0.01	0.35	—	0.35	0.32	—	0.32	—	1,511	1,511	0.06	0.01	—	1,516
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.17	0.14	1.36	1.51	< 0.005	0.06	—	0.06	0.06	—	0.06	—	250	250	0.01	< 0.005	—	251
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	0.10	1.62	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	192	192	0.01	0.01	0.85	195
Vendor	0.02	0.01	0.31	0.13	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	224	224	< 0.005	0.03	0.59	234
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.13	1.24	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	171	171	0.01	0.01	0.02	173
Vendor	0.01	0.01	0.33	0.13	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	0.01	—	224	224	< 0.005	0.03	0.02	234
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.40	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	55.5	55.5	< 0.005	< 0.005	0.12	56.4
Vendor	< 0.005	< 0.005	0.10	0.04	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	70.6	70.6	< 0.005	0.01	0.08	73.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.07	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	9.19	9.19	< 0.005	< 0.005	0.02	9.34
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.7	11.7	< 0.005	< 0.005	0.01	12.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Paving (2023) - Unmitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.09	1.75	16.1	20.0	0.03	0.82	—	0.82	0.76	—	0.76	—	3,023	3,023	0.12	0.02	—	3,034
Paving	—	1.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.44	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.18	1.73	0.00	0.00	0.01	0.01	0.00	0.00	0.00	—	239	239	0.02	0.01	0.03	243

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	6.76	6.76	< 0.005	< 0.005	0.01	6.87
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	1.12	1.12	< 0.005	< 0.005	< 0.005	1.14
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Architectural Coating (2023) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	1.87	2.31	< 0.005	0.07	—	0.07	0.07	—	0.07	—	267	267	0.01	< 0.005	—	268
Architectural Coatings	—	29.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	0.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.03	0.25	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	34.2	34.2	< 0.005	< 0.005	< 0.005	34.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.97	0.97	< 0.005	< 0.005	< 0.005	0.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	0.00	0.00	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.16

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.44	0.41	0.33	2.11	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	364	364	0.02	0.03	1.47	374
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.44	0.41	0.33	2.11	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	364	364	0.02	0.03	1.47	374
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.39	0.36	0.38	2.02	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	339	339	0.03	0.03	0.04	348
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.39	0.36	0.38	2.02	< 0.005	< 0.005	0.10	0.10	< 0.005	0.02	0.02	—	339	339	0.03	0.03	0.04	348

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.06	0.06	0.06	0.30	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	48.6	48.6	< 0.005	< 0.005	0.09	49.9
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.06	0.06	0.06	0.30	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	48.6	48.6	< 0.005	< 0.005	0.09	49.9

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	434	434	0.04	< 0.005	—	436
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	202	202	0.02	< 0.005	—	203
Total	—	—	—	—	—	—	—	—	—	—	—	—	637	637	0.05	0.01	—	640
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	434	434	0.04	< 0.005	—	436

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	202	202	0.02	< 0.005	—	203
Total	—	—	—	—	—	—	—	—	—	—	—	—	637	637	0.05	0.01	—	640
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	71.9	71.9	0.01	< 0.005	—	72.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	33.5	33.5	< 0.005	< 0.005	—	33.6
Total	—	—	—	—	—	—	—	—	—	—	—	—	105	105	0.01	< 0.005	—	106

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	74.8	74.8	0.01	< 0.005	—	75.0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	74.8	74.8	0.01	< 0.005	—	75.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	74.8	74.8	0.01	< 0.005	—	75.0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	74.8	74.8	0.01	< 0.005	—	75.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.4	12.4	< 0.005	< 0.005	—	12.4
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.4	12.4	< 0.005	< 0.005	—	12.4

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.39	0.36	0.02	2.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.12	9.12	< 0.005	< 0.005	—	9.15
Total	0.39	1.55	0.02	2.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.12	9.12	< 0.005	< 0.005	—	9.15
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	0.03	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.74	0.74	< 0.005	< 0.005	—	0.75
Total	0.04	0.25	< 0.005	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.74	0.74	< 0.005	< 0.005	—	0.75

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	22.6	42.4	65.0	2.32	0.06	—	140
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	3.74	7.02	10.8	0.38	0.01	—	23.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	3.74	7.02	10.8	0.38	0.01	—	23.1

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	25.8	0.00	25.8	2.58	0.00	—	90.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.28	0.00	4.28	0.43	0.00	—	15.0
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	4.28	0.00	4.28	0.43	0.00	—	15.0

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

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

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

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

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	5/1/2023	5/5/2023	5.00	5.00	—
Grading	Grading	5/6/2023	6/2/2023	5.00	20.0	—

Building Construction	Building Construction	6/3/2023	11/10/2023	5.00	115	—
Paving	Paving	11/11/2023	11/24/2023	5.00	10.0	—
Architectural Coating	Architectural Coating	11/25/2023	12/8/2023	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

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

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	35.0	10.9	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.27	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	30.0	10.9	LDA,LDT1,LDT2
Grading	Vendor	—	8.27	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.4	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	8.36	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	30.0	10.9	LDA,LDT1,LDT2
Paving	Vendor	—	8.27	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.28	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.27	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	76,500	25,500	12,600

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	40.0	0.00	—
Paving	0.00	0.00	0.00	0.00	4.82

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	4.82	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	401	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	73.9	90.3	76.5	27,976	283	345	293	107,062
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	76,500	25,500	12,600

5.10.3. Landscape Equipment

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	395,070	401	0.0330	0.0040	233,356
Parking Lot	183,960	401	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	11,793,750	57,850
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	47.9	0.00
Parking Lot	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

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

5.16.2. Process Boilers

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

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	27.1	annual days of extreme heat
Extreme Precipitation	1.75	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	72.5
AQ-PM	88.3
AQ-DPM	49.2
Drinking Water	62.8
Lead Risk Housing	56.7
Pesticides	0.00
Toxic Releases	19.1
Traffic	60.1
Effect Indicators	—
CleanUp Sites	31.2
Groundwater	22.1
Haz Waste Facilities/Generators	23.7
Impaired Water Bodies	33.2
Solid Waste	12.9
Sensitive Population	—
Asthma	92.0
Cardio-vascular	98.6

Low Birth Weights	16.2
Socioeconomic Factor Indicators	—
Education	81.2
Housing	88.1
Linguistic	53.9
Poverty	93.8
Unemployment	94.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	4.260233543
Employed	8.571795201
Median HI	6.826639292
Education	—
Bachelor's or higher	20.96753497
High school enrollment	100
Preschool enrollment	33.99204414
Transportation	—
Auto Access	9.431541127
Active commuting	29.41100988
Social	—
2-parent households	3.759784422
Voting	15.25728218
Neighborhood	—
Alcohol availability	43.35942513

Park access	81.35506224
Retail density	82.34312845
Supermarket access	80.91877326
Tree canopy	50.08340819
Housing	—
Homeownership	12.04927499
Housing habitability	10.50943154
Low-inc homeowner severe housing cost burden	2.001796484
Low-inc renter severe housing cost burden	35.86552034
Uncrowded housing	27.87116643
Health Outcomes	—
Insured adults	33.3504427
Arthritis	38.0
Asthma ER Admissions	8.3
High Blood Pressure	12.9
Cancer (excluding skin)	74.5
Asthma	5.9
Coronary Heart Disease	37.1
Chronic Obstructive Pulmonary Disease	12.3
Diagnosed Diabetes	27.5
Life Expectancy at Birth	15.2
Cognitively Disabled	4.0
Physically Disabled	15.4
Heart Attack ER Admissions	2.9
Mental Health Not Good	11.0
Chronic Kidney Disease	27.1
Obesity	11.3

Pedestrian Injuries	86.3
Physical Health Not Good	16.1
Stroke	19.7
Health Risk Behaviors	—
Binge Drinking	82.5
Current Smoker	11.7
No Leisure Time for Physical Activity	14.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	2.5
Elderly	73.9
English Speaking	39.0
Foreign-born	48.5
Outdoor Workers	10.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	70.2
Traffic Density	38.9
Traffic Access	0.0
Other Indices	—
Hardship	86.1
Other Decision Support	—
2016 Voting	16.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	76.0

Healthy Places Index Score for Project Location (b)	5.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction schedule per Mooneyham pers. comm.
Construction: Off-Road Equipment	Number of construction equipment factored for accelerated construction schedule.
Operations: Vehicle Data	Trip generation rates from Institute of Transportation Engineers "Trip Generation Manual 11th Edition" LU Code 151 - Mini-Warehouse. Other values left as CalEEMod default values.
Operations: Refrigerants	Default is for cold storage. The project is not a cold storage facility.
Operations: Water and Waste Water	CalEEMod v2022 did not calculate outdoor water use. Calculated using data from CalEEMod v2020.

TRANSPORTATION IMPACT ANALYSIS

FOR

OLIVE AVENUE MINI-STORAGE PROJECT

Merced, CA

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Olive Avenue Mini-Storage Traffic Study 2 22 23.doc

ATTACHMENT D

TRANSPORTATION IMPACT ANALYSIS FOR OLIVE AVENUE MINI-STORAGE PROJECT

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TRANSPORTATION IMPACT ANALYSIS FOR OLIVE AVENUE MINI-STORAGE PROJECT
Merced, California

EXECUTIVE SUMMARY

Project Description

The Olive Avenue Mini-Storage project (proposed project) site is generally located northeast of the intersection of State Route (SR) 59 and Olive Avenue in the City of Merced. As shown in **Figure 1**, the site is located on the north side of Olive Avenue approximately 850 feet east of SR 59.

The proposed project site plan is shown in **Figure 2**. The project site is approximately six acres in size. The project would include approximately 51,250 building square feet of mini-storage space on the southern portion of the project site, and approximately four acres of parking on the northern portion of the site.

Access. The Olive Avenue Mini-Storage project would have access to the surrounding roadway network via a connection to Olive Avenue. Access to Olive Avenue would be provided by shared use of an existing driveway connection to Olive Avenue. The proposed project would share use of the driveway with an approximately 7,000 building square feet existing retail commercial land use which is adjacent to the west side of the Olive Avenue Mini-Storage project site.

A raised median is present along Olive Avenue in the vicinity of the project site. A left-turn pocket is present in the median, which allows for left-turn movements into the driveway. The following movements are allowed at the existing shared-use driveway, and would continue to be allowed with implementation of the Olive Avenue Mini-Storage project:

- eastbound-to-northbound left-turns entering the driveway,
- westbound-to-northbound right-turns entering the driveway, and
- southbound-to-westbound right-turns exiting the driveway.

Southbound-to-eastbound left-turns exiting the driveway are prevented by the raised median, and would not be allowed with implementation of the proposed project.

Trip Generation. Based on approved trip generation rates that account for the specific land uses included in the project, the project could be expected to result in 74 trips (sum of in and out) on a daily basis, with five trips in the a.m. peak hour and eight trips in the p.m. peak hour.

Study Scope

This analysis addresses three issues.

Vehicle Miles Traveled. Under Senate Bill (SB) 743 (Steinberg, 2013), the evaluation of the significance of a project's transportation impacts under the California Environmental Quality Act (CEQA) has moved from consideration of Level of Service (LOS) to evaluation of the projects effects on regional Vehicle Miles Traveled (VMT). This report discusses the impacts of the project on VMT based on guidance provided by the Governor's Office of Planning and Research (OPR).

Alternative Transportation Modes. As required under updated CEQA guidelines the project's impacts to alternative transportation modes have been assessed, including consideration of pedestrian, bicycle and transit facilities and activities.

Local Transportation Analysis (LTA). While not a significance criterion under CEQA, the project's effects on the operation of the local area transportation system has been evaluated within the context of the project's effects in comparison to the requirements of the City of Merced General Plan. The LTA is included for informational purposes in the appendix to this report.

The LTA addresses traffic conditions occurring on weekday a.m. and p.m. commute periods. The analysis addresses the operation of three existing intersections in the west Merced area:

1. Olive Avenue / Santa Fe Drive & SR 59
2. Olive Avenue & Loughborough Drive
3. Olive Avenue & Project Site Driveway

The analysis also addresses conditions on the Olive Avenue roadway segment between SR 59 and Loughborough Drive based on daily traffic volumes.

The traffic study considers the following scenarios:

- Existing Conditions;
- Existing Conditions plus the Olive Avenue Mini-Storage Project, also referred to in this analysis as Existing Plus Project Conditions;
- Existing Plus Other Approved Project (EPAP) without the Olive Avenue Mini-Storage project, referred to in this analysis as EPAP No Project Conditions;
- EPAP Plus the Olive Avenue Mini-Storage Project, referred to in this analysis as EPAP Plus Project Conditions;
- Year 2046 Cumulative Conditions without the Olive Avenue Mini-Storage Project, referred to in this analysis as Cumulative No Project Conditions; and
- Year 2046 Cumulative Conditions with the Olive Avenue Mini-Storage Project, referred to in this analysis as Cumulative Plus Project Conditions.

Existing Setting

The existing system of pedestrian and bicycle facilities in this area include sidewalks and Class I bike paths, but pedestrians and bicycles use paved shoulders elsewhere. A sidewalk is present along the project's Olive Avenue frontage, and a Class 1 trail exists along SR 59 north of Olive Avenue. Recent Caltrans improvements have included high visibility crosswalks at the intersection of Olive Avenue / Santa Fe Drive & SR 59.

The LTA notes that the City of Merced General Plan establishes LOS D as the minimum acceptable standard for the operation of intersections and roadways.

New traffic volume count data were collected for this analysis. Peak hour intersection turning movement count data were collected on Thursday February 2, 2023. Roadway segment 24-hour count data were collected on Wednesday February 1, 2023.

All study intersections operate at LOS D or better during the peak hours. The study roadway segment along Olive Avenue operates at LOS C.

CEQA Significance Criteria

This analysis makes use of the criteria shown in **Table A1** to evaluate the project's impacts under current CEQA guidelines.

TABLE A1
CEQA IMPACT SIGNIFICANCE CRITERIA

Analysis	Component	Significance Criteria
VMT	Roadway	The project would result in a VMT-related impact per the applicable threshold of significance identified under OPR guidelines.
Multi-Modal Plan Consistency	Transit Service and Facilities	The project physically disrupts an existing transit service or facility or interferes with implementation of a planned transit service or facility.
		The project results in increased travel time for busses that adversely affects on-time performance.
		The project results in increased transit ridership demands that result in passenger loads that exceed vehicle loading standards.
		The project results in increased potential for safety conflicts involving transit vehicles and other modes of travel.
	Bicycle Facilities	The project physically disrupts an existing bicycle facility or interferes with implementation of a planned bicycle facility.
		The project results in a significant increase in bicyclists on a facility that does not have adequate bicycle facilities, such that conflicts between bicyclists and other travel modes are likely to increase.
	Pedestrian Facilities	The project fails to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities.
		The project physically disrupts an existing pedestrian facility or interferes with implementation of a planned pedestrian facility.
		The project results in an increased presence of vehicles and/or pedestrians on a facility that does not have adequate pedestrian facilities, such that conflicts between pedestrians and other travel modes are likely to increase.
	General Plan Consistency	The project conflicts or creates inconsistencies with General Plan policies, except an LOS policy.
Hazard & Safety Impact	Roadway Design and Users	The project would create a condition that does not meet current design standards.
		The project would substantially increase hazards to vehicle safety due to geometric design features (e.g., sharp curves or dangerous intersections).
		The project introduces incompatible users (e.g., farm equipment) to a roadway or transportation facility not intended for those users.
	State Highway Facilities	The project results in queueing at off-ramps resulting in slow or stopped traffic past the off-ramp gore point.
		Project is determined to negatively affect safety of the State highway facility.

Vehicle Miles Traveled Impacts

Under SB 743, evaluation of transportation impacts under CEQA requires that agencies move from analysis based on LOS to consideration of a project's effect on regional VMT. The CEQA Guidelines and the OPR document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018) provide general guidance as to thresholds of significance for determining when a project would have significant transportation impacts based on the new metric of VMT, rather than operating LOS until local agencies adopt their own standards. A screening method for evaluating a project-related impact on VMT is presented in the OPR technical advisory, and has been applied in this analysis.

Screening. The OPR Technical Advisory presents a screening criteria applicable to the potential impacts of the Olive Avenue Mini-Storage project.

- **Small Projects**. The OPR advisory suggests that the VMT contribution of small projects need not be considered significant. OPR suggests that agencies can find projects generating fewer than 110 vehicles trips a day to be less than significant.

Assessment of VMT Impacts. The Olive Avenue Mini-Storage project is comprised of land uses that are estimated to generate 74 vehicle trips per day. As this trip generation estimate falls below the 110 daily trip threshold identified by OPR, the proposed project qualifies as a "small project" that can be assumed to have a less than significant impact on regional VMT.

Impacts to Alternative Transportation Modes / Safety

Pedestrians. The project could attract pedestrians from the neighborhoods to the east, north and south of the site, although the exact number of pedestrians is unknown. A sidewalk is already present along the Olive Avenue street frontage. With the sidewalk present, adequate facilities exist to deliver pedestrians to the project site. Additional pedestrian access to the north is available via the existing Class I trail, and access to the east is available via existing sidewalks. The project's impacts are not significant under the criteria noted in **Table A1**.

Bicycles. The project can be expected to attract bicyclists from various Merced neighborhoods. As noted in the *Existing Setting* section of this analysis, bicycle facilities already exist as Class I trails on the east side of SR 59, but are not present elsewhere. Bicycle lanes are not designated on SR 59 north of Olive Avenue, on Santa Fe Drive, nor on Olive Avenue in the Merced County General Plan Circulation Element, but bicycles can use existing multipurpose trails. The City of Merced's pending SR 59 improvement project to widen SR 59 from 16th Street to Fahrens Creek incorporates applicable pedestrian facilities. Under the Merced General Plan Circulation Element, bicycles are expected to mix with motor vehicles on other streets. The project's impacts to bicycle facilities is not significant under the criteria identified in **Table A1**.

Transit. The project will likely attract some persons from throughout the Merced area who may wish to use public transit. The following are routes that operate in the vicinity of the project site (Merced Transit Authority 2023).

Route M1 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along:

- SR 59 north and south of Olive Avenue,
- Olive Avenue east of Loughborough Drive, and
- Loughborough Drive south of Olive Avenue.

Route M2 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along Loughborough Drive north and south of Olive Avenue.

These services are adequate for a project of this nature, and the impacts of the project on transit are not significant under the criteria noted in **Table A1**.

Hazards and Safety. The project's proposed access onto Olive Avenue is an existing driveway. The vehicle movements allowed at the driveway are described in the *Project Description* section of this analysis. The configuration of the existing driveway provides protected storage areas for vehicles making right-turn and left-turn movements at the driveway connection. In the vicinity of the driveway connection, the roadway does not have vertical or horizontal curvature that would impair sight distance. As also noted in the *Project Description* section of this analysis, the proposed project would generate a relatively low number of vehicle trips - five trips in the a.m. peak hour and eight trips in the p.m. peak hour. Because of these factors, the project is not considered to result in conditions that would present additional hazards, and the project's impacts on safety are considered not significant.

Impacts to State Facilities. The project is more than a mile from the closest interchange on SR 99, and with a relatively low number of project-related trips is unlikely to noticeably alter traffic volumes on SR 99. Thus, the project's impacts to ramp operations is not significant. Similarly, the relatively low number of vehicle trips generated by the proposed project, particularly during the a.m. peak hour and p.m. peak hour, would not create an unsafe situation on the SR 59. Thus, the project's impacts to ramp operations and state highway safety are not significant.

LTA Results. While not a CEQA issue, the relative effects of the project on short term and long term traffic operations in this area of Merced has been investigated in a manner that is consistent with recent analysis of other development projects. Operating LOS have been identified, and improvements that would be needed with and without the project to satisfy General Plan policies have been identified. **Table A2** notes recommended improvements, including:

> Under EPAP No Project conditions and under EPAP Plus Project conditions, it is recommended that traffic signal timing at the intersection of Olive Avenue / Santa Fe Drive & SR 59 be optimized after previously approved land use development projects on the northwest and northeast corners of the intersection are occupied.
>
> It is recommended that the feasibility of long term improvements to the intersection of Olive Avenue / Santa Fe Drive & SR 59 be determined within the context of the City's pending SR 59 widening project.

TABLE A2
IMPROVEMENT SUMMARY

Location	Impact	Improvement	Ramification
EXISTING AND EXISTING PLUS PROJECT CONDITIONS			
Olive Avenue / Santa Fe Drive & State Route 59	Queuing exceeds storage length.	Retime traffic signal timing as part of City's pending SR 59 widening project	Requires Caltrans coordination and approval
EPAP NO PROJECT AND EPAP PLUS PROJECT CONDITIONS			
Olive Avenue / Santa Fe Drive & State Route 59	LOS E during p.m. peak hour, and queuing exceeds storage length.	Optimize traffic signal timing after approved projects adjacent to the intersection are occupied	Requires Caltrans coordination and approval
CUMULATIVE NO PROJECT AND CUMULATIVE PLUS PROJECT CONDITIONS			
Olive Avenue / Santa Fe Drive & State Route 59	LOS F during a.m. and p.m. peak hours, and queuing exceeds storage length.	Determine the feasibility of including long term improvements that are consistent with City's SR 59 widening project	

TRANSPORTATION IMPACT ANALYSIS FOR OLIVE AVENUE MINI-STORAGE PROJECT

Merced, California

INTRODUCTION

Project Description

The Olive Avenue Mini-Storage project site is generally located northeast of the intersection of SR 59 and Olive Avenue in the City of Merced. As shown in **Figure 1**, the site is located on the north side of Olive Avenue approximately 850 feet east of SR 59.

The proposed project site plan is shown in **Figure 2**. The project site is approximately six acres in size. The project would include approximately 51,250 building square feet of mini-storage space on the southern portion of the project site, and approximately four acres of parking on the northern portion of the site.

The Olive Avenue Mini-Storage project would have access to the surrounding roadway network via a connection to Olive Avenue. Access to Olive Avenue would be provided by shared use of an existing driveway connection to Olive Avenue. The proposed project would share use of the driveway with an approximately 7,000 building square feet existing retail commercial land use which is adjacent to the west side of the Olive Avenue Mini-Storage project site.

A raised median is present along Olive Avenue in the vicinity of the project site. A left-turn pocket is present in the median, which allows for left-turn movements into the driveway. The following movements are allowed at the existing shared-use driveway, and would continue to be allowed with implementation of the Olive Avenue Mini-Storage project:

- eastbound-to-northbound left-turns entering the driveway,
- westbound-to-northbound right-turns entering the driveway, and
- southbound-to-westbound right-turns exiting the driveway.

Southbound-to-eastbound left-turns exiting the driveway are prevented by the raised median, and would not be allowed with implementation of the proposed project.

Transportation Analysis Scope

Vehicle Miles Traveled (VMT). Under SB 743, the evaluation of the significance of a project's transportation impacts under CEQA has moved from consideration of LOS to evaluation of the project's effects on regional VMT. This report discusses the impacts of the project on VMT based on guidance provided by OPR.

Alternative Transportation Modes. As required under updated CEQA guidelines the project's impacts to alternative transportation modes have been assessed, including consideration of pedestrian, bicycle and transit facilities and activity.

KDA

Local Transportation Analysis (LTA). While not a requirement under CEQA, the project's effects on the operation of the local area transportation system has been evaluated within the context of the project's effects in comparison to the policies of the City of Merced General Plan.

This LTA is intended to evaluate the relative traffic effects of the project within a range of relevant scenarios as required under City of Merced guidelines.

The traffic study considers the following scenarios:

- Existing Conditions;
- Existing Conditions Plus the Olive Avenue Mini-Storage Project, also referred to in this analysis as Existing Plus Project Conditions;
- Existing Plus Other Approved Project (EPAP) without the Olive Avenue Mini-Storage project, referred to in this analysis as EPAP No Project Conditions;
- EPAP Plus the Olive Avenue Mini-Storage Project, referred to in this analysis as EPAP Plus Project Conditions;
- Year 2046 Cumulative Conditions without the Olive Avenue Mini-Storage Project, referred to in this analysis as Cumulative No Project Conditions; and
- Year 2046 Cumulative Conditions with the Olive Avenue Mini-Storage Project, referred to in this analysis as Cumulative Plus Project Conditions.

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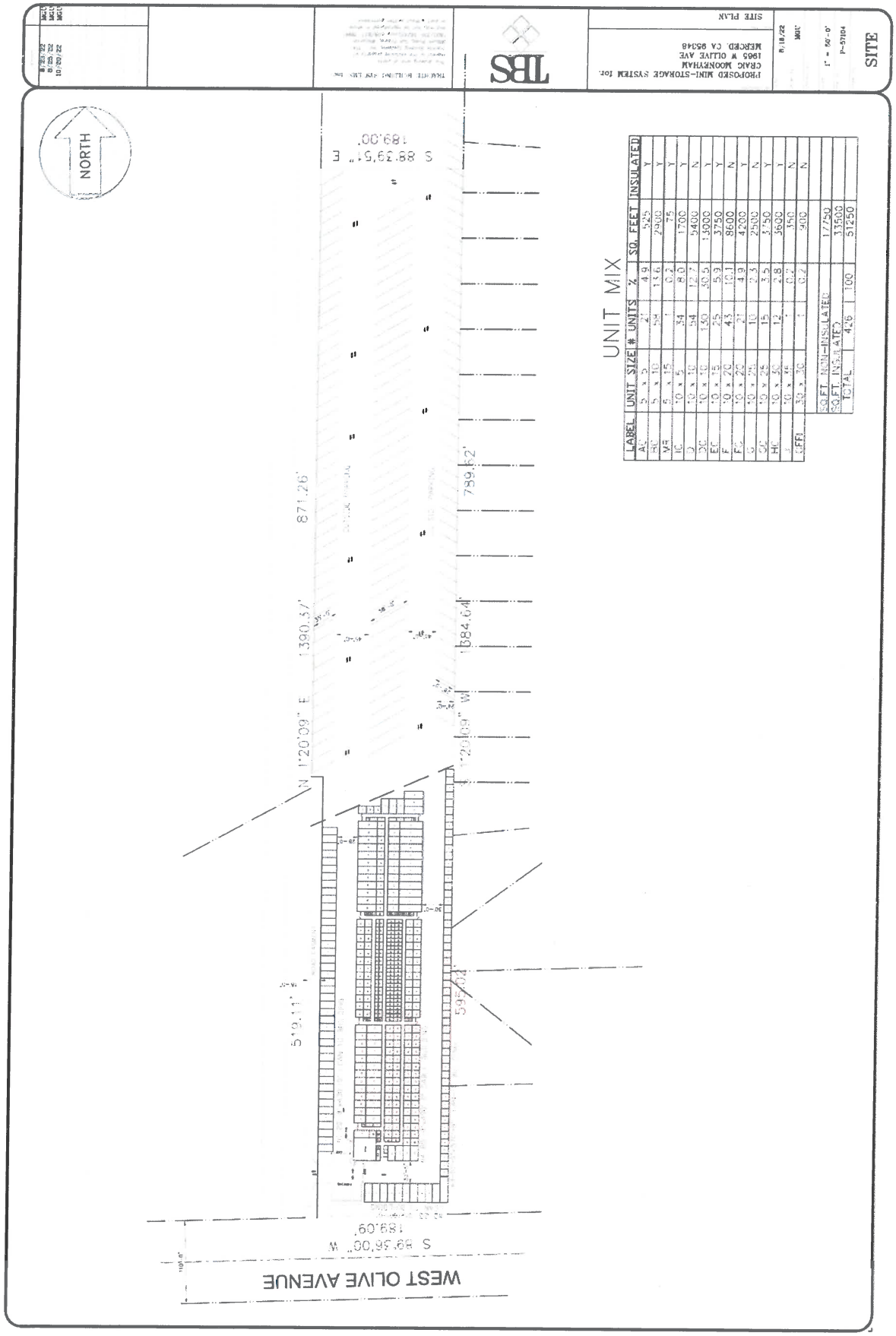
VICINITY MAP

figure 1



LABEL	UNIT SIZE	# UNITS	%	SQ. FEET	INSULATED
AC	5 x 5	2	0.9	325	Y
AE	5 x 10	24	14.6	2400	Y
AS	5 x 15	1	0.2	75	Y
BC	10 x 5	34	8.0	1700	Y
B	10 x 10	54	12.7	5400	N
BE	10 x 10	130	30.5	13000	Y
EE	10 x 15	25	5.9	3750	Y
F	10 x 20	43	10.1	8600	N
FE	10 x 20	21	4.9	4200	Y
G	10 x 25	10	2.3	2500	N
GE	10 x 25	15	3.5	3750	Y
HE	10 x 30	12	2.8	3600	Y
I	10 x 35	1	0.2	350	N
OFFI	30 x 30	1	0.2	900	N
				SQ.FT. NON-INSULATED	17750
				SQ.FT. INSULATED	33500
				TOTAL	51250
		426	100		

SITE PLAN

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Transportation Engineers

4897-11 RA 2/21/2023

figure 2

EXISTING SETTING

This portion of this traffic impact study presents a description of the existing transportation system in the vicinity of the proposed project site.

Study Area - Roadways

The following is a description of roadways that provide access to the proposed Olive Avenue Mini-Storage project.

The following four roadways provide regional access to the project.

State Route 99 (SR 99). SR 99 is the primary north-south route through the San Joaquin Valley and the major point of access to the City of Merced. SR 99 is generally a controlled access freeway with local connections limited to grade separated interchanges. SR 99 has four to six mainline travel lanes at various locations in Merced County but is a four-lane roadway in the immediate area of the proposed project. The speed limit on SR 99 is posted at 65 mph.

The most recent traffic volume counts published by Caltrans reveal an *Annual Average Daily Traffic (AADT)* volume of 62,000 vehicles per day in the area of the project north of the V Street interchange (2020). Trucks comprise roughly 20 percent of the daily traffic volume on SR 99 in this area.

State Route 59 (SR 59). SR 59 is an important route through Merced County which links the City of Merced with SR 152 at the Madera County line and extends north to the Snelling area of northern Merced County. SR 59 is a Major Arterial in the Merced General Plan (128' right-of-way). In the vicinity of the proposed project, SR 59 is a two-lane conventional highway which is being incrementally widened to a four-lane section as adjoining development occurs. Implementation of improvements to SR 59 is constrained by two key physical features. The highway crosses the BNSF rail line at a two lane at-grade crossing roughly midway between the Olive Avenue and Cooper Avenue – Willowbrook Drive intersection. The highway also crosses Rascal Creek on a two-lane structure north of Olive Avenue. SR 59 is designated a Surface Transportation Assistance Act (STAA) of 1982 Terminal Access route.

Traffic count information (2020) provided by Caltrans indicates a daily volume of 18,200 AADT in the area north of 16th Street and 14,000 AADT approaching Olive Avenue. The daily volume drops to 12,000 AADT north of Olive Avenue. Trucks comprise 5 percent to 6 percent of the daily traffic volume on SR 59 in this area.

Santa Fe Drive is an east-west Principal Arterial roadway across Merced County that connects the project with the Atwater area to the west. Santa Fe Drive enters Merced County east of Turlock and extends across the northern Atwater area to an intersection in the City of Merced on SR 59 at Olive Avenue. In the area of the project Santa Fe Drive is a four-lane street with a continuous center two-way left-turn (TWLT) lane. There are no sidewalks along Santa Fe Drive, but the roadway has paved shoulders. The BNSF railroad runs parallel to and south of Santa Fe Drive and limits the number of connections to Santa Fe Drive from the south. Today the posted speed limit on Santa Fe Drive is 55 mph.

Olive Avenue. Olive Avenue is a major east-west route through Merced. Olive Avenue begins at the intersection of Olive Avenue / Santa Fe Drive & SR 59, and continues easterly beyond the City limits into rural Merced County. In the area of the project, Olive Avenue is a six-lane facility with a raised landscaped median. Sidewalks are present along Olive Avenue adjacent to the project but is missing in the area immediately east of SR 59 where development has not occurred. The posted speed limit on Olive Avenue is 45 mph.

Other roadways link the project with Merced neighborhoods.

Loughborough Drive. Loughborough Drive is a two-lane street that provides access to the retail commercial area south of Olive Avenue and continues to the northeast parallel to Olive Avenue to M Street. The portion of Loughborough Drive north of Olive Avenue is designated a collector street. The posted speed limit is 30 mph.

Alternative Transportation Modes

Bicycles. The City of Merced General Plan includes the Bicycle Master Plan which identifies existing and planned facilities. Bicycle facilities are divided into three classes:

- Class I (Bike Paths or Trails) which are a completely separate right-of way designated for the exclusive use of bicycles and pedestrians.
- Class II (Bike Lanes) which provide restricted right-of-way on the street for the exclusive or semi-exclusive use of bicycles.
- Class III (Bike Routes) where bicycles are encouraged but bike lanes are not provided, and motor vehicles and bicyclists share the right of way.

The Caltrans *Highway Design Manual* (California Department of Transportation 2022) includes a fourth class of bicycle facilities:

- Class IV Bikeway (Separated Bikeway). A bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

Today Class I facilities exist along the east side of SR 59 from the BNSF crossing to Black Rascal Creek.

The Merced 2013 Bicycle Transportation Plan and General Plan indicates that Class II lanes are to be created on SR 59 from 16th Street to Olive Avenue, but none exist today in this area.

Transit. The City of Merced is served by a local public bus system, inter-regional private bus companies, and private taxicabs, as well as rail and air passenger services. The public bus system, created in 1974, served the community as the Merced Transit System (MTS)/City Shuttle for more than two decades. Its primary goal over time remained to serve senior citizens, low-income people and the disabled, even as the system expanded. Originally created solely as a demand responsive Dial-A-Ride operation, the service extended as time passed to include a number of fixed routes within the City.

The following are routes that operate in the vicinity of the project site (Merced Transit Authority 2023).

Route M1 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along:

- SR 59 north and south of Olive Avenue,
- Olive Avenue east of Loughborough Drive, and
- Loughborough Drive south of Olive Avenue.

Route M2 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along Loughborough Drive north and south of Olive Avenue.

EVALUATION CRITERIA

CEQA Significance Criteria

This analysis makes use of the following criteria to evaluate the project's impacts under current CEQA guidelines.

Table 1. CEQA Impact Significance Criteria

Analysis	Component	Significance Criteria
VMT	Roadway	The project would result in a VMT-related impact per the applicable threshold of significance identified under OPR guidelines.
Multi-Modal Plan Consistency	Transit Service and Facilities	The project physically disrupts an existing transit service or facility or interferes with implementation of a planned transit service or facility.
		The project results in increased travel time for busses that adversely affects on-time performance.
		The project results in increased transit ridership demands that result in passenger loads that exceed vehicle loading standards.
		The project results in increased potential for safety conflicts involving transit vehicles and other modes of travel.
	Bicycle Facilities	The project physically disrupts an existing bicycle facility or interferes with implementation of a planned bicycle facility.
		The project results in a significant increase in bicyclists on a facility that does not have adequate bicycle facilities, such that conflicts between bicyclists and other travel modes are likely to increase.
	Pedestrian Facilities	The project fails to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities.
		The project physically disrupts an existing pedestrian facility or interferes with implementation of a planned pedestrian facility.
		The project results in an increased presence of vehicles and/or pedestrians on a facility that does not have adequate pedestrian facilities, such that conflicts between pedestrians and other travel modes are likely to increase.
	General Plan Consistency	The project conflicts or creates inconsistencies with General Plan policies, except an LOS policy.
Hazard & Safety Impact	Roadway Design and Users	The project would create a condition that does not meet current design standards.
		The project would substantially increase hazards to vehicle safety due to geometric design features (e.g., sharp curves or dangerous intersections).
		The project introduces incompatible users (e.g., farm equipment) to a roadway or transportation facility not intended for those users.
	State Highway Facilities	The project results in queueing at off-ramps resulting in slow or stopped traffic past the off-ramp gore point.
		Project is determined to negatively affect safety of the State highway facility.

City of Merced General Plan

Policies on Level of Service. The methods employed to determine the significance of LOS are noted in the General Plan and in Merced's traffic study guidelines.

Implementing Action T-1.8.b of the *Merced Vision 2030 General Plan* (City of Merced 2012) establishes an acceptable LOS of D for intersections and roadways. Action T-1.8.b states:

> "1.8.b Use peak-hour Level of Service "D" ("Tolerable Delays") as the design standard for new streets and intersections in new growth areas.
>
> "The preferred LOS levels are typically "C" and "D," particularly for larger roads and major intersections. With LOS C the road provides stable operation but is still underutilized to some degree. LOS D represents a fine balance between the relatively large number of vehicles served and the generally acceptable level of service provided. It is the intent of the City's standards and policies for new and most upgraded intersections and road segments to be designed and built so as not to drop below LOS D ("tolerable delay") during peak traffic periods."

Therefore, in this traffic impact study, LOS A through D are considered acceptable for signalized intersections, while LOS E and F are unacceptable.

At two-way stop-sign-controlled intersections (or one-way stop T intersections), LOS can be calculated for each movement where motorists yield the right of way, as well as for the intersection as a whole. Significance is based on the length of the average delay experienced by motorists on the worst case approach, which is typically a left turn made from the stop-sign-controlled approach to the intersection. It should be noted that overall intersection average LOS at un-signalized intersections is better, often much better, than LOS on the worst single approach.

Under City of Merced guidelines, however, a poor "worst case" LOS is not necessarily significant unless the intersection also carries traffic volumes which satisfy peak hour traffic signal warrant requirements. Traffic signal warrants are a series of several standards which provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously-uncontrolled major street, and may increase the occurrence of particular types of accidents.

Consistent with City guidelines, the City will use the traffic study to determine the project's impact to two broad checklist topics: (1) substantial increases in traffic; and (2) changes to LOS. Each of these broad categories has distinct thresholds of significance (described below) and are to be utilized in the traffic study.

1. Topic: Substantial Increase in Traffic Levels

A. Arterial Level Road: The threshold of significance is a project ADT contribution equal or greater than 5% of the current ADT for an "arterial roadway" that is, or will be, operating at an unacceptable LOS "E" or "F".

B. Collector Level Road: The threshold of significance is an amount where the Project contributes more than 20% of the current ADT on roads carrying at least 3,000 ADT. Thus, a significant impact would occur if a Project adds 601 ADT to a collector road that currently has 3,000 ADT. [3,000 x (.20)]

2. *Topic: Change in Level of Service (LOS) Rating*

Merced Vision 2015 General Plan Policy T-1.8 states: Use A Minimum Peak Hour Level of Service (LOS) "D" As a Design Objective for All New Streets in New Growth Areas and for Most Existing City Streets Except Under Special Circumstances. *To implement this Policy, the City focuses on four different street system categories, each described in greater detail below: (A) roadways; (B) signalized intersections; (C) un-signalized intersections; and (D) roads within established neighborhoods.*

A. Roadways and Signalized Intersections: *Merced Vision 2015 General Plan,* Implementing Action T-1.8.b, establishes an acceptable LOS of "D" for intersection and roadway operations.

> **1.8.b Use peak-hour Level of Service "D" ("Tolerable Delays") as the design standard for new streets and intersections in new growth areas.**
>
> The preferred LOS levels are typically "C" and "D," particularly for larger roads and major intersections. With LOS C the road provides stable operation but is still underutilized to some degree. LOS D represents a fine balance between the relatively large number of vehicles served and the generally acceptable level of service provided. It is the intent of the City's standards and policies for new and most upgraded intersections and road segments to be designed and built so as not to drop below LOS D ("tolerable delay") during peak traffic periods.

PROJECT CHARACTERISTICS

Project Use / Access Characteristics

The Olive Avenue Mini-Storage project includes land use in which storage units are rented for the storage of goods. Such facilities are typically referred to as "self-storage" facilities.

Trip Generation Rates. The number of vehicle trips that are expected to be generated by development of the proposed project has been estimated using trip generation rates based on the nature and size of project land uses. Data compiled by the Institute of Transportation Engineers (ITE) and presented in the publication *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers 2021) is the source of trip generation rates for the uses within the proposed project. The trip generation rates used in this analysis are presented in **Table 2**.

Trip Generation Forecasts. **Table 3** identifies the results of applying the identified trip generation rates to the proposed land use. The project is expected to result in 74 trips on a daily basis, with five trips in the a.m. peak hour and eight trips in the p.m. peak hour.

Table 2 - Olive Avenue Mini-Storage Project Trip Generation Rates

Land Use and ITE Land Use Code	Units	Trips per Unit						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Mini-Warehouse (ITE Code 151)	KSF	1.45	0.05	0.04	0.09	0.07	0.08	0.15

Source: Institute of Transportation Engineers *Trip Generation Manual 11th Edition*.
Note: "KSF" = 1,000 square feet floor area.

KDA

Table 3 - Olive Avenue Mini-Storage Project Trip Generation Estimates

Land Use and ITE Land Use Code	Quantity	Trips Generated						
		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Mini-Warehouse (ITE Code 151)	51.25 KSF	74	3	2	5	4	4	8

Source: Institute of Transportation Engineers *Trip Generation Manual 11th Edition*.

Trip Distribution. The geographic distribution of vehicle trips associated with the proposed project has been determined from review of select zone analysis results from the MCAG regional travel demand forecasting model, consideration of the nature of land uses in each area, understanding of the effects of local traffic controls, and consideration of current travel patterns. **Table 4** indicates the directional allocation of project-related trips.

Table 4. Olive Avenue Mini-Storage Project
Trip Distribution Percentages

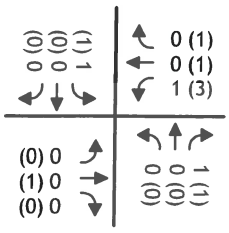
Direction of Travel	Percentage of Total Trips
North on State Route 59	20%
North on Loughborough Drive	10%
East on Olive Avenue	30%
South on Loughborough Drive	5%
South on State Route 59	20%
West on Santa Fe Drive	15%
TOTAL	100%

Source: Merced County Association of Governments Travel Demand Model

Trip Assignment. **Figure 3** illustrates "project only" trips through study area intersections under the distribution percentages noted above.

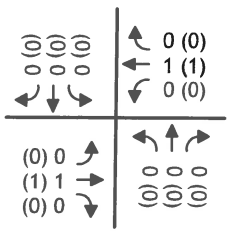
KDA

1



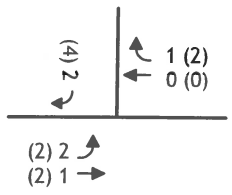
SR 59/ Santa Fe Dr/ Olive Ave

2



Loughborough Dr/Olive Ave

3



Project Dwy/ Olive Ave

Legend

XX AM Peak Hour Volume
(XX) PM Peak Hour Volume
XX Daily Traffic

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PROJECT ONLY TRAFFIC VOLUMES

figure 3

PROJECT CEQA TRANSPORTATION IMPACTS

Vehicle Miles Traveled Approach

Direction. The CEQA Guidelines and the OPR document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018) encourage all public agencies to develop and publish thresholds of significance to assist with determining when a project would have significant transportation impacts based on the new metric of VMT, rather than operating LOS. The CEQA Guidelines generally state that projects that decrease VMT can be assumed to have a less than significant transportation impact. The CEQA Guidelines do not provide any specific criteria on how to determine what level of project VMT would be considered a significant impact. The City of Merced has not yet adopted methods for estimating regional VMT or significance criteria for evaluating impacts based on VMT.

Screening. Under OPR direction, the following categories of land development projects are judged to have a less than significant impact on regional VMT.

Location Based Screening

- Near High Quality Transit facilities
- In VMT efficiency areas where evidence exists that development yields VMT metrics that satisfy the OPR recommended significance criteria of a 15% reduction (i.e., 85% of average).

Other Factors

- Small projects
- Local-serving retail
- Local-serving public uses
- Affordable housing

The OPR Technical Advisory presents a screening criteria that would be applicable to the proposed project.

- **Small Projects.** The OPR advisory suggests that the VMT contribution of small projects need not be considered significant. OPR suggests that agencies can find projects generating fewer than 110 vehicles trips a day to have a less than significant on VMT.

VMT Impacts

As shown in **Table 3**, the proposed project is expected to generate 74 vehicle trips per day. As this trip generation estimate falls below the 110 daily trip threshold identified by OPR, the Olive Avenue Mini-Storage project qualifies as a "small project" that can be assumed to have a less than significant impact on regional VMT.

Impacts to Alternative Transportation Modes / Safety

Pedestrians. The project could attract pedestrians from the neighborhoods to the east, north and south of the site, although the exact number of pedestrians is unknown. A sidewalk is already present along the Olive Avenue street frontage. With the sidewalk present, adequate facilities exist to deliver pedestrians to the project site. Additional pedestrian access to the north is available via the existing Class I trail, and access to the east is available via existing sidewalks. The project's impacts are not significant under the criteria noted in **Table 1**.

Bicycles. The project can be expected to attract bicyclists from various Merced neighborhoods. As noted in the *Existing Setting* section of this analysis, bicycle facilities already exist as Class I trails on the east side of SR 59, but are not present elsewhere. Bicycle lanes are not designated on SR 59 north of Olive Avenue, on Santa Fe Drive, nor on Olive Avenue in the Merced County General Plan Circulation Element, but bicycles can use existing multipurpose trails. The City of Merced's pending SR 59 improvement project to widen SR 59 from 16th Street to Fahrens Creek incorporates applicable pedestrian facilities. Under the Merced General Plan Circulation Element, bicycles are expected to mix with motor vehicles on other streets. The project's impacts to bicycle facilities is not significant under the criteria identified in **Table 1**.

Transit. The project will likely attract some persons from throughout the Merced area who may wish to use public transit. The following are routes that operate in the vicinity of the project site (Merced Transit Authority 2023).

Route M1 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along:

- SR 59 north and south of Olive Avenue,
- Olive Avenue east of Loughborough Drive, and
- Loughborough Drive south of Olive Avenue.

Route M2 has a 30-minute headway between approximately 6:00 a.m. and 8:00 p.m. during weekdays. In the vicinity of the project site, the route operates along Loughborough Drive north and south of Olive Avenue.

These services are adequate for a project of this nature, and the impacts of the project on transit are not significant under the criteria noted in **Table 1**.

Hazards and Safety. The project's proposed access onto Olive Avenue is an existing driveway. The vehicle movements allowed at the driveway are described in the *Project Description* section

of this analysis. The configuration of the existing driveway provides protected storage areas for vehicles making right-turn and left-turn movements at the driveway connection. In the vicinity of the driveway connection, the roadway does not have vertical or horizontal curvature that would impair sight distance. As also noted in the *Project Description* section of this analysis, the proposed project would generate a relatively low number of vehicle trips - five trips in the a.m. peak hour and eight trips in the p.m. peak hour. Because of these factors, the project is not considered to result in conditions that would present additional hazards, and the project's impacts on safety are considered not significant.

Impacts to State Facilities. The project is more than a mile from the closest interchange on SR 99, and with a relatively low number of project-related trips is unlikely to noticeably alter traffic volumes on SR 99. Thus, the project's impacts to ramp operations are not significant. Similarly, the relatively low number of vehicle trips generated by the proposed project, particularly during the a.m. peak hour and p.m. peak hour, would not create an unsafe situation on the SR 59. Thus, the project's impacts to ramp operations and state highway safety are not significant.

APPENDIX

Local Traffic Operations Analysis

Traffic Counts
(In Separate Electronic File)

LOS Calculations
(In Separate Electronic File)

KDA

LOCAL TRAFFIC OPERATIONS ANALYSIS FOR OLIVE AVENUE MINI-STORAGE PROJECT

TABLE OF CONTENTS

KDA

LOCAL TRAFFIC OPERATIONS ANALYSIS
FOR OLIVE AVENUE MINI-STORAGE PROJECT

BACKGROUND

Study Area - Intersections

The quality of traffic flow is typically governed by the operation of major intersections. Three existing intersections were analyzed in the LTA. The locations of the study intersections are shown on **Figure T1**. The study intersections, listed below, include the existing driveway connection with Olive Avenue that would provide access to the project site.

1. Olive Avenue / Santa Fe Drive & SR 59
2. Olive Avenue & Loughborough Drive
3. Olive Avenue & Project Site Driveway

The geometric configuration of each intersection and its traffic controls are described in the text which follows.

The **Olive Avenue / Santa Fe Drive & SR 59 intersection** is controlled by a traffic signal. With the completion of recent Caltrans improvements, each approach has separate left turn lanes and right turn lanes. U-turns are prohibited on southbound SR 59 but are permitted on westbound Olive Avenue. Today high visibility crosswalks exist on all four legs of the intersection, and the recent Caltrans safety project provided landing pads and detectable warning surfaces in the shoulder area for pedestrians/bicyclists.

The **Olive Avenue & Loughborough Drive intersection** is controlled by a traffic signal. The intersection has separate left turn lanes on each approach, and the northbound Loughborough Drive approach also provides a combined left turn and through lane. The eastbound Olive Avenue and northbound Loughborough Drive approaches have separate right turn lanes. Crosswalks are striped across all four legs of the intersection.

1 — SR 59/ Santa Fe Dr/ Olive Ave

(125) 76
(281) 282
(159) 98
35 (85)
413 (722)
223 (293)
(122) 130
(627) 609
(141) 120
112 (124)
280 (268)
216 (287)

2 — Loughborough Dr/Olive Ave

(16) 16
(47) 18
(135) 87
12 (19)
517 (800)
66 (114)
(113) 61
(796) 744
(84) 64
80 (154)
8 (26)
45 (107)

3 — Project Dwy/ Olive Ave

(23) 7
R1-1
5 (12)
686 (1100)
(11) 5
(1062) 904

Legend

- XX — AM Peak Hour Volume
- (XX) — PM Peak Hour Volume
- R1-1 — Stop Sign
- Signalized Intersection
- XX — Daily Traffic

EXISTING (YEAR 2023) TRAFFIC VOLUMES AND LANE CONFIGURATION

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figure T1

The **Olive Avenue & Project Site Driveway** is an existing driveway connection to Olive Avenue. The proposed project would share use of the driveway with an existing retail commercial land use adjacent to the west side of the Olive Avenue Mini-Storage project site. A raised median is present along Olive Avenue in the vicinity of the project site. A left-turn pocket is present in the median, which allows for left-turn movements into the driveway. The following movements are allowed at the existing shared-use driveway, and would continue to be allowed with implementation of the Olive Avenue Mini-Storage project:

- eastbound-to-northbound left-turns entering the driveway,
- westbound-to-northbound right-turns entering the driveway, and
- southbound-to-westbound right-turns exiting the driveway.

Southbound-to-eastbound left-turns exiting the driveway are prevented by the raised median, and would not be allowed with implementation of the proposed project.

Level of Service Analysis Procedures

Level of Service (LOS) analysis provides a basis for describing existing traffic conditions and for evaluating the significance of project traffic impacts. Level of Service measures the quality of traffic flow and is represented by letter designations from A to F, with a grade of A referring to the best conditions, and F representing the worst conditions. The characteristics associated with the various LOS for intersections are presented in **Table T1**.

Intersection Level of Service Methodology. Intersection LOS was calculated for this analysis using the methodology contained in the *Highway Capacity Manual 6th Edition* (Transportation Research Board 2016) (HCM) using Synchro 11 software. HCM techniques identify the average length of delays and use that information to determine the operating LOS. An overall average delay and LOS is determined for intersections controlled by traffic signals or all-way stops. At locations controlled by side street stops, delays can be determined for each movement that must yield the right of way, and the "worst case" delay is employed for analysis.

Roadway Segment Level of Service Methodology. The Merced General Plan presents daily traffic volume LOS thresholds that can be employed on a planning level basis (GP Table 4.3), and these values are presented in **Table T2**.

Table T1. Level of Service Definitions

Level of Service	Signalized Intersections	Unsignalized Intersections
A	Vehicle progression is exceptionally favorable or the cycle length is very short. Delay ≤ 10.0 seconds/vehicle	Little or no delay. Delay ≤ 10 seconds/vehicle
B	Vehicle progression is highly favorable or the cycle length is short. Delay > 10 seconds/vehicle and ≤ 20 seconds/vehicle	Short traffic delays. Delay > 10 seconds/vehicle and ≤ 15 seconds/vehicle
C	Vehicle progression is favorable or the cycle length is moderate. Individual cycle failures may begin to appear at this level. Delay > 20 seconds/vehicle and ≤ 35 seconds/vehicle	Average traffic delays. Delay > 15 seconds/vehicle and ≤ 25 seconds/vehicle
D	Vehicle progression is ineffective or the cycle length is long. Many vehicles stop and the individual cycle failures are noticeable. Delay > 35 seconds/vehicle and ≤ 55 seconds/vehicle	Long traffic delays. Delay > 25 seconds/vehicle and ≤ 35 seconds/vehicle
E	Vehicle progression is unfavorable and the cycle length is long. Individual cycle failures are frequent. Delay > 55 seconds/vehicle and ≤ 80 seconds/vehicle	Very long traffic delays, failure, extreme congestion. Delay > 35 seconds/vehicle and ≤ 50 seconds/vehicle
F	Vehicle progression is very poor and the cycle length is long. Most cycles fail to clear the vehicle queue. Delay > 80 seconds/vehicle	Intersection blocked by external causes. Delay > 50 seconds/vehicle

Source: Transportation Research Board 2016.

TABLE T2

Level of Service Thresholds for Roadway Segments

Roadway Type	Daily Roadway Segment Level of Service Thresholds				
	LOS A	LOS B	LOS C	LOS D	LOS E
6 lane Freeway	25,900	42,600	57,800	68,400	76,000
4 lane Freeway	40,000	65,800	89,200	105,600	117,400
2 lane Arterial	-	-	11,600	16,000	16,800
4 lane Arterial	-	4,100	26,800	33,700	35,400
6 lane Arterial	-	6,600	41,800	50,700	53,200
2 lane Collector	-	-	4,800	10,300	13,200
4 lane Collector	-	-	11,300	22,200	26,400

EXISTING TRAFFIC OPERATIONS

Existing Traffic Conditions and Levels of Service

New traffic volume count data were collected for this analysis. Peak hour intersection turning movement count data were collected on Thursday February 2, 2023. Roadway segment 24-hour count data were collected on Wednesday February 1, 2023. Weekday counts were conducted when local schools were in session. Count data were collected in 15-minute intervals for the period from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. The contiguous one-hour period within each period with the highest volumes was used in this analysis as the peak hour. **Figure T1** presents the existing lane configurations and existing a.m. and p.m. peak hour traffic volumes at the study intersections.

Intersection Levels of Service. Table T3 presents existing a.m. peak hour and p.m. peak hour LOS at the existing study intersections. The worksheets presenting the calculation of LOS and signal warrants under all development conditions including Existing Conditions are included in the Appendix. As indicated, all intersections operate at acceptable LOS (i.e., LOS D or better) during both peak periods.

Intersection Queuing. The length of peak period queues has been estimated as a byproduct of the LOS analysis, and the results are presented in **Table T4**.

Roadway Segments. Table T5 identifies existing daily traffic volumes on study area roadways as well as the applicable LOS based on Merced General Plan thresholds.

The City of Merced is currently designing a project to widen SR 59 to four lanes (two lanes in each direction) from 16th Street north across Olive Avenue to Fahrens Creek.

Table T3. Intersection Level of Service - Existing Conditions

Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak		PM Peak	
			LOS	Delay	LOS	Delay
1 Olive Avenue / Santa Fe Drive & State Route 59	Signal		C	26.2	D	39.4
2 Olive Avenue & Loughborough Drive	Signal		B	13.1	C	21.9
3 Olive Avenue & Project Site Driveway	Unsig	No	B	12.0	C	15.4

Notes: LOS = Level of Service. "Inters. Control" = Type of intersection control.
"Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control.
Delay is measured in seconds per vehicle. **Bold** font indicates LOS is worse than D.

KDA

Table T4

Existing Peak Hour Queues at Olive Avenue / Santa Fe Drive & State Route 59

Approach	Lane	Storage (feet)	AM Peak Hour Volume (vph)	AM Peak Hour 95th % Queue (feet)	PM Peak Hour Volume (vph)	PM Peak Hour 95th % Queue (feet)
Southbound	Left turn	150	76	101	125	172
Northbound	Left turn	200	112	165	124	194
Eastbound	Left turn	425	130	189	122	180
Westbound	Left turn	550	223	294	293	421

Notes: Values highlighted in yellow exceed storage by 20 feet or more.
"vph" = vehicles per hour.

Table T5

Existing Roadway Segment Volume and Level of Service

Street	From	To	Classification	Daily Volume	Level of Service
Olive Avenue	State Route 59	Loughborough Drive	6 lane Arterial	26,425	C

Notes: **BOLD** values exceed minimum Level of Service standard.

KDA

EXISTING PLUS PROJECT TRAFFIC CONDITIONS

This LTA scenario assumes that the Olive Avenue Mini-Storage project is fully developed immediately.

Traffic Volumes

Existing Plus Project Traffic Volumes. Figure T2 presents a.m. and p.m. peak hour volumes assuming the project is built out. These volumes were created by superimposing project trips onto the current background condition.

Intersection Level of Service

Table T6 presents the a.m. and p.m. peak hour LOS at each study intersection under Existing Plus Project conditions. As indicated, projected LOS at all study intersections would be within the LOS D minimum established by the City of Merced. Thus, the project does not cause effects that are inconsistent with the requirements of the Merced General Plan.

SR 59 / Olive Avenue Intersection Queues

Table T7 compares current queues with those that would be expected if the proposed project is completed. As shown, the same peak period queues that exceed available storage in the southbound SR 59 left turn lanes will continue to do so.

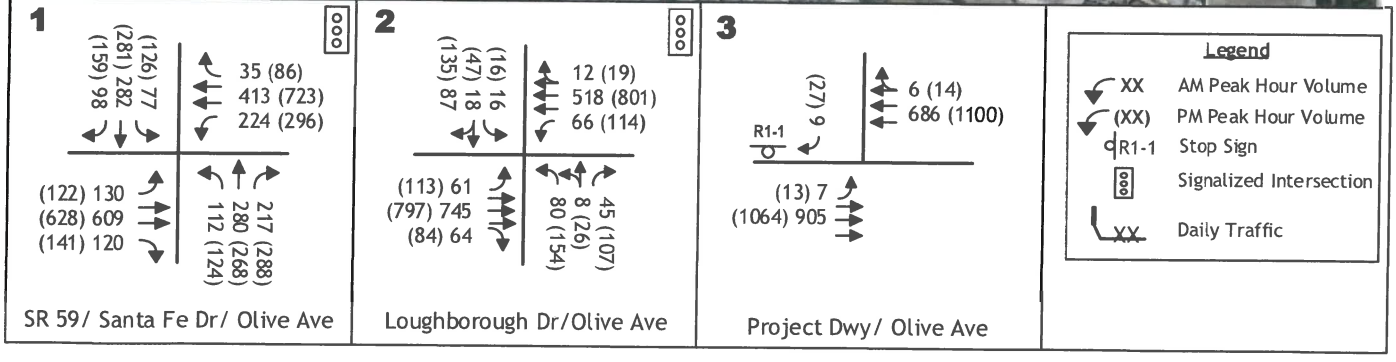
To address the effects of the project on peak period queuing, it would be appropriate to work with Caltrans District 10 to optimize the traffic signal timing at the intersection of Olive Avenue / Santa Fe Drive & SR 59. It is likely that Caltrans would also optimize signal timing after the City's SR 59 widening project is completed.

Roadway Segment Level of Service

Table T8 compares current LOS based on daily traffic volumes with those conditions occurring after the project is completed. As indicated, the project will add traffic to the study roadway segment but would not result in the roadway operating with LOS in excess of the LOS D standard.

Traffic Signal Warrants

The volume of traffic occurring at the project site access driveway connection with Olive Avenue was compared to MUTCD peak hour traffic signal warrants to determine whether a traffic signal may be justified. As shown in **Table T6**, traffic volumes at the intersection of Olive Avenue & Project Site Driveway would not reach a level that satisfies peak hour warrants.



EXISTING (YEAR 2023) PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATION

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figure T2

Table T6. Intersection Level of Service - Existing and Existing Plus Project Conditions

Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 Olive Avenue / Santa Fe Drive & State Route 59	Signal		C	26.2	C	26.3	D	39.4	D	39.9
2 Olive Avenue & Loughborough Drive	Signal		B	13.1	B	13.1	C	21.9	C	21.9
3 Olive Avenue & Project Site Driveway	Unsig	No	B	12.0	B	12.0	C	15.4	C	15.6

Notes: LOS = Level of Service. "Inters. Control" = Type of intersection control. "Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control.
Delay is measured in seconds per vehicle.
Bold font indicates LOS is worse than D. Highlighted values are significantly inconsistent with the General Plan.

Table T7

Existing and Existing Plus Project Peak Hour Queues at Olive Avenue / Santa Fe Drive & State Route 59

			AM Peak Hour					PM Peak Hour				
			Existing		Existing Plus Project			Existing		Existing Plus Project		
					Volume (vph)					Volume (vph)		
Approach	Lane	Storage (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)
Southbound	Left turn	150	76	101	1	77	103	125	**172**	1	126	**175**
Northbound	Left turn	200	112	165	0	112	165	124	194	0	124	194
Eastbound	Left turn	425	130	189	0	130	189	122	180	0	122	180
Westbound	Left turn	575	223	294	1	224	296	293	421	3	296	428

Notes: Values highlighted in yellow exceed storage by 20 feet or more.
"vph" = vehicles per hour.

Table T8

Existing and Existing Plus Project Roadway Segment Volumes and Level of Service

Street	From	To	Classification	Existing		Existing Plus Project			
						Daily Volume			
				Daily Volume	Level of Service	Project Only	Total	Percentage Increase	Level of Service
Olive Avenue	State Route 59	Loughborough Drive	6 lane Arterial	26,425	C	74	26,499	0.28%	C

Notes: **BOLD** values exceed minimum Level of Service standard. **HIGHLIGHTED** values are significantly inconsistent with the General Plan

EXISTING PLUS APPROVED PROJECTS (EPAP) BACKGROUND CONDITIONS

This analysis scenario considers the relative impacts of the proposed project within a short-term future condition that assumes build out of other approved projects in the vicinity of the Olive Avenue Mini-Storage project site. This scenario is referred to Existing Plus Approved Projects (EPAP) conditions.

Background Information

Land Use. In assessing other approved projects that might reasonably add traffic to the study intersections, particular attention was directed to two approved land use development projects adjacent to the intersection of Olive Avenue / Santa Fe Drive & SR 59. One project is on the northwest corner of the intersection and is referred to in this analysis as the Northwest Olive Avenue & SR 59 project. The second project is on the northeast corner of the intersection and is referred to in this analysis as the Northeast Olive Avenue & SR 59 project.

Vehicle trips generated by both the Northwest Olive Avenue & SR 59 project and the Northeast Olive Avenue & SR 59 project are included in EPAP scenario background traffic volumes.

The Northwest Olive Avenue & SR 59 project will occupy eight acres on the northwest corner of the intersection of Olive Avenue / Santa Fe Drive & SR 59. The development plans for this project include approximately 42,800 building square feet of retail commercial uses, including a gasoline station with convenience store, fast food restaurants, coffee kiosk and other retail uses. The development will have a right turn-only access on SR 59 north of Olive Avenue as well as two driveways on Santa Fe Drive. On the two driveways, the more westerly Santa Fe Drive access will provide full access and will be signalized.

The Northeast Olive Avenue & SR 59 project is a convenience commercial development that will occupy three acres on the northeast corner of the intersection of Olive Avenue / Santa Fe Drive & SR 59. The development plan for this project includes a gasoline station with convenience store, a fast-food restaurant and other office / retail uses. Access to the Northwest Olive Avenue & SR 59 project site would be provided by right-turn only access to SR 59 north of Olive Avenue, as well as a new right-turn only driveway on Olive Avenue.

Trip Generation / Assignment. Table T9 identifies the daily and peak hour trip generation estimates for Northwest Olive Avenue & SR 59 project. This approved project is expected to generate 4,040 net new daily trips, with 300 trips in the a.m. peak hour and 320 trips in the p.m. peak hour.

Table T10 identifies the daily and peak hour trip generation estimates for Northeast Olive Avenue/SR 59 project. This approved project is expected to generate 1,811 net new daily trips, with 139 trips in the a.m. peak hour and 155 trips in the p.m. peak hour.

Table T9

Trip Generation for Northwest Olive Avenue & State Route 59 Project

ITE Code	Description	Quantity	Trips						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Phase 1: Gasoline with C Store and Car Wash plus Fast Food and Coffee / Kiosk									
946	*Gasoline with C Store and Car Wash*	16 positions	2,445	97	92	189	113	109	222
	Pass-by (56% daily, 62% a.m., 56% p.m.)		1,369	60	57	117	63	61	124
	Net New Trips		**1,076**	**37**	**35**	**72**	**50**	**48**	**98**
826	*Fast Food with Drive Thru*	3.46 ksf	1,717	80	77	157	59	54	113
	Pass-by (50% daily and p.m., 49% a.m.)		858	39	38	77	29	27	56
	Net New Trips		**859**	**41**	**39**	**80**	**30**	**27**	**51**
938	*Coffee / Donut Shop with Drive thru and No Indoor Seating*	*0.824 ksf*	1,648	139	139	278	35	34	69
	Pass-by (89%)		1,467	124	123	247	31	30	61
	Net New Trips		**181**	**15**	**16**	**31**	**4**	**4**	**8**
Phase 1 Total Net New Trips			**1,116**	**93**	**90**	**183**	**84**	**79**	**163**
Phase 2: Pharmacy, Fast Food and Retail									
826	*General Retail*	18.2 ksf	777	11	6	17	32	36	68
	Pass-by (15% daily and p.m.)		116	2	0	2	5	5	9
	Net New Trips		**661**	**8**	**5**	**13**	**27**	**31**	**58**
934	*Fast Food Restaurant with Drive Thru*	2.7 ksf	1,340	63	60	123	46	42	88
	Pass-by (50% daily and p.m., 49% a.m.)		670	31	29	60	23	21	44
	Net New Trips		**670**	**32**	**31**	**63**	**23**	**21**	**44**
880	*Pharmacy without Drive Thru*	14.0 ksf	1,261	27	14	41	58	60	118
	Pass-by (53% daily and p.m.)		668	0	0	0	31	32	63
	Net New Trips		**593**	**27**	**14**	**41**	**27**	**28**	**55**
Phase 2 Total Net New Trips			**1,924**	**67**	**50**	**117**	**77**	**80**	**157**
PROJECT TOTAL NET NEW TRIPS			**4,040**	**160**	**140**	**300**	**161**	**159**	**320**

Table T10. Trip Generation for

Northeast Olive Avenue & State Route 59 Project

ITE Code	Description	Quantity	Trips						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
945	*Gasoline with C Store*	16 positions	2,445	97	92	189	113	109	222
	Pass-by (56% daily, 62% a.m., 56% p.m.)		1,369	60	57	117	63	61	124
	Net New Trips		**1,076**	**37**	**35**	**72**	**50**	**48**	**98**
934	*Fast Food with Drive Thru*	2.81 ksf	1,323	58	55	113	48	44	92
	Pass-by (50% daily and p.m., 49% a.m.)		662	28	27	55	23	23	46
	Net New Trips		**661**	**30**	**28**	**58**	**25**	**21**	**46**
826	*Small Office*	4.54 ksf	74	7	2	9	3	8	11
	Net New Trips		**74**	**7**	**2**	**9**	**3**	**8**	**11**
PROJECT TOTAL NET NEW TRIPS			**1,811**	**74**	**65**	**139**	**78**	**77**	**155**

Existing Plus Approved Projects Traffic Volumes

Figure T3 presents resulting daily, a.m. and p.m. peak hour volumes assuming the approved Northwest Olive Avenue & SR 59 project and Northeast Olive Avenue & SR 59 project proceed. **Figure T4** illustrates volumes with the addition of trips from the Olive Avenue Mini-Storage project.

Intersection Level of Service

Table T11 presents the a.m. and p.m. peak hour LOS at each study intersection under EPAP conditions with and without build out of the Olive Avenue Mini-Storage project.

Existing Plus Approved Project. As indicated, if the approved projects proceed, then the projected LOS at two of the three study intersections would continue to satisfy the General Plan's minimum LOS D standard.

Under EPAP No Project conditions, the intersection of Olive Avenue / Santa Fe Drive & SR 59 would operate at unacceptable LOS E during the p.m. peak hour. LOS E would conflict with the General Plan's minimum LOS D standard. To improve LOS to an acceptable level consistent with the General Plan standard the following improvement is recommended:

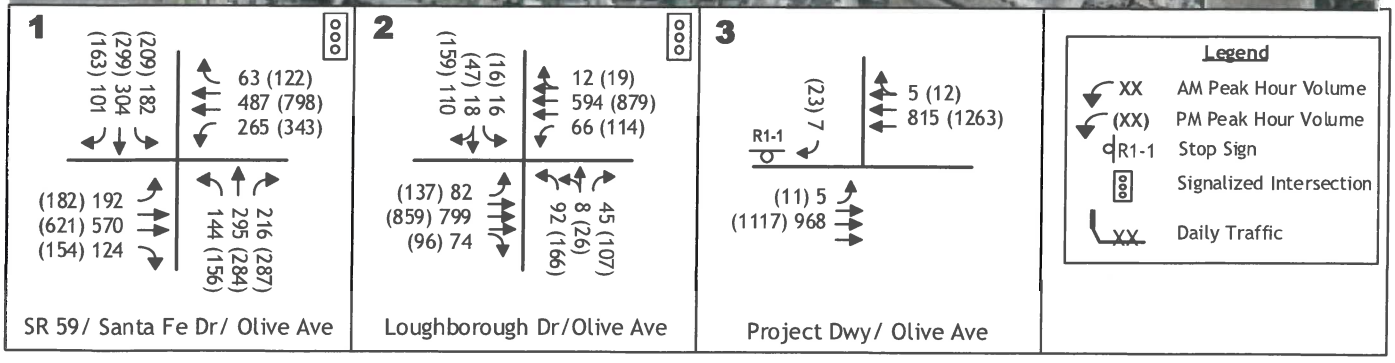
- It is recommended that traffic signal timing at the intersection of Olive Avenue / Santa Fe Drive & SR 59 be optimized after previously approved land use development projects on the northwest and northeast corners of the intersection are occupied.

EPAP Plus Project. If the proposed Olive Avenue Mini-Storage project is built out in addition to the approved projects, then the projected LOS at two of the three study intersections would continue to satisfy the General Plan's minimum LOS D standard.

Under EPAP Plus Project conditions, the intersection of Olive Avenue / Santa Fe Drive & SR 59 would operate at unacceptable LOS E during the p.m. peak hour. LOS E would conflict with the General Plan's minimum LOS D standard. To improve LOS to an acceptable level consistent with the General Plan standard the following improvement is recommended:

- It is recommended that traffic signal timing at the intersection of Olive Avenue / Santa Fe Drive & SR 59 be optimized after previously approved land use development projects on the northwest and northeast corners of the intersection are occupied.

This recommended improvement is the same as the improvement recommended under EPAP No Project conditions.



EXISTING PLUS APROVED PROJECTS
TRAFFIC VOLUMES AND LANE CONFIGURATION

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figure T3

1

(210) 183
(299) 304
(163) 101

63 (123)
487 (799)
266 (346)

(182) 192
(622) 570
(154) 124

217 (288)
295 (284)
144 (156)

SR 59/ Santa Fe Dr/ Olive Ave

2

(16) 16
(47) 18
(159) 110

12 (19)
595 (880)
66 (114)

(137) 82
(860) 800
(96) 74

45 (107)
8 (26)
92 (166)

Loughborough Dr/Olive Ave

3

(27) 9
R1-1

6 (14)
815 (1263)

(13) 7
(1119) 969

Project Dwy/ Olive Ave

Legend

XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume
R1-1	Stop Sign
	Signalized Intersection
XX	Daily Traffic

EPAP PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATION

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figure T4

Table T11. Intersection Level of Service - EPAP No Project and EPAP Plus Project Conditions

Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak Hour				PM Peak Hour			
			EPAP No Project		EPAP Plus Project		EPAP No Project		EPAP Plus Project	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 Olive Avenue / Santa Fe Drive & State Route 59	Signal		D	36.0	D	36.2	**E**	58.4	E	59.0
2 Olive Avenue & Loughborough Drive	Signal		B	14.2	B	14.2	C	23.9	C	23.9
3 Olive Avenue & Project Site Driveway	Unsig	No	B	12.8	B	12.8	C	17.0	C	17.3

Notes: LOS = Level of Service. "Inters. Control" = Type of intersection control. "Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control. Delay is measured in seconds per vehicle.
Bold font indicates LOS is worse than **D**. Highlighted values are significantly inconsistent with the General Plan.

Peak Period Queues

Existing Plus Approved Project. As noted in **Table T12**, 95th percentile queues will lengthen with the development of the approved projects.

EPAP Plus Project. The addition of traffic from the Olive Avenue Mini-Storage project would not appreciably change queuing conditions on northbound and southbound SR 59. With the occupancy of the approved and proposed projects, the length of queues in the westbound Olive Avenue left turn lane would remain within the available storage. These conditions would be addressed by retiming the traffic signals as was noted above in recommended improvements for LOS under EPAP Conditions either after the approved projects are occupied or after the City's SR 59 widening project is completed.

Roadway Segment Level of Service

Table T13 compares current LOS based on daily traffic volumes with those conditions occurring after the approved project are completed with and without build out of the proposed project. As indicated, the approved projects would add traffic to the study roadway segment but would not result in the roadway segment operating with LOS in excess of the LOS D standard. Similarly, the addition of project traffic to the EPAP condition would not result in the roadway segment operating with LOS in excess of the minimum.

Traffic Signal Warrants

The volume of traffic occurring at the project site access connection with Olive Avenue was again compared to MUTCD peak hour traffic signal warrants to determine whether a traffic signal may be justified. As shown in **Table T11**, traffic volumes at the intersection of Olive Avenue & Project Site Driveway would not reach a level that satisfies peak hour warrants under EPAP No Project conditions or under EPAP Plus Project conditions.

Table T12

EPAP No Project and EPAP Plus Project Peak Hour Queues at Olive Avenue / Santa Fe Drive & State Route 59

			AM Peak Hour					PM Peak Hour				
			EPAP No Project		EPAP Plus Project			EPAP No Project		EPAP Plus Project		
					Volume (vph)					Volume (vph)		
Approach	Lane	Storage (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)
Southbound	Left turn	150	182	**282**	1	183	**283**	209	**347**	1	210	**359**
Northbound	Left turn	200	144	**231**	0	144	**231**	156	**282**	0	156	**283**
Eastbound	Left turn	425	192	312	0	192	312	182	285	0	182	275
Westbound	Left turn	575	265	377	1	266	379	343	506	3	346	500

Notes: Values highlighted in yellow exceed storage by 20 feet or more.
"vph" = vehicles per hour.

Table T13

EPAP No Project and EPAP Plus Project Roadway Segment Volumes and Level of Service

Street	From	To	Classification	EPAP No Project		EPAP Plus Project			
						Daily Volume			
				Daily Volume	Level of Service	Project Only	Total	Percentage Increase	Level of Service
Olive Avenue	State Route 59	Loughborough Drive	6 lane Arterial	29,440	C	74	29,514	0.25%	C

Notes: **BOLD** values exceed minimum Level of Service standard. **HIGHLIGHTED** values are significantly inconsistent with the General Plan

LONG TERM YEAR 2035 CUMULATIVE CONDITIONS

Overview

The Cumulative Year 2046 analysis presented herein is intended to evaluate the relative cumulative effects of the project assuming implementation of long-term circulation system improvements and continuing development in the Merced area. The latest version of the Merced County Association of Governments (MCAG) regional travel demand forecasting model was used to forecast 2046 traffic volumes (Forte pers. comm.).

Circulation System Improvements. The City of Merced General Plan Circulation Element and GPU EIR suggest that appreciable improvements will be needed to accommodate the future traffic volumes accompanying build out of the General Plan. The GPU EIR indicates that SR 59 is projected to be a 6-lane facility from W. 16th Street to Yosemite Avenue (refer to GP Table 4.4) and a four-lane facility north of Yosemite Avenue. Santa Fe Drive and Olive Avenue are to be 6-lane arterials. Regionally, the General Plan envisions the completion of the Atwater Merced Expressway and Campus Parkway.

Possible funding constrains the level of future improvements assumed in this analysis. Consistent with previous traffic analyses for projects in the study area, this analysis assumed that SR 59 is widened to provide two through travel lanes in each direction in the area from W. 16th Street to Olive Avenue. The section of SR 59 north of Olive Avenue was assumed to remain a two-lane roadway.

Approach to Developing Traffic Volume Forecasts. **Figure T5** presents traffic volumes which represent the "Cumulative No Project" condition for this analysis. The trips associated with the proposed project were then superimposed onto that background condition to create the "Cumulative Plus Project" condition noted in **Figure T6**.

1

(88) 46
(377) 368
(123) 67

25 (72)
487 (917)
499 (644)

(92) 94
(647) 633
(277) 268

378 (366)
247 (253)

420 (533)

SR 59/ Santa Fe Dr/ Olive Ave

2

(17) 14
(70) 24
(251) 165

13 (25)
782 (1213)
71 (138)

(198) 111
(907) 850
(136) 112

37 (105)
10 (39)
141 (268)

Loughborough Dr/Olive Ave

3

R1-1

(23) 7

5 (12)
1088 (1732)

(11) 5
(1267) 1099

Project Dwy/ Olive Ave

Legend

XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume
R1-1	Stop Sign
	Signalized Intersection
XX	Daily Traffic

CUMULATIVE (2046)
TRAFFIC VOLUMES AND LANE CONFIGURATION

KD Anderson & Associates, Inc.
Transportation Engineers

4897-11 RA 2/21/2023

figure T5

1

(89) 47
(377) 368
(123) 67

25 (73)
487 (918)
500 (647)

(92) 94
(648) 633
(277) 268

378 (366)
247 (253)

421 (534)

SR 59/ Santa Fe Dr/ Olive Ave

2

(17) 14
(70) 24
(251) 165

13 (25)
783 (1214)
71 (138)

(198) 111
(908) 851
(136) 112

37 (105)
10 (39)
141 (268)

Loughborough Dr/Olive Ave

3

(27) 9
R1-1

6 (14)
1088 (1732)

(13) 7
(1269) 1100

Project Dwy/ Olive Ave

Legend

XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume
R1-1	Stop Sign
	Signalized Intersection
XX	Daily Traffic

CUM PLUS PROJECT
TRAFFIC VOLUMES AND LANE CONFIGURATION

KD Anderson & Associates, Inc.
Transportation Engineers

4897-11 RA 2/21/2023

figure T6

Daily Traffic Volumes / Levels of Service

Traffic Volumes. **Table T14** identifies projected Year 2046 traffic volumes on the study roadway segment and the resulting LOS. As indicated, the volume of traffic on the roadway is projected to increase appreciably in the future with and without the proposed project.

Levels of Service. As indicated, the study roadway segment is projected to operate with LOS that would satisfy the City's LOS D minimum, and no improvements are recommended.

Peak Hour Intersection Volumes and Levels of Service

Traffic Volumes. **Figure T5** and **Figure T6** identify cumulative traffic volume and also identify assumed improvements to intersections that would accompany the assumed widening of SR 59 to four lanes from Olive Avenue to W. 16th Street. This analysis assumes that two through lanes would be provided in each direction on SR 59 through the Olive Avenue intersection but would not continue to Buena Vista Drive.

Intersection Level of Service. **Table T15** displays the a.m. and p.m. peak hour LOS at each study intersection under future Cumulative Year 2046 conditions with and without the project.

Year 2046 No Project. If the Olive Avenue Mini-Storage project does not proceed and the site remains vacant, the intersection of Olive Avenue / Santa Fe Drive & SR 59 is projected to operate at LOS F. Regional and local improvements might be considered to alleviate this deficiency. Regionally, the extension of AME to Bellevue Road could alter travel patterns, although simply completing that improvement may not result in conditions that satisfy the minimum standard, and funding for that improvement is not secured. Locally, widening the intersection to provide additional capacity would be needed to achieve LOS D. These improvements are consistent with the planned six lane facilities and include:

1. Reconstruct westbound Olive Avenue to provide dual westbound-to-southbound left turn lanes onto southbound SR 59.

2. Reconfigure the existing westbound right turn lane to create a combination westbound through & right turn lane, and extend that through lane across SR 59 to create a third departing westbound lane.

3. Reconstruct the existing northbound-to-eastbound right turn lane as a "free" right turn with a median island separating eastbound through traffic and right turning traffic.

4. Reconstruct the eastbound Santa Fe Drive approach to provide dual eastbound-to-northbound left turn lanes onto northbound SR 59.

This level of improvement would result in LOS C in the a.m. peak hour and LOS D in the p.m. peak hour.

Year 2035 Plus Project Conditions. The addition of project trips will increase the length of delays at study intersections. Under Cumulative Plus Project conditions, the intersection of Olive Avenue / Santa Fe Drive & SR 59 would operate at LOS F. Widening the intersection to provide additional capacity would be needed to achieve LOS D. These improvements are consistent with the planned six lane facilities and include:

1. Reconstruct westbound Olive Avenue to provide dual westbound-to-southbound left turn lanes onto southbound SR 59.

2. Reconfigure the existing westbound right turn lane to create a combination westbound through & right turn lane, and extend that through lane across SR 59 to create a third departing westbound lane.

3. Reconstruct the existing northbound-to-eastbound right turn lane as a "free" right turn with a median island separating eastbound through traffic and right turning traffic.

4. Reconstruct the eastbound Santa Fe Drive approach to provide dual eastbound-to-northbound left turn lanes onto northbound SR 59.

These improvements are the same as those recommended for Cumulative No Project conditions.

The improvements listed above would result in LOS C in the a.m. peak hour and LOS D in the p.m. peak hour.

SR 59 / Olive Avenue Intersection Queues

Table T16 compares queues at the intersection of Olive Avenue / Santa Fe Drive & SR 59 under Cumulative conditions with and without the proposed project. The Olive Avenue Mini-Storage project would result in slight increases in the length of queues. The improvements required to address cumulative intersection LOS impacts will reduce the length of queues.

Traffic Signal Warrants

The volume of traffic occurring at the project site access connection with Olive Avenue was again compared to MUTCD peak hour traffic signal warrants to determine whether a traffic signal may be justified. As shown in **Table T15**, traffic volumes at the intersection of Olive Avenue & Project Site Driveway would not reach a level that satisfies peak hour warrants under Cumulative No Project conditions or under Cumulative Plus Project conditions.

Table T14

Cumulative No Project and Cumulative Plus Project Roadway Segment Volumes and Level of Service

Street	From	To	Classification	Cumulative No Project		EPAP Plus Project			
						Daily Volume			
				Daily Volume	Level of Service	Project Only	Total	Percentage Increase	Level of Service
Olive Avenue	State Route 59	Loughborough Drive	6 lane Arterial	37,179	C	74	37,253	0.20%	C

Notes: **BOLD** values exceed minimum Level of Service standard. **HIGHLIGHTED** values are significantly inconsistent with the General Plan

KDA

Table T15. Intersection Level of Service - Cumulative No Project and Cumulative Plus Project Conditions

Study Intersections	Inters. Control	Signal Warrant Met?	AM Peak Hour				PM Peak Hour			
			Cumulative No Project		Cumulative Plus Project		Cumulative No Project		Cumulative Plus Project	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1 Olive Avenue / Santa Fe Drive & State Route 59	Signal		**F**	89.4	**F**	90.1	**F**	165.8	**F**	167.0
2 Olive Avenue & Loughborough Drive	Signal		B	17.5	B	17.6	D	44.5	D	44.6
3 Olive Avenue & Project Site Driveway	Unsig	No	B	14.8	B	14.8	C	23.5	C	24.1

Notes: LOS = Level of Service. "Inters. Control" = Type of intersection control. "Signal" = Signalized light control. "Unsig" = Unsignalized stop-sign control. Delay is measured in seconds per vehicle.
Bold font indicates LOS is worse than D. Highlighted values are significantly inconsistent with the General Plan.

KDA

Table T16

Cumulative No Project and Cumulative Plus Project Peak Hour Queues at Olive Avenue / Santa Fe Drive & State Route 59

			AM Peak Hour					PM Peak Hour				
			Cumulative No Project		Cumulative Plus Project			Cumulative No Project		Cumulative Plus Project		
					Volume (vph)					Volume (vph)		
Approach	Lane	Storage (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)	Volume (vph)	95th % Queue (feet)	Project Only	Total	95th % Queue (feet)
Southbound	Left turn	150	46	64	1	47	65	88	132	1	89	134
Northbound	Left turn	200	247	**380**	0	247	**380**	253	**476**	0	253	**476**
Eastbound	Left turn	425	94	113	0	94	113	92	123	0	92	123
Westbound	Left turn	575	499	**701**	1	500	**702**	644	**1038**	3	647	**1044**

Notes: Values highlighted in yellow exceed storage by 20 feet or more.
"vph" = vehicles per hour.

KDA

SITE ACCESS ASSESSMENT

The adequacy of site access has been evaluated within the context of the issues which can affect the operation of adjoining public streets.

The Olive Avenue Mini-Storage project would have access to the surrounding roadway network via a connection to Olive Avenue. Access to Olive Avenue would be provided by shared use of an existing driveway connection to Olive Avenue. The proposed project would share use of the driveway with an approximately 7,000 building square feet existing retail commercial land use which is adjacent to the west side of the Olive Avenue Mini-Storage project site.

A raised median is present along Olive Avenue in the vicinity of the project site. A left-turn pocket is present in the median, which allows for left-turn movements into the driveway. The following movements are allowed at the existing shared-use driveway, and would continue to be allowed with implementation of the Olive Avenue Mini-Storage project:

- eastbound-to-northbound left-turns entering the driveway,
- westbound-to-northbound right-turns entering the driveway, and
- southbound-to-westbound right-turns exiting the driveway.

Southbound-to-eastbound left-turns exiting the driveway are prevented by the raised median, and would not be allowed with implementation of the proposed project.

The configuration of the existing driveway provides protected storage areas for vehicles making right-turn and left-turn movements at the driveway connection. In the vicinity of the driveway connection, the roadway does not have vertical or horizontal curvature that would impair sight distance. As shown in **Table 3**, the Olive Avenue Mini-Storage project would generate a relatively low number of vehicle trips - five trips in the a.m. peak hour and eight trips in the p.m. peak hour. Because of these factors, the project is not considered to result in any conditions that would result in unacceptable site access or would adversely affect operation of adjoining public streets.

IMPROVEMENTS / RECOMMENDATIONS

The preceding analysis has identified impacts on traffic operations that would occur without roadway improvements or mitigation. The text that follows identifies measures for improving traffic operations with the goal of achieving the City's LOS D minimum standard.

Existing Conditions

Level of Service. All study intersections and roadway segment currently operate at LOS D or better, which satisfies the City's minimum LOS D threshold. No specific improvements are required.

Queuing. During the p.m. peak hour, 95th percentile queuing on the southbound-to-eastbound left-turn movement at the intersection of Olive Avenue / Santa Fe Drive & SR 59 exceed the storage length. Retiming of the signal at this intersection as a part of the City's pending SR 59 widening project would address the length of queues on this movement.

Existing Plus Olive Avenue Mini-Storage Project Conditions

Level of Service Effects. The traffic operational analysis concludes that all study intersections would continue to operate with LOS that satisfy the minimum LOS D standard.

Queuing Effects. The project would add a minor amount of traffic to the intersection of Olive Avenue / Santa Fe Drive & SR 59 resulting in a minor increase in the length of queuing on the southbound-to-eastbound left-turn movement at the intersection. Addressing the length of queuing on this approach may be undertaken with the City's pending SR 59 widening project.

Roadway Segment LOS Effects. The project would add traffic to the study roadway segment. However, the roadway segment would operate at LOS D or better, which satisfies the City's minimum LOS D threshold.

Existing Plus Approved Projects (EPAP) Plus Olive Avenue Mini-Storage Project Conditions

Level of Service Effects. The traffic operational analysis concludes that the intersection of Olive Avenue / Santa Fe Drive & SR 59 would operate at LOS E under EPAP No Project conditions and EPAP Plus Project conditions. Optimizing the traffic signal timing at this intersection after previously approved land use development projects on the northwest and northeast corners of the intersection are occupied is recommended.

Queuing Effects. Under both EPAP No Project conditions and EPAP Plus Project conditions, queuing on the southbound-to-eastbound left-turn movement and the northbound-to-westbound left-turn movement at the intersection of Olive Avenue / Santa Fe Drive & SR 59 would exceed the storage length. The project would add a minor amount of traffic to the intersection, resulting in a minor increase in the length of queuing. Retiming of the signal at this intersection as a part of recommended improvements to improve LOS would address the length of queues on these movements.

Roadway Segment LOS Effects. The project would add traffic to the study roadway segment. However, the roadway segment would operate at LOS D or better, which satisfies the City's minimum LOS D threshold.

Cumulative Year 2046 Plus Olive Avenue Mini-Storage Project Conditions

Level of Service Effects. The traffic operational analysis concludes that the intersection of Olive Avenue / Santa Fe Drive & SR 59 would operate at LOS F under Cumulative No Project conditions and Cumulative Plus Project conditions. Traffic studies for other projects under similar circumstances have recommended that development projects contribute a fair share to the cost of intersection improvements that include:

- Reconstruct westbound Olive Avenue to provide dual westbound-to-southbound left turn lanes onto southbound SR 59.
- Reconfigure the existing westbound right turn lane to create a combination westbound through & right turn lane, and extend that through lane across SR 59 to create a third departing westbound lane.
- Reconstruct the existing northbound-to-eastbound right turn lane as a "free" right turn with a median island separating eastbound through traffic and right turning traffic.
- Reconstruct the eastbound Santa Fe Drive approach to provide dual eastbound-to-northbound left turn lanes onto northbound SR 59.

This level of improvement would yield LOS C in the a.m. peak hour and LOS D in the p.m. peak hour under both Cumulative No Project conditions and Cumulative Plus Project conditions.

Any decisions regarding long term improvements to Merced's regional circulation system should be balanced by understanding of improvement issues that are outside of the control of the City of Merced. In this case, the timing for completion of AME to Bellevue Road has been uncertain and is reflected in this analysis. Extending AME would have the effect of altering future traffic volumes on SR 59. Thus, it is recommended that that long term intersection design issues be considered within the context of the City's pending of plans for SR 59 widening.

Queuing Effects. Under both Cumulative No Project conditions and Cumulative Plus Project conditions, queuing on the northbound-to-westbound left-turn movement and the westbound-to-southbound left-turn movement at the intersection of Olive Avenue / Santa Fe Drive & SR 59 would exceed the storage length. The Olive Avenue Mini-Storage project would add a minor amount of traffic to the intersection, resulting in a minor increase in the length of queuing. The recommended improvements listed above to improve LOS would address the length of queues on these movements.

Roadway Segment LOS Effects. The project would add traffic to the study roadway segment. However, the roadway segment would operate at LOS D or better, which satisfies the City's minimum LOS D threshold.

Improvement Summary

Table T20 summarizes recommended improvements.

TABLE T20
IMPROVEMENT SUMMARY

Location	Impact	Improvement	Ramification
		EXISTING AND EXISTING PLUS PROJECT CONDITIONS	
Olive Avenue / Santa Fe Drive & State Route 59	Queuing exceeds storage length.	Retime traffic signal timing as part of City's pending SR 59 widening project	Requires Caltrans coordination and approval
		EPAP NO PROJECT AND EPAP PLUS PROJECT CONDITIONS	
Olive Avenue / Santa Fe Drive & State Route 59	LOS E during p.m. peak hour, and queuing exceeds storage length.	Optimize traffic signal timing after approved projects adjacent to the intersection are occupied	Requires Caltrans coordination and approval
		CUMULATIVE NO PROJECT AND CUMULATIVE PLUS PROJECT CONDITIONS	
Olive Avenue / Santa Fe Drive & State Route 59	LOS F during a.m. and p.m. peak hours, and queuing exceeds storage length.	Determine the feasibility of including long term improvements that are consistent with City's SR 59 widening project	

REFERENCES

Documents Cited

California Department of Transportation. 2021. California Manual on Uniform Traffic Control Devices. 2014 Edition Revision 6 (March 30, 2021). Sacramento CA.

California Department of Transportation. 2022. Highway Design Manual Seventh Edition. Sacramento CA.

California Governor's Office of Planning and Research. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Sacramento, CA.

Institute of Transportation Engineers. 2021. Trip Generation Manual, 11th Edition. Washington, D.C.

Merced, City of. 2010. Merced Vision 2030 General Plan, Draft Program Environmental Impact Report. Merced, CA.

Merced, City of. 2012. Merced Vision 2030 General Plan. Merced, CA.

Merced, City of. 2004. Sample Traffic Study Scope of Work. Merced, CA.

Merced Transit Authority. 2023. Merced Transit Authority Internet Website. https://www.mercedthebus.com/

Trafficware. 2023. Trafficware Internet Website. http://www.trafficware.com/

Transportation Research Board. 1982. National Cooperative Highway Research Program (NCHRP) Report 255, Highway Traffic Data for Urbanized Area Project Planning and Design. Washington, D.C. http://pubsindex.trb.org/view/1982/m/188432

Transportation Research Board. 2016. Highway Capacity Manual 6th Edition. Washington, D.C.

Personal Communications

Forte, Elizabeth. Director of Planning and Programming. Merced County Association of Governments (MCAG). January 30, 2023 E-mail message to Wayne Shijo, KD Anderson & Associates.

ENVIRONMENTAL REVIEW #23-08
Revised
Mitigation Monitoring Program

MITIGATION MONITORING CONTENTS

This mitigation monitoring program includes a brief discussion of the legal basis and purpose of the mitigation monitoring program, a key to understanding the monitoring matrix, a discussion of noncompliance complaints, and the mitigation monitoring matrix itself.

LEGAL BASIS AND PURPOSE OF THE MITIGATION MONITORING PROGRAM

Public Resource Code (PRC) 21081.6 requires public agencies to adopt mitigation monitoring or reporting programs whenever certifying an environmental impact report or mitigated negative declaration. This requirement facilitates implementation of all mitigation measures adopted through the California Environmental Quality Act (CEQA) process.

The City of Merced has adopted its own "Mitigation Monitoring and Reporting Program" (MMC 19.28). The City's program was developed in accordance with the advisory publication, *Tracking CEQA Mitigation Measures*, from the Governor's Office of Planning and Research.

As required by MMC 19.28.050, the following findings are made:

1) The requirements of the adopted mitigation monitoring program for the General Plan Amendment #23-02, Site Utilization Plan (SUP) Revision #3 to Planned Development (P-D) #12, Conditional Use Permit #1274, and Site Plan Review #516 shall run with the real property. Successive owners, heirs, and assigns of this real property are bound to comply with all of the requirements of the adopted program.
2) Prior to any lease, sale, transfer, or conveyance of any portion of the subject real property, the applicant shall provide a copy of the adopted program to the prospective lessee, buyer, transferee, or one to whom the conveyance is made.

MITIGATION MONITORING PROCEDURES

In most cases, mitigation measures can be monitored through the City's construction plan approval/plan check process. When the approved project plans and specifications, with mitigation measures, are submitted to the City Development Services Department, a copy of the monitoring checklist will be attached to the submittal. The Mitigation Monitoring Checklist will be filled out upon project approval with mitigation measures required. As project plans and specifications are checked, compliance with each mitigation measure can be reviewed.

In instances where mitigation requires on-going monitoring, the Mitigation Monitoring Checklist will be used until monitoring is no longer necessary. The Development Services Department will be required to file periodic reports on how the implementation of various mitigation measures is progressing or is being maintained. Department staff may be required to conduct periodic inspections to assure compliance. In some instances, outside agencies and/or consultants may be required to conduct necessary periodic inspections as part of the mitigation monitoring program. Fees may be imposed per MMC 19.28.070 for the cost of implementing the monitoring program.

GENERAL PLAN MITIGATION MEASURES

As a second-tier environmental document, Initial Study #23-08 incorporates some mitigation measures adopted as part of the *Merced Vision 2030 General Plan Program Environmental Impact Report* (SCH# 2008071069), as mitigation for potential impacts of the Project.

NONCOMPLIANCE COMPLAINTS

Any person or agency may file a complaint asserting noncompliance with the mitigation measures associated with the project. The complaint shall be directed to the Director of Development Services in written form providing specific information on the asserted violation. The Director of Development Services shall cause an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure has occurred, the Director of Development Services shall cause appropriate actions to remedy any violation. The complainant shall receive written confirmation indicating the results of the investigation or the final action corresponding to the particular noncompliance issue. Merced Municipal Code (MMC) Sections 19.28.080 and 19.28.090 outline the criminal penalties and civil and administrative remedies which may be incurred in the event of noncompliance. MMC 19.28.100 spells out the appeals procedures.

MONITORING MATRIX

The following pages provide a series of tables identifying the mitigation measures proposed specifically for General Plan Amendment #23-02, Site Utilization Plan Revision #3 to Planned Development (P-D) #12, Conditional Use Permit #1274, and Site Plan Review #516. The columns within the tables are defined as follows:

Mitigation Measure:	Describes the Mitigation Measure (referenced by number).
Timing:	Identifies at what point in time or phase of the project that the mitigation measure will be completed.
Agency/Department Consultation:	This column references any public agency or City department with which coordination is required to satisfy the identified mitigation measure.
Verification:	These columns will be initialed and dated by the individual designated to verify adherence to the project specific mitigation.

General Plan Amendment #23-02/Site Utilization Plan Revision #3 to Planned Development (P-D) #12/Conditional Use Permit #1274/ Site Plan Review Permit #516 Mitigation Monitoring Checklist

Project Name:_____ **File Number:**_____
Approval Date:_____ **Project Location** _____
Brief Project Description_____

The following environmental mitigation measures were incorporated into the Conditions of Approval for this project in order to mitigate identified environmental impacts to a level of insignificance. A completed and signed checklist for each mitigation measure indicates that this mitigation measure has been complied with and implemented, and fulfills the City of Merced's Mitigation Monitoring Requirements (MMC 19.28) with respect to Assembly Bill 3180 (Public Resources Code Section 21081.6).

1) Greenhouse Gas Emissions				
Impact	***Mitigation Measures***	***Timing***	***Agency or Department***	***City Verification (date and initials)***
a	GHG- 1**)**	Building Permit	Planning Department	

a	GHG-1)	The project applicant shall demonstrate compliance with the applicable BPS strategies to the Planning Division prior to the issuance of a building permit. The following BPS strategies are considered to be applicable, feasible, and effective in reducing GHG emissions generated by the project: • The project will provide a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project's occupancy permits being granted. • Site design and building placement will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation will be eliminated. Barriers to pedestrian access of neighboring facilities and sites will be minimized. This measure is not meant to prevent the limited use of barriers to ensure public safety by prohibiting access to hazardous areas. This measure is not meant to prevent features needed to securely operate a mini-storage facility. • Merced Regional Transit System The Bus Route Ml - Merced West - provides bus service with one-half hour headways. A bus stop for Route Ml is located at the Walmart store at Olive Avenue and	Building Permit/Grading Permit	Building / Engineering Departments	

	Loughborough Drive, directly south of the project site. The project will provide safe and convenient bicycle/pedestrian access to the bus stop and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).The project applicant shall plant trees to provide shade. • The project will install light-colored/high/albedo roof materials on the portion of the project containing climate-controlled units. Light-colored/high/albedo roof materials reflect more of the sun's rays, decreasing the amount of heat transferred into a building. • The project will provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, etc.; OR use an open-grid pavement system (less than 50% impervious) for a minimum of 50% of the parking lot area. Unshaded parking lot areas, driveways, fire lanes, and other paved areas will have a minimum albedo of 0.3 or greater.			
b	*GHG-2)* Implementation of Mitigation Measure of GHG-1.			

Certificate of Completion:
By signing below, the environmental coordinator confirms that the required mitigation measures have been implemented as evidenced by the Schedule of Tasks and Sign-Off Checklist, and that all direct and indirect costs have been paid. This act constitutes the issuance of a *Certificate of Completion*.

_____ _____
Environmental Coordinator Date