CITY OF MERCED
PLANNING & PERMITTING DIVISION

TYPE OF PROPOSAL: General Plan Amendment #23-05/ Zone Change #434/ Establishment of Planned Development #81/Conditional Use Permit #1276/ Site Plan Review Permit #538/Minor Use Permit #24-02

INITIAL STUDY: #23-45

DATE RECEIVED: December 15, 2023 (date application determined to be complete)

LOCATION: 470 E. Olive Avenue

ASSESSOR'S PARCEL NUMBERS: 007-050-009
(SEE ATTACHED MAP AT ATTACHMENTS A)

Please forward any written comments by April 3, 2024 to:

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PROJECT DESCRIPTION

The Project site consists of an approximate 3.50-acre parcel (APN: 007-050-009) located at 470 E. Olive Avenue (Attachment A), generally located on the south side of E. Olive Avenue, 500 feet west of Oleander Avenue. The subject site has a General Plan designation of Low Medium Density Residential (LMD), and a Zoning classification of Low Medium Density Residential (R-2). The subject site is surrounded by Burbank Park to the west, Luther Burbank Elementary to the south, Christian Life Center to the east, and single-family homes to the north across E. Olive Avenue.

The applicant is requesting approval to develop a self-storage facility with approximately 681 storage units, and a long-term boat and recreational vehicle parking facility with approximately 74 spaces. The current General Plan designation of Low Medium Density Residential is intended for residential uses such as single-family homes and duplexes. The parcel would remain singular (no parcel map), with vehicle access from one driveway along E. Olive Avenue.

The applicant has provided a site plan, floor plans, and elevations for this proposal. The front, or northern portion of the parcel along E. Olive Avenue, would be reserved for the self-storage.

Attachment B through D illustrate the proposed structures (Site Plan, Floor Plan, and Elevations). The tallest structures would be the two-story office/live-work unit along E. Olive Avenue, and a separate storage structure near the center of the parcel which would be approximately 28 feet tall. The office would be the most visible structure to the public located along Olive Avenue. The exterior of the office would consist of terracotta tile roofing, walls with stucco finish, stone veneer accents, and storefront windows.

There would be 4 buildings for the 681-storage spaces. One building on the northern portion of the parcel, one on the northwest portion of parcel, one on the northeast portion of the parcel, and another at the center portion of the parcel (two stories). The storage spaces would range in dimensions between 5 feet by 5 feet, and 10 feet by 30 feet. The storage buildings would have a metal finish. The back of the storage units along the eastern and western property lines would consist of a 12 to 14-foot-tall block wall. The northern and southern property lines would be secured with a wrought iron perimeter fence. The northern portion of the parcel would be secured with fencing and gates that restrict access onto the site.

The rear, or southern portion of the subject site (approximately 1 acre), would be dedicated for long-term boat and recreational vehicle parking with approximately 74 parking stalls with parking spaces ranging in size between 10 feet by 28 feet, and 12 feet by 40 feet. The long-term parking stalls might consist of gravel or other impervious surface, but the driving aisles to said stalls would be paved with an impervious surface. There is a possibility that gravel would not be used and a paved surface would be required.

Project Location

The subject site is located within the northeast quadrant of Merced. The subject site is surrounded by Burbank Park to the west, Luther Burbank Elementary to the south, Christian Life Center to the east, and single-family homes to the north across E. Olive Avenue. 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	Single-Family Homes (across Olive Avenue)	Low Density Residential (R-1-6)	Low Density Residential (LDR)
South	Luther Burbank Elementary	Low Density Residential (R-1-6)	School (SCH)
East	Christian Life Center	Low Density Residential (R-1-6)	Low Medium Density Residential (LMD)/Low Density Residential (LDR)
West	Burbank Park	Low Density Residential (R-1-6)	Parks and Open Space (P-OS)

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 March 4, 2024.

B. The checklist was prepared on March 6, 2024.

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 #23-45 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 northeast Merced, approximately one and a half miles northeast of Downtown and one- and three-quarter miles north of Highway 99. The project site consists of an undeveloped lot totaling approximately 3.50 acres. The terrain is generally flat. The site is surrounded by Burbank Park to the west, Luther Burbank Elementary to the south, Christian Life Center to the east, and single-family homes to the north across E. Olive Avenue. These buildings and structures range in height, between 15 and 30 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 "Urban and Built-Up 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 "Urban and Built-Up 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 southeast of the subject site, near the northwest corner of McKee Road and Arden Lane. 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 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 E, 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, 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 northeast Merced, approximately one and a half miles northeast of Downtown and one and three-quarter miles north of Highway 99. The site is surrounded by Burbank Park to the west, Luther Burbank Elementary to the south, Christian Life Center to the east, and single-family homes to the north across E. Olive Avenue. The project site does not contain any creeks, or other wetland areas on private property.

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 0.50 miles north of Bear Creek and Black Rascal Creek is approximately 0.30 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.

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.

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 Senora 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 seven 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 0.90 miles from the site and Union Pacific Railroad is over 1.60 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 Luther Burbank Elementary School, located directly adjacent to the south of the subject site at 609 E. Alexander Avenue. Besides Merced High School at the northwest corner G Street and Olive Avenue, there are no other 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 3.50-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 8 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 northwest 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.

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 3.50 acres of undeveloped land located on the south side of Olive Avenue, approximately 500 feet west of Oleander Avenue.

The project site currently has a Zoning classification of Low Medium Density Residential (R-2) and a General Plan designation of Low Medium Density Residential (LMD). The existing land use designations for this site allows for low density residential uses such as single-family homes and duplexes. 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 establishment of Planned Development (P-D) #81 (along with Site Plan Review Permit #538), 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, and a Minor Use Permit (MP) for interface development of a Business Park development adjacent to a Low Density Residential (R-1-6) Zone.

	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 currently has a Zoning classification of and a General Plan designation of Low Medium Density Residential (LMD). The existing land use designations for this site would allow for low to medium density residential uses such as single-family homes and duplexes. The proposed land use amendment would transition the site with 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 establishment of Planned Development (P-D) #81 (along with Site Plan Review Permit #538), proposed General Plan designation of Business Park (BP), Conditional Use Permit for a live/work unit for the onsite manager, and minor use permit for the interface development of commercial adjacent to a Low Density Residential (R-1-6) Zone. Business Park is similar to a hybrid of light industrial and office commercial. Although the subject site is surrounded by residential zones, it is not adjacent to single-family homes as the adjacent surrounding uses include a park, elementary school, and a church. The nearest single-family homes would be across the street from an arterial road (Olive Avenue). 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 adjacent uses such as Burbank Park, Burbank Elementary School, and the Christian Life Center would be the primary existing noise source at the project site. The nearest railroad corridor is approximately 4,500 feet south from the project site. The site is surrounded by various uses that generate operational noise on a daily basis. There are several commercial uses located 500 feet west of the project site.

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. <u>Noise.</u> 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**

<u>Construction Noise</u>

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 surrounded by a park, elementary school, and church with no actual homes adjacent to the project site. The approval of the land use change to storage facility is expected to generate less noise than the existing surrounding uses mentioned above. The noise from the proposed self-storage, and long-term boat and recreational vehicle parking would be reduced by the proposed approximately 12 to 14-foot-tall block wall along portions of the eastern and western property line between the subject site and the park to the west and church 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 uses around 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 approximately 4 miles northeast from active areas of the Merced Regional Airport and approximately 7 miles east from the Castle Airport. 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 Low Medium Density Residential (LMD) to Business Park (BP) for a singular undeveloped parcel approximately 3.50-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 are no existing housing units on site and 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 northwest 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 66,302 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 northwest 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 would 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

Burbank Park is located directly west of the subject 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. <u>Recreation.</u> 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 northeast Merced, approximately one and a half miles northeast of Downtown and one and three-quarter mile northeast of Highway 99. The project site consists of an undeveloped lot totaling approximately 3.50 acres. The project site fronts an arterial road (Olive Avenue), with the nearest north-south roads being G Street (arterial road) to the west and Oleander Avenue (collector road) both designed to carry large volumes of traffic traversing through a large portion of the community. G Street provides 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. Cat Tracks is a bus service for UC Merced students that also serves the City.

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 were 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 90 vehicle trips per day. As this trip generation estimate falls below the 110 daily trip thresholds 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 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 on Olive Avenue between M Street and G Street, but pedestrians and bicyclists use paved shoulders elsewhere. A sidewalk is present along the project's Olive Avenue frontage. The proposed self 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 90 trips on a daily basis, with 6 trips in the a.m. peak hours, and 11 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 Advance Mobility Group. 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. The Transit Joint Powers Authority provides transit service through "The Bus." There are several bus stops near the intersection of Olive Avenue and G Street that provide access to Routes M4 and M6

The Amtrak (passenger train service) is located within 2 miles providing services to the greater California area and connections to travel across the country. The closest airport is Merced Regional Airport, located approximately 3.5 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 3.50-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 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. <u>Utilities and Service Systems.</u> 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 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:				
1) 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				✓
i. 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

1) **No Impact**

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 exist 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

1) Less Than Significant Impact

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.

2) Less Than Significant Impact

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.

3) Less Than Significant Impact

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 infra-structure or on-going maintenance would be required that would cause an impact to the environment. This impact is less than significant.

4) Less Than Significant Impact

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 E). 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 E.

For additional information see Appendix A at Attachment E 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	196	0.01	< 0.005	0.04	198
Operational Emissions					
a. Mobile	55.8	< 0.005	< 0.005	0.09	57.3
b. Area	0.87	< 0.005	< 0.005	- -	0.87
c. Energy	113	0.01	< 0.005	- -	114
d. Water	12.5	0.45	0.01	- -	26.9
e Waste	5.0	0.50	0.00	- -	17.4
f. Total Operational Emissions (a + b + c + d + e)	188	0.96	0.02	0.09	217

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 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 #4 - Proximity to Bike Path/Bike Lanes.** A Class II bike lane, as defined in the Caltrans *Highway Design Manual* (California Department of Transportation 2022), is present along the south side of E. Olive Avenue immediately west of the project site. The eastern terminus of the bike lane is at the western edge of the project site. The SJVAPCD *Climate Change Action Plan* document notes that Measure #4 is applicable if the entire project is located within one-half mile of an existing Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project occupancy permits being granted. Project design includes a designated bicycle route connecting all units, on-site bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within one-half mile. Contingent on the design being approved by the City of Merced, the project will extend the bike lane on the south side of E. Olive Avenue from the existing terminus on the western edge of the project site to the eastern edge of the project site.

- **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. 'Ibis 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.** The Bus, Merced's Regional Transit System is operated by the Transit Joint Powers Authority for Merced County. The Bus Route M6 - Merced North - provides service along E. Olive Avenue between G Street and Parsons Avenue, and along G Street south of E. Olive Avenue. Route M6 provides bus service

with 45 minute headways. The route map for Route M6 shows a bus stop on G Street south of E. Olive Avenue, west of the project site (The Bus 2023). Contingent on approval by the Transit Joint Powers Authority and the City, the project will provide safe and convenient access to the bus stop, or a new bus stop, and provide 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[1]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 of0.3 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.

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 E. 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.

February 29, 2024

Francisco Mendoza-Gonzalez, Senior Planner

for Kim Espinosa

Kim Espinosa, Temporary Director of Development Services
Environmental Coordinator
City of Merced

5. PREPARERS OF THE INITIAL STUDY

LEAD AGENCY

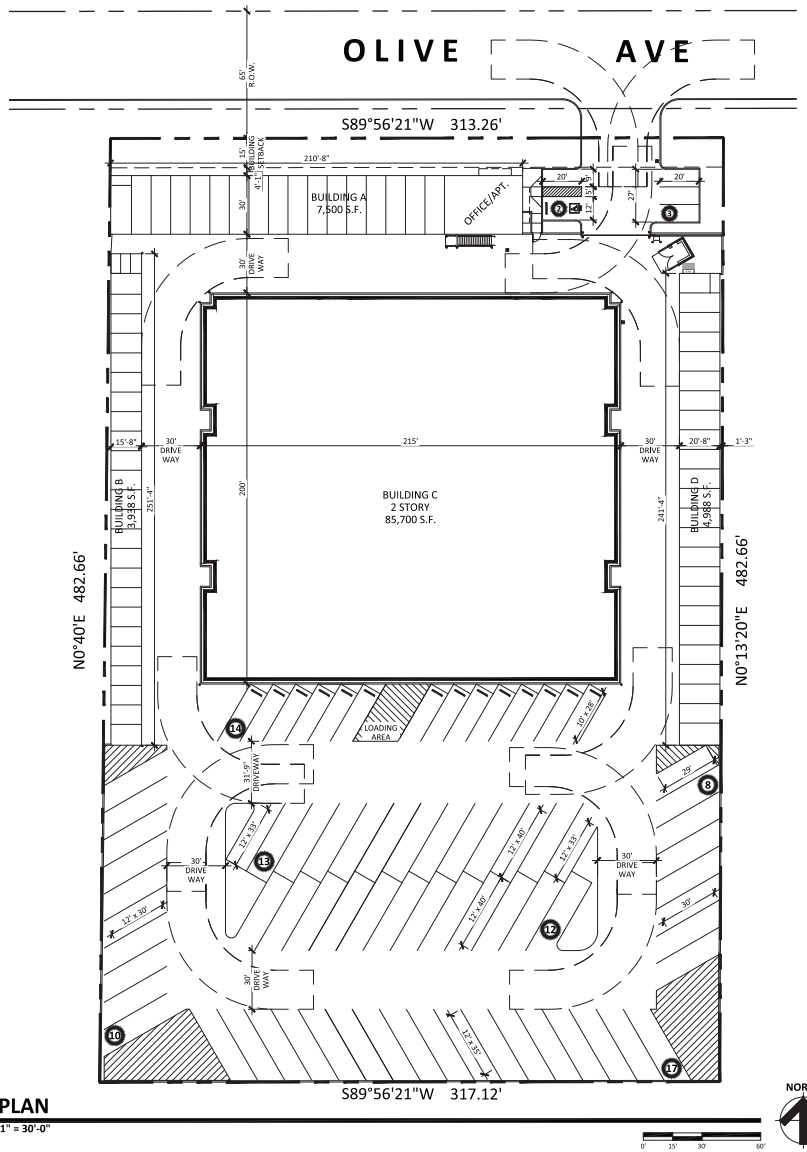
City of Merced
Planning & Permitting Division
678 West 18th Street
Merced, CA 95340
(209) 385-6929
Francisco Mendoza-Gonzalez, Senior Planner

ATTACHMENTS:

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

ATTACHMENT A

ATTACHMENT B



SITE PLAN

SCALE: 1" = 30'-0"

PROJECT DIRECTORY

APPLICANT:
MERCED SECURITY STORAGE II, LLC
515 SOUTH FLOWER STREET 18TH FLOOR
LOS ANGELES, CALIFORNIA 90071
CONTACT: SEAN BRANNAN
PHONE: (408) 413-8869
E-MAIL: sbrannan@capitalfundingcorp.com

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

SITE DATA

ASSESSOR PARCEL NO:	007-050-009
GROSS SITE AREA:	3.95 ACRES (172,488 S.F.)
NET SITE AREA:	3.49 ACRES (152,135 S.F.)

SETBACKS:

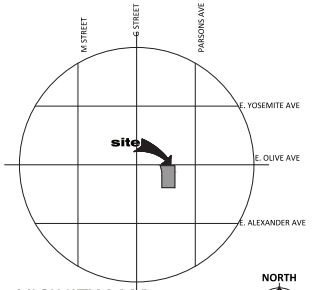
MINIMUM FRONT YARD:	15'-0"
MINIMUM REAR YARD:	0'-0"
MINIMUM SIDE YARD:	0'-0"
HEIGHT MAX:	40'-0"
PROPOSED USE:	SELF SERVICE STORAGE
BUILDING HEIGHT:	40'-0"

BUILDING AREA:

BUILDING A:	7,520 S.F.
BUILDING B:	3,938 S.F.
BUILDING C:	85,700 S.F.
BUILDING D:	4,988 S.F.
TOTAL BUILDING AREA:	102,146 S.F.

TOTAL PARKING REQUIRED:
SELF STORAGE (99,746 S.F.)
1 PER 50 STORAGE UNITS (681 / 50 = 14)
OFFICE (1,200 S.F.)
1 PER 250 S.F.OF FLOOR AREA (1,200 / 250 = 5)
RESIDENTIAL (1,200 S.F.)
1 PER UNIT = 1 REQUIRED

TOTAL PARKING REQUIRED:	20 SPACES
TOTAL PARKING PROVIDED:	5 SPACES
ACCESSIBLE SPACES REQUIRED:	1 SPACES
ACCESSIBLE SPACES PROVIDED:	1 SPACES
BICYCLE SPACES REQUIRED:	2 SPACES
BICYCLE SPACES PROVIDED:	2 SPACES
RV SPACES PROVIDED:	74 SPACES



VICINITY MAP

SCALE: N.T.S.

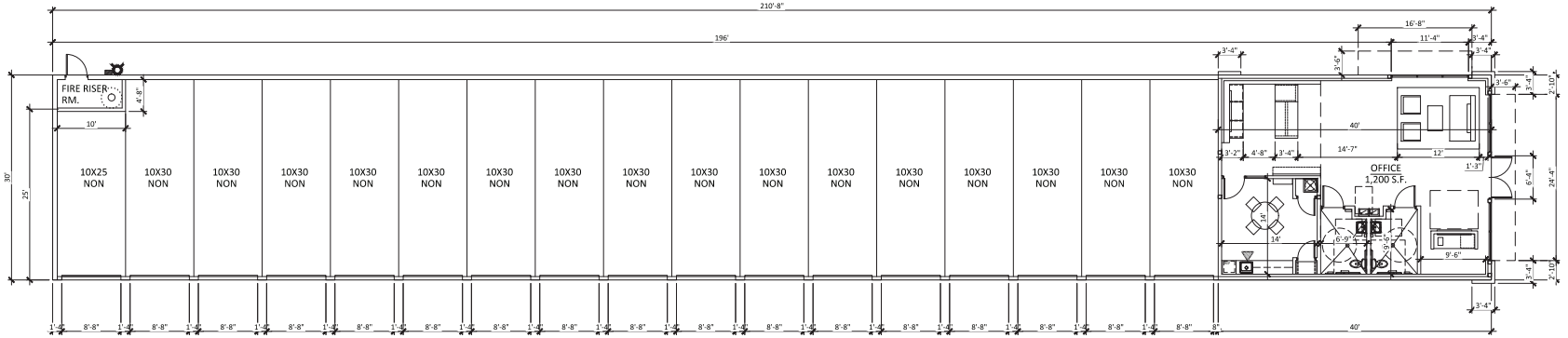
RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC
550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-29-2023 (PRELIMINARY)

SP-1

RKAA# 23054.50

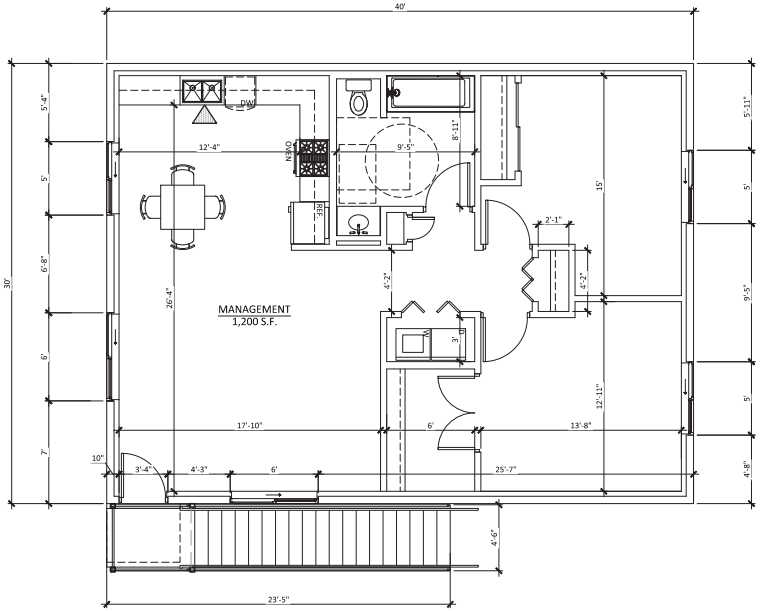
ATTACHMENT C



BUILDING "A" 1ST FLOOR PLAN

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

NORTH

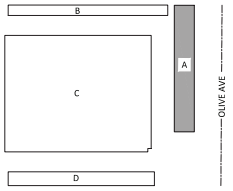


BUILDING "A" RESIDENCE 2ND FLOOR PLAN

SCALE: 1/4" = 1'-0"

NORTH

BUILDING "A" UNIT MIX			
G.S.F = 7,520 S.F.			
L.S.F. = 5,050 S.F.			
CLIMATE CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
DRIVE UP STORAGE			
10'X25' NON	1	250	250
10'X30' NON	16	300	4800
TOTAL	17		5050



KEY MAP

SCALE: NTS

NORTH

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC

550 E. OLIVE AVE

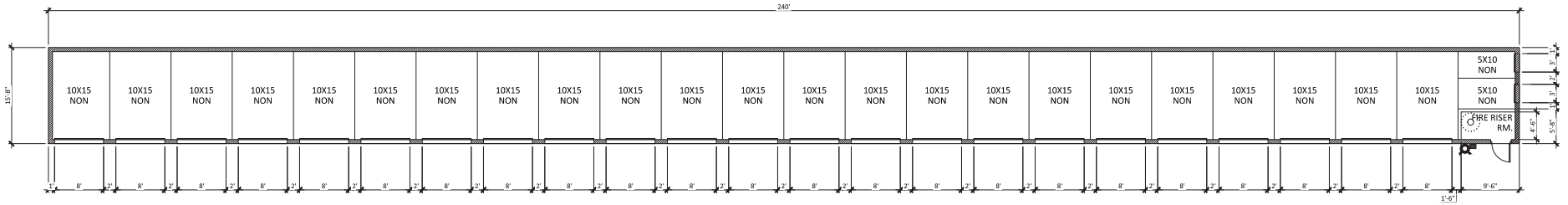
MERCED, CA 95340

DATE: 11-27-2023 (PRELIMINARY)

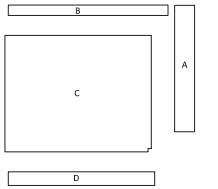
FP-A

FLOOR PLAN

RKAA# 23054.50



BUILDING "B" UNIT MIX			
G.S.F = 3,760 S.F.			
L.S.F. = 3,543 S.F.			
NON CLIMATE CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
DRIVE UP STORAGE			
5'X10' NON	2	50	100
10'X15' NON	23	150	3450
TOTAL	25		3550



BUILDING "B" FLOOR PLAN

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

NORTH

KEY MAP

SCALE: NTS

NORTH

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC

550 E. OLIVE AVE

MERCED, CA 95340

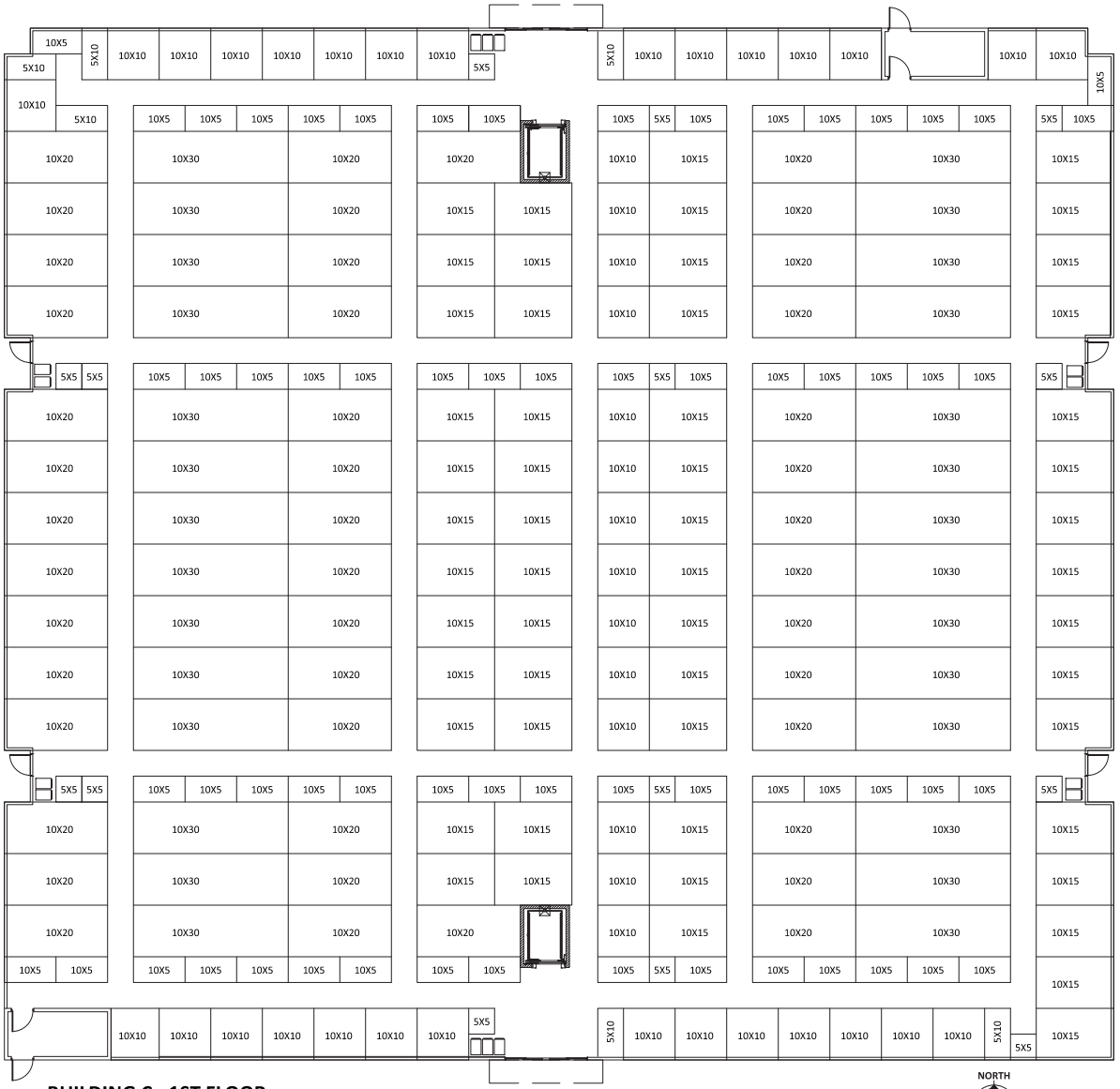
DATE: 11-27-2023 (PRELIMINARY)

FP-B

FLOOR PLAN

RKAA# 23054.50

BUILDING C UNIT MIX			
G.S.F = 85,700 S.F.			
L.S.F. = 65,025 S.F.			
76%			
CC UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
5X5	127	25	3175
5X10	82	50	4100
10X5	65	50	3250
10X10	235	100	23500
10X15	92	150	13800
10X20	44	200	8800
10X30	28	300	8400
TOTAL	673		65025



BUILDING C - 1ST FLOOR

SCALE: 3/32" = 1'-0"

1ST FLOOR UNIT MIX			
G.S.F = 42,750 S.F.			
L.S.F. = 33,400 S.F.			
CC UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
5X5	14	25	350
5X10	6	50	300
10X5	63	50	3150
10X10	43	100	4300
10X15	54	150	8100
10X20	44	200	8800
10X30	28	300	8400
TOTAL	252		33400

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC

550 E. OLIVE AVE

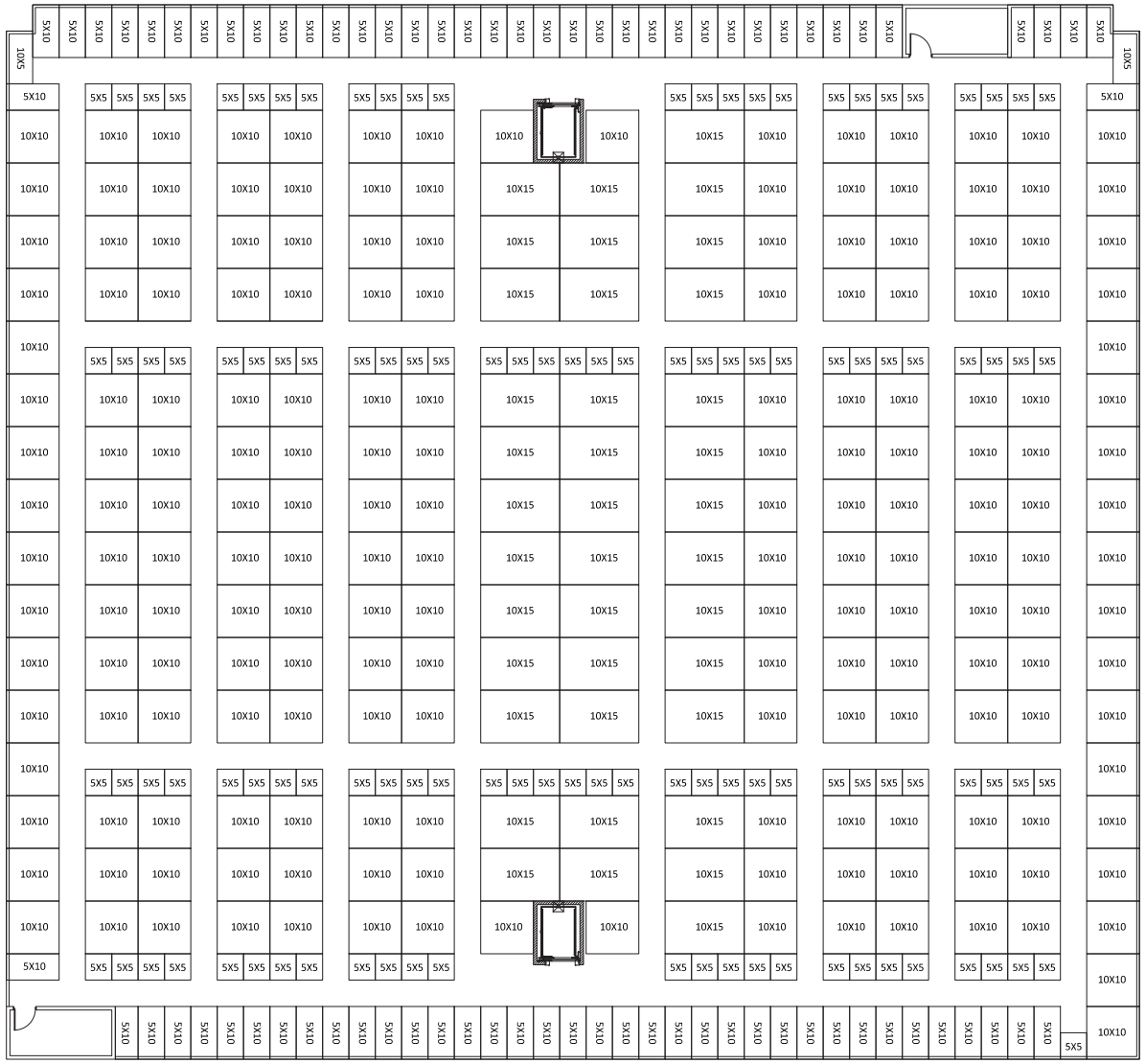
MERCED, CA 95340

DATE: 11-27-2023 (PRELIMINARY)

BLD C

FP-1

RKAA# 23054.50



BUILDING C - 2ND FLOOR

SCALE: 3/32" = 1'-0"

NORTH

2ND FLOOR UNIT MIX			
G.S.F = 42,950 S.F.			
L.S.F. = 31,625 S.F.			
CC UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
5X5	113	25	2825
5X10	76	50	3800
10X5	2	50	100
10X10	192	100	19200
10X15	38	150	5700
TOTAL	421		31625

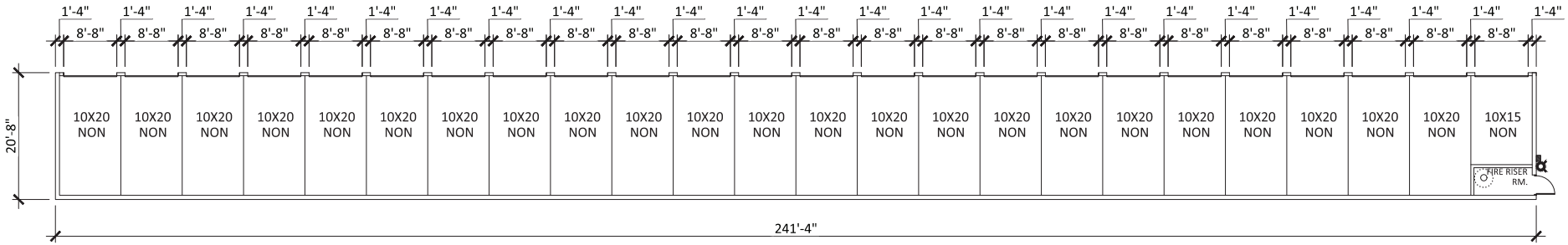
RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC

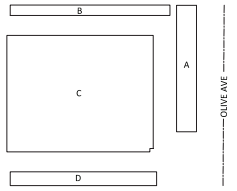
550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-27-2023 (PRELIMINARY)

BLD C
FP-2

RKAA# 23054.50



BUILDING D UNIT MIX			
G.S.F = 4,988 S.F.			
L.S.F. = 4,750 S.F.			
CLIMATE CONTROLLED UNIT MIX SUMMARY			
UNIT SIZE	TOTAL	S.F. PER	AREA
DRIVE UP STORAGE			
10'X15' NON	1	150	150
10'X20' NON	23	200	4600
TOTAL	24		4750



BUILDING "D" FLOOR PLAN

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

NORTH

KEY MAP

SCALE: NTS

NORTH

RKAA ARCHITECTS, INC

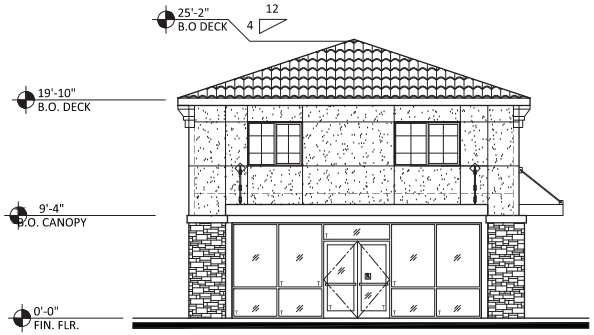
MERCED SECURITY STORAGE II, LLC

550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-27-2023 (PRELIMINARY)

FP-D
FLOOR PLAN

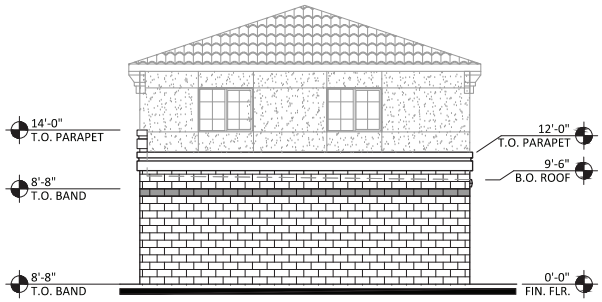
RKAA# 23054.50

ATTACHMENT D



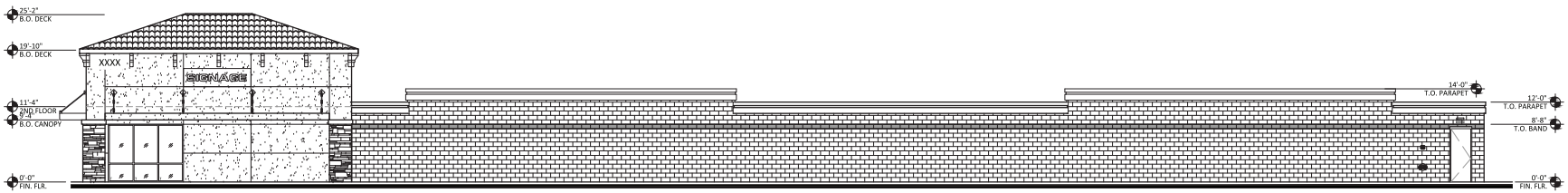
EAST ELEVATION BUILDING A

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



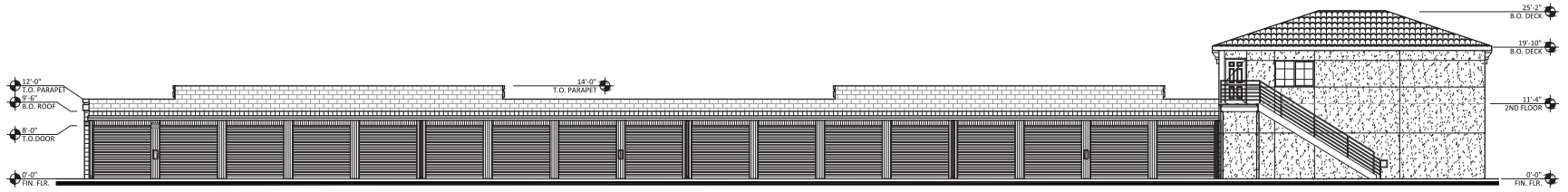
WEST ELEVATION BUILDING A

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



NORTH ELEVATION BUILDING A

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



SOUTH ELEVATION BUILDING A

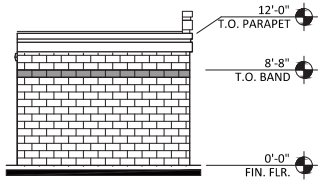
SCALE: 1/8" = 1'-0"

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC
550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-30-2023 (PRELIMINARY)

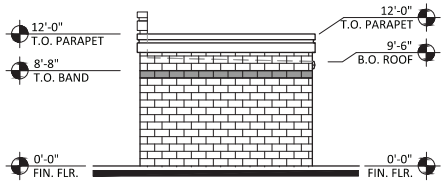
ELEV-A

RKAA# 23054.50



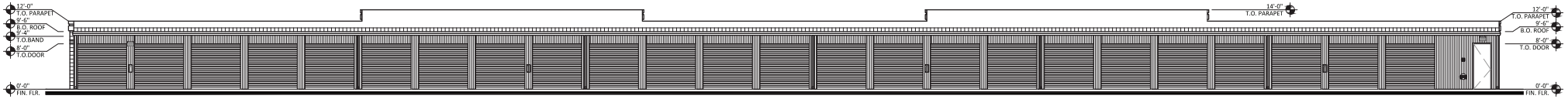
NORTH ELEVATION BUILDING B

SCALE: 1/4" = 1'-0"



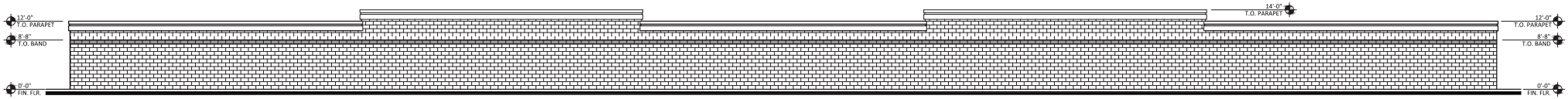
SOUTH ELEVATION BUILDING B

SCALE: 1/4" = 1'-0"



EAST ELEVATION BUILDING B

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



WEST ELEVATION BUILDING B

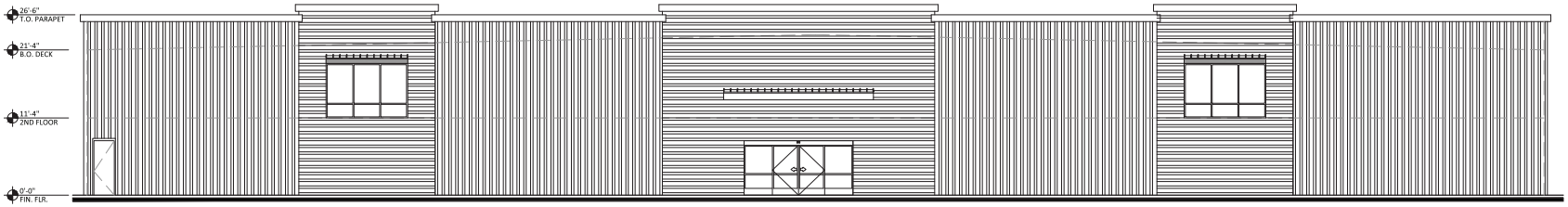
SCALE: 1/8" = 1'-0"

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC
550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-30-2023 (PRELIMINARY)

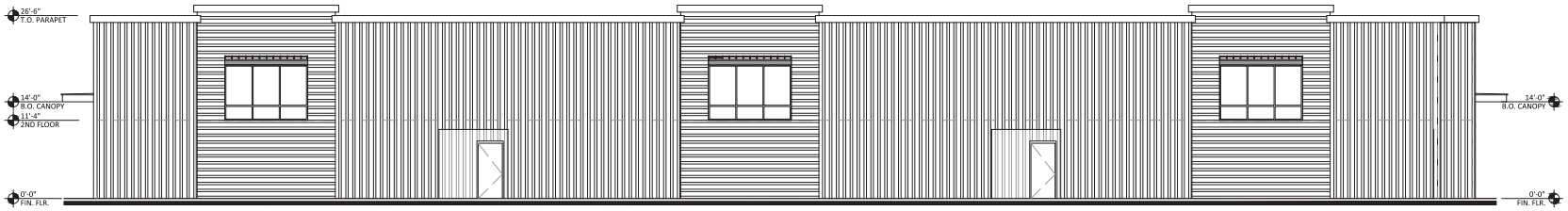
ELEV-B

RKAA# 23054.50



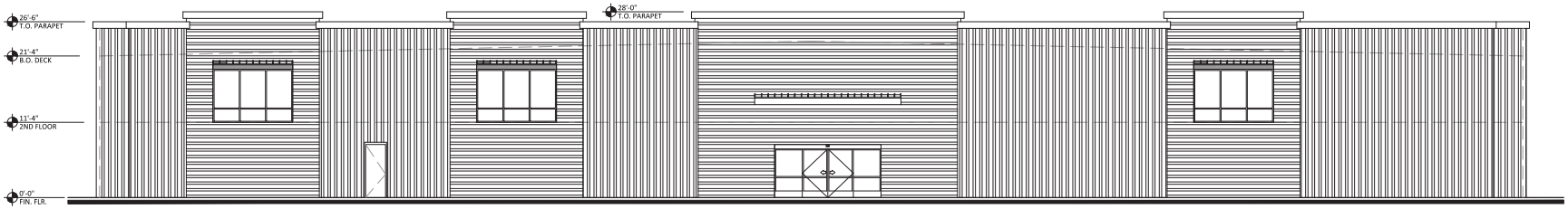
SOUTH ELEVATION BUILDING A

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



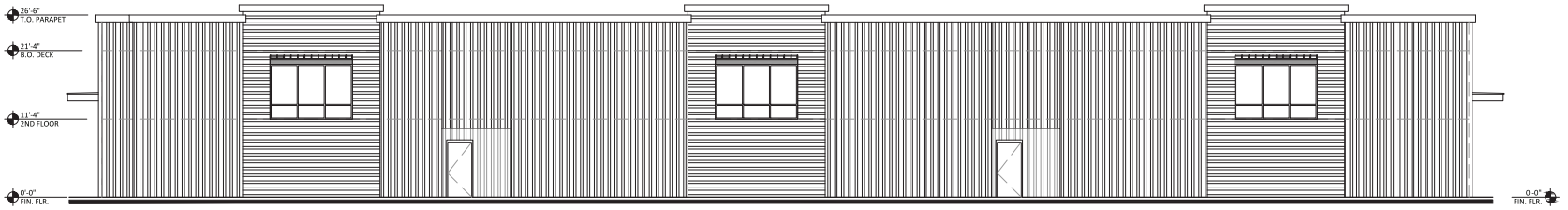
EAST ELEVATION BUILDING A

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



NORTH ELEVATION BUILDING A

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



WEST ELEVATION BUILDING A

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

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC

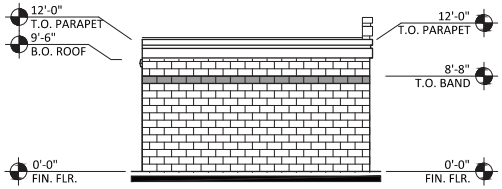
550 E. OLIVE AVE

MERCED, CA 95340

DATE: 11-30-2023 (PRELIMINARY)

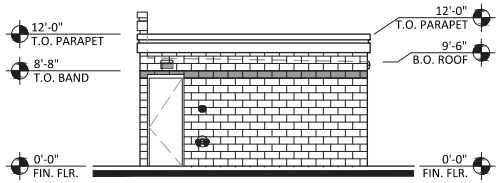
ELEV-C

RKAA# 23054.50



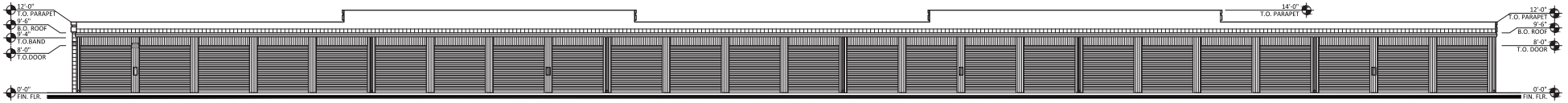
SOUTH ELEVATION BUILDING D

SCALE: 1/4" = 1'-0"



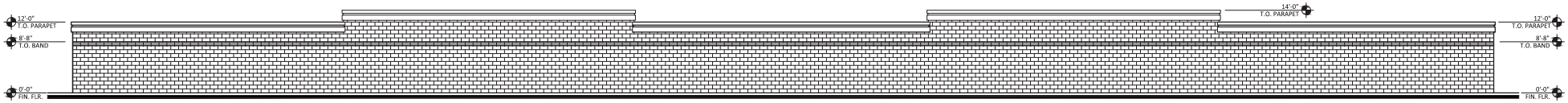
NORTH ELEVATION BUILDING D

SCALE: 1/4" = 1'-0"



WEST ELEVATION BUILDING D

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



EAST ELEVATION BUILDING D

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

RKAA ARCHITECTS, INC

MERCED SECURITY STORAGE II, LLC
550 E. OLIVE AVE
MERCED, CA 95340
DATE: 11-30-2023 (PRELIMINARY)

ELEV-D

RKAA# 23054.50

WK Shijo Consulting, LLC

September 25, 2023

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

Subject: ***Merced Mini Storage II Project Air Quality Analysis***

Dear Ms. Scheidt:

WK Shijo Consulting, LLC is pleased to submit this letter report presenting the results of air quality analysis of the Merced Mini Storage II 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 Merced Mini Storage II project.

Project Location

The Merced Mini Storage II Project site is located in the City of Merced. As shown in the enclosed **Figure 1**, the site is located on the south side of E. Olive Avenue approximately one-quarter mile east of G Street.

Project Components

The project site is approximately 3.95 acres in size. The project would include approximately 59,427 building square feet of mini-storage space, and approximately 95,845 square feet of asphalt-paved surface.

Project Construction

For the air quality analysis, construction of the Merced Mini Storage II project is assumed to begin in January 2025.

SIGNIFICANCE THRESHOLDS

Implementation of the Merced Mini Storage II 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 Merced Mini Storage II 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 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 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 Merced Mini Storage II 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 Merced Mini Storage II 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 Merced Mini Storage II project.

Construction-Related Criteria Pollutant Emissions

Construction of the Merced Mini Storage II 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:

- 1.15 tons per year (tpy) of CO,
- 0.91 tpy of NO_x,
- 0.26 tpy of ROG,
- < 0.005 tpy of SO_x,
- 0.17 tpy of PM_{10}, and
- 0.10 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 Merced Mini Storage II project would result in the generation of criteria pollutant emissions. The enclosed **Table 3** shows operational emissions. Operation of the project would result in:

- 0.55 tpy of CO,
- 0.07 tpy of NO_x,
- 0.35 tpy of ROG,
- < 0.005 tpy of SO_x,
- 0.05 tpy of PM_{10}, and
- 0.01 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 Merced Mini Storage II 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.

In applying the third tier of the GHG significance threshold, the impact of the Merced Mini Storage II 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 Merced Mini Storage II project, based on the project location and type of land use.

SJVAPCD Measure #4 – Proximity to Bike Path/Bike Lanes. A Class II bike lane, as defined in the Caltrans *Highway Design Manual* (California Department of Transportation 2022), is present along the south side of E. Olive Avenue immediately west of the project site. The eastern terminus of the bike lane is at the western edge of the project site. The SJVAPCD *Climate Change Action Plan* document notes that Measure #4 is applicable if the entire project is located within one-half mile of an existing Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project occupancy permits being granted. Project design includes a designated bicycle route connecting all units, on-site bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within one-half mile. Contingent on the design being approved by the City of Merced, the project will extend the bike lane on the south side of E. Olive Avenue from the existing terminus on the western edge of the project site to the eastern edge of the project site.

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. The Bus, Merced's Regional Transit System is operated by the Transit Joint Powers Authority for Merced County. The Bus Route M6 – Merced North – provides service along E. Olive Avenue between G Street and Parsons Avenue, and along G Street south of E. Olive Avenue. Route M6 provides bus service with 45 minute headways. The route map for Route M6 shows a bus stop on G Street south of E. Olive Avenue, west of the project site (The Bus 2023). Contingent on approval by the Transit Joint Powers Authority and the City, the project will provide safe and convenient access to the bus stop, or a new bus stop, and provide 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 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. 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.

With implementation of Mitigation Measure GHG-1 and compliance with State regulations, the Merced Mini Storage II 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 WK Shijo Consulting, LLC with this opportunity to provide you with air quality analysis services on the Merced Mini Storage II project. Please let me know if you have any questions about this letter report.

Sincerely,

WK Shijo Consulting, LLC

Wayne Shijo
Project Manager

enclosures

Bibliography

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

California Department of Transportation. 2022. Highway Design Manual – U.S. customary Units – Seventh Edition. 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.

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

The Bus. 2023. The Bus internet website. https://www.mercedthebus.com/

Personal Communications

Scheidt, Kristen. P.E., QSD. Project Manager. O'Dell Engineering. September 13, 2023 E-mail message to Wayne Shijo, WK Shijo Consulting, LLC.

Thnay, Christopher. P.E., AICP. Advanced Mobility Group (AMG). September 15, 2023 E-mail message to Wayne Shijo, WK Shijo Consulting, LLC.

Figure 1. Project Site Location

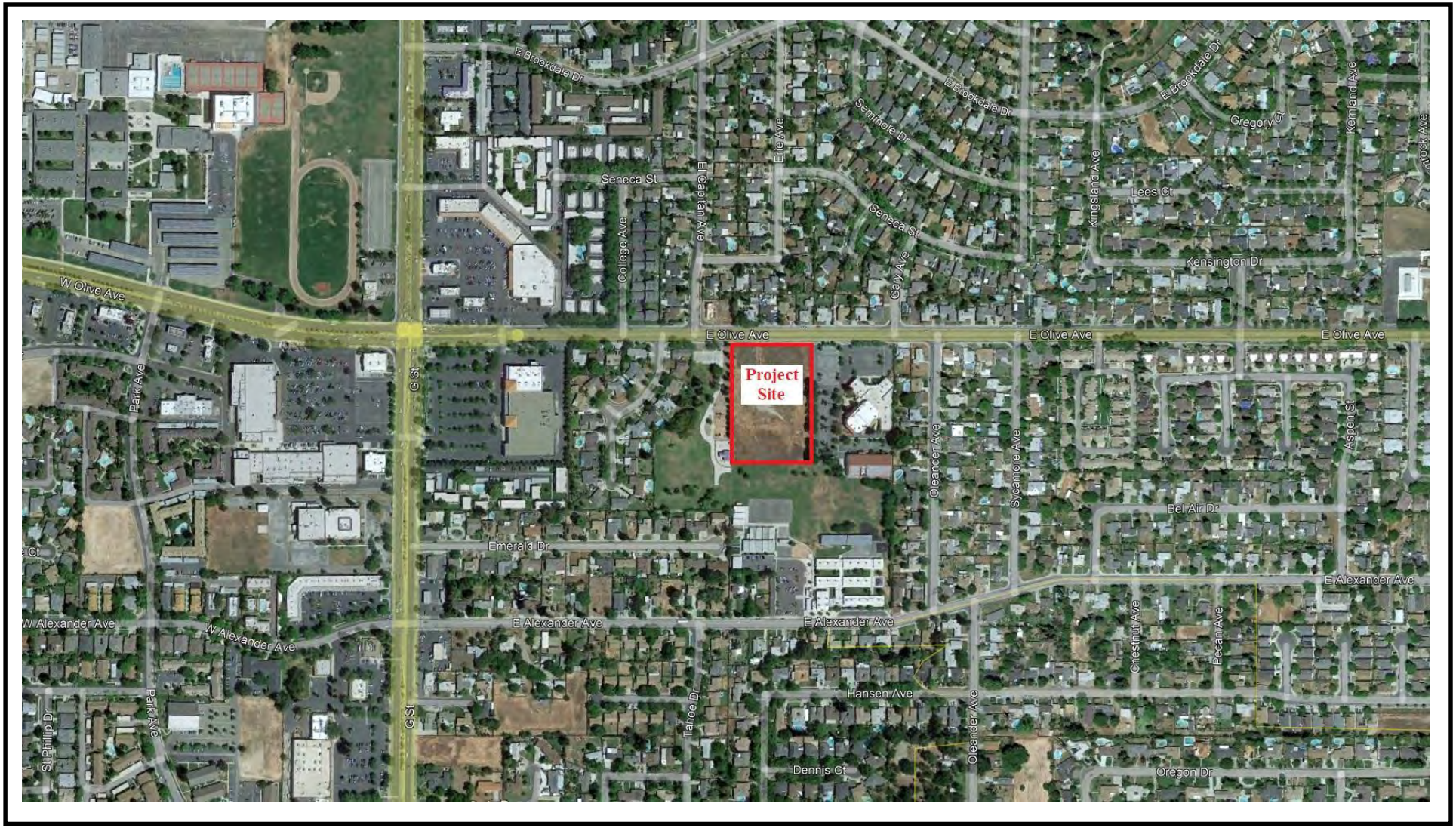


Table 1. San Joaquin Valley Air Pollution Control District Criteria Pollutant Significance Thresholds

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	1.15	No
Nitrogen Oxides (NO_x)	10	0.91	No
Reactive Organic Gases (ROG)	10	0.26	No
Sulfur Oxides (SO_x)	27	< 0.005	No
Inhalable Particulate Matter (PM_{10})	15	0.17	No
Fine Particulate Matter ($PM_{2.5}$)	15	0.10	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	0.55	No
Nitrogen Oxides (NO_x)	10	0.07	No
Reactive Organic Gases (ROG)	10	0.35	No
Sulfur Oxides (SO_x)	27	< 0.005	No
Inhalable Particulate Matter (PM_{10})	15	0.05	No
Fine Particulate Matter ($PM_{2.5}$)	15	0.01	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	196	0.01	< 0.005	0.04	198
Operational Emissions					
a. Mobile	55.8	< 0.005	< 0.005	0.09	57.3
b. Area	0.87	< 0.005	< 0.005	- -	0.87
c. Energy	113	0.01	< 0.005	- -	114
d. Water	12.5	0.45	0.01	- -	26.9
e Waste	5.0	0.50	0.00	- -	17.4
f. Total Operational Emissions (a + b + c + d + e)	188	0.96	0.02	0.09	217

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

Merced Mini Storage II Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Merced Mini Storage II
Construction Start Date	1/2/2025
Operational Year	2025
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	37.31778997441158, -120.4643797715963
County	Merced
City	Merced
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2336
EDFZ	14
Electric Utility	Merced Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.19

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	59.4	1000sqft	1.36	59,427	0.00	0.00	—	—
Parking Lot	95.8	1000sqft	2.20	0.00	0.00	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.	1.51	30.4	10.9	14.7	0.03	0.44	0.26	0.69	0.40	0.06	0.46	—	2,863	2,863	0.11	0.06	1.54	2,887
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.03	3.40	31.7	31.0	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,428	5,428	0.22	0.07	0.04	5,449
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.68	1.41	4.97	6.30	0.01	0.20	0.75	0.95	0.19	0.35	0.54	—	1,186	1,186	0.05	0.02	0.24	1,194
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.26	0.91	1.15	< 0.005	0.04	0.14	0.17	0.03	0.06	0.10	—	196	196	0.01	< 0.005	0.04	198
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	1.51	30.4	10.9	14.7	0.03	0.44	0.26	0.69	0.40	0.06	0.46	—	2,863	2,863	0.11	0.06	1.54	2,887
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.03	3.40	31.7	31.0	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,428	5,428	0.22	0.07	0.04	5,449
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.68	1.41	4.97	6.30	0.01	0.20	0.75	0.95	0.19	0.35	0.54	—	1,186	1,186	0.05	0.02	0.24	1,194
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.12	0.26	0.91	1.15	< 0.005	0.04	0.14	0.17	0.03	0.06	0.10	—	196	196	0.01	< 0.005	0.04	198

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.	0.92	2.22	0.44	4.77	< 0.005	0.01	0.29	0.30	0.01	0.07	0.09	56.4	1,152	1,208	5.80	0.10	1.50	1,384
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.41	1.75	0.47	2.10	< 0.005	0.01	0.29	0.30	0.01	0.07	0.08	56.4	1,114	1,170	5.80	0.10	0.04	1,346

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.59	1.91	0.41	3.03	< 0.005	0.01	0.25	0.26	0.01	0.06	0.07	56.4	1,077	1,133	5.79	0.10	0.57	1,308
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.11	0.35	0.07	0.55	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	9.34	178	188	0.96	0.02	0.09	217
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—	—	—	—	—	—	—
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	0.45	0.43	0.35	2.12	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	406	406	0.02	0.03	1.50	417
Area	0.46	1.79	0.02	2.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.7
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	685	685	0.06	0.01	—	689
Water	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Waste	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Total	0.92	2.22	0.44	4.77	< 0.005	0.01	0.29	0.30	0.01	0.07	0.09	56.4	1,152	1,208	5.80	0.10	1.50	1,384
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.38	0.39	2.04	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	379	379	0.03	0.03	0.04	389
Area	—	1.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	685	685	0.06	0.01	—	689
Water	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Waste	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Total	0.41	1.75	0.47	2.10	< 0.005	0.01	0.29	0.30	0.01	0.07	0.08	56.4	1,114	1,170	5.80	0.10	0.04	1,346
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.36	0.34	0.32	1.70	< 0.005	< 0.005	0.25	0.25	< 0.005	0.06	0.07	—	337	337	0.02	0.03	0.57	346
Area	0.23	1.57	0.01	1.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.24	5.24	< 0.005	< 0.005	—	5.26
Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	685	685	0.06	0.01	—	689
Water	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Waste	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Total	0.59	1.91	0.41	3.03	< 0.005	0.01	0.25	0.26	0.01	0.06	0.07	56.4	1,077	1,133	5.79	0.10	0.57	1,308
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.06	0.06	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.8	55.8	< 0.005	< 0.005	0.09	57.3
Area	0.04	0.29	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.87	0.87	< 0.005	< 0.005	—	0.87
Energy	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	113	113	0.01	< 0.005	—	114
Water	—	—	—	—	—	—	—	—	—	—	—	4.36	8.15	12.5	0.45	0.01	—	26.9
Waste	—	—	—	—	—	—	—	—	—	—	—	4.98	0.00	4.98	0.50	0.00	—	17.4
Total	0.11	0.35	0.07	0.55	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	9.34	178	188	0.96	0.02	0.09	217

3. Construction Emissions Details

3.1. Site Preparation (2025) - 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	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movemen:	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
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	0.05	0.05	0.43	0.41	< 0.005	0.02	—	0.02	0.02	—	0.02	—	72.5	72.5	< 0.005	< 0.005	—	72.8
Dust From Material Movemen:	—	—	—	—	—	—	0.27	0.27	—	0.14	0.14	—	—	—	—	—	—	—
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	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.1
Dust From Material Movemen:	—	—	—	—	—	—	0.05	0.05	—	0.03	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	0.84	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	133	133	0.01	0.01	0.02	135
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	< 0.005	< 0.005	—	1.88	1.88	< 0.005	< 0.005	< 0.005	1.91
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	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.32
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 (2025) - 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	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970

Dust From Material Movemen	—	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
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	0.11	0.10	0.89	0.98	< 0.005	0.04	—	0.04	0.04	—	0.04	—	162	162	0.01	< 0.005	—	163
Dust From Material Movemen	—	—	—	—	—	—	0.39	0.39	—	0.19	0.19	—	—	—	—	—	—	—
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	0.16	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movemen	—	—	—	—	—	—	0.07	0.07	—	0.03	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	0.72	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	114	114	0.01	< 0.005	0.01	116
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	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.45	6.45	< 0.005	< 0.005	0.01	6.55
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	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.08
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 (2025) - 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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	1.35	1.13	10.4	13.0	0.02	0.43	—	0.43	0.40	—	0.40	—	2,398	2,398	0.10	0.02	—	2,406
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	0.42	0.36	3.29	4.11	0.01	0.14	—	0.14	0.13	—	0.13	—	755	755	0.03	0.01	—	758
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	0.08	0.06	0.60	0.75	< 0.005	0.02	—	0.02	0.02	—	0.02	—	125	125	0.01	< 0.005	—	125
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	0.09	1.58	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	213	213	0.01	0.01	0.85	216
Vendor	0.01	0.01	0.33	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	253	253	< 0.005	0.04	0.69	265
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	0.12	1.20	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	190	190	0.01	0.01	0.02	193
Vendor	0.01	0.01	0.36	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	253	253	< 0.005	0.04	0.02	264
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	0.03	0.39	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	61.7	61.7	< 0.005	< 0.005	0.12	62.7
Vendor	< 0.005	< 0.005	0.11	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	79.7	79.7	< 0.005	0.01	0.09	83.4
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	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.02	10.4
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.2	13.2	< 0.005	< 0.005	0.02	13.8
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 (2025) - 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	0.85	0.71	6.52	8.84	0.01	0.29	—	0.29	0.26	—	0.26	—	1,351	1,351	0.05	0.01	—	1,355
Paving	—	0.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.02	0.02	0.18	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37.0	37.0	< 0.005	< 0.005	—	37.1
Paving	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.13	6.13	< 0.005	< 0.005	—	6.15
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.12	0.11	0.07	1.27	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	171	171	0.01	0.01	0.68	173
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	< 0.005	< 0.005	—	4.30	4.30	< 0.005	< 0.005	0.01	4.37
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	< 0.005	< 0.005	—	0.71	0.71	< 0.005	< 0.005	< 0.005	0.72
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 (2025) - 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	0.15	0.13	0.88	1.14	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	30.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.66	3.66	< 0.005	< 0.005	—	3.67
Architectural Coatings	—	0.83	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61	0.61	< 0.005	< 0.005	—	0.61
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.02	0.32	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	42.6	42.6	< 0.005	< 0.005	0.17	43.3
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	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.09

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	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
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	0.45	0.43	0.35	2.12	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	406	406	0.02	0.03	1.50	417
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	0.45	0.43	0.35	2.12	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	406	406	0.02	0.03	1.50	417
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.40	0.38	0.39	2.04	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	379	379	0.03	0.03	0.04	389
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	0.40	0.38	0.39	2.04	< 0.005	< 0.005	0.29	0.29	< 0.005	0.07	0.08	—	379	379	0.03	0.03	0.04	389
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.06	0.06	0.06	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.8	55.8	< 0.005	< 0.005	0.09	57.3
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	0.31	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	55.8	55.8	< 0.005	< 0.005	0.09	57.3

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	—	—	—	—	—	—	—	—	—	—	—	—	506	506	0.04	0.01	—	509
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	92.3	92.3	0.01	< 0.005	—	92.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	598	598	0.05	0.01	—	601

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	506	506	0.04	0.01	—	509
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	92.3	92.3	0.01	< 0.005	—	92.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	598	598	0.05	0.01	—	601
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	83.8	83.8	0.01	< 0.005	—	84.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	15.3	15.3	< 0.005	< 0.005	—	15.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	99.1	99.1	0.01	< 0.005	—	99.6

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	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.1	87.1	0.01	< 0.005	—	87.4
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	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.1	87.1	0.01	< 0.005	—	87.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.1	87.1	0.01	< 0.005	—	87.4
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	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.1	87.1	0.01	< 0.005	—	87.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.4	14.4	< 0.005	< 0.005	—	14.5
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	—	14.4	14.4	< 0.005	< 0.005	—	14.5

4.3. Area Emissions by Source

4.3.1. 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	—	1.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipme nt	0.46	0.42	0.02	2.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.7
Total	0.46	1.79	0.02	2.58	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	10.6	10.6	< 0.005	< 0.005	—	10.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Products	—	1.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consum er Products	—	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architect ural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landsca pe Equipme nt	0.04	0.04	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.87	0.87	< 0.005	< 0.005	—	0.87
Total	0.04	0.29	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.87	0.87	< 0.005	< 0.005	—	0.87

4.4. Water Emissions by Land Use

4.4.1. 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	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	26.3	49.2	75.6	2.70	0.06	—	162
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.36	8.15	12.5	0.45	0.01	—	26.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.36	8.15	12.5	0.45	0.01	—	26.9

4.5. Waste Emissions by Land Use

4.5.1. 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	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	30.1	0.00	30.1	3.01	0.00	—	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	4.98	0.00	4.98	0.50	0.00	—	17.4

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	4.98	0.00	4.98	0.50	0.00	—	17.4

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	1/2/2025	1/8/2025	5.00	5.00	—
Grading	Grading	1/9/2025	2/5/2025	5.00	20.0	—

Building Construction	Building Construction	2/6/2025	7/16/2025	5.00	115	—
Paving	Paving	7/17/2025	7/30/2025	5.00	10.0	—
Architectural Coating	Architectural Coating	7/31/2025	8/13/2025	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	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56

Architectural Coating	Air Compressors	Diesel	Average	1.00	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	17.5	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	15.0	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	25.0	10.9	LDA,LDT1,LDT2
Building Construction	Vendor	9.74	8.27	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	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	4.99	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	89,141	29,714	5,751

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	15.0	0.00	—
Grading	0.00	0.00	40.0	0.00	—
Paving	0.00	0.00	0.00	0.00	2.20

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	2.20	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	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	89.7	105	89.1	33,528	343	403	341	128,310
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	89,141	29,714	5,751

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	460,350	401	0.0330	0.0040	271,915
Parking Lot	83,960	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	13,742,494	0.00
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	55.9	—
Parking Lot	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	28.1	annual days of extreme heat
Extreme Precipitation	1.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	17.4	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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	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 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	88.0
AQ-DPM	9.11
Drinking Water	64.1
Lead Risk Housing	60.6
Pesticides	86.8
Toxic Releases	8.59
Traffic	17.3
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	4.42
Haz Waste Facilities/Generators	16.6

Impaired Water Bodies	33.2
Solid Waste	0.00
Sensitive Population	—
Asthma	98.5
Cardio-vascular	99.9
Low Birth Weights	90.9
Socioeconomic Factor Indicators	—
Education	62.2
Housing	17.4
Linguistic	25.6
Poverty	59.8
Unemployment	66.6

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	33.32477865
Employed	50.78916977
Median HI	41.79391762
Education	—
Bachelor's or higher	48.20993199
High school enrollment	100
Preschool enrollment	32.04157577
Transportation	—
Auto Access	76.73553189
Active commuting	13.48646221

Social	—
2-parent households	4.196073399
Voting	55.49852432
Neighborhood	—
Alcohol availability	78.17271911
Park access	42.05055819
Retail density	31.6052868
Supermarket access	33.68407545
Tree canopy	64.07031952
Housing	—
Homeownership	54.45912999
Housing habitability	75.99127422
Low-inc homeowner severe housing cost burden	85.80777621
Low-inc renter severe housing cost burden	60.88797639
Uncrowded housing	58.74502759
Health Outcomes	—
Insured adults	45.81034262
Arthritis	12.5
Asthma ER Admissions	0.3
High Blood Pressure	7.9
Cancer (excluding skin)	18.5
Asthma	32.2
Coronary Heart Disease	13.8
Chronic Obstructive Pulmonary Disease	20.5
Diagnosed Diabetes	41.8
Life Expectancy at Birth	41.9
Cognitively Disabled	13.7

Physically Disabled	18.7
Heart Attack ER Admissions	0.3
Mental Health Not Good	45.5
Chronic Kidney Disease	27.1
Obesity	33.0
Pedestrian Injuries	19.6
Physical Health Not Good	40.7
Stroke	26.0
Health Risk Behaviors	—
Binge Drinking	63.5
Current Smoker	47.6
No Leisure Time for Physical Activity	45.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	20.2
English Speaking	65.6
Foreign-born	21.8
Outdoor Workers	49.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	81.1
Traffic Density	6.2
Traffic Access	0.0
Other Indices	—
Hardship	59.2
Other Decision Support	—

2016 Voting	67.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	66.0
Healthy Places Index Score for Project Location (b)	39.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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.

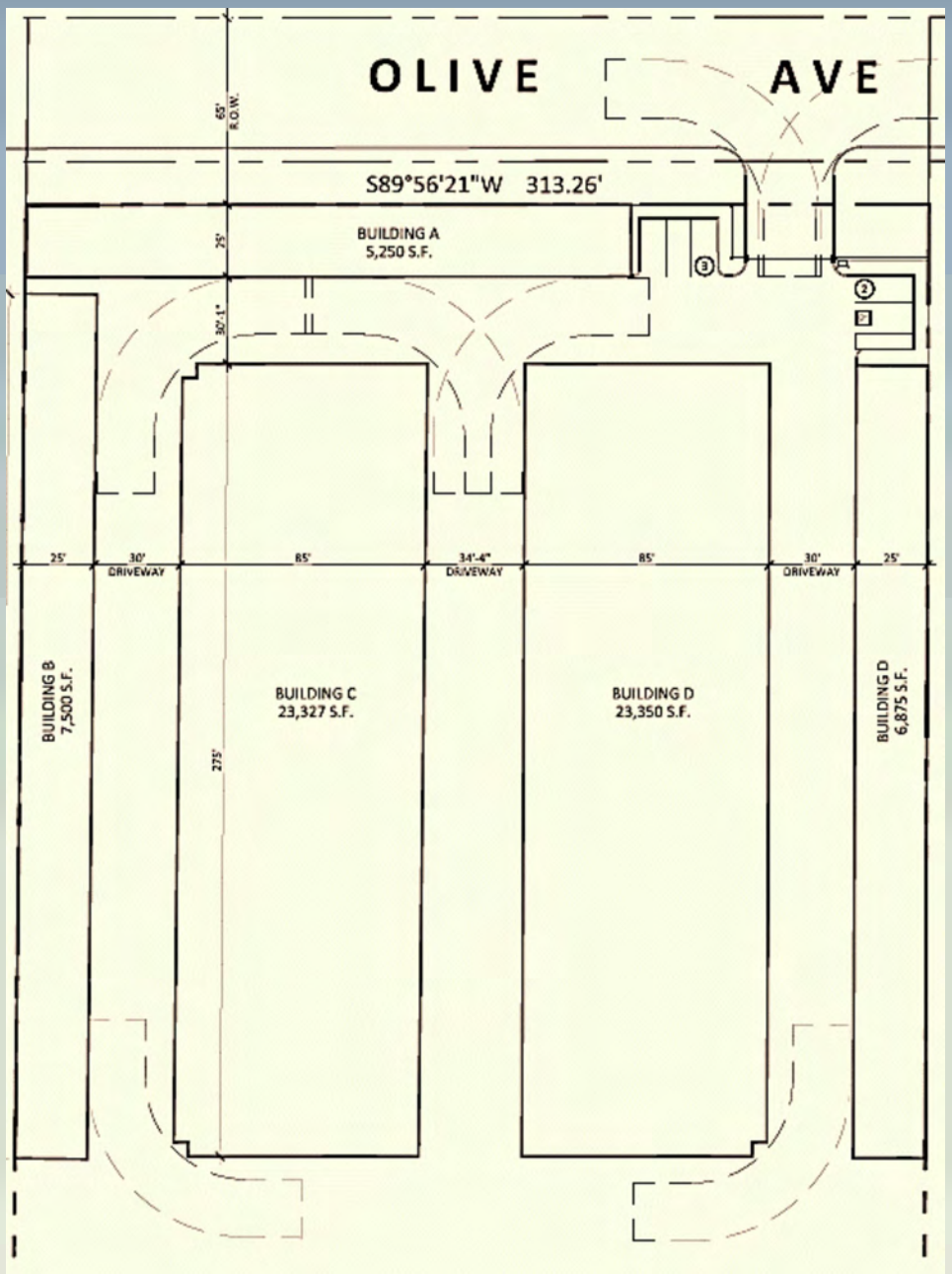
8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction start date per Scheidt pers. comm. CalEEMod defaults values used for durations.
Construction: Off-Road Equipment	—
Operations: Vehicle Data	Weekday trip generation rate per Thnay pers. comm. 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.
Construction: Dust From Material Movement	No material imported or exported.

Appendix B

Traffic Impact Study for Proposed Mini-Storage Facility at 489 Olive Avenue in Merced, California

October 30, 2023



ATTACHMENT F

Traffic Impact Study for Proposed Mini-Storage Facility at 489 Olive Avenue in Merced, California

Final Report

Prepared for:
The City of Merced

Prepared by:
Advanced Mobility Group

October 30, 2023

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

The purpose of this traffic impact study is to evaluate potential impacts of the proposed Mini-Storage Facility Project located on Olive Avenue near the intersection with El Capitan Avenue in Merced, California. The proposed project will consist of 388 single-story, self-storage units with an approximate building area of 59,427 square feet (sf).

SUMMARY

Based on the results of the analysis, the following is a summary of our findings:

Proposed Project Trip Generation

- The project will generate approximately 6 and 11 total trips during the AM and PM peak hours respectively.

Existing Traffic Conditions

- All study intersections are estimated to operate at an acceptable Level of Service (LOS) D or better.

Existing plus Project Traffic Conditions

- It is estimated that all study intersections will continue to operate at acceptable LOS D or better. There is no increase in delay at any of the intersections.

Proposed Project Vehicle Miles Travelled (VMT)

- Based on the Office of Planning and Research (OPR) guidelines, since the mini-storage project generates less than 110 daily trips (90 trips per day), it could be concluded that project could be excluded from VMT evaluation.

Cumulative Year 2030 (No Project) Traffic Conditions

- It is estimated that there is a slight increase in delay at all the study intersections during the AM and PM peak hours, but all study intersections will continue to operate at acceptable level LOS D or better.

Cumulative Year 2030 plus Project Traffic Conditions

- All the study intersections will continue to operate at acceptable level LOS D or better. There is no increase in delay between the Cumulative No Project and Cumulative plus Project Condition.

Due to the low number of project-generated trips, the project would not be expected to adversely impact operations at nearby signalized intersections or roadways. The proposed project is expected to result in a *less than-significant traffic* impact.

2.0 PURPOSE OF PROJECT AND STUDY APPROACH

PROJECT OBJECTIVES DESCRIPTION

The purpose of this traffic impact study is to evaluate potential traffic impacts of the proposed Mini-Storage Facility consisting of 388, single-story self-storage units with an approximate building area of 59,427 sf. The proposed Mini-Storage facility project site is located within a current vacant lot. The proposed project site and vicinity map are shown in **Figure 1**.

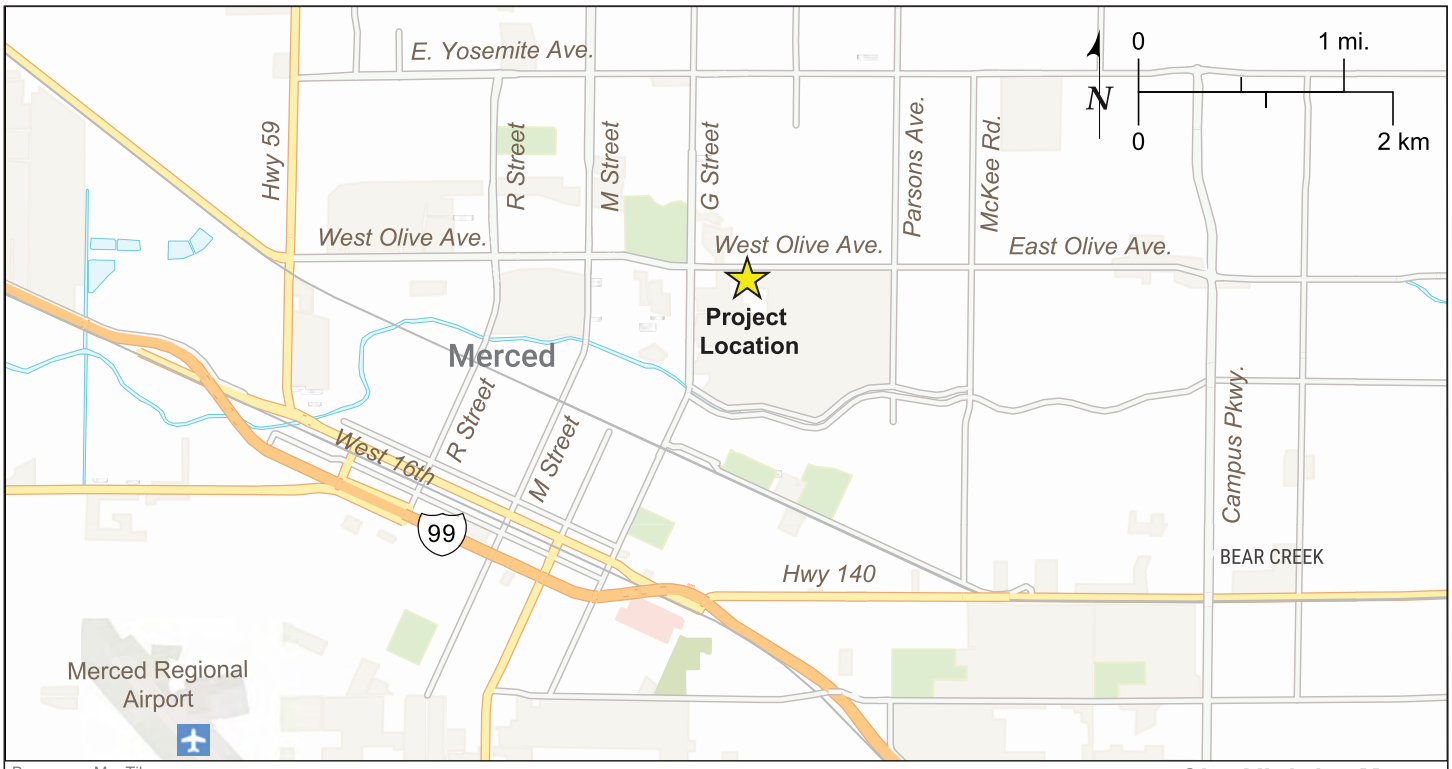
STUDY APPROACH

The following are key steps of the study approach:

- Conduct traffic counts to establish baseline traffic conditions
- Conduct trip generation and distribution of project trips
- Determine traffic condition for the following scenarios:
  - Existing Traffic Condition
  - Existing + Project Traffic Condition
  - Cumulative (No Project) Traffic Condition
  - Cumulative Plus Project Traffic Condition
- Determine LOS and VMT impact of project trips based on established Significance Criteria

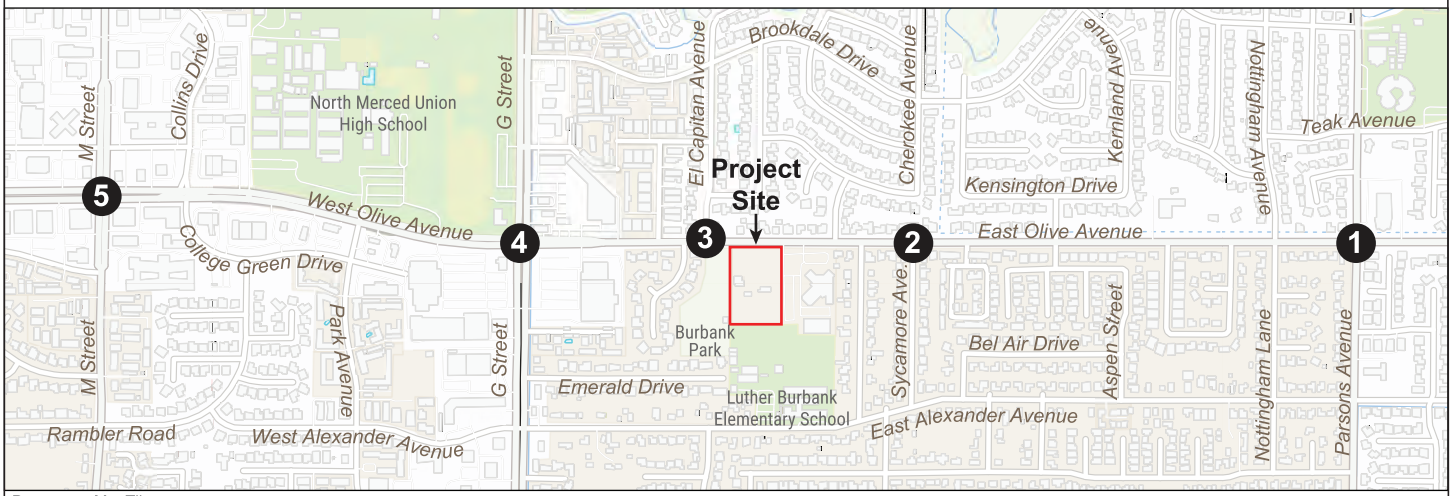
Figure 1

Site Vicinity & Study Intersections



Base map: MapTiler

Site Vicinity Map



Base map: MapTiler

Study Intersections

Legend

★ Proposed project location

ID	Intersection
1	Olive Avenue/Parsons Avenue
2	Olive Avenue/Sycamore Avenue
3	Olive Avenue/El Capitan Avenue
4	Olive Avenue/G St
5	Olive Avenue/M St

N 0 0.2 mi. 0 0.5 km

AMG ADVANCED MOBILITY GROUP

3.0 SETTING

The following section describes the existing transportation conditions in the vicinity of the study area, including descriptions of the existing street system and intersection operating conditions.

EXISTING STREET SYSTEM

Olive Avenue is a four-to-eight-lane east-west major arterial roadway serving Merced, that extends from CA-59 to eastern Merced city limits and is adjacent to the project site near the intersection with El Capitan Avenue. Near the project site, it converts into a two-lane roadway with a two-way turn lane in the middle of the roadway between G Street to Parsons Avenue. Class I Bikeway facilities are available in both directions from M Street to G Street. The corridor includes sidewalks on both sides along its length. The Speed Limit is 40 mph approaching the project site.

M Street is a four-lane north-south arterial roadway that extends from Bellevue Road in the north to the southern Merced city limits and serves as a major transit route. Class II Bikeway facilities are available in both directions from Olive Avenue to Yosemite Avenue. The corridor includes sidewalks on both sides along its length. The speed limit approaching the study area is 40 mph.

G Street is a four-lane north-south arterial roadway that extends from northern Merced city limits in the north to E Mission Avenue in the south and serves as a major transit route. Class II Bikeway facilities are available in both directions from 11th Street to Yosemite Avenue. The corridor includes sidewalks on both sides along its length. The speed limit approaching the study area is 40-45 mph.

Parsons Avenue is a two-lane north-south arterial roadway that extends from Yosemite Avenue in the north to Stretch Road in the south. Class II Bikeway facilities are available in the southbound directions from Olive Avenue to Stretch Road. The corridor includes sidewalks along its entire length adjacent to the southbound direction, and from Marie Lane to Yosemite Avenue in the northbound direction near the study area. The speed limit approaching the study area is 35 mph.

El Capitan Avenue is a two-lane local roadway that extends from Olive Avenue to Brookdale Drive. The project site is southwest of the intersection with Olive Avenue. The speed limit is 25 mph.

Sycamore Avenue is a two-lane local roadway that extends from Olive Avenue to Alexander Avenue. The speed limit is 25 mph.

EXISTING PEDESTRIAN AND BICYCLE FACILITIES

This existing pedestrian and bicycle facilities near the project site are described below.

Existing Bicycle Facilities

Bicycle facilities are classified by Caltrans into four distinct types of bikeway facilities, as generally described below:

- Class I Bikeway (Bike Path). Provides a separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian crossflow minimized.
- Class II Bikeway (Bike Lane). Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian crossflow are permitted.
- Class III Bikeway (Bike Route). Provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.
- Class IV Bikeway (Separated Bikeway/Cycle Track). Provides a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

Class I facilities are available near the project site on Olive Avenue from M Street to G Street.

Class II facilities are available near the project site on M Street, G Street, and Parsons Avenue at their respective intersections with Olive Avenue.

Pedestrian Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, and ADA curb ramps. Sidewalks along the perimeter of the project site are at least 5 feet wide.

The Olive Avenue/M Street and Olive Avenue/G Street intersections have crosswalks at each approach of the intersection. Pedestrian push-buttons are also available at these intersections.

Olive Avenue and Parsons Avenue intersection has crosswalks at each approach. ADA curb ramps are available at every corner; pedestrian push-buttons are also available.

EXISTING TRANSIT AND RAIL SERVICE

Transit service within the study area is provided by the Transit Joint Powers Authority through "The Bus". The project site is located near the Olive Avenue/G Street intersection which includes several "The Bus" bus stops. (Bus Service for Lines M4 and M6).

ROADWAY AND INTERSECTION OPERATING DOCUMENTS

Traffic Data Collection

Based on location of the project and our experience of the area, the following five study intersections as shown in **Exhibit I** were selected for analysis:

1. *Olive Avenue and Parsons Avenue*
2. *Olive Avenue and Sycamore Avenue*
3. *Olive Avenue and El Capitan Avenue*
4. *Olive Avenue and G Street*
5. *Olive Avenue and M Street*

AMG collected the AM and PM peak hour intersection turning movement counts on August 22, 2023, for the five study intersections. **Figure 2** shows the turning movement volumes and lane configuration at each study intersection. Average Daily Traffic (ADT) volume on Olive Avenue between G Street and El Capitan Avenue was collected. Traffic count data collected are included in **Appendix A**.

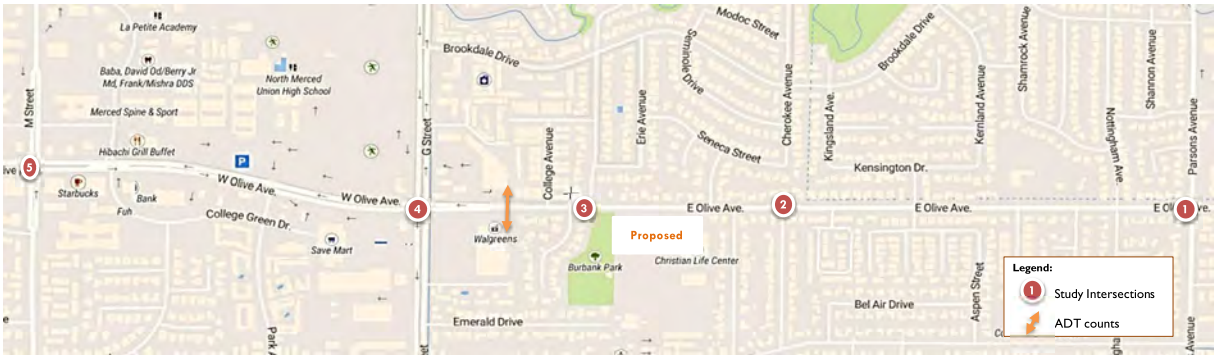
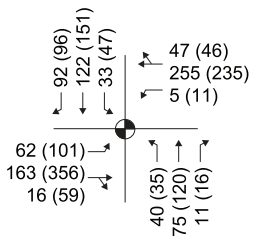
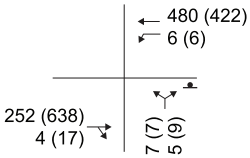
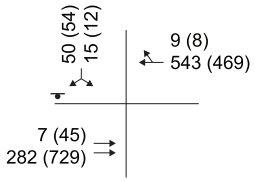
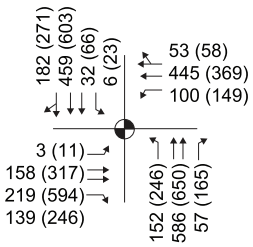
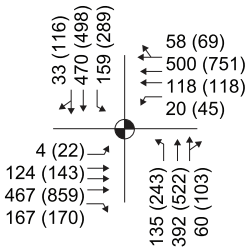
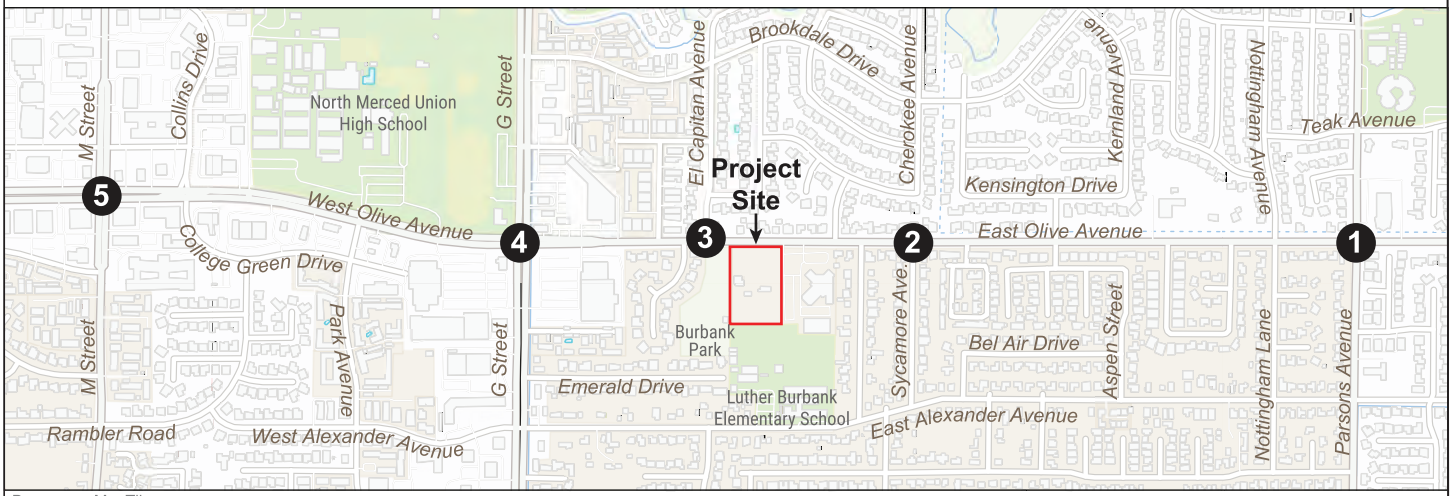


Exhibit 1: Study Intersections

Existing Peak Hour Volumes, Lane Geometry, and Controls

Figure 2

Intersection #1 Olive Avenue/Parsons Avenue	Intersection #2 Olive Avenue/Sycamore Avenue	Intersection #3 Olive Avenue/El Capitan Avenue	Intersection #4 Olive Avenue/G St	Intersection #5 Olive Avenue/M St
				



Base map: MapTiler

Study Intersections

Legend

- 1 Study Intersection
- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

ID	Intersection
1	Olive Avenue/Parsons Avenue
2	Olive Avenue/Sycamore Avenue
3	Olive Avenue/El Capitan Avenue
4	Olive Avenue/G St
5	Olive Avenue/M St

N

0 0.2 mi.

0 0.5 km

AMG ADVANCED MOBILITY GROUP

LEVEL OF SERVICE METHODOLOGY

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement HCM. In this study the Synchro software was used to calculate the LOS at the study intersections.

Table 1: Signalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Operations with very low delay occurring with favorable Progression and/or short cycle length.	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10 – 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20 - 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	> 35 – 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55 - 80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

Signalized Intersections

The relationship between average control delay, driver's perception of traffic, and LOS for signalized intersections is summarized in **Table 1**.

Unsignalized Intersections

The method of unsignalized intersection capacity analysis used in this study is from Chapter 19, "Two-Way Stop-Controlled Intersections" of the Highway Capacity Manual. This method applies to two-way STOP sign or YIELD sign-controlled intersections (or one-way STOP sign or YIELD sign-controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for two-way STOP controlled intersections is somewhat different from the criterion used for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The HCM provides procedures for calculating LOS on the minor street approached and individual movements. The LOS is reported for the minor approach. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the overall intersection operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Table 2 summarizes the relationship between delay and LOS for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side street stop-controlled intersections.

Table 2: Unsignalized Intersection LOS Criteria

LOS	Driver's Perception and Traffic Operation Description	Delay in Seconds
A	Little or no delays	< 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 - 25
D	Long traffic delays	> 25 - 35
E	Very long traffic delays	> 35 – 50
F	Extreme traffic delays with intersection capacity exceeded	> 50

VEHICLE MILES TRAVELLED ANALYSIS

Consistent with the July 1, 2020 California State Legislature (Bill SB 743) and recent Merced County Association of Governments (MCAG) VMT guidelines[1] for development projects, a quantitative analysis of the proposed project's VMT is provided.

SB743 VMT Guidelines

According to the MCAG's VMT Guidelines, the change in overall VMT should be used to assess the transportation impacts for retail developments. The VMT threshold for residential land use is 86% of the regional average for home-based VMT per resident. The VMT threshold for non-residential service land use is 86% of the regional average VMT per service population. The VMT threshold for other land uses is on a case-by-basis, usually reflecting a no-net increase in total VMT.

SIGNIFICANCE CRITERIA

City Standards

The following is the City's criteria of significance to determine the potential impacts associated with a proposed project or action:

Merced's 2030 General Plan, states that "...Level of Service "D" is the design standard for new streets in new growth areas." While existing roadways should also adhere to LOS D, existing roadways near

[1] *VMT Thresholds and Implementation Guidelines, Merced County Association of Governments, November 2022*

Downtown Merced or Central Merced may consider LOS E or F as acceptable if roadway widening conflicts with other General Plan policies or severely disrupt adjacent development.

Caltrans Standards

Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Although Caltrans has not designated a LOS standard, Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) indicates attempts to maintain LOS of a State highway facility between the LOS "C/D" threshold. When existing State highway facilities are operating at higher levels of service than noted above, 20-year forecasts or general plan build-out analysis for the facility should be considered to establish equitable project contributions to local development impact fee programs that address cumulative traffic impacts.

Regional Plans and Policies

Merced County Association of Governments (MCAG) is the County's Congestion Management Agency. MCAG works with local jurisdictions to provide countywide transportation planning to help meet demands and improve Merced County's transportation system.

CEQA Significance Criteria

With the passage of Senate Bill 743, the City of Merced has transitioned to a VMT metric to assess California Environmental Quality Act (CEQA) impacts. Historically, the City of Merced has used level of service (LOS) methodology to assess traffic operations and analyze environmental impacts for projects in accordance with CEQA. In 2013, Senate Bill 743 established new legislation mandating a change to the CEQA Guidelines which replaces the LOS metric with a VMT metric. Briefly, the shift from LOS to VMT focuses on regional traffic patterns and reducing greenhouse gas (GHG) emissions, rather than vehicle delays on local roadway networks.

4.0 EXISTING TRAFFIC CONDITION

This section presents the assessment of traffic conditions without the proposed project.

INTERSECTION LEVEL OF SERVICE

To accurately model the traffic condition, AMG created a Synchro traffic analysis model to determine the intersection LOS. The Existing Conditions traffic operations were evaluated based on levels of service criteria using Synchro. The macroscopic simulation model, Synchro, was used to evaluate several measures (such as lane geometries, signal optimization, signal phasing and traffic control) at the study intersections.

All study intersections are operating at an acceptable LOS D or better. The results of the LOS analysis for the existing intersections are shown in **Table 3**.

Table 3: Existing LOS of Study Intersections

			Existing			
ID	*Intersection*	*Existing Control*	*A.M.*		*P.M.*	
			Delay	*LOS*	*Delay*	*LOS*
1	Parsons Ave/Olive Ave	Signal	27.1	C	25.4	C
2	Sycamore Ave/Olive Ave	OWSC	12.9	B	15.7	C
3	El Capitan Ave/Olive Ave	OWSC	16.5	C	14.6	B
4	G St/Olive Ave	Signal	37.3	D	44.1	D
5	M St/Olive Ave	Signal	40.9	D	48.2	D

Note:
OWSC: One-Way Stop Control
HCM 2000 Analysis for Signalized Intersections due to substantial U-turn movements at intersection 4 & 5
HCM 2010 Analysis for OWSC intersections

Detailed level of service worksheets are provided in **Appendix B**.

5.0 TRIP GENERATION AND DISTRIBUTION METHODOLOGY

The proposed project will consist of 338 single-story self-storage units with 59,427 square feet in four buildings. It will consist of climate-controlled and non-climate-controlled units. **Exhibit 2** shows the proposed project site plan.

TRIP GENERATION

Trip generation is defined as the number of "vehicle trips" produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

The trip generation estimates for the proposed land use were calculated using the standard reference Trip Generation, 11th Edition, published by the Institute of Transportation Engineers (ITE). ITE Land Use 151 for mini-warehouse or self-storage was sued. Detailed description are provided in **Appendix B.**

The estimated potential trip generation of the proposed project is shown in **Table 4.** It is estimated that the project will generate approximately 6 and 11 trips during the AM and PM peak hours respectively.

Table 4: Proposed Project Trip Generation

Land Use	*Source*	*Size (unit)*		*Daily*		*A.M. Peak*				*P.M. Peak*			
				Rate	*Total*	*Rate*	*In*	*Out*	*Total*	*Rate*	*In*	*Out*	*Total*
Self-Storage	ITE 151[A]	59.43	SF GFA	1.51	90	0.10	4	2	6	0.17	5	6	11

Note:
A *- ITE Source: ITE Trip Generation Manual 11th Edition, 2022*

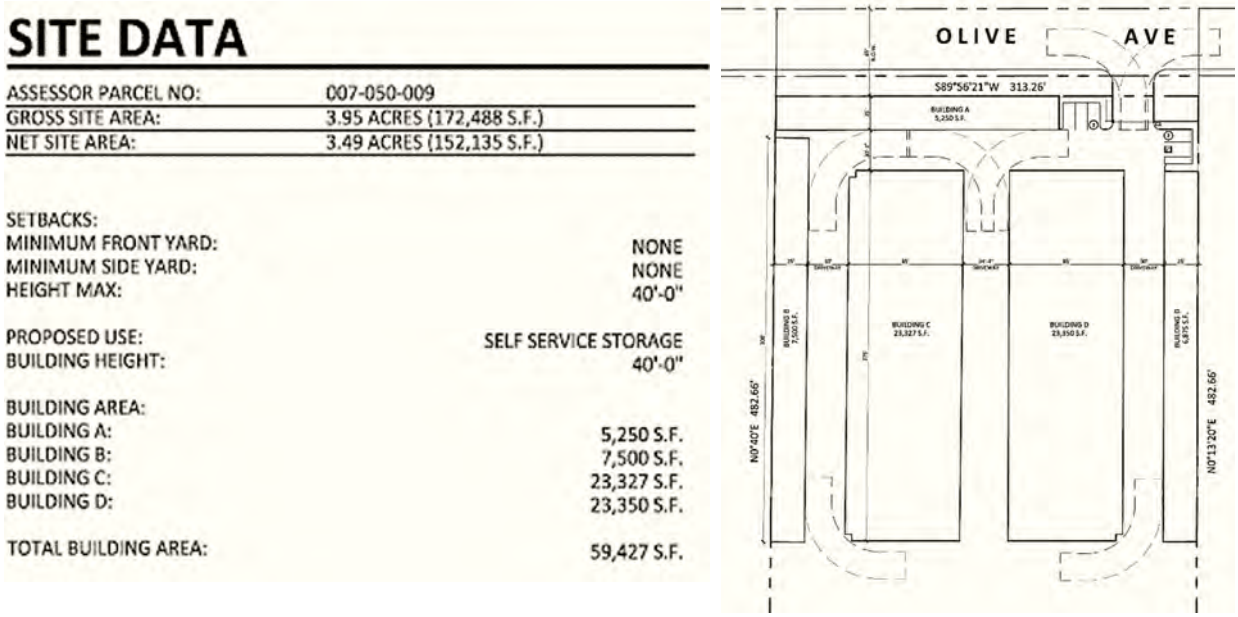


Exhibit 2: Project Site Plan

TRIP DISTRIBUTION

Trip distribution is a process that determines in what proportion vehicles would be expected to travel between a project site and various destinations outside the project study area. The process of trip assignment determines the various routes that vehicles would take from the project site to each destination using the estimated trip distribution.

The project is expected to "generate" and "attract" trips throughout the City and from other locations throughout the area. Directional trip distribution for project generated trips was estimated based on existing traffic flow patterns, geographic location of the project site, and location of other similar destinations. The estimated trip distribution patterns are shown on **Exhibit 3**.

Exhibit 2: Project Trip Distribution

PROPOSED ACCESS, PARKING AND CIRCULATION

Site Access and Off-Site Circulation

The proposed site plan shows a 30-foot driveway located on the eastern end of the property on Olive Avenue as shown in **Exhibit 2**. This would be the only access point to on-site parking and is expected to be adequate for two-way traffic. The estimated traffic as indicated in **Table 4** is quite small so one access point should be adequate.

All internal driveways between buildings are 30-foot and would be able to accommodate two-way traffic. If a car is parked on one side of the driveway aisle, it is estimated that two-way traffic flow would still be possible.

Currently there is a two-way turn lane (TWTL) median on Olive Avenue near the proposed project driveway and ends approximately 900-feet to the west near the intersection of Olive Avenue/G Street. This TWTL would provide sufficient queue length for vehicles waiting to make a westbound left turn from Olive Avenue onto the project driveway. It is estimated that exiting project traffic of approximately two and six peak hour trips respectively during the AM and PM peak would have more than adequate gap to exit without causing delay at the driveway.

Collision Analysis

Collision Data from the past five years (January 2018 to December 2022) was obtained from the Statewide Integrated Traffic Records System (SWITRS) and the Transportation Injury Mapping System (TIMS). One collision was found on Olive Avenue within 300 feet of the proposed project site. This could be considered minimal and does not indicate any roadway safety issue in the area.

Sight Distance Analysis

Exhibit 4: Olive Avenue – Looking West Adjacent to Project Site

AMG conducted stopping sight distance analysis in the field to ensure that there is sufficient distance for a driver to effectively apply the brakes and stop the vehicle without colliding with a vehicle/obstruction on the road. At driveways, a clear line of sight should be provided between the vehicle waiting at the

driveway and the approaching vehicle. The vehicle waiting to either cross, turn left, or turn right, through the driveway should have sufficient time to make that maneuver without requiring the through traffic to drastically alter their speed.

Based on AMG's observations and The Highway Design Manual, July 1, 2020, Chapter 200 - Geometric Design & Structure Standards, Table 201.1 Sight Distance Standards, which recommends a stopping sight distance of 300 feet for a design speed of 40 mph, the sight distance on Olive Avenue near the project site is adequate. The sight distance is unobstructed as shown in **Exhibit 4**.

Based on The Highway Design Manual, July 1, 2020, Chapter 400 – Intersections at Grade, corner sight distance requirements are not applied to urban driveways. However, if parking is allowed on the major road, parking should be prohibited on both sides of the driveway.

Pedestrian and Bicycle Assessment

Sidewalks are provided along Olive Avenue, El Capitan Avenue, G Street, and Sycamore Avenue in the vicinity of the project site. The width of the sidewalk ranges from 6 to 8 feet. Crosswalks mentioned in the Existing Conditions at the study intersections would also provide pedestrian access to the project site from other cross-streets.

The proposed project would likely not attract new pedestrian trips or minimal. This will cause no reduction in quality of service on existing facilities and will not reduce safety or access to pedestrian, bicycle, or transit facilities. Therefore, the proposed project impacts on these facilities have no substantial effect.

6.0 EXISTING PLUS PROJECT TRAFFIC CONDITION

This section presents the assessment of potential transportation impacts of the proposed min-storage project.

INTERSECTION LEVEL OF SERVICE ANALYSIS

Figure 3 shows the Existing plus Project Conditions peak hour turning movement volumes and lane geometry.

Table 5 shows the LOS under Existing plus Project Conditions. It is estimated that all intersections will continue to operate at acceptable LOS D or better.

Table 5: Existing plus Proposed Project Intersection LOS

			Existing				Existing+ Project			
ID	Intersection	Existing Control	A.M.		P.M.		A.M.		P.M.	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Parsons Ave/Olive Ave	Signal	27.1	C	25.4	C	27.1	C	25.4	C
2	Sycamore Ave/Olive Ave	OWSC	12.9	B	15.7	C	12.9	B	15.7	C
3	El Capitan Ave/Olive Ave	OWSC	16.5	C	14.6	B	16.5	C	14.7	B
4	G St/Olive Ave	Signal	37.3	D	44.1	D	37.4	D	44.3	D
5	M St/Olive Ave	Signal	40.9	D	48.2	D	41.0	D	48.2	D

Note:
OWSC: One-Way Stop Control
HCM 2000 Analysis for Signalized Intersections due to substantial U-turn movements at intersection 4 & 5
HCM 2010 Analysis for OWSC intersections

Detailed level of service worksheets is provided in **Appendix C**.

VMT EVALUATION

The passage of Senate Bill (SB) 743 requires jurisdictions to identify new Vehicle Miles Travelled (VMT) metrics for identifying and mitigating transportation impacts within CEQA. Our understanding is that the City has yet to adopt official VMT guidelines. So, each project has been evaluated based on the general guidelines contained in the technical advisory in one of a series of advisories provided by the Governor's Office of Planning and Research (OPR).

The OPR indicated that "Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact."[2]

Based on the trip generation as shown in **Table 4**, it could be concluded the estimated daily trip of the proposed mini-storage project is approximately 90 trips per day.

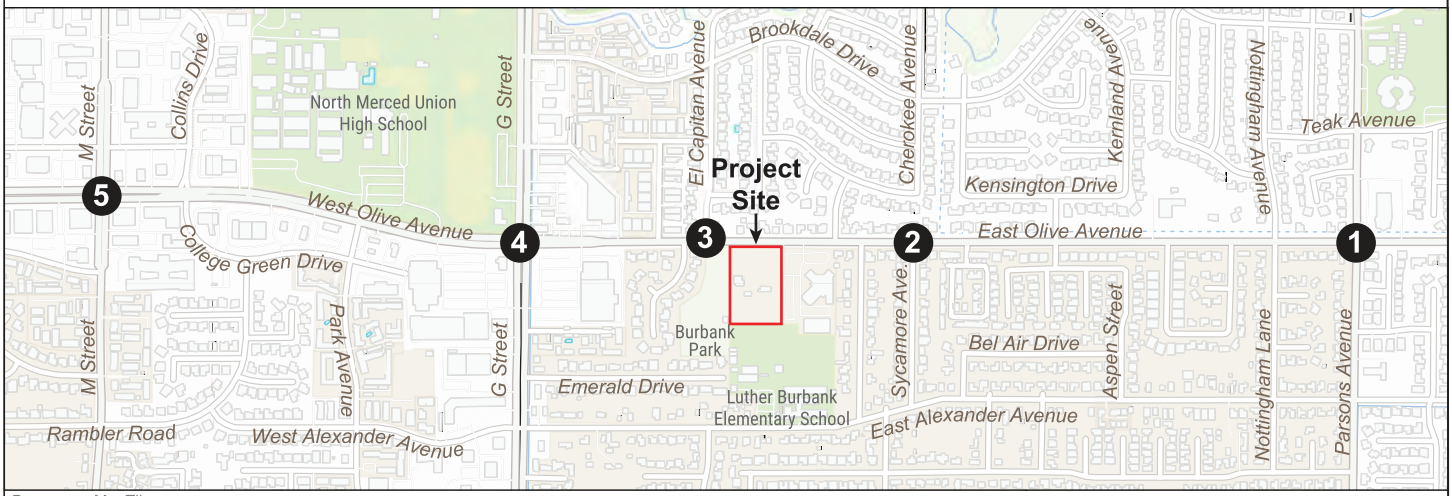
As noted earlier, the OPR advisory indicated that the VMT contribution of small projects need not be considered significant. OPR suggests that agencies can find projects generating fewer than 110 vehicle trips a day to be less than significant. Based on the OPR guidelines, since the mini-storage project generates less than 110 daily trips (90 trips per day), it could be concluded that project could be excluded from VMT evaluation.

[2] *Technical Advisory on Evaluating Transportation impacts In CEQA December 2018, Page 12*

Existing Plus Project Peak Hour Volumes, Lane Geometry, and Controls

Figure 3

Intersection #1 Olive Avenue/Parsons Avenue	Intersection #2 Olive Avenue/Sycamore Avenue	Intersection #3 Olive Avenue/El Capitan Avenue	Intersection #4 Olive Avenue/G St	Intersection #5 Olive Avenue/M St
92 (96) 122 (151) 33 (47) 47 (46) 256 (236) 5 (11) 62 (101) 163 (357) 16 (59) 40 (35) 75 (120) 11 (16)	481 (423) 6 (6) 252 (639) 4 (17) 7 (7) 5 (9)	50 (54) 15 (12) 9 (8) 545 (474) 7 (45) 285 (733)	182 (271) 459 (603) 32 (67) 6 (23) 53 (59) 447 (372) 100 (150) 3 (11) 158 (317) 221 (596) 139 (246) 152 (246) 586 (650) 58 (166)	33 (116) 470 (498) 159 (289) 58 (70) 501 (752) 119 (119) 20 (45) 4 (22) 124 (143) 468 (860) 167 (170) 135 (243) 392 (522) 61 (104)



Base map: MapTiler

Study Intersections

Legend

- 1 Study Intersection
- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

ID	Intersection
1	Olive Avenue/Parsons Avenue
2	Olive Avenue/Sycamore Avenue
3	Olive Avenue/El Capitan Avenue
4	Olive Avenue/G St
5	Olive Avenue/M St

N

0 0.2 mi.

0 0.5 km

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7.0 CUMULATIVE YEAR 2030 (NO PROJECT) CONDITIONS

Cumulative conditions represent conditions with planned transportation network changes and planned future land use development. AMG used the cumulative volumes based on Merced Vision 2030 General Plan for Olive Avenue, M Street, and G Street. A copy of the projected 2030 cumulative volumes are provided in **Appendix D**

AMG derived an annual rate of growth for each intersection. The annual growth was used to estimate cumulative 20-year growth for each intersection. It is anticipated that side street volumes would experience much smaller growth. A 0.5% growth per year was used for El Capitan Avenue and Sycamore Avenue side streets.

INTERSECTION LEVEL OF SERVICE ANALYSIS

Figure 4 shows the Cumulative Year 2030 No Project Conditions peak hour turning movement volumes and lane geometry.

The results of the LOS Analysis for the Cumulative No Project scenario is shown in **Table 6.** It is estimated that there is a slight increase in delay at all study intersections during the AM and PM peak hour, but all study intersections will continue to operate at acceptable level LOS D or better.

Table 6: Cumulative (No Project) Intersection LOS

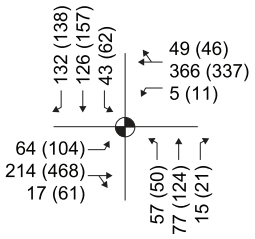
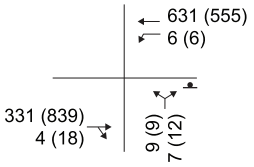
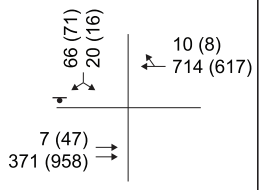
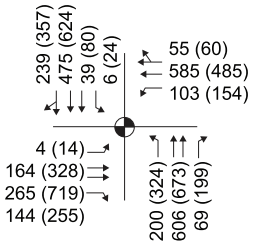
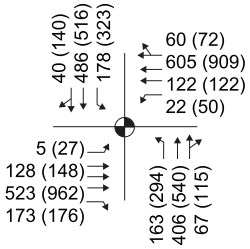
ID	Intersection	Existing Control	Existing				Cumulative NP			
			A.M.		P.M.		A.M.		P.M.	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Parsons Ave/Olive Ave	Signal	27.1	C	25.4	C	32.3	C	29.0	C
2	Sycamore Ave/Olive Ave	OWSC	12.9	B	15.7	C	15.1	C	20.3	C
3	El Capitan Ave/Olive Ave	OWSC	16.5	C	14.6	B	25.0	C	20.2	C
4	G St/Olive Ave	Signal	37.3	D	44.1	D	46.0	D	54.7	D
5	M St/Olive Ave	Signal	40.9	D	48.2	D	48.5	D	53.9	D

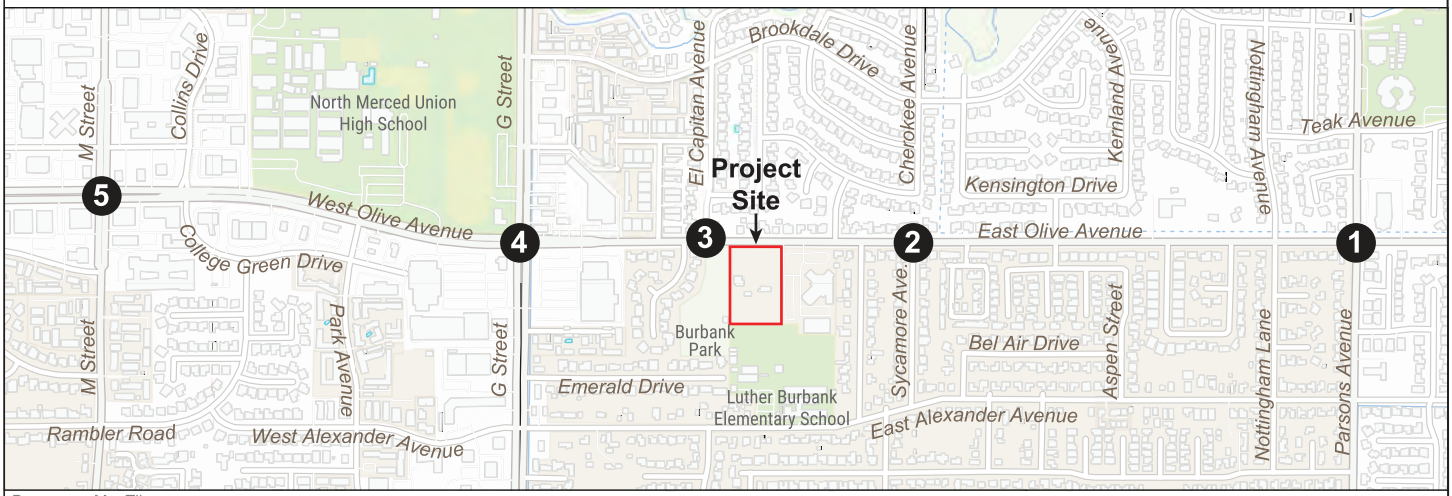
Note:
OWSC: One-Way Stop Control
HCM 2000 Analysis for Signalized Intersections due to substantial U-turn movements at intersection 4 & 5
HCM 2010 Analysis for OWSC intersections

Detailed level of service worksheets is provided in **Appendix D.**

Figure 4

Cumulative Year 2030 without Project Conditions

Intersection #1 Olive Avenue/Parsons Avenue	Intersection #2 Olive Avenue/Sycamore Avenue	Intersection #3 Olive Avenue/El Capitan Avenue	Intersection #4 Olive Avenue/G St	Intersection #5 Olive Avenue/M St
				



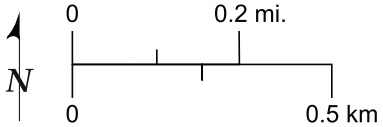
Base map: MapTiler

Study Intersections

Legend

- 1 Study Intersection
- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

ID	Intersection
1	Olive Avenue/Parsons Avenue
2	Olive Avenue/Sycamore Avenue
3	Olive Avenue/El Capitan Avenue
4	Olive Avenue/G St
5	Olive Avenue/M St



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8.0 CUMULATIVE PLUS PROJECT CONDITIONS

This section presents the assessment of potential transportation impacts of the proposed project under Cumulative plus Project scenario.

INTERSECTION LEVEL OF SERVICE ANALYSIS

The results of the LOS Analysis for the Cumulative plus Project scenario are shown in **Table 7**. All study intersections will operate at acceptable level LOS D or better.

Figure 5 shows the Cumulative plus Project Conditions peak hour turning movement volumes and lane geometry.

Table 7: Cumulative plus Project Intersection LOS

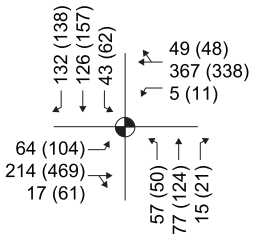
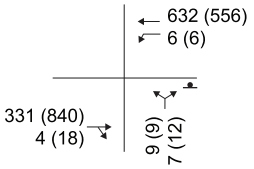
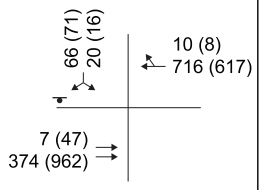
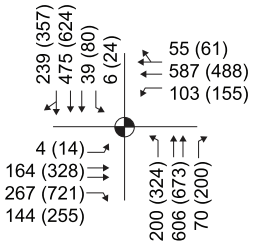
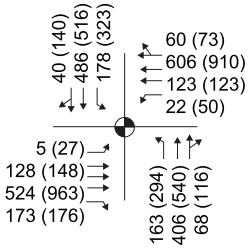
ID	Intersection	Existing Control	Cumulative NP				Cumulative PP			
			A.M.		P.M.		A.M.		P.M.	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Parsons Ave/Olive Ave	Signal	32.3	C	29.0	C	32.5	C	29.0	C
2	Sycamore Ave/Olive Ave	OWSC	15.1	B	20.3	C	15.2	C	20.3	C
3	El Capitan Ave/Olive Ave	OWSC	25.0	C	20.2	B	25.1	D	20.2	C
4	G St/Olive Ave	Signal	46.0	D	54.7	D	46.1	D	54.8	D
5	M St/Olive Ave	Signal	48.5	D	53.9	D	48.8	D	54.1	D

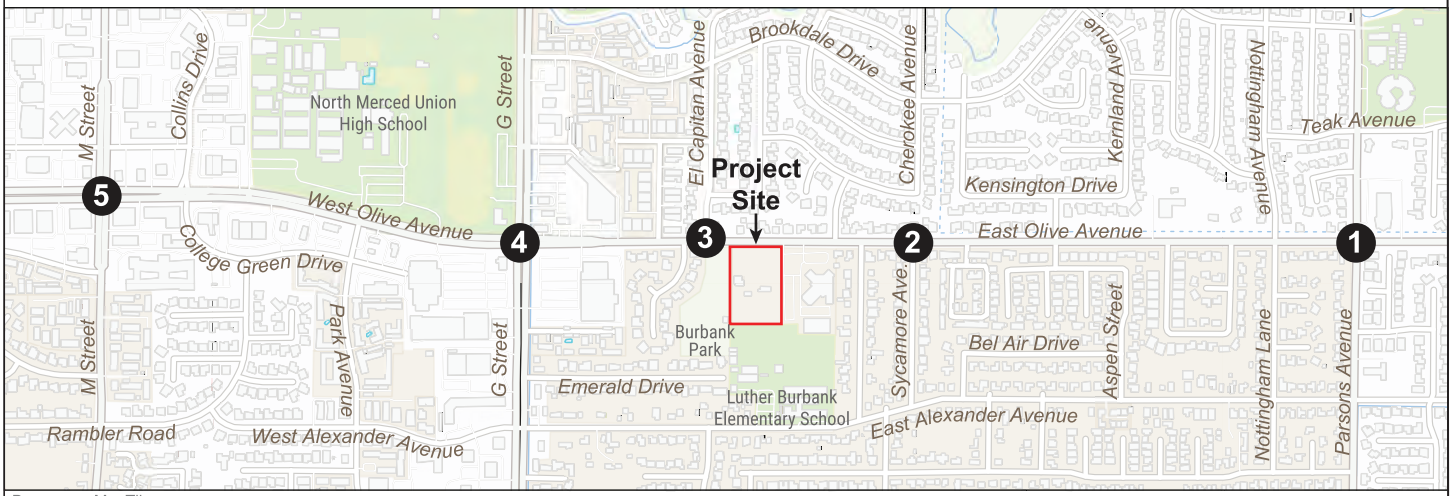
Note:
OWSC: One-Way Stop Control
HCM 2000 Analysis for Signalized Intersections due to substantial U-turn movements at intersection 4 & 5
HCM 2010 Analysis for OWSC intersections

Detailed level of service worksheets is provided in **Appendix G**.

Cumulative Year 2030 with Project Conditions

Figure 5

Intersection #1 Olive Avenue/Parsons Avenue	Intersection #2 Olive Avenue/Sycamore Avenue	Intersection #3 Olive Avenue/El Capitan Avenue	Intersection #4 Olive Avenue/G St	Intersection #5 Olive Avenue/M St
				



Base map: MapTiler

Study Intersections

Legend

- Study Intersection
- Traffic Signal
- Stop Sign
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

ID	Intersection
1	Olive Avenue/Parsons Avenue
2	Olive Avenue/Sycamore Avenue
3	Olive Avenue/El Capitan Avenue
4	Olive Avenue/G St
5	Olive Avenue/M St

N

0 0.2 mi.

0 0.5 km

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9.0 CONCLUSION

Based on the results of the analysis, the following is a summary of our findings:

Proposed Project Trip Generation

- The project will generate approximately 6 and 11 total trips during the AM and PM peak hours respectively.

Existing Traffic Conditions

- All study intersections are estimated to operate at an acceptable Level of Service (LOS) D or better.

Existing plus Project Traffic Conditions

- It is estimated that all study intersections will continue to operate at acceptable LOS D or better. There is no increase in delay at any of the intersections.

Proposed Project Vehicle Miles Travelled (VMT)

- Based on the Office of Planning and Research (OPR) guidelines, since the mini-storage project generates less than 110 daily trips (90 trips per day), it could be concluded that project could be excluded from VMT evaluation.

Cumulative Year 2030 (No Project) Traffic Conditions

- It is estimated that there is a slight increase in delay at all the study intersections during the AM and PM peak hours but all study intersections will continue to operate at acceptable level LOS D or better.

Cumulative Year 2030 plus Project Traffic Conditions

- All the study intersections will continue to operate at acceptable level LOS D or better. There is no increase in delay between the Cumulative No Project and Cumulative plus Project Condition.

Due to the low number of project-generated trips, the project would not be expected to adversely impact operations at nearby signalized intersections or roadways. The proposed project is expected to result in a *less than-significant traffic* impact.

REFERENCES

1. *ITE Trip Generation Manual. 11th Edition, 2022.*
2. *Technical Advisory on Evaluating Transportation impacts In CEQA December 2018.*
3. *Merced Vision 2030 General Plan*

Advanced Mobility Group

Christopher Thnay, PE, AICP,	Project Manager
Andrea Flores, EIT,	Project Staff

Persons Consulted

Kristen Scheidt, P.E., QSD	O'Dell Engineering, Project Manager

Appendix A TRAFFIC VOLUME COUNTS

Prepared by National Data & Surveying Services

Parsons Ave & E Olive Ave

Peak Hour Turning Movement Count

ID: 23-090092-001
City: Merced

Day: Tuesday
Date: 8/22/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	6:00 AM - 08:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Parsons Ave)

AM	92	122	33	0	184	AM
NOON	0	0	0	0	0	NOON
PM	96	151	47	0	267	PM

EASTBOUND (E Olive Ave)

AM	NOON	PM	
387	0	366	
0	0	0	0
62	0	101	0
163	0	356	0
16	0	59	0

WESTBOUND (E Olive Ave)

PM	NOON	AM	
46	0	47	0
235	0	255	0
11	0	5	0
0	0	0	0
419	0	207	

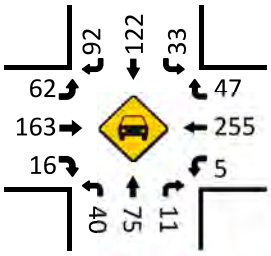
NORTHBOUND (Parsons Ave)

PM	221	0	35	120	16	PM
NOON	0	0	0	0	0	NOON
AM	143	0	40	75	11	AM

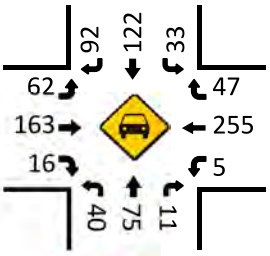
CONTROL: Signalized

TEV	921 AM	0 NOON	1273 PM
PHF	0.75		0.90

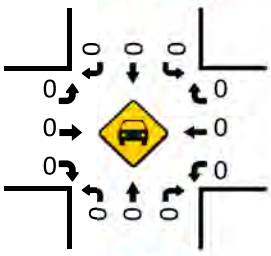
Totals (AM)



Totals (AM)



Totals (NOON)



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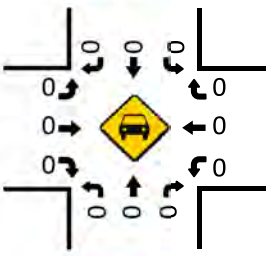
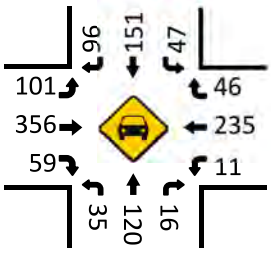
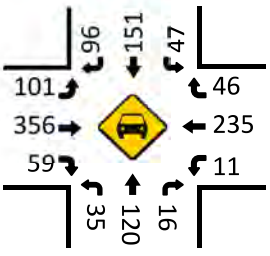


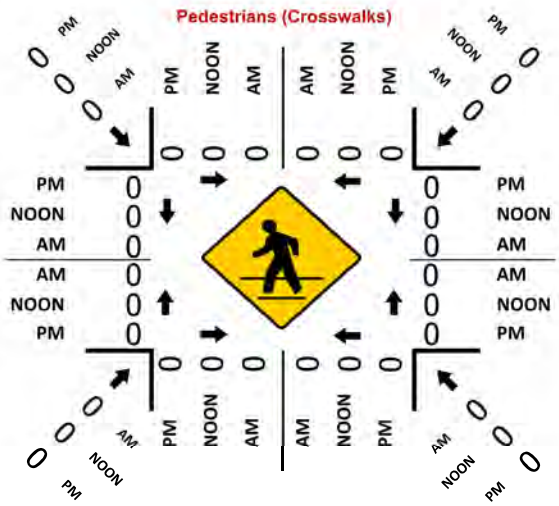
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Sycamore Ave & E Olive Ave

Peak Hour Turning Movement Count

ID: 23-090092-002
City: Merced

Day: Tuesday
Date: 8/22/2023

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 6:00 AM - 08:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (Sycamore Ave)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (E Olive Ave)

AM	NOON	PM	
487	0	429	⇦
0	0	0	↶ 0
0	0	0	↱ 0
252	0	638	→ 0
4	0	17	↴ 0

WESTBOUND (E Olive Ave)

PM	NOON	AM	
0	0	0	↰ 0
422	0	480	← 0
6	0	6	↰ 0
0	0	1	↲ 0
647	0	258	⇨

CONTROL

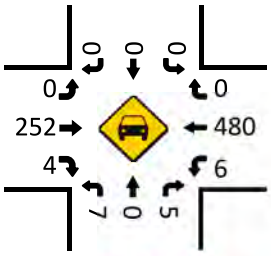
1-Way Stop(NB)

TEV	755 AM	0 NOON	1099 PM
PHF	0.75		0.93

NORTHBOUND (Sycamore Ave)

PM	23	0	7	0	9	PM
NOON	0	0	0	0	0	NOON
AM	10	0	7	0	5	AM

Totals (AM)



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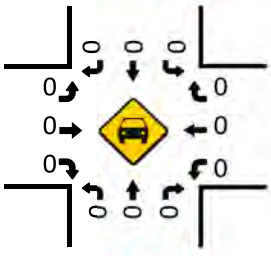

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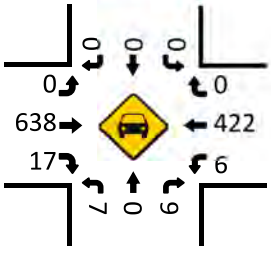
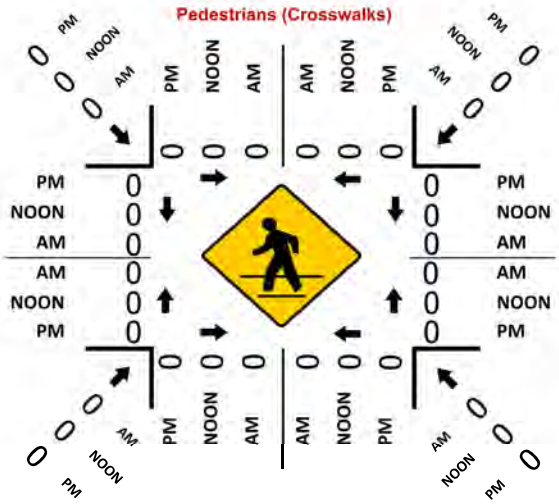
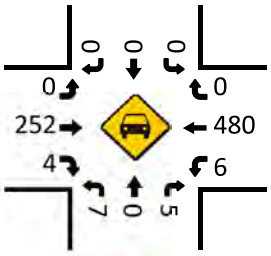


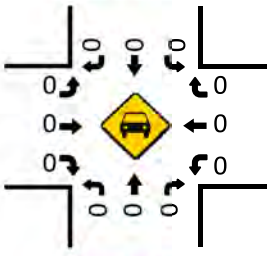
Pedestrians (Crosswalks)



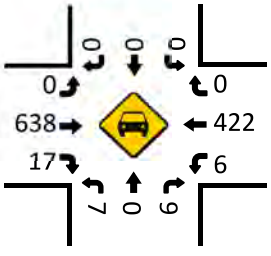
Totals (AM)



Totals (NOON)



Totals (PM)



Prepared by National Data & Surveying Services

El Capitan Ave & E Olive Ave

Peak Hour Turning Movement Count

ID: 23-090092-003
City: Merced

Day: Tuesday
Date: 8/22/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	6:00 AM - 08:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (El Capitan Ave)

AM	50	0	15	0	16	AM
NOON	0	0	0	0	0	NOON
PM	54	0	12	0	53	PM

EASTBOUND (E Olive Ave)

AM	NOON	PM	
593	0	523	⇦
0	0	0	↶ 0
7	0	45	↱ 0
282	0	729	→ 0
0	0	0	↴ 0

WESTBOUND (E Olive Ave)

PM	NOON	AM	
8	0	9	0 ↰
469	0	543	0 ←
0	0	0	0 ↙
0	0	0	0 ↲
741	0	297	⇨

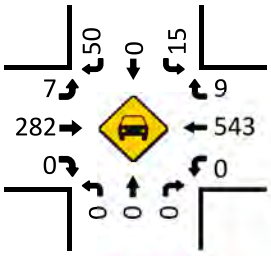
NORTHBOUND (El Capitan Ave)

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

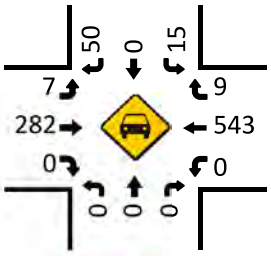
CONTROL: 1-Way Stop(SB)

TEV	906 AM	0 NOON	1317 PM
PHF	0.75		0.93

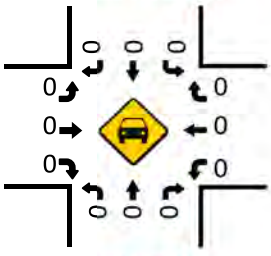
Totals (AM)



Totals (AM)



Totals (NOON)



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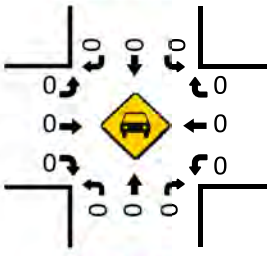
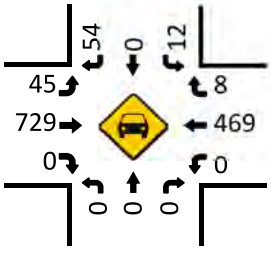
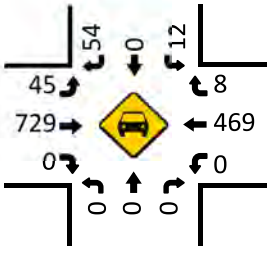


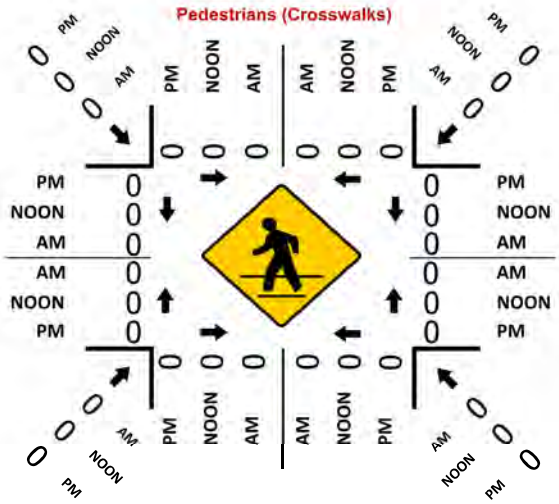
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

G St & E Olive Ave

Peak Hour Turning Movement Count

ID: 23-090092-004
City: Merced

Day: Tuesday
Date: 8/22/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	6:00 AM - 08:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (G St)

AM	182	459	32	6	803	AM
NOON	0	0	0	0	0	NOON
PM	271	603	66	23	1048	PM

EASTBOUND (E Olive Ave)

AM	NOON	PM	
782	0	897	
3	0	11	0
158	0	317	0
219	0	594	0
139	0	246	0

WESTBOUND (E Olive Ave)

PM	NOON	AM	
58	0	53	0
369	0	445	0
149	0	100	0
0	0	0	0
825	0	308	

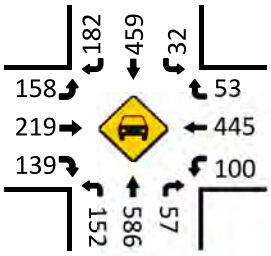
NORTHBOUND (G St)

PM	998	0	246	650	165	PM
NOON	0	0	0	0	0	NOON
AM	698	0	152	586	57	AM

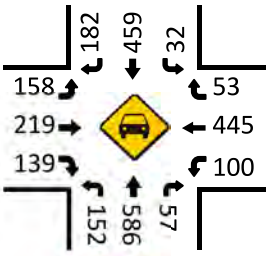
CONTROL: Signalized

TEV	2591 AM	0 NOON	3768 PM
PHF	0.73		0.96

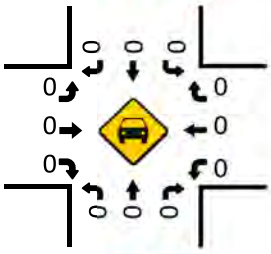
Totals (AM)



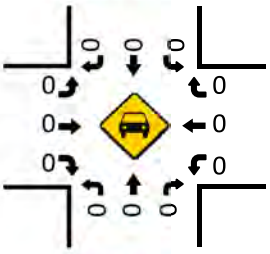
Totals (AM)



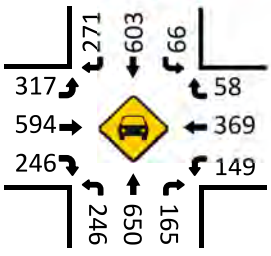
Totals (NOON)



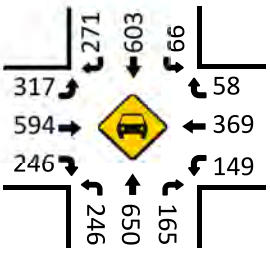
Totals (NOON)



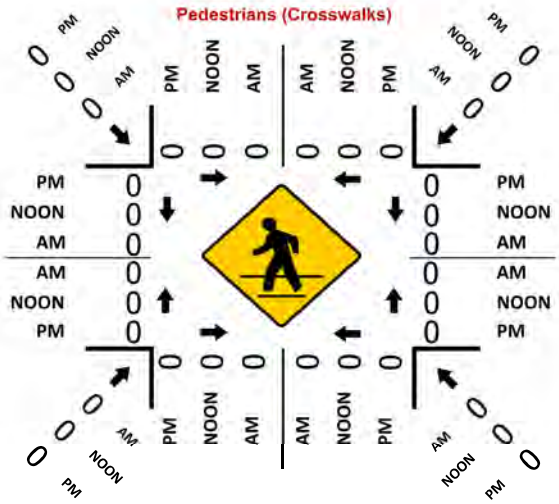
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

M St & E Olive Ave

Peak Hour Turning Movement Count

ID: 23-090092-005
City: Merced

Day: Tuesday
Date: 8/22/2023

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	6:00 AM - 08:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (M St)

AM	33	470	159	0	574	AM
NOON	0	0	0	0	0	NOON
PM	116	498	289	0	734	PM

EASTBOUND (E Olive Ave)

AM	NOON	PM	
672	0	1132	⇦
4	0	22	↶ 0
124	0	143	↱ 0
467	0	859	→ 0
167	0	170	↴ 0

WESTBOUND (E Olive Ave)

PM	NOON	AM	
69	0	58	0 ↰
751	0	500	0 ←
118	0	118	0 ↙
45	0	20	0 ↲
1296	0	706	⇨

CONTROL

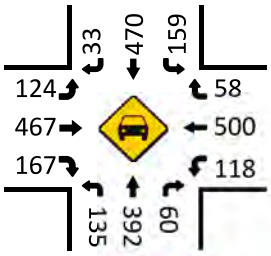
Signalized

TEV	2707 AM	0 NOON	3948 PM
PHF	0.70		0.95

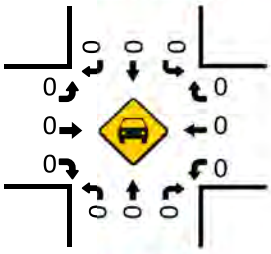
NORTHBOUND (M St)

PM	786	0	243	522	103	PM
NOON	0	0	0	0	0	NOON
AM	755	0	135	392	60	AM

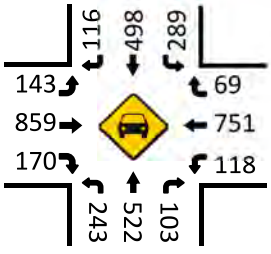
Totals (AM)



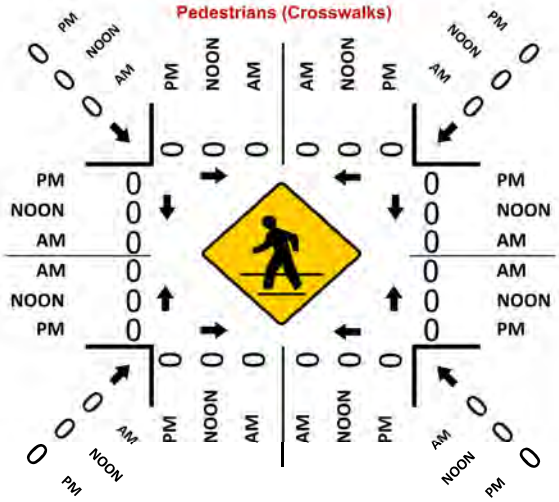
Totals (NOON)



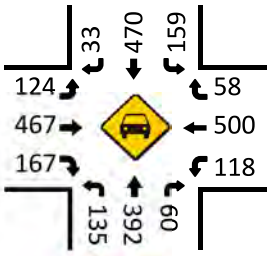
Totals (PM)



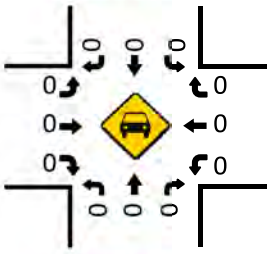
Pedestrians (Crosswalks)



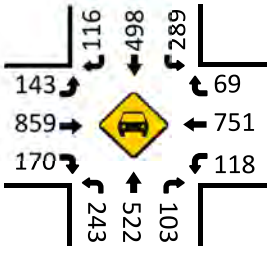
Totals (AM)



Totals (NOON)



Totals (PM)



Appendix B INTERSECTION LOS ANALYSIS: EXISTING CONDITIONS LOS CALCULATION SHEETS

Land Use: 151
Mini-Warehouse

Description

A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as "self-storage" facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 10:30 and 11:30 a.m. and 1:15 and 2:15 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, Massachusetts, Minnesota, New Jersey, Texas, and Utah.

Source Numbers

212, 403, 551, 568, 642, 708, 724, 850, 868, 876

Mini-Warehouse
(151)

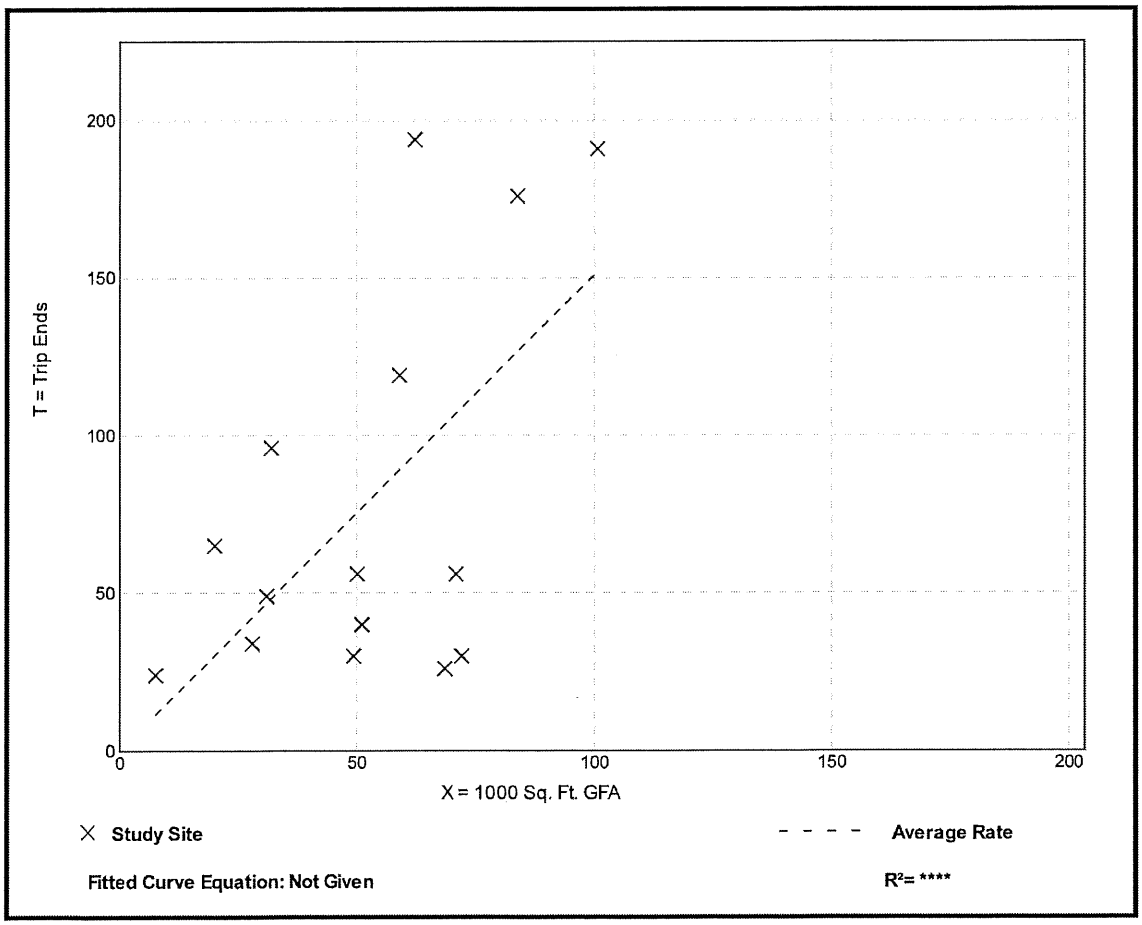
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 15
1000 Sq. Ft. GFA: 52
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.51	0.38 - 3.25	0.95

Data Plot and Equation



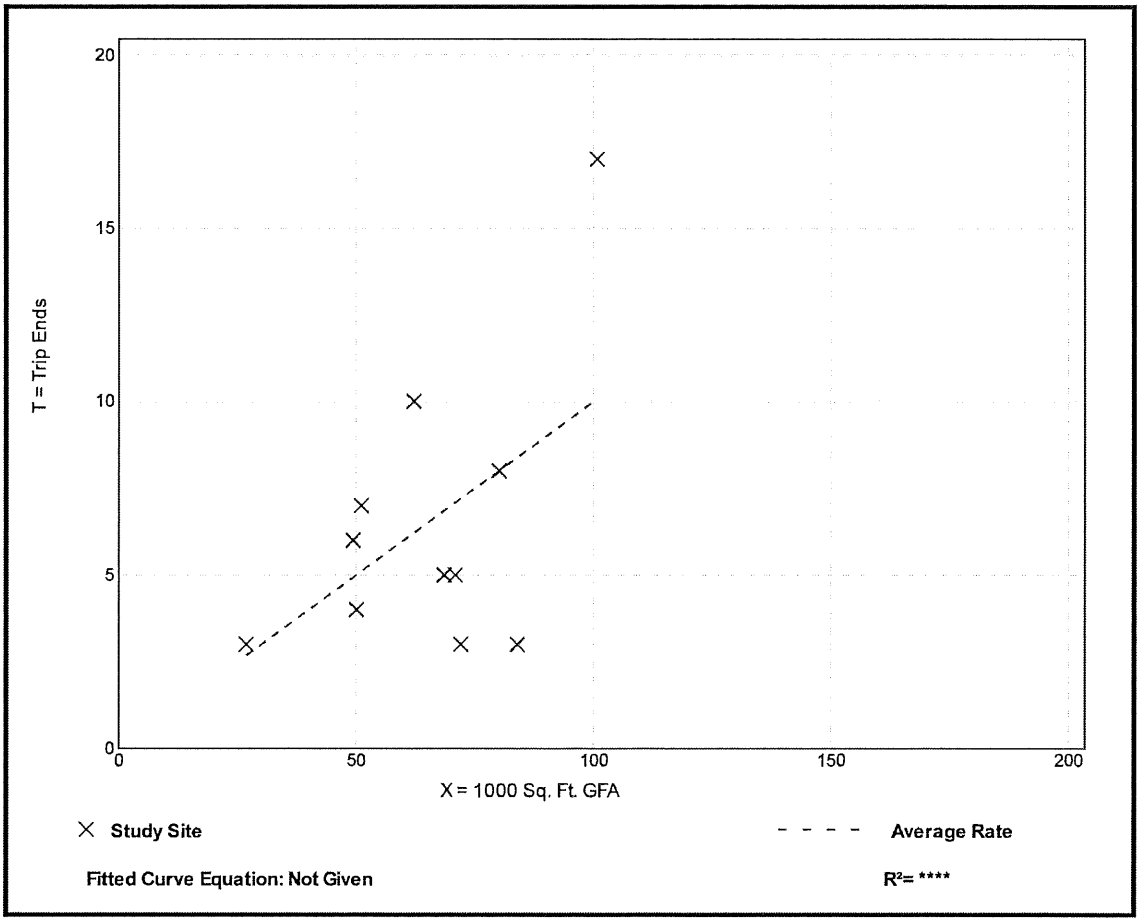
Mini-Warehouse
(151)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 11
1000 Sq. Ft. GFA: 65
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.10	0.04 - 0.17	0.05

Data Plot and Equation



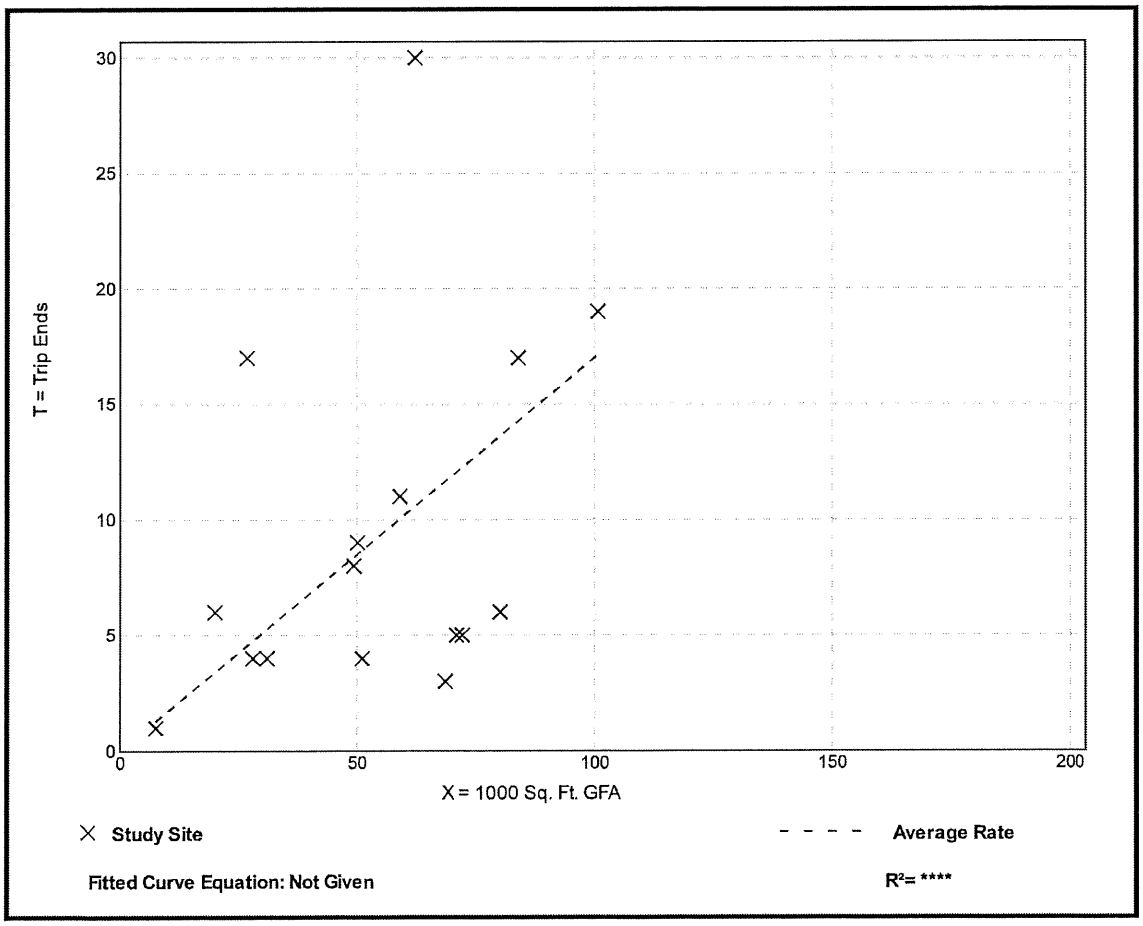
Mini-Warehouse
(151)

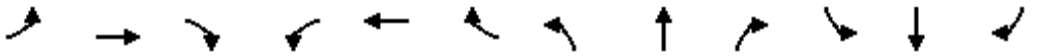
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 16
1000 Sq. Ft. GFA: 54
Directional Distribution: 47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.17	0.04 - 0.64	0.14

Data Plot and Equation





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	163	16	5	255	47	40	75	11	33	122	92
Future Volume (vph)	62	163	16	5	255	47	40	75	11	33	122	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1835		1770	1801		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1835		1770	1801		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.57	0.89	0.80	0.63	0.73	0.47	0.83	0.61	0.92	0.52	0.82	0.74
Adj. Flow (vph)	109	183	20	8	349	100	48	123	12	63	149	124
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	10	0	0	97
Lane Group Flow (vph)	109	200	0	8	440	0	48	123	2	63	149	27
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.2	38.1		1.1	28.5		4.6	15.3	15.3	6.6	17.3	17.3
Effective Green, g (s)	8.2	38.1		1.1	28.5		4.6	15.3	15.3	6.6	17.3	17.3
Actuated g/C Ratio	0.10	0.47		0.01	0.35		0.06	0.19	0.19	0.08	0.21	0.21
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	180	867		24	636		101	353	300	144	399	339
v/s Ratio Prot	c0.06	0.11		0.00	c0.24		0.03	0.07		c0.04	c0.08	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.61	0.23		0.33	0.69		0.48	0.35	0.01	0.44	0.37	0.08
Uniform Delay, d1	34.7	12.6		39.4	22.3		36.8	28.3	26.5	35.2	27.0	25.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	0.3		8.0	4.1		3.5	1.2	0.0	2.1	1.2	0.2
Delay (s)	40.3	12.9		47.4	26.4		40.3	29.6	26.5	37.4	28.3	25.5
Level of Service	D	B		D	C		D	C	C	D	C	C
Approach Delay (s)		22.5			26.8			32.2			28.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	22.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	252	4	1	6	480	7	5
Future Vol, veh/h	252	4	1	6	480	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	81	50	25	50	72	58	63
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	311	8	4	12	667	12	8

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	-	319	0	1006	315
Stage 1	-	-	-	-	-	315	-
Stage 2	-	-	-	-	-	691	-
Critical Hdwy	-	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	-	1241	-	267	725
Stage 1	-	-	-	-	-	740	-
Stage 2	-	-	-	-	-	497	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	~ -4	~ -4	-	267	725
Mov Cap-2 Maneuver	-	-	-	-	-	385	-
Stage 1	-	-	-	-	-	740	-
Stage 2	-	-	-	-	-	497	-

Approach	EB	WB	NB
HCM Control Delay, s	0		12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	473	-	-	+	-
HCM Lane V/C Ratio	0.042	-	-	-	-
HCM Control Delay (s)	12.9	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	282	543	9	15	50
Future Vol, veh/h	7	282	543	9	15	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	73	75	56	63	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	386	724	16	24	72

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	740	0	-	0	941	732
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	209	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	864	-	-	-	277	420
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	806	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	864	-	-	-	274	420
Mov Cap-2 Maneuver	-	-	-	-	380	-
Stage 1	-	-	-	-	469	-
Stage 2	-	-	-	-	806	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	864	-	-	-	409
HCM Lane V/C Ratio	0.009	-	-	-	0.235
HCM Control Delay (s)	9.2	-	-	-	16.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	3	158	219	139	100	445	53	152	586	57	6	32
Future Volume (vph)	3	158	219	139	100	445	53	152	586	57	6	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3480		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3480		1770	3539	1583		1770
Peak-hour factor, PHF	0.38	0.62	0.68	0.74	0.76	0.73	0.70	0.79	0.72	0.75	0.38	0.57
Adj. Flow (vph)	8	255	322	188	132	610	76	192	814	76	16	56
RTOR Reduction (vph)	0	0	0	136	0	9	0	0	0	52	0	0
Lane Group Flow (vph)	0	263	322	52	132	677	0	192	814	24	0	72
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		13.2	24.9	24.9	11.0	22.7		13.6	27.9	27.9		7.6
Effective Green, g (s)		13.2	24.9	24.9	11.0	22.7		13.6	27.9	27.9		7.6
Actuated g/C Ratio		0.15	0.28	0.28	0.12	0.25		0.15	0.31	0.31		0.08
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		259	979	437	216	877		267	1097	490		149
v/s Ratio Prot		c0.15	0.09		0.07	c0.19		c0.11	c0.23			0.04
v/s Ratio Perm				0.03						0.01		
v/c Ratio		1.02	0.33	0.12	0.61	0.77		0.72	0.74	0.05		0.48
Uniform Delay, d1		38.4	25.9	24.3	37.5	31.2		36.4	27.8	21.7		39.3
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		59.9	0.2	0.1	5.0	4.3		8.9	2.7	0.0		2.5
Delay (s)		98.3	26.1	24.5	42.5	35.5		45.3	30.6	21.8		41.8
Level of Service		F	C	C	D	D		D	C	C		D
Approach Delay (s)			50.3			36.6			32.6			
Approach LOS			D			D			C			

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	459	182
Future Volume (vph)	459	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	4865	
Flt Permitted	1.00	
Satd. Flow (perm)	4865	
Peak-hour factor, PHF	0.78	0.76
Adj. Flow (vph)	588	239
RTOR Reduction (vph)	75	0
Lane Group Flow (vph)	752	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	21.9	
Effective Green, g (s)	21.9	
Actuated g/C Ratio	0.24	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1183	
v/s Ratio Prot	0.15	
v/s Ratio Perm		
v/c Ratio	0.64	
Uniform Delay, d1	30.5	
Progression Factor	1.00	
Incremental Delay, d2	1.1	
Delay (s)	31.6	
Level of Service	C	
Approach Delay (s)	32.4	
Approach LOS	C	

Intersection Summary

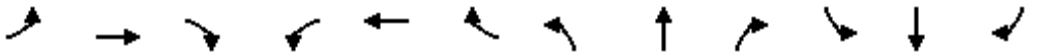
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	124	467	167	20	118	500	58	135	392	60	159
Future Volume (vph)	4	124	467	167	20	118	500	58	135	392	60	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	0.98		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5006		1770	3455		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5006		1770	3455		1770
Peak-hour factor, PHF	0.50	0.53	0.66	0.89	0.71	0.54	0.80	0.81	0.72	0.67	0.54	0.61
Adj. Flow (vph)	8	234	708	188	28	219	625	72	188	585	111	261
RTOR Reduction (vph)	0	0	0	146	0	0	15	0	0	16	0	0
Lane Group Flow (vph)	0	242	708	42	0	247	682	0	188	680	0	261
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.2	19.9	19.9		13.2	19.9		13.1	23.1		14.2
Effective Green, g (s)		13.2	19.9	19.9		13.2	19.9		13.1	23.1		14.2
Actuated g/C Ratio		0.15	0.22	0.22		0.15	0.22		0.15	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		262	1136	353		262	1119		260	896		282
v/s Ratio Prot		0.14	c0.14			c0.14	0.14		0.11	0.20		c0.15
v/s Ratio Perm				0.03								
v/c Ratio		0.92	0.62	0.12		0.94	0.61		0.72	0.76		0.93
Uniform Delay, d1		37.4	31.2	27.6		37.5	31.1		36.2	30.4		36.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		35.6	1.1	0.2		40.0	0.9		9.5	3.7		34.2
Delay (s)		73.0	32.2	27.7		77.6	32.0		45.8	34.1		71.1
Level of Service		E	C	C		E	C		D	C		E
Approach Delay (s)			40.2				43.9			36.6		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	470	33
Future Volume (vph)	470	33
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3512	
Flt Permitted	1.00	
Satd. Flow (perm)	3512	
Peak-hour factor, PHF	0.70	0.92
Adj. Flow (vph)	671	36
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	703	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	24.2	
Effective Green, g (s)	24.2	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	954	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.74	
Uniform Delay, d1	29.5	
Progression Factor	1.00	
Incremental Delay, d2	3.0	
Delay (s)	32.5	
Level of Service	C	
Approach Delay (s)	42.9	
Approach LOS	D	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	356	59	11	235	46	35	120	16	47	151	96
Future Volume (vph)	101	356	59	11	235	46	35	120	16	47	151	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1821		1770	1808		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1821		1770	1808		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.94	0.87	0.82	0.92	0.90	0.72	0.88	0.83	0.80	0.69	0.67	0.83
Adj. Flow (vph)	107	409	72	12	261	64	40	145	20	68	225	116
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	16	0	0	87
Lane Group Flow (vph)	107	476	0	12	317	0	40	145	4	68	225	29
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.1	33.7		1.1	24.2		4.3	17.4	17.4	6.8	19.9	19.9
Effective Green, g (s)	8.1	33.7		1.1	24.2		4.3	17.4	17.4	6.8	19.9	19.9
Actuated g/C Ratio	0.10	0.43		0.01	0.31		0.05	0.22	0.22	0.09	0.25	0.25
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	182	781		24	557		96	412	350	153	472	401
v/s Ratio Prot	c0.06	c0.26		0.01	0.18		0.02	0.08		c0.04	c0.12	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.59	0.61		0.50	0.57		0.42	0.35	0.01	0.44	0.48	0.07
Uniform Delay, d1	33.6	17.3		38.4	22.8		35.9	25.8	23.8	34.1	24.9	22.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	2.0		15.4	2.2		2.9	1.1	0.0	2.1	1.6	0.2
Delay (s)	38.4	19.4		53.9	25.0		38.8	26.9	23.9	36.1	26.5	22.5
Level of Service	D	B		D	C		D	C	C	D	C	C
Approach Delay (s)		22.8			26.0			28.9			26.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	638	17	6	422	7	9
Future Vol, veh/h	638	17	6	422	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	61	50	92	44	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	725	28	12	459	16	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	753	0	1222	739
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	483	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	857	-	198	417
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	620	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	857	-	195	417
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	363	-	-	857	-
HCM Lane V/C Ratio	0.077	-	-	0.014	-
HCM Control Delay (s)	15.7	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	729	469	8	12	54
Future Vol, veh/h	45	729	469	8	12	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	90	86	50	60	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	810	545	16	20	84

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	561	0	-	0	1086	553
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	533	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1008	-	-	-	225	532
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	554	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1008	-	-	-	199	532
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	554	-

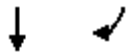
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1008	-	-	-	477
HCM Lane V/C Ratio	0.064	-	-	-	0.219
HCM Control Delay (s)	8.8	-	-	-	14.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	11	317	594	246	149	369	58	246	650	165	23	66
Future Volume (vph)	11	317	594	246	149	369	58	246	650	165	23	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3470		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3470		1770	3539	1583		1770
Peak-hour factor, PHF	0.92	0.92	0.87	0.84	0.96	0.82	0.85	0.89	0.91	0.81	0.82	0.75
Adj. Flow (vph)	12	345	683	293	155	450	68	276	714	204	28	88
RTOR Reduction (vph)	0	0	0	205	0	12	0	0	0	146	0	0
Lane Group Flow (vph)	0	357	683	88	155	506	0	276	714	58	0	116
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		18.2	27.8	27.8	10.1	19.7		13.2	26.1	26.1		9.9
Effective Green, g (s)		18.2	27.8	27.8	10.1	19.7		13.2	26.1	26.1		9.9
Actuated g/C Ratio		0.20	0.30	0.30	0.11	0.21		0.14	0.28	0.28		0.11
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		348	1063	475	193	739		252	998	446		189
v/s Ratio Prot		c0.20	c0.19		0.09	0.15		c0.16	c0.20			0.07
v/s Ratio Perm				0.06						0.04		
v/c Ratio		1.03	0.64	0.19	0.80	0.68		1.10	0.72	0.13		0.61
Uniform Delay, d1		37.1	28.0	24.0	40.2	33.5		39.6	29.9	24.7		39.5
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		55.0	1.3	0.2	20.9	2.6		84.5	2.5	0.1		5.8
Delay (s)		92.2	29.4	24.2	61.2	36.2		124.2	32.3	24.9		45.3
Level of Service		F	C	C	E	D		F	C	C		D
Approach Delay (s)			45.1			41.9			52.3			
Approach LOS			D			D			D			

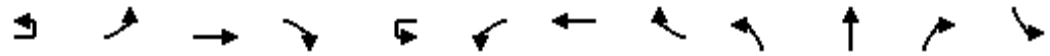
Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	18.6
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	603	271
Future Volume (vph)	603	271
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4854	
Flt Permitted	1.00	
Satd. Flow (perm)	4854	
Peak-hour factor, PHF	0.94	0.97
Adj. Flow (vph)	641	279
RTOR Reduction (vph)	77	0
Lane Group Flow (vph)	843	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	22.8	
Effective Green, g (s)	22.8	
Actuated g/C Ratio	0.25	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1196	
v/s Ratio Prot	0.17	
v/s Ratio Perm		
v/c Ratio	0.70	
Uniform Delay, d1	31.8	
Progression Factor	1.00	
Incremental Delay, d2	1.9	
Delay (s)	33.7	
Level of Service	C	
Approach Delay (s)	35.0	
Approach LOS	C	

Intersection Summary



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	22	143	859	170	45	118	751	69	243	522	103	289
Future Volume (vph)	22	143	859	170	45	118	751	69	243	522	103	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5001		1770	3447		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5001		1770	3447		1770
Peak-hour factor, PHF	0.79	0.92	0.85	0.85	0.70	0.89	0.93	0.69	0.94	0.88	0.83	0.90
Adj. Flow (vph)	28	155	1011	200	64	133	808	100	259	593	124	321
RTOR Reduction (vph)	0	0	0	146	0	0	15	0	0	17	0	0
Lane Group Flow (vph)	0	183	1011	54	0	197	893	0	259	700	0	321
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		11.1	26.5	26.5		11.1	26.5		16.1	25.6		16.1
Effective Green, g (s)		11.1	26.5	26.5		11.1	26.5		16.1	25.6		16.1
Actuated g/C Ratio		0.11	0.27	0.27		0.11	0.27		0.16	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		200	1376	428		200	1353		291	901		291
v/s Ratio Prot		0.10	c0.20			c0.11	0.18		0.15	0.20		c0.18
v/s Ratio Perm				0.03								
v/c Ratio		0.92	0.73	0.13		0.98	0.66		0.89	0.78		1.10
Uniform Delay, d1		42.9	32.5	27.0		43.3	31.7		40.0	33.5		40.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		40.4	2.1	0.1		58.9	1.2		26.8	4.3		83.3
Delay (s)		83.3	34.6	27.1		102.2	32.9		66.8	37.8		124.2
Level of Service		F	C	C		F	C		E	D		F
Approach Delay (s)			39.9				45.2			45.5		
Approach LOS			D				D			D		

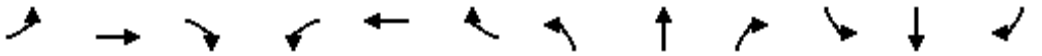
Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	18.6
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	498	116
Future Volume (vph)	498	116
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	3425	
Flt Permitted	1.00	
Satd. Flow (perm)	3425	
Peak-hour factor, PHF	0.86	0.73
Adj. Flow (vph)	579	159
RTOR Reduction (vph)	24	0
Lane Group Flow (vph)	714	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	25.6	
Effective Green, g (s)	25.6	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	895	
v/s Ratio Prot	c0.21	
v/s Ratio Perm		
v/c Ratio	0.80	
Uniform Delay, d1	33.7	
Progression Factor	1.00	
Incremental Delay, d2	5.0	
Delay (s)	38.7	
Level of Service	D	
Approach Delay (s)	64.6	
Approach LOS	E	

Intersection Summary

Appendix C INTERSECTION LOS ANALYSIS: EXISTING PLUS PROJECT CONDITIONS LOS CALCULATION SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	163	16	5	256	47	40	75	11	33	122	92
Future Volume (vph)	62	163	16	5	256	47	40	75	11	33	122	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1835		1770	1801		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1835		1770	1801		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.57	0.89	0.80	0.63	0.73	0.47	0.83	0.61	0.92	0.52	0.82	0.74
Adj. Flow (vph)	109	183	20	8	351	100	48	123	12	63	149	124
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	10	0	0	97
Lane Group Flow (vph)	109	200	0	8	442	0	48	123	2	63	149	27
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.2	38.2		1.1	28.6		4.6	15.3	15.3	6.6	17.3	17.3
Effective Green, g (s)	8.2	38.2		1.1	28.6		4.6	15.3	15.3	6.6	17.3	17.3
Actuated g/C Ratio	0.10	0.47		0.01	0.35		0.06	0.19	0.19	0.08	0.21	0.21
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	179	868		24	638		100	353	300	144	399	339
v/s Ratio Prot	c0.06	0.11		0.00	c0.25		0.03	0.07		c0.04	c0.08	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.61	0.23		0.33	0.69		0.48	0.35	0.01	0.44	0.37	0.08
Uniform Delay, d1	34.7	12.6		39.4	22.3		36.9	28.4	26.5	35.3	27.1	25.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.3		8.0	4.1		3.6	1.2	0.0	2.1	1.2	0.2
Delay (s)	40.5	12.9		47.5	26.4		40.5	29.6	26.6	37.4	28.3	25.5
Level of Service	D	B		D	C		D	C	C	D	C	C
Approach Delay (s)		22.5			26.8			32.3			29.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	22.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Vol, veh/h	252	4	1	6	481	7	5
Future Vol, veh/h	252	4	1	6	481	7	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	81	50	25	50	72	58	63
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	311	8	4	12	668	12	8

Major/Minor	Major1		Major2			Minor1	
Conflicting Flow All	0	0	-	319	0	1007	315
Stage 1	-	-	-	-	-	315	-
Stage 2	-	-	-	-	-	692	-
Critical Hdwy	-	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	-	1241	-	267	725
Stage 1	-	-	-	-	-	740	-
Stage 2	-	-	-	-	-	497	-
Platoon blocked, %	-	-			-		
Mov Cap-1 Maneuver	-	-	~ -4	~ -4	-	267	725
Mov Cap-2 Maneuver	-	-	-	-	-	385	-
Stage 1	-	-	-	-	-	740	-
Stage 2	-	-	-	-	-	497	-

Approach	EB	WB	NB
HCM Control Delay, s	0		12.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	473	-	-	+	-
HCM Lane V/C Ratio	0.042	-	-	-	-
HCM Control Delay (s)	12.9	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	285	545	9	15	50
Future Vol, veh/h	7	285	545	9	15	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	73	75	56	63	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	390	727	16	24	72

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	743	0	-	0	946	735
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	211	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	862	-	-	-	275	419
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	862	-	-	-	272	419
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	862	-	-	-	408
HCM Lane V/C Ratio	0.009	-	-	-	0.236
HCM Control Delay (s)	9.2	-	-	-	16.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	3	158	221	139	100	447	53	152	586	58	6	32
Future Volume (vph)	3	158	221	139	100	447	53	152	586	58	6	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3481		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3481		1770	3539	1583		1770
Peak-hour factor, PHF	0.38	0.62	0.68	0.74	0.76	0.73	0.70	0.79	0.72	0.75	0.38	0.57
Adj. Flow (vph)	8	255	325	188	132	612	76	192	814	77	16	56
RTOR Reduction (vph)	0	0	0	136	0	9	0	0	0	53	0	0
Lane Group Flow (vph)	0	263	325	52	132	679	0	192	814	24	0	72
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		13.2	25.0	25.0	11.0	22.8		13.6	27.9	27.9		7.7
Effective Green, g (s)		13.2	25.0	25.0	11.0	22.8		13.6	27.9	27.9		7.7
Actuated g/C Ratio		0.15	0.28	0.28	0.12	0.25		0.15	0.31	0.31		0.09
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		259	980	438	215	879		266	1094	489		151
v/s Ratio Prot		c0.15	0.09		0.07	c0.20		c0.11	c0.23			0.04
v/s Ratio Perm				0.03						0.02		
v/c Ratio		1.02	0.33	0.12	0.61	0.77		0.72	0.74	0.05		0.48
Uniform Delay, d1		38.5	25.9	24.4	37.6	31.3		36.5	27.9	21.8		39.3
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		59.9	0.2	0.1	5.1	4.3		9.3	2.8	0.0		2.4
Delay (s)		98.4	26.2	24.5	42.7	35.6		45.8	30.7	21.9		41.7
Level of Service		F	C	C	D	D		D	C	C		D
Approach Delay (s)			50.2			36.7			32.8			
Approach LOS			D			D			C			

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.2	Sum of lost time (s)	18.6
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	459	182
Future Volume (vph)	459	182
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	4865	
Flt Permitted	1.00	
Satd. Flow (perm)	4865	
Peak-hour factor, PHF	0.78	0.76
Adj. Flow (vph)	588	239
RTOR Reduction (vph)	75	0
Lane Group Flow (vph)	752	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	22.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.24	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1186	
v/s Ratio Prot	0.15	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	30.5	
Progression Factor	1.00	
Incremental Delay, d2	1.1	
Delay (s)	31.6	
Level of Service	C	
Approach Delay (s)	32.4	
Approach LOS	C	

Intersection Summary

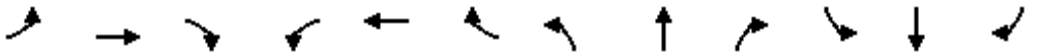
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	4	124	468	167	20	119	501	58	135	392	61	159
Future Volume (vph)	4	124	468	167	20	119	501	58	135	392	61	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	0.98		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5007		1770	3453		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5007		1770	3453		1770
Peak-hour factor, PHF	0.50	0.53	0.66	0.89	0.71	0.54	0.80	0.81	0.72	0.67	0.54	0.61
Adj. Flow (vph)	8	234	709	188	28	220	626	72	188	585	113	261
RTOR Reduction (vph)	0	0	0	146	0	0	15	0	0	16	0	0
Lane Group Flow (vph)	0	242	709	42	0	248	683	0	188	682	0	261
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.2	19.9	19.9		13.2	19.9		13.1	23.2		14.2
Effective Green, g (s)		13.2	19.9	19.9		13.2	19.9		13.1	23.2		14.2
Actuated g/C Ratio		0.15	0.22	0.22		0.15	0.22		0.15	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		262	1135	353		262	1118		260	899		282
v/s Ratio Prot		0.14	c0.14			c0.14	0.14		0.11	0.20		c0.15
v/s Ratio Perm				0.03								
v/c Ratio		0.92	0.62	0.12		0.95	0.61		0.72	0.76		0.93
Uniform Delay, d1		37.5	31.2	27.6		37.6	31.1		36.3	30.4		36.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		35.6	1.1	0.2		40.8	1.0		9.5	3.7		34.2
Delay (s)		73.1	32.3	27.8		78.4	32.1		45.8	34.1		71.2
Level of Service		E	C	C		E	C		D	C		E
Approach Delay (s)			40.2				44.2			36.6		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	18.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	470	33
Future Volume (vph)	470	33
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3512	
Flt Permitted	1.00	
Satd. Flow (perm)	3512	
Peak-hour factor, PHF	0.70	0.92
Adj. Flow (vph)	671	36
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	703	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	24.3	
Effective Green, g (s)	24.3	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	957	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.73	
Uniform Delay, d1	29.5	
Progression Factor	1.00	
Incremental Delay, d2	3.0	
Delay (s)	32.4	
Level of Service	C	
Approach Delay (s)	42.9	
Approach LOS	D	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	357	59	11	236	46	35	120	16	47	151	96
Future Volume (vph)	101	357	59	11	236	46	35	120	16	47	151	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1821		1770	1808		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1821		1770	1808		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.94	0.87	0.82	0.92	0.90	0.72	0.88	0.83	0.80	0.69	0.67	0.83
Adj. Flow (vph)	107	410	72	12	262	64	40	145	20	68	225	116
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	16	0	0	87
Lane Group Flow (vph)	107	477	0	12	318	0	40	145	4	68	225	29
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.1	33.8		1.1	24.3		4.3	17.4	17.4	6.8	19.9	19.9
Effective Green, g (s)	8.1	33.8		1.1	24.3		4.3	17.4	17.4	6.8	19.9	19.9
Actuated g/C Ratio	0.10	0.43		0.01	0.31		0.05	0.22	0.22	0.09	0.25	0.25
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	182	783		24	558		96	412	350	153	471	400
v/s Ratio Prot	c0.06	c0.26		0.01	0.18		0.02	0.08		c0.04	c0.12	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.59	0.61		0.50	0.57		0.42	0.35	0.01	0.44	0.48	0.07
Uniform Delay, d1	33.7	17.3		38.5	22.8		35.9	25.8	23.9	34.1	24.9	22.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	2.0		15.4	2.2		2.9	1.1	0.0	2.1	1.6	0.2
Delay (s)	38.4	19.3		53.9	25.0		38.9	26.9	23.9	36.2	26.5	22.5
Level of Service	D	B		D	C		D	C	C	D	C	C
Approach Delay (s)		22.8			26.0			29.0			27.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	639	17	6	423	7	9
Future Vol, veh/h	639	17	6	423	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	61	50	92	44	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	726	28	12	460	16	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	754	0	1224	740
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	484	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	856	-	198	417
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	620	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	856	-	195	417
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	611	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	363	-	-	856	-
HCM Lane V/C Ratio	0.077	-	-	0.014	-
HCM Control Delay (s)	15.7	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	733	474	8	12	54
Future Vol, veh/h	45	733	474	8	12	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	90	86	50	60	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	814	551	16	20	84

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	567	0	-	0	1094	559
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	535	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	1003	-	-	-	222	528
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	552	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1003	-	-	-	196	528
Mov Cap-2 Maneuver	-	-	-	-	330	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	552	-

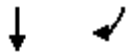
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1003	-	-	-	474
HCM Lane V/C Ratio	0.064	-	-	-	0.22
HCM Control Delay (s)	8.8	-	-	-	14.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	11	317	596	246	150	372	59	246	650	166	23	67
Future Volume (vph)	11	317	596	246	150	372	59	246	650	166	23	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3469		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3469		1770	3539	1583		1770
Peak-hour factor, PHF	0.92	0.92	0.87	0.84	0.96	0.82	0.85	0.89	0.91	0.81	0.82	0.75
Adj. Flow (vph)	12	345	685	293	156	454	69	276	714	205	28	89
RTOR Reduction (vph)	0	0	0	205	0	13	0	0	0	147	0	0
Lane Group Flow (vph)	0	357	685	88	156	510	0	276	714	58	0	117
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		18.2	27.9	27.9	10.1	19.8		13.2	26.1	26.1		9.9
Effective Green, g (s)		18.2	27.9	27.9	10.1	19.8		13.2	26.1	26.1		9.9
Actuated g/C Ratio		0.20	0.30	0.30	0.11	0.21		0.14	0.28	0.28		0.11
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		347	1066	476	193	741		252	997	446		189
v/s Ratio Prot		c0.20	c0.19		0.09	0.15		c0.16	c0.20			0.07
v/s Ratio Perm				0.06						0.04		
v/c Ratio		1.03	0.64	0.19	0.81	0.69		1.10	0.72	0.13		0.62
Uniform Delay, d1		37.2	28.0	23.9	40.3	33.6		39.7	29.9	24.8		39.5
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		55.9	1.3	0.2	21.4	2.7		84.5	2.5	0.1		5.9
Delay (s)		93.1	29.4	24.1	61.7	36.2		124.2	32.4	24.9		45.5
Level of Service		F	C	C	E	D		F	C	C		D
Approach Delay (s)			45.3			42.1			52.3			
Approach LOS			D			D			D			

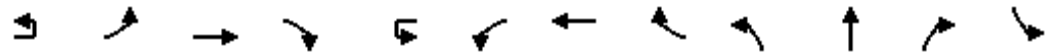
Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	603	271
Future Volume (vph)	603	271
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4854	
Flt Permitted	1.00	
Satd. Flow (perm)	4854	
Peak-hour factor, PHF	0.94	0.97
Adj. Flow (vph)	641	279
RTOR Reduction (vph)	77	0
Lane Group Flow (vph)	843	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	22.8	
Effective Green, g (s)	22.8	
Actuated g/C Ratio	0.25	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1195	
v/s Ratio Prot	0.17	
v/s Ratio Perm		
v/c Ratio	0.71	
Uniform Delay, d1	31.8	
Progression Factor	1.00	
Incremental Delay, d2	1.9	
Delay (s)	33.8	
Level of Service	C	
Approach Delay (s)	35.1	
Approach LOS	D	

Intersection Summary



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	22	143	860	170	45	119	752	70	243	522	104	289
Future Volume (vph)	22	143	860	170	45	119	752	70	243	522	104	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.98		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5001		1770	3447		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5001		1770	3447		1770
Peak-hour factor, PHF	0.79	0.92	0.85	0.85	0.70	0.89	0.93	0.69	0.94	0.88	0.83	0.90
Adj. Flow (vph)	28	155	1012	200	64	134	809	101	259	593	125	321
RTOR Reduction (vph)	0	0	0	146	0	0	15	0	0	18	0	0
Lane Group Flow (vph)	0	183	1012	54	0	198	895	0	259	700	0	321
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		11.1	26.5	26.5		11.1	26.5		16.1	25.6		16.1
Effective Green, g (s)		11.1	26.5	26.5		11.1	26.5		16.1	25.6		16.1
Actuated g/C Ratio		0.11	0.27	0.27		0.11	0.27		0.16	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		200	1376	428		200	1353		291	901		291
v/s Ratio Prot		0.10	c0.20			c0.11	0.18		0.15	0.20		c0.18
v/s Ratio Perm				0.03								
v/c Ratio		0.92	0.74	0.13		0.99	0.66		0.89	0.78		1.10
Uniform Delay, d1		42.9	32.5	27.0		43.3	31.7		40.0	33.5		40.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		40.4	2.1	0.1		60.1	1.2		26.8	4.3		83.3
Delay (s)		83.3	34.6	27.1		103.4	32.9		66.8	37.8		124.2
Level of Service		F	C	C		F	C		E	D		F
Approach Delay (s)			39.9				45.5			45.5		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	18.6
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

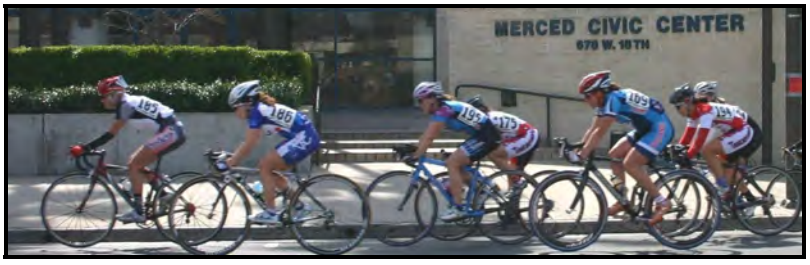
c Critical Lane Group

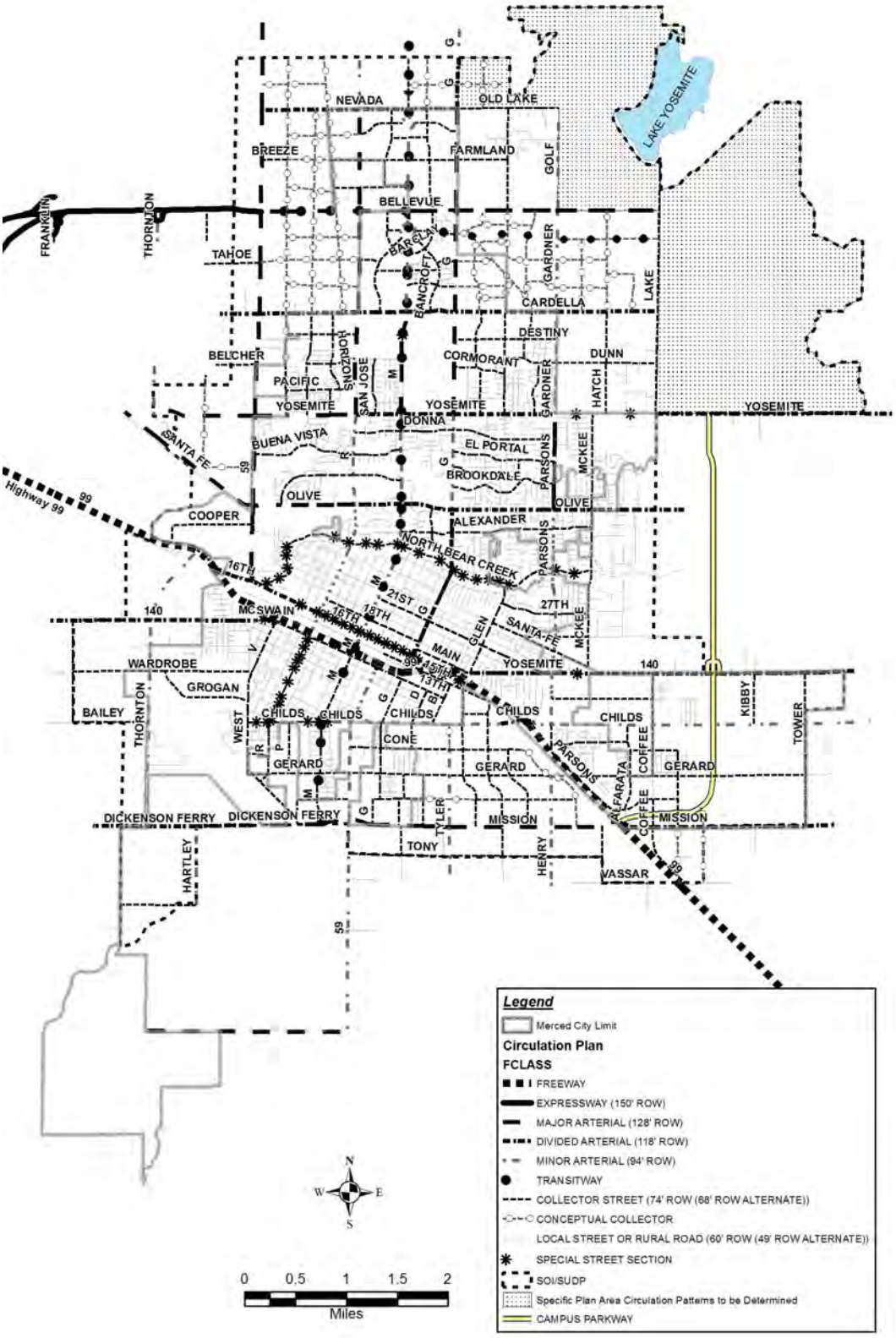
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	498	116
Future Volume (vph)	498	116
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.97	
Flt Protected	1.00	
Satd. Flow (prot)	3425	
Flt Permitted	1.00	
Satd. Flow (perm)	3425	
Peak-hour factor, PHF	0.86	0.73
Adj. Flow (vph)	579	159
RTOR Reduction (vph)	24	0
Lane Group Flow (vph)	714	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	25.6	
Effective Green, g (s)	25.6	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	895	
v/s Ratio Prot	c0.21	
v/s Ratio Perm		
v/c Ratio	0.80	
Uniform Delay, d1	33.7	
Progression Factor	1.00	
Incremental Delay, d2	5.0	
Delay (s)	38.7	
Level of Service	D	
Approach Delay (s)	64.6	
Approach LOS	E	

Intersection Summary

Appendix D INTERSECTION LOS ANALYSIS: CUMULATIVE YEAR 2030 (NO PROJECT) CALCULATION SHEETS

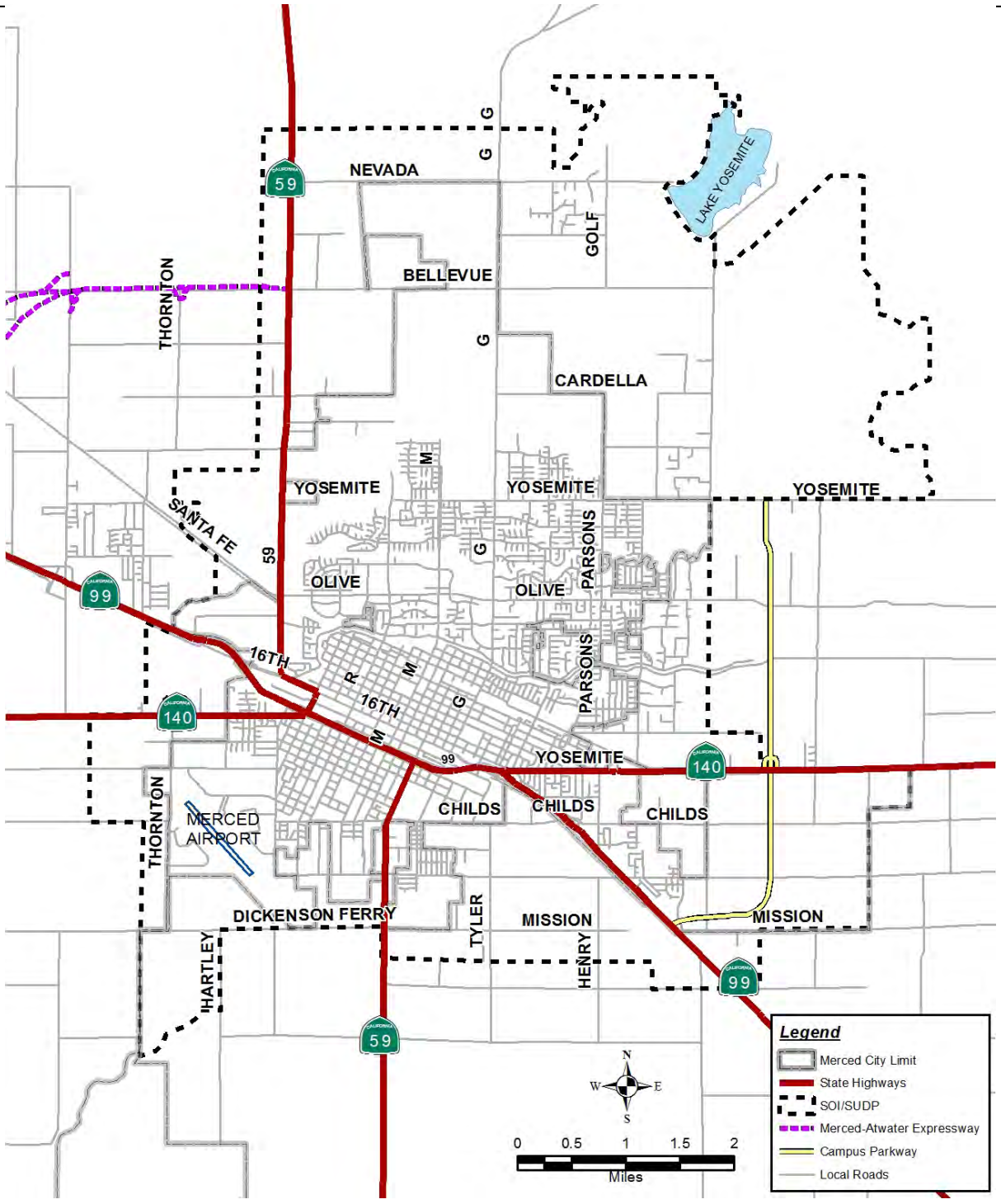
Chapter 4--Transportation and Circulation





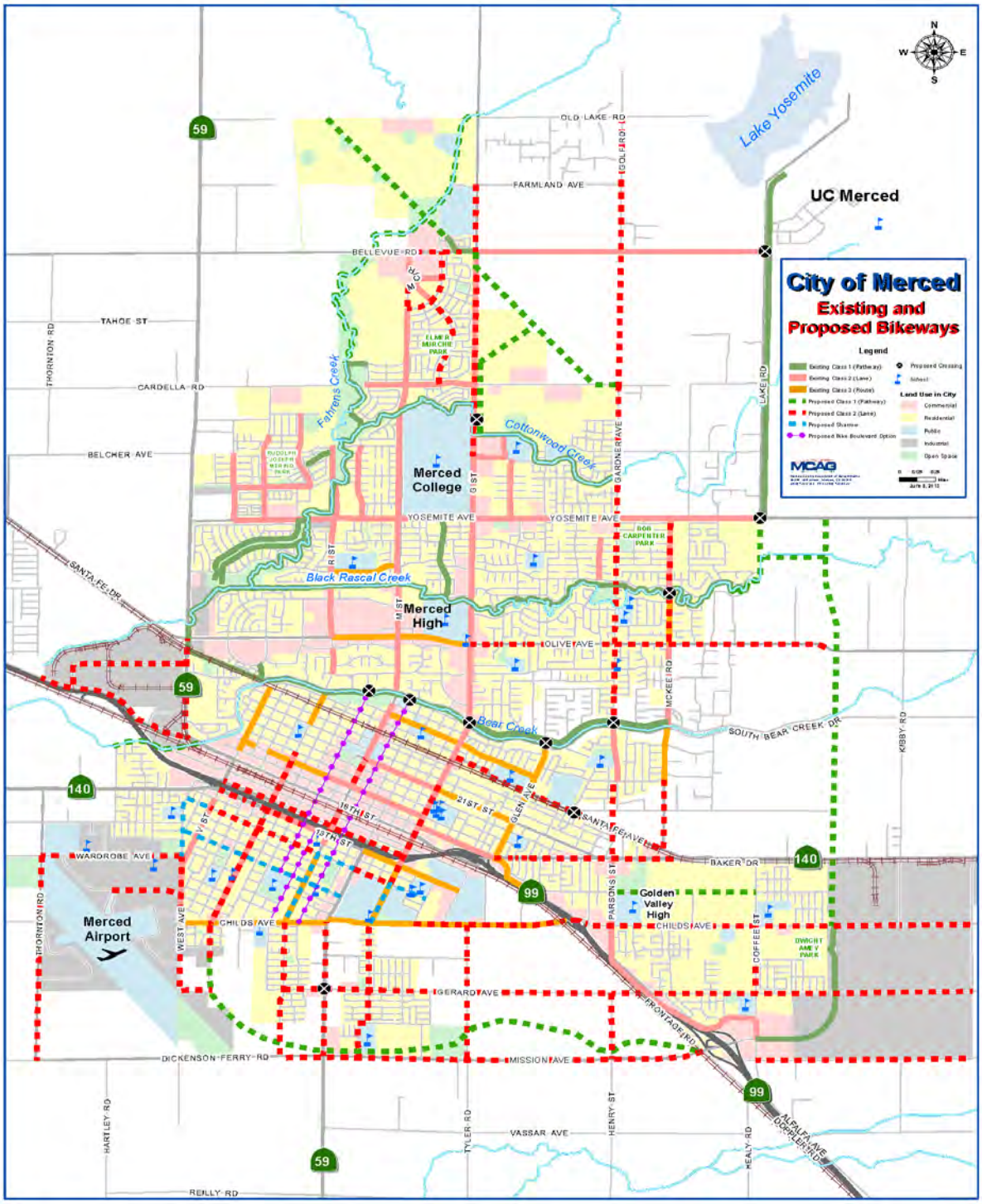
CITY OF MERCED CIRCULATION PLAN

Figure 4.1



MAJOR REGIONAL ROUTES

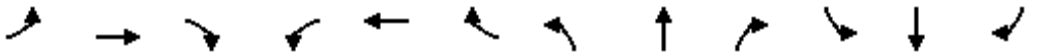
Figure 4.2



BICYCLE TRANSPORTATION PLAN

Figure 4.9

Roadway/Segment	*Existing Conditions (2010)*			*General Plan Buildout (2030)*		
	Number of Lanes	*Traffic Volume[1]*	*LOS[2]*	*Planned Number of Lanes[3]*	*Traffic Volume[1]*	*LOS[2]*
Tyler Road						
Childs to Mission	n/a	n/a	n/a	2	9,830	D
EAST/WEST ARTERIALS						
Old Lake Road						
SR 59 to "R" St.	n/a	n/a	n/a	4	20,840	C+
"R" St. to "M" St.	n/a	n/a	n/a	4	17,890	C
"M" St. to "G" St.	n/a	n/a	n/a	4	17,040	C
"G" St. to Parsons/ Gardner	2	1,700	C+	2	8,630	D
Parsons/Gardner to Lake	2	340	C+	2	3,830	C+
Bellevue Road						
Atwater/Merced Expy to Thornton	2	3,800	C+	8	55,380	C+
Thornton to SR 59	2	3,800	C+	8	74,340	D
SR 59 to "R" St.	2	5,630	D	6	58,400	**F**
"R" St. to "M" St.	2	5,460	D	6	55,310	**F**
"M" St. to "G" St.	2	5,460	D	6	57,470	**F**
"G" St. to Parsons/ Gardner[4]	2	6,620	D	6	52,950	**E**
Parsons/Gardner to Campus Pkwy[4]	2	3,700	C+	6	50,120	D
Cardella Road						
SR 59 to "R" St.	n/a	n/a	n/a	4	31,840	D
"R" St. to "M" St.	2	5,000	C+	6	35,340	C+
"M" St. to "G" St.	2	6,800	C+	4	33,520	D
"G" St. to Parsons/Gardner	n/a	n/a	n/a	4	33,430	D
Parsons/Gardner to Campus Pkwy	n/a	n/a	n/a	4	32,590	D
Yosemite Avenue						
SR 59 to "R" St.	4	12,160	C+	4	26,130	C+
"R" St. to "M" St.	4	15,940	C+	4	38,430	**F**
"M" St. to "G" St.	4	19,720	C+	4	38,770	**F**
"G" St. to Parsons/ Gardner	2	15,100	D	4	38,990	**F**
Parsons/Gardner to Campus Pkwy	2	7,550	D	4	29,600	D
Olive Avenue						
West of Hwy 59 (Santa Fe Ave)	4	22,800	C+	6	33,880	C
SR 59 to "R" St.	6	32,250	C+	6	45,830	D
"R" St. to "M" St.	6	30,560	C+	6	41,060	C+
"M" St. to "G" St.	6	28,210	C+	6	45,030	D
"G" St. to Parsons/Gardner	4	18,500	C+	4	34,970	**E**
Parsons/Gardner to Lake	2	7,460	C+	2	16,770	**E**



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	214	17	5	366	49	57	77	15	43	126	132
Future Volume (vph)	64	214	17	5	366	49	57	77	15	43	126	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1840		1770	1815		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1840		1770	1815		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.57	0.89	0.80	0.63	0.73	0.47	0.83	0.61	0.92	0.52	0.82	0.74
Adj. Flow (vph)	112	240	21	8	501	104	69	126	16	83	154	178
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	13	0	0	146
Lane Group Flow (vph)	112	259	0	8	599	0	69	126	3	83	154	32
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.5	42.3		1.1	32.4		7.1	14.8	14.8	7.6	15.3	15.3
Effective Green, g (s)	8.5	42.3		1.1	32.4		7.1	14.8	14.8	7.6	15.3	15.3
Actuated g/C Ratio	0.10	0.50		0.01	0.38		0.08	0.17	0.17	0.09	0.18	0.18
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	176	912		22	689		147	323	274	157	334	283
v/s Ratio Prot	c0.06	0.14		0.00	c0.33		0.04	0.07		c0.05	c0.08	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.64	0.28		0.36	0.87		0.47	0.39	0.01	0.53	0.46	0.11
Uniform Delay, d1	36.9	12.6		41.8	24.5		37.3	31.2	29.2	37.1	31.3	29.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	0.4		9.9	12.2		2.4	1.6	0.0	3.2	2.1	0.4
Delay (s)	44.2	13.0		51.7	36.7		39.7	32.9	29.2	40.3	33.4	29.7
Level of Service	D	B		D	D		D	C	C	D	C	C
Approach Delay (s)		22.4			36.9			34.8			33.2	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	4	6	631	9	7
Future Vol, veh/h	331	4	6	631	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	50	50	72	58	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	409	8	12	876	16	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	417	0	1313	413
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	900	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1142	-	175	639
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	397	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1142	-	173	639
Mov Cap-2 Maneuver	-	-	-	-	297	-
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	393	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	382	-	-	1142	-
HCM Lane V/C Ratio	0.07	-	-	0.011	-
HCM Control Delay (s)	15.1	-	-	8.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	371	714	10	20	66
Future Vol, veh/h	7	371	714	10	20	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	73	75	56	63	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	508	952	18	32	96

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	970	0	-	0	1231	961
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	270	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	708	-	-	-	182	310
Stage 1	-	-	-	-	370	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	708	-	-	-	179	310
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	708	-	-	-	305
HCM Lane V/C Ratio	0.011	-	-	-	0.418
HCM Control Delay (s)	10.1	-	-	-	25
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	2

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	4	164	265	144	103	585	55	200	606	69	6	39
Future Volume (vph)	4	164	265	144	103	585	55	200	606	69	6	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3492		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3492		1770	3539	1583		1770
Peak-hour factor, PHF	0.38	0.62	0.68	0.74	0.76	0.73	0.70	0.79	0.72	0.75	0.38	0.57
Adj. Flow (vph)	11	265	390	195	136	801	79	253	842	92	16	68
RTOR Reduction (vph)	0	0	0	135	0	7	0	0	0	61	0	0
Lane Group Flow (vph)	0	276	390	60	136	873	0	253	842	31	0	84
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		16.0	31.4	31.4	12.3	27.7		15.0	34.0	34.0		5.5
Effective Green, g (s)		16.0	31.4	31.4	12.3	27.7		15.0	34.0	34.0		5.5
Actuated g/C Ratio		0.16	0.31	0.31	0.12	0.27		0.15	0.33	0.33		0.05
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		278	1091	488	213	950		260	1181	528		95
v/s Ratio Prot		c0.16	c0.11		0.08	c0.25		c0.14	c0.24			0.05
v/s Ratio Perm				0.04						0.02		
v/c Ratio		0.99	0.36	0.12	0.64	0.92		0.97	0.71	0.06		0.88
Uniform Delay, d1		42.8	27.4	25.3	42.6	36.0		43.2	29.6	23.0		47.8
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		51.8	0.2	0.1	6.2	13.4		48.0	2.1	0.0		56.2
Delay (s)		94.6	27.6	25.4	48.8	49.4		91.2	31.7	23.1		104.1
Level of Service		F	C	C	D	D		F	C	C		F
Approach Delay (s)			48.6			49.3			43.7			
Approach LOS			D			D			D			

Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	475	239
Future Volume (vph)	475	239
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4826	
Flt Permitted	1.00	
Satd. Flow (perm)	4826	
Peak-hour factor, PHF	0.78	0.76
Adj. Flow (vph)	609	314
RTOR Reduction (vph)	91	0
Lane Group Flow (vph)	832	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	24.5	
Effective Green, g (s)	24.5	
Actuated g/C Ratio	0.24	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1161	
v/s Ratio Prot	0.17	
v/s Ratio Perm		
v/c Ratio	0.72	
Uniform Delay, d1	35.5	
Progression Factor	1.00	
Incremental Delay, d2	2.1	
Delay (s)	37.6	
Level of Service	D	
Approach Delay (s)	43.1	
Approach LOS	D	

Intersection Summary

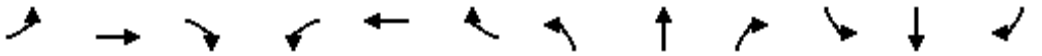
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	128	523	173	22	122	605	60	163	406	67	178
Future Volume (vph)	5	128	523	173	22	122	605	60	163	406	67	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5017		1770	3449		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5017		1770	3449		1770
Peak-hour factor, PHF	0.50	0.53	0.66	0.89	0.71	0.54	0.80	0.81	0.72	0.67	0.54	0.61
Adj. Flow (vph)	10	242	792	194	31	226	756	74	226	606	124	292
RTOR Reduction (vph)	0	0	0	148	0	0	11	0	0	17	0	0
Lane Group Flow (vph)	0	252	792	46	0	257	819	0	226	713	0	292
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.1	22.3	22.3		13.1	22.3		14.1	24.4		15.2
Effective Green, g (s)		13.1	22.3	22.3		13.1	22.3		14.1	24.4		15.2
Actuated g/C Ratio		0.14	0.24	0.24		0.14	0.24		0.15	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		247	1211	377		247	1195		266	899		287
v/s Ratio Prot		0.14	0.16			c0.15	c0.16		0.13	0.21		c0.17
v/s Ratio Perm				0.03								
v/c Ratio		1.02	0.65	0.12		1.04	0.68		0.85	0.79		1.02
Uniform Delay, d1		40.2	32.2	28.0		40.2	32.5		38.7	32.2		39.2
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		62.6	1.3	0.1		68.2	1.6		21.6	4.9		57.6
Delay (s)		102.8	33.5	28.1		108.5	34.1		60.3	37.1		96.8
Level of Service		F	C	C		F	C		E	D		F
Approach Delay (s)			46.7				51.7			42.6		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	486	40
Future Volume (vph)	486	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3508	
Flt Permitted	1.00	
Satd. Flow (perm)	3508	
Peak-hour factor, PHF	0.70	0.92
Adj. Flow (vph)	694	43
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	733	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	25.5	
Effective Green, g (s)	25.5	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	955	
v/s Ratio Prot	c0.21	
v/s Ratio Perm		
v/c Ratio	0.77	
Uniform Delay, d1	31.3	
Progression Factor	1.00	
Incremental Delay, d2	3.7	
Delay (s)	35.1	
Level of Service	D	
Approach Delay (s)	52.6	
Approach LOS	D	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	468	61	11	337	48	50	124	21	62	157	138
Future Volume (vph)	104	468	61	11	337	48	50	124	21	62	157	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1829		1770	1820		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1829		1770	1820		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.94	0.87	0.82	0.92	0.90	0.72	0.88	0.83	0.80	0.69	0.67	0.83
Adj. Flow (vph)	111	538	74	12	374	67	57	149	26	90	234	166
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	21	0	0	110
Lane Group Flow (vph)	111	608	0	12	435	0	57	149	5	90	234	56
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.6	41.4		1.2	31.5		6.7	17.0	17.0	8.1	18.4	18.4
Effective Green, g (s)	8.6	41.4		1.2	31.5		6.7	17.0	17.0	8.1	18.4	18.4
Actuated g/C Ratio	0.10	0.47		0.01	0.36		0.08	0.19	0.19	0.09	0.21	0.21
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	174	868		24	657		135	363	308	164	393	334
v/s Ratio Prot	c0.06	c0.33		0.01	0.24		0.03	0.08		c0.05	c0.13	
v/s Ratio Perm									0.00			0.04
v/c Ratio	0.64	0.70		0.50	0.66		0.42	0.41	0.02	0.55	0.60	0.17
Uniform Delay, d1	37.8	18.0		42.7	23.4		38.4	30.7	28.3	37.8	31.0	28.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	3.2		15.4	3.3		2.1	1.6	0.0	3.7	3.6	0.5
Delay (s)	45.3	21.3		58.1	26.7		40.5	32.3	28.4	41.5	34.7	28.6
Level of Service	D	C		E	C		D	C	C	D	C	C
Approach Delay (s)		24.9			27.5			33.9			33.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	22.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	839	18	6	555	9	12
Future Vol, veh/h	839	18	6	555	9	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	61	50	92	44	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	953	30	12	603	20	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	983	0	1595	968
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	627	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	703	-	118	308
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	703	-	116	308
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	271	-	-	703	-
HCM Lane V/C Ratio	0.135	-	-	0.017	-
HCM Control Delay (s)	20.3	-	-	10.2	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	47	958	617	8	16	71
Future Vol, veh/h	47	958	617	8	16	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	90	86	50	60	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	1064	717	16	27	111

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	733	0	-	0	1391	725
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	666	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	870	-	-	-	144	424
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	870	-	-	-	117	424
Mov Cap-2 Maneuver	-	-	-	-	247	-
Stage 1	-	-	-	-	388	-
Stage 2	-	-	-	-	473	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	870	-	-	-	372
HCM Lane V/C Ratio	0.077	-	-	-	0.37
HCM Control Delay (s)	9.5	-	-	-	20.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.7

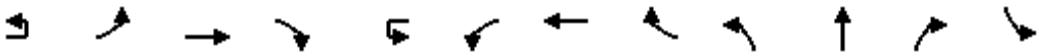
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	14	328	719	255	154	485	60	324	673	199	24	80
Future Volume (vph)	14	328	719	255	154	485	60	324	673	199	24	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3482		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3482		1770	3539	1583		1770
Peak-hour factor, PHF	0.92	0.92	0.87	0.84	0.96	0.82	0.85	0.89	0.91	0.81	0.82	0.75
Adj. Flow (vph)	15	357	826	304	160	591	71	364	740	246	29	107
RTOR Reduction (vph)	0	0	0	212	0	8	0	0	0	170	0	0
Lane Group Flow (vph)	0	372	826	92	160	654	0	364	740	76	0	136
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		24.0	35.4	35.4	14.3	25.7		23.0	36.3	36.3		13.0
Effective Green, g (s)		24.0	35.4	35.4	14.3	25.7		23.0	36.3	36.3		13.0
Actuated g/C Ratio		0.20	0.30	0.30	0.12	0.22		0.20	0.31	0.31		0.11
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		361	1065	476	215	760		346	1092	488		195
v/s Ratio Prot		c0.21	0.23		0.09	c0.19		c0.21	0.21			0.08
v/s Ratio Perm				0.06						0.05		
v/c Ratio		1.03	0.78	0.19	0.74	0.86		1.05	0.68	0.16		0.70
Uniform Delay, d1		46.8	37.5	30.5	49.9	44.2		47.3	35.5	29.5		50.4
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		55.4	3.6	0.2	13.0	9.8		62.7	1.7	0.1		10.4
Delay (s)		102.2	41.1	30.7	62.9	54.1		110.0	37.2	29.7		60.8
Level of Service		F	D	C	E	D		F	D	C		E
Approach Delay (s)			54.1			55.8			55.5			
Approach LOS			D			E			E			

Intersection Summary			
HCM 2000 Control Delay	54.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	624	357
Future Volume (vph)	624	357
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4813	
Flt Permitted	1.00	
Satd. Flow (perm)	4813	
Peak-hour factor, PHF	0.94	0.97
Adj. Flow (vph)	664	368
RTOR Reduction (vph)	84	0
Lane Group Flow (vph)	948	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	26.3	
Effective Green, g (s)	26.3	
Actuated g/C Ratio	0.22	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1076	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.88	
Uniform Delay, d1	44.1	
Progression Factor	1.00	
Incremental Delay, d2	8.6	
Delay (s)	52.8	
Level of Service	D	
Approach Delay (s)	53.7	
Approach LOS	D	

Intersection Summary



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	27	148	962	176	50	122	909	72	294	540	115	323
Future Volume (vph)	27	148	962	176	50	122	909	72	294	540	115	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5012		1770	3441		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5012		1770	3441		1770
Peak-hour factor, PHF	0.79	0.92	0.85	0.85	0.70	0.89	0.93	0.69	0.94	0.88	0.83	0.90
Adj. Flow (vph)	34	161	1132	207	71	137	977	104	313	614	139	359
RTOR Reduction (vph)	0	0	0	155	0	0	11	0	0	17	0	0
Lane Group Flow (vph)	0	195	1132	52	0	208	1070	0	313	736	0	359
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.9	28.5	28.5		14.0	28.6		22.6	27.7		24.0
Effective Green, g (s)		13.9	28.5	28.5		14.0	28.6		22.6	27.7		24.0
Actuated g/C Ratio		0.12	0.25	0.25		0.12	0.25		0.20	0.25		0.21
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		218	1284	399		219	1270		354	844		376
v/s Ratio Prot		0.11	c0.22			c0.12	0.21		0.18	0.21		c0.20
v/s Ratio Perm				0.03								
v/c Ratio		0.89	0.88	0.13		0.95	0.84		0.88	0.87		0.95
Uniform Delay, d1		48.7	40.5	32.6		49.1	40.0		43.8	40.8		43.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		33.7	7.4	0.1		46.2	5.2		22.0	9.8		34.5
Delay (s)		82.5	47.9	32.7		95.2	45.2		65.9	50.6		78.4
Level of Service		F	D	C		F	D		E	D		E
Approach Delay (s)			50.3				53.3			55.1		
Approach LOS			D				D			E		

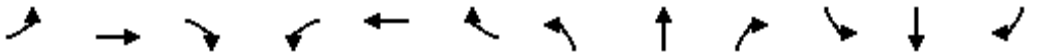
Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	112.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	516	140
Future Volume (vph)	516	140
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	3411	
Flt Permitted	1.00	
Satd. Flow (perm)	3411	
Peak-hour factor, PHF	0.86	0.73
Adj. Flow (vph)	600	192
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	765	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	29.1	
Effective Green, g (s)	29.1	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	879	
v/s Ratio Prot	c0.22	
v/s Ratio Perm		
v/c Ratio	0.87	
Uniform Delay, d1	40.0	
Progression Factor	1.00	
Incremental Delay, d2	9.4	
Delay (s)	49.4	
Level of Service	D	
Approach Delay (s)	58.5	
Approach LOS	E	

Intersection Summary

Appendix E INTERSECTION LOS ANALYSIS: CUMULATIVE YEAR 2030 PLUS PROJECT CALCULATION SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	214	17	5	367	49	57	77	15	43	126	132
Future Volume (vph)	64	214	17	5	367	49	57	77	15	43	126	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1840		1770	1815		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1840		1770	1815		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.57	0.89	0.80	0.63	0.73	0.47	0.83	0.61	0.92	0.52	0.82	0.74
Adj. Flow (vph)	112	240	21	8	503	104	69	126	16	83	154	178
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	13	0	0	146
Lane Group Flow (vph)	112	259	0	8	601	0	69	126	3	83	154	32
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.5	42.3		1.1	32.4		7.1	14.8	14.8	7.6	15.3	15.3
Effective Green, g (s)	8.5	42.3		1.1	32.4		7.1	14.8	14.8	7.6	15.3	15.3
Actuated g/C Ratio	0.10	0.50		0.01	0.38		0.08	0.17	0.17	0.09	0.18	0.18
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	176	912		22	689		147	323	274	157	334	283
v/s Ratio Prot	c0.06	0.14		0.00	c0.33		0.04	0.07		c0.05	c0.08	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.64	0.28		0.36	0.87		0.47	0.39	0.01	0.53	0.46	0.11
Uniform Delay, d1	36.9	12.6		41.8	24.5		37.3	31.2	29.2	37.1	31.3	29.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	0.4		9.9	12.6		2.4	1.6	0.0	3.2	2.1	0.4
Delay (s)	44.2	13.0		51.7	37.1		39.7	32.9	29.2	40.3	33.4	29.7
Level of Service	D	B		D	D		D	C	C	D	C	C
Approach Delay (s)		22.4			37.3			34.8			33.2	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	4	6	632	9	7
Future Vol, veh/h	331	4	6	632	9	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	50	50	72	58	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	409	8	12	878	16	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	417	0	1315	413
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	902	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1142	-	174	639
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	396	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1142	-	172	639
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	392	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	381	-	-	1142	-
HCM Lane V/C Ratio	0.07	-	-	0.011	-
HCM Control Delay (s)	15.2	-	-	8.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	374	716	10	20	66
Future Vol, veh/h	7	374	716	10	20	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	73	75	56	63	69
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	512	955	18	32	96

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	973	0	-	0	1236	964
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	272	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	706	-	-	-	181	309
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	750	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	706	-	-	-	178	309
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	750	-

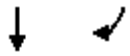
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	706	-	-	-	304
HCM Lane V/C Ratio	0.011	-	-	-	0.419
HCM Control Delay (s)	10.2	-	-	-	25.1
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	2

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	4	164	267	144	103	587	55	200	606	70	6	39
Future Volume (vph)	4	164	267	144	103	587	55	200	606	70	6	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3492		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3492		1770	3539	1583		1770
Peak-hour factor, PHF	0.38	0.62	0.68	0.74	0.76	0.73	0.70	0.79	0.72	0.75	0.38	0.57
Adj. Flow (vph)	11	265	393	195	136	804	79	253	842	93	16	68
RTOR Reduction (vph)	0	0	0	135	0	7	0	0	0	62	0	0
Lane Group Flow (vph)	0	276	393	60	136	876	0	253	842	31	0	84
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		16.0	31.4	31.4	12.3	27.7		15.0	34.0	34.0		5.5
Effective Green, g (s)		16.0	31.4	31.4	12.3	27.7		15.0	34.0	34.0		5.5
Actuated g/C Ratio		0.16	0.31	0.31	0.12	0.27		0.15	0.33	0.33		0.05
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		278	1091	488	213	950		260	1181	528		95
v/s Ratio Prot		c0.16	c0.11		0.08	c0.25		c0.14	c0.24			0.05
v/s Ratio Perm				0.04						0.02		
v/c Ratio		0.99	0.36	0.12	0.64	0.92		0.97	0.71	0.06		0.88
Uniform Delay, d1		42.8	27.4	25.3	42.6	36.0		43.2	29.6	23.0		47.8
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		51.8	0.2	0.1	6.2	13.9		48.0	2.1	0.0		56.2
Delay (s)		94.6	27.6	25.4	48.8	49.9		91.2	31.7	23.1		104.1
Level of Service		F	C	C	D	D		F	C	C		F
Approach Delay (s)			48.5			49.8			43.7			
Approach LOS			D			D			D			

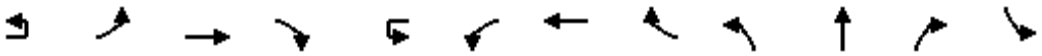
Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	475	239
Future Volume (vph)	475	239
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4826	
Flt Permitted	1.00	
Satd. Flow (perm)	4826	
Peak-hour factor, PHF	0.78	0.76
Adj. Flow (vph)	609	314
RTOR Reduction (vph)	91	0
Lane Group Flow (vph)	832	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	24.5	
Effective Green, g (s)	24.5	
Actuated g/C Ratio	0.24	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1161	
v/s Ratio Prot	0.17	
v/s Ratio Perm		
v/c Ratio	0.72	
Uniform Delay, d1	35.5	
Progression Factor	1.00	
Incremental Delay, d2	2.1	
Delay (s)	37.6	
Level of Service	D	
Approach Delay (s)	43.1	
Approach LOS	D	

Intersection Summary



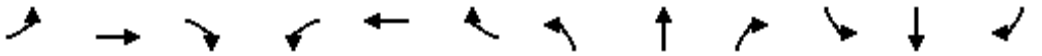
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	5	128	524	173	22	123	606	60	163	406	68	178
Future Volume (vph)	5	128	524	173	22	123	606	60	163	406	68	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5017		1770	3448		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5017		1770	3448		1770
Peak-hour factor, PHF	0.50	0.53	0.66	0.89	0.71	0.54	0.80	0.81	0.72	0.67	0.54	0.61
Adj. Flow (vph)	10	242	794	194	31	228	758	74	226	606	126	292
RTOR Reduction (vph)	0	0	0	148	0	0	11	0	0	17	0	0
Lane Group Flow (vph)	0	252	794	46	0	259	821	0	226	715	0	292
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.1	22.4	22.4		13.1	22.4		14.1	24.6		15.1
Effective Green, g (s)		13.1	22.4	22.4		13.1	22.4		14.1	24.6		15.1
Actuated g/C Ratio		0.14	0.24	0.24		0.14	0.24		0.15	0.26		0.16
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		247	1214	378		247	1198		266	904		284
v/s Ratio Prot		0.14	0.16			c0.15	c0.16		0.13	0.21		c0.17
v/s Ratio Perm				0.03								
v/c Ratio		1.02	0.65	0.12		1.05	0.68		0.85	0.79		1.03
Uniform Delay, d1		40.4	32.2	28.0		40.4	32.5		38.8	32.2		39.4
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		62.6	1.3	0.1		70.6	1.6		21.6	4.8		60.9
Delay (s)		102.9	33.5	28.1		110.9	34.1		60.4	37.0		100.2
Level of Service		F	C	C		F	C		E	D		F
Approach Delay (s)			46.8				52.4			42.5		
Approach LOS			D				D			D		

Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	486	40
Future Volume (vph)	486	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3508	
Flt Permitted	1.00	
Satd. Flow (perm)	3508	
Peak-hour factor, PHF	0.70	0.92
Adj. Flow (vph)	694	43
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	733	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	25.6	
Effective Green, g (s)	25.6	
Actuated g/C Ratio	0.27	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	957	
v/s Ratio Prot	c0.21	
v/s Ratio Perm		
v/c Ratio	0.77	
Uniform Delay, d1	31.3	
Progression Factor	1.00	
Incremental Delay, d2	3.7	
Delay (s)	35.0	
Level of Service	D	
Approach Delay (s)	53.5	
Approach LOS	D	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	469	61	11	338	48	50	124	21	62	157	138
Future Volume (vph)	104	469	61	11	338	48	50	124	21	62	157	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1829		1770	1820		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	1829		1770	1820		1770	1863	1583	1770	1863	1583
Peak-hour factor, PHF	0.94	0.87	0.82	0.92	0.90	0.72	0.88	0.83	0.80	0.69	0.67	0.83
Adj. Flow (vph)	111	539	74	12	376	67	57	149	26	90	234	166
RTOR Reduction (vph)	0	4	0	0	5	0	0	0	21	0	0	110
Lane Group Flow (vph)	111	609	0	12	438	0	57	149	5	90	234	56
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			4
Actuated Green, G (s)	8.6	41.4		1.2	31.5		6.7	17.0	17.0	8.1	18.4	18.4
Effective Green, g (s)	8.6	41.4		1.2	31.5		6.7	17.0	17.0	8.1	18.4	18.4
Actuated g/C Ratio	0.10	0.47		0.01	0.36		0.08	0.19	0.19	0.09	0.21	0.21
Clearance Time (s)	5.5	5.5		3.0	5.5		5.5	5.5	5.5	5.5	5.5	5.5
Vehicle Extension (s)	3.0	5.0		3.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	174	868		24	657		135	363	308	164	393	334
v/s Ratio Prot	c0.06	c0.33		0.01	0.24		0.03	0.08		c0.05	c0.13	
v/s Ratio Perm									0.00			0.04
v/c Ratio	0.64	0.70		0.50	0.67		0.42	0.41	0.02	0.55	0.60	0.17
Uniform Delay, d1	37.8	18.0		42.7	23.4		38.4	30.7	28.3	37.8	31.0	28.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	3.2		15.4	3.4		2.1	1.6	0.0	3.7	3.6	0.5
Delay (s)	45.3	21.3		58.1	26.8		40.5	32.3	28.4	41.5	34.7	28.6
Level of Service	D	C		E	C		D	C	C	D	C	C
Approach Delay (s)		25.0			27.6			33.9			33.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	22.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	840	18	6	556	9	12
Future Vol, veh/h	840	18	6	556	9	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	61	50	92	44	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	955	30	12	604	20	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	985	0	1598	970
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	628	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	701	-	117	307
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	701	-	115	307
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	271	-	-	701	-
HCM Lane V/C Ratio	0.135	-	-	0.017	-
HCM Control Delay (s)	20.3	-	-	10.2	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	47	962	617	8	16	71
Future Vol, veh/h	47	962	617	8	16	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	70	90	86	50	60	64
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	1069	717	16	27	111

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	733	0	-	0	1394	725
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	669	-
Critical Hdwy	4.13	-	-	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	2.219	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	870	-	-	-	144	424
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	870	-	-	-	117	424
Mov Cap-2 Maneuver	-	-	-	-	247	-
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	472	-

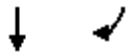
Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	870	-	-	-	372
HCM Lane V/C Ratio	0.077	-	-	-	0.37
HCM Control Delay (s)	9.5	-	-	-	20.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.7

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	14	328	721	255	155	488	61	324	673	200	24	80
Future Volume (vph)	14	328	721	255	155	488	61	324	673	200	24	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Lane Util. Factor		1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00		1.00
Frt		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85		1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)		1770	3539	1583	1770	3482		1770	3539	1583		1770
Flt Permitted		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)		1770	3539	1583	1770	3482		1770	3539	1583		1770
Peak-hour factor, PHF	0.92	0.92	0.87	0.84	0.96	0.82	0.85	0.89	0.91	0.81	0.82	0.75
Adj. Flow (vph)	15	357	829	304	161	595	72	364	740	247	29	107
RTOR Reduction (vph)	0	0	0	212	0	8	0	0	0	171	0	0
Lane Group Flow (vph)	0	372	829	92	161	659	0	364	740	76	0	136
Turn Type	Prot	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	Prot
Protected Phases	5	5	2		1	6		3	8		7	7
Permitted Phases				2						8		
Actuated Green, G (s)		24.0	35.4	35.4	14.3	25.7		23.0	36.3	36.3		13.0
Effective Green, g (s)		24.0	35.4	35.4	14.3	25.7		23.0	36.3	36.3		13.0
Actuated g/C Ratio		0.20	0.30	0.30	0.12	0.22		0.20	0.31	0.31		0.11
Clearance Time (s)		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		361	1065	476	215	760		346	1092	488		195
v/s Ratio Prot		c0.21	0.23		0.09	c0.19		c0.21	0.21			0.08
v/s Ratio Perm				0.06						0.05		
v/c Ratio		1.03	0.78	0.19	0.75	0.87		1.05	0.68	0.16		0.70
Uniform Delay, d1		46.8	37.5	30.5	49.9	44.3		47.3	35.5	29.5		50.4
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Incremental Delay, d2		55.4	3.7	0.2	13.3	10.3		62.7	1.7	0.2		10.4
Delay (s)		102.2	41.2	30.7	63.2	54.6		110.0	37.2	29.7		60.8
Level of Service		F	D	C	E	D		F	D	C		E
Approach Delay (s)			54.1			56.2			55.4			
Approach LOS			D			E			E			

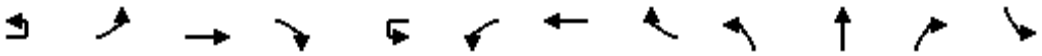
Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	18.6
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	624	357
Future Volume (vph)	624	357
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	0.95	
Flt Protected	1.00	
Satd. Flow (prot)	4813	
Flt Permitted	1.00	
Satd. Flow (perm)	4813	
Peak-hour factor, PHF	0.94	0.97
Adj. Flow (vph)	664	368
RTOR Reduction (vph)	84	0
Lane Group Flow (vph)	948	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	26.3	
Effective Green, g (s)	26.3	
Actuated g/C Ratio	0.22	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1076	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	0.88	
Uniform Delay, d1	44.1	
Progression Factor	1.00	
Incremental Delay, d2	8.6	
Delay (s)	52.8	
Level of Service	D	
Approach Delay (s)	53.7	
Approach LOS	D	

Intersection Summary



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	27	148	963	176	50	123	910	73	294	540	116	323
Future Volume (vph)	27	148	963	176	50	123	910	73	294	540	116	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Lane Util. Factor		1.00	0.91	1.00		1.00	0.91		1.00	0.95		1.00
Frt		1.00	1.00	0.85		1.00	0.99		1.00	0.97		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (prot)		1770	5085	1583		1770	5011		1770	3441		1770
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	1.00		0.95
Satd. Flow (perm)		1770	5085	1583		1770	5011		1770	3441		1770
Peak-hour factor, PHF	0.79	0.92	0.85	0.85	0.70	0.89	0.93	0.69	0.94	0.88	0.83	0.90
Adj. Flow (vph)	34	161	1133	207	71	138	978	106	313	614	140	359
RTOR Reduction (vph)	0	0	0	155	0	0	11	0	0	17	0	0
Lane Group Flow (vph)	0	195	1133	52	0	209	1073	0	313	737	0	359
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Prot	NA		Prot
Protected Phases	5	5	2		1	1	6		3	8		7
Permitted Phases				2								
Actuated Green, G (s)		13.9	28.5	28.5		14.0	28.6		22.6	27.7		24.0
Effective Green, g (s)		13.9	28.5	28.5		14.0	28.6		22.6	27.7		24.0
Actuated g/C Ratio		0.12	0.25	0.25		0.12	0.25		0.20	0.25		0.21
Clearance Time (s)		4.0	5.3	5.3		4.0	5.3		4.0	5.3		4.0
Vehicle Extension (s)		3.0	3.0	3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		218	1284	399		219	1270		354	844		376
v/s Ratio Prot		0.11	c0.22			c0.12	0.21		0.18	0.21		c0.20
v/s Ratio Perm				0.03								
v/c Ratio		0.89	0.88	0.13		0.95	0.84		0.88	0.87		0.95
Uniform Delay, d1		48.7	40.5	32.6		49.1	40.0		43.8	40.9		43.9
Progression Factor		1.00	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		33.7	7.5	0.1		47.6	5.3		22.0	9.9		34.5
Delay (s)		82.5	48.0	32.7		96.7	45.3		65.9	50.7		78.4
Level of Service		F	D	C		F	D		E	D		E
Approach Delay (s)			50.3				53.6			55.2		
Approach LOS			D				D			E		

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	112.8	Sum of lost time (s)	18.6
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	516	140
Future Volume (vph)	516	140
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.95	
Frt	0.96	
Flt Protected	1.00	
Satd. Flow (prot)	3411	
Flt Permitted	1.00	
Satd. Flow (perm)	3411	
Peak-hour factor, PHF	0.86	0.73
Adj. Flow (vph)	600	192
RTOR Reduction (vph)	27	0
Lane Group Flow (vph)	765	0
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	29.1	
Effective Green, g (s)	29.1	
Actuated g/C Ratio	0.26	
Clearance Time (s)	5.3	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	879	
v/s Ratio Prot	c0.22	
v/s Ratio Perm		
v/c Ratio	0.87	
Uniform Delay, d1	40.0	
Progression Factor	1.00	
Incremental Delay, d2	9.4	
Delay (s)	49.4	
Level of Service	D	
Approach Delay (s)	58.5	
Approach LOS	E	

Intersection Summary

ENVIRONMENTAL REVIEW #23-45
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 #23-05, Zone Change #434, Establishment of Planned Development (P-D) #81, Conditional Use Permit #1276, Site Plan Review #538, and Minor Use Permit #24-02 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 #23-45 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 #23-05, Zone Change #434, Establishment of Planned Development (P-D) #81, Conditional Use Permit #1276, Site Plan Review #538, and Minor Use Permit #24-02. 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 #23-05/Zone Change #434/ Establishment of Planned Development (P-D) #81/Conditional Use Permit #1276/ Site Plan Review Permit #538/Minor Use Permit #24-02 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: • A Class II bike lane, as defined in the Caltrans *Highway Design Manual* (California Department of Transportation 2022), is present along the south side of E. Olive Avenue immediately west of the project site. The eastern terminus of the bike lane is at the western edge of the project site. The SJVAPCD *Climate Change Action Plan* document notes that Measure #4 is applicable if the entire project is located within one-half mile of an existing Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Existing facilities are defined as those facilities that are physically constructed and ready for use prior to the first 20% of the project occupancy permits being granted. Project design includes a designated bicycle route connecting all units, on-site bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within one-half mile. Contingent on the design being approved by the City of Merced, the project will extend the bike lane on the south side of E. Olive Avenue from the existing	Building Permit/Grading Permit	Building / Engineering Departments	

	terminus on the western edge of the project site to the eastern edge of the project site. • The project will provide a pedestrian access network that internally links all uses and com1ects 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. 'Ibis 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. • The Bus, Merced's Regional Transit System is operated by the Transit Joint Powers Authority for Merced County. The Bus Route M6 - Merced North - provides service along E. Olive Avenue between G Street and Parsons Avenue, and along G Street south of E. Olive Avenue. Route M6 provides bus service with 45 minute headways. The route map for Route M6 shows a bus stop on G Street south of E. Olive Avenue, west of the			

	project site (The Bus 2023). Contingent on approval by the Transit Joint Powers Authority and the City, the project will provide safe and convenient access to the bus stop, or a new bus stop, and provide essential transit stop improvements (i.e., shelters, route information, benches, and lighting). • 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 site1s 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.			

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