Public Review Draft Initial Study/Mitigated Negative Declaration

Fahmy Annexation, Prezone, and Vesting Tentative Subdivision Map
Application No. 2022-0001

prepared by
City of Waterford
Planning Department
101 E Street
Waterford, California 95386

Prepared with the assistance of
J.B. Anderson Land Use Planning
139 S. Stockton Avenue
Ripon, California 95366

September 2024

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Lead Agency:
City of Waterford
101 E Street
Waterford, California 95386

PROJECT NAME:

Fahmy Annexation, Prezone, and Tentative Subdivision Map Application No. 2022-0001

PROJECT PROPONENT AND LEAD AGENCY:

Project Proponent: California Land Development
331 Santa Rosa Drive
Los Gatos, CA 95032

Lead Agency: City of Waterford
101 E Street
Waterford, CA 95386

PROJECT LOCATION:

The Proposed Project is located outside the City of Waterford, California and within the County of Stanislaus. The Project site consists of approximately 43.27-acres within the City's Sphere of Influence and is located within the northwestern area of Waterford.

The Project site is bounded by agricultural lands to the north, State Highway 132/Yosemite Boulevard to the south, Eucalyptus Avenue to the west, and N. Reinway Avenue to the east.

Figure 1, Annexation Area Exhibit, provides an illustration of the Proposed Project's location.

PROJECT DESCRIPTION:

Overview

The Proposed Project consists of the Pre-Zone and Annexation of approximately 43.27-acres to the City of Waterford, and the subdivision of 19.2 acres of the 43.27-acre annexation area into ninety-eight (98) single-family residential lots. No new development is proposed for the remaining 24.07 acres.

Below, this Project Description is organized to describe the actions of the Annexation and Prezone followed by the actions of the Tentative Subdivision Map.

Annexation and Pre-Zone:

The Project site is currently within Stanislaus County, and within the City of Waterford's Primary Sphere of Influence (SOI). The Proposed Project would result in the annexation of six (6) legal parcels into the City of Waterford, identified as the following Assessor Parcel Numbers (APN):

- 080-003-050;
- 080-003-012;
- 080-003-015;
- 080-003-034;
- 080-003-040; and,
- 080-003-049.

A majority of the proposed annexation area is undeveloped, containing a few estate homes and a Mobile Home and RV Park. The Mobile Home and RV Park is located at 11819 Yosemite Boulevard on APN No. 080-003-040 and consists of forty-three (43) spaces available for occupancy, most of which are currently occupied.

The proposed annexation area is contiguous with the existing City limits along the eastern and southern boundary. It is bounded by Reinway Avenue to the east, SR 132 to the south, MID Main Canal and Eucalyptus Avenue to the west. Figure 1, Annexation Area Exhibit, illustrates the Proposed Project's total annexation boundary.

In terms of the pre-zoning designation of each of the parcels described above, the table below depicts each parcel (identified by APN), its respective General Plan land use designation, followed by development assumptions based upon land use designations defined in the City's General Plan.

Table 1 – Pre-Zone Designations and Development Assumptions

APN No.	Acres	2025 General Plan Land Use Designation	Pre-Zone Designation	Development Capacity* (# of residential units)
080-003-012	4.93	Low Density Residential (LD)	RS, Residential Single	25
080-003-015	1.98	LD	RS	10
080-003-034	5.12	LD	RS	26
080-003-040	6.15	LD	RS	43 (Space in the Shade Mobile Home and RV Park
080-003-049	0.95	LD	RS	5
080-003-050	19.13	LD	PC	98
N/A (right-of-way, MID Canal)	5.01	-	-	-
Total	**43.27**	**-**	**-**	**207**

Notes:
*Development capacity is based upon average Density per 2025 General Plan LD land use designation: 5 dwelling units per gross acre.

As depicted above, development capacity within the proposed annexation area is assumed to be 207 single-family residential units, 43 of which exist within the Mobile Home and RV Park and 98 proposed as part of the Proposed Project. It is important to note that in terms of new development, 98 single-family residential units are proposed at this time.

APN No. 080-003-050 is proposed to be pre-zoned to Planned Community (PC) to allow for lot sizes below the minimum lot size requirement of the RS zone district. All other development standards, including setbacks, shall conform to the RS zone district for property within the PC zone district.

Tentative Subdivision Map

As noted previously, the Proposed Project also consists of a Tentative Subdivision Map to allow for the subdivision of approximately 19.2-acres into ninety-eight (98) single-family residential lots and a parcel set aside for a sanitary sewer pump station. Sewer will be pumped through a six (6) inch force main south along N. Reinway Avenue approximately 2,470 feet to an existing manhole located at the intersection of N. Reinway Avenue and Washington Road.

Storm drainage runoff will be conveyed via a gravity system to the future storm drainage trunk main in N. Eucalyptus Avenue. Stormwater will be discharged through a metering structure and overflow pipe to the existing twelve (12) inch storm drainage line in N. Reinway Avenue. The proposed discharge to N. Reinway Avenue will be metered to discharge at the pre-development flow condition so as not to inundate downstream stormwater systems. Stagnant water in the proposed pipe network will empty via

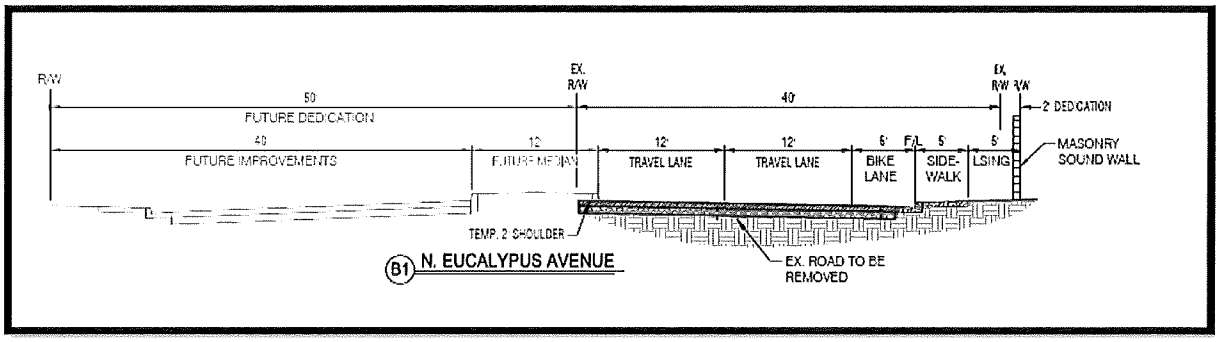
underground percolation system along N. Eucalyptus Avenue implementing either a series of Drywells or French Drain system(s).

A looped water system will be installed in the proposed roadways. An eight (8) inch main will be installed in N. Eucalyptus Avenue along the Project frontage for future extension. The water system will have two (2) connection points to the existing water main within N. Reinway Avenue from the Project's entrance, and through an easement on lots ninety (90) and ninety-three (93). A water line will be installed within the stub street to the north for future connection.

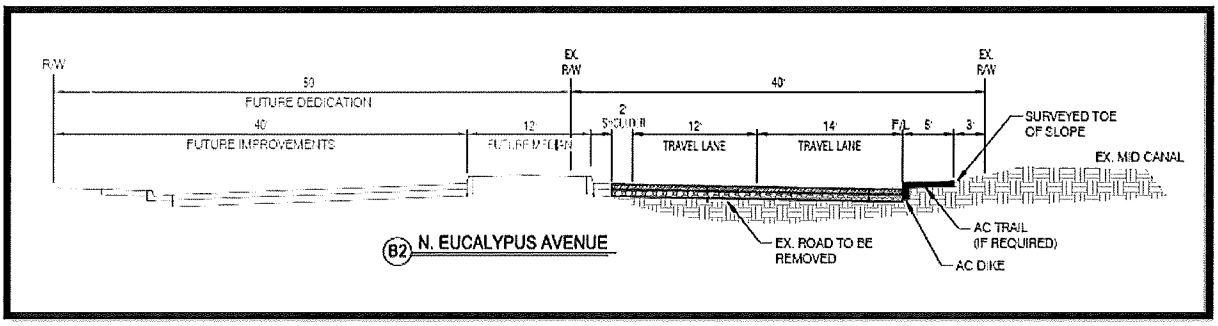
Physical development of the individual lots is not proposed at this time, but it can be assumed that future development within the Project site will conform to the City's Zoning Ordinance, including Section 17.20 General Residential Districts. Ultimately, the Proposed Project will consist of uses consistent with the City's Zoning Ordinance, and specifically, permitted uses within the Residential Single (RS) Zone.

Typical lot size of new parcels created as part of the Proposed Project are approximately 6,000 square feet in size. Primary access to the Project site will be provided via N. Reinway Avenue, N. Eucalyptus Avenue, and proposed "Street A".

Along the Proposed Project's frontage, N. Eucalyptus Avenue will be improved as shown in the following cross section:



South of the Proposed Project's frontage, and south of the Modesto Irrigation District (MID) canal, N. Eucalyptus Avenue will be improved as shown in the following cross section:



ENVIRONMENTAL DETERMINATION:

The Lead Agency has prepared an Initial Study, the following, which considers the potential environmental effects of the Proposed Project. The Initial Study shows that there is no substantial evidence, in light of the whole record before the Lead Agency, that the Proposed Project may have a potentially significant effect on the environment, provided that the following mitigation measures are included in the Proposed Project.

MITIGATION MEASURES:

Mitigation Measure Ag-1: Prior to the filing of an annexation request to the Stanislaus LAFCo, the Developer and/or Project Proponent shall provide to the City of Waterford Planning Department a Plan for Agricultural Preservation which shall include written evidence of compliance with Stanislaus LAFCo Policy 22.

Mitigation Measure Air-1: Prior to the commencement of construction activities for each phase of construction, the Project Proponent shall prepare and submit a Dust Control Plan that meets all of the applicable requirements of APCD Rule 8021, Section 6.3.

Mitigation Measure Bio-1: Pre-construction surveys for nesting Swainson's hawks within 0.25 miles of the Project site are conservatively recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction using criteria set forth by CDFW (CDFG, 1994) and the Swainson's Hawk Technical Advisory Committee (SWHTAC, 2000).

Mitigation Measure Bio-2: Trees in the site could be used by birds protected by the Migratory Bird Treaty Act of 1918 or Fish and Game Coder of California. If vegetation removal or construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

Mitigation Measure Bio-3: Prior to the approval of any development project within the Project site that does not include the proposed Tentative Subdivision Map, the Developer and/or Project Proponent shall prepare a Biological Assessment. This Biological Assessment shall be submitted to the City's Planning Department for their review and evaluation of said development project.

Mark Niskanen, Planning Manager

9/3/24
Date

INITIAL STUDY

1. PROJECT TITLE

Fahmy Annexation, Pre-zone, and Tentative Subdivision Map (TSM) Application No. 2022-0001

2. LEAD AGENCY NAME AND ADDRESS

City of Waterford
101 E Street
Waterford, CA 95386

3. CONTACT PERSON AND PHONE NUMBER

Mr. Mark Niskanen, Contract Planner
(209) 599-8377

4. PROJECT LOCATION

The Project site is located outside the City of Waterford, California and within the County of Stanislaus. The site is located within the City of Waterford's adopted Sphere of Influence.

The Project site to be subdivided and developed is located on one (1) parcel equaling approximately 19.2 acres and is located between North Reinway Avenue and North Eucalyptus Avenue, north of Richard M. Moon Primary School. The Project site, currently used for agriculture orchards, is located within the City of Waterford's primary Sphere of Influence, with the existing city limit line located along the westerly right of way on N. Reinway Avenue, and northerly boundary of the W.I.D. lateral No. 11.

The Proposed Project consists of six (6) legal parcels into the City of Waterford, identified as the following Assessor Parcel Numbers (APN):

- 080-003-050;
- 080-003-012;
- 080-003-015;
- 080-003-034;
- 080-003-040; and,
- 080-003-049.

5. PROJECT SPONSOR'S NAME AND ADDRESS

California Land Development
331 Santa Rosa Drive

Los Gatos, CA 95032

6. EXISTING SETTING

The Project site to be subdivided and developed, parcel 080-003-050, presently functions as an Almond Orchard for the entire site and does not contain any residential, agricultural or any other type of dwellings or structures; the surrounding areas are primarily utilized as agriculture and residential land uses. The Project site sits north of Richard M. Moon Primary School, separated by a Modesto Irrigation District (M.I.D.) lateral and an unimproved farm road. An existing homesite fronting North Reinway Avenue, parcel 080-003-049, included in the Annexation portion of the Proposed Project, is surrounded on its' north, south and west boundaries by the Project site to be subdivided and developed.

The surrounding areas in each direction are composed of agriculture and residential uses with Space in the Shade Mobile Home Park abutting Yosemite Boulevard and being the most southern parcel included in the Annexation component of the Proposed Project.

7. EXISTING GENERAL PLAN DESIGNATION

The entire Project site is designated for Low-Density Residential land uses per the City's General Plan, dated June 21, 2007.

8. EXISTING ZONING

The Project site is located outside of the City of Waterford's city limits. The Project site is currently within the jurisdiction of Stanislaus County. According to a review of the County's Public Inquiry Map, the Project site is within the General Ag. – 10 Acre zone district.

9. SURROUNDING LAND USES AND SETTING

The Proposed Project is bounded by existing agriculture uses and an M.I.D. canal to the north, Waterford Unified School District's Richard M. Moon Primary School and State Route 132, Yosemite Boulevard to the south, north Reinway Avenue to the east, and north Eucalyptus Avenue to the west.

Table 1, below, provides the Project site's surrounding uses, General Plan land use designations, and zoning districts.

Table 2 - Surrounding Land Uses and Setting

	Existing Use	General Plan Land Use Designation	Zoning Classification
North	Agriculture	Low Density Residential	General AG 10 Acre (County)
South	Public School and Mobile Home Park	Low Density Residential / Public / Government	Public / Semi Public / Commercial Highway
East	Single Family Dwellings	Low Density Residential	Residential Single (RS)
West	Agriculture	Residential Estates	General AG 10 Acre (County)

10. DESCRIPTION OF THE PROJECT

Overview

The Proposed Project consists of the Pre-Zoning and Annexation of approximately 43.27-acres to the City of Waterford, and the subdivision of 19.2 acres of the 43.27-acre annexation area into 98 single-family residential lots. No new development is proposed for the remaining 24.07 acres.

Below, this Project Description is organized to describe the actions of the Annexation and Pre-zone followed by the actions of the Tentative Subdivision Map.

Annexation and Pre-Zone:

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A majority of the proposed annexation area is undeveloped, containing a few estate homes and a Mobile Home and RV Park. The Mobile Home and RV Park is located at 11819 Yosemite Boulevard on APN No. 080-003-040 and consists of forty-three (43) spaces available for occupancy, most of which are currently occupied.

The proposed annexation area is contiguous with the existing City limits along the eastern and southern boundary. It is bounded by Reinway Avenue to the east, SR 132 to the south, MID Main Canal and Eucalyptus Avenue to the west. Figure 1, Annexation Area Exhibit, illustrates the Proposed Project's total annexation boundary. The proposed annexation area, including the lands proposed to be developed into single-family homes, allows for a logical boundary that is consistent with the City's General Plan and adopted Sphere of Influence and does not create "islands."

In terms of the pre-zoning designation of each of the parcels described above, the table below depicts each parcel (identified by APN), its respective General Plan land use designation, followed by development assumptions based upon land use designations defined in the City's General Plan.

Table 1 – Pre-Zone Designations and Development Assumptions

APN No.	Acres	2025 General Plan Land Use Designation	Pre-Zone Designation	Development Capacity* (# of residential units)
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APN No. 080-003-050 is proposed to be pre-zoned to Planned Community (PC) to allow for lot sizes below the minimum lot size requirement of the RS zone district. All other development standards, including setbacks, shall conform to the RS zone district for property within the PC zone district.

Figures 4 and 5 provide illustration of the existing and proposed zoning designations.

Tentative Subdivision Map

As noted previously, the Proposed Project also consists of a Tentative Subdivision Map to allow for the subdivision of approximately 19.2-acres into ninety-eight (98) single-family residential lots and a parcel set aside for a sanitary sewer pump station. Sewer will be pumped through a six (6) inch force main south along N. Reinway Avenue approximately 2,470 feet to an existing manhole located at the intersection of N. Reinway Avenue and Washington Road.

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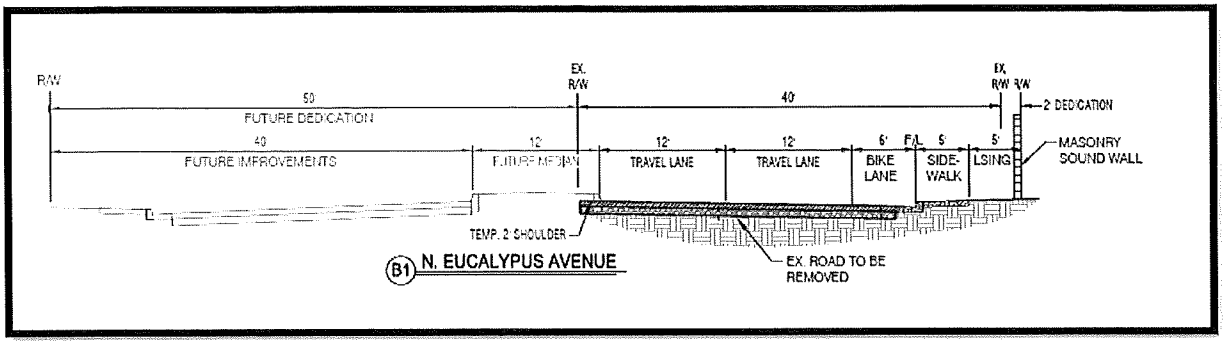
A looped water system will be installed in the proposed roadways. An eight (8) inch main will be installed in N. Eucalyptus Avenue along the Project frontage for future extension. The water system will have two (2) connection points to the existing water main within N. Reinway Avenue from the Project's entrance, and through an easement on lots ninety (90) and ninety-three (93). A water line will be installed within the stub street to the north for future connection.

Physical development of the individual lots is not proposed at this time, but it can be assumed that future development within the Project site will conform to the City's Zoning Ordinance, including Section 17.20 General Residential Districts. Ultimately, the Proposed Project will consist of uses consistent with the City's Zoning Ordinance, and specifically, permitted uses within the Residential Single (RS) Zone.

Typical lot size of new parcels created as part of the Proposed Project are approximately 6,000 square feet in size. Primary access to the Project site will be provided via N. Reinway Avenue, N. Eucalyptus Avenue, and proposed "Street A."

Along the Proposed Project's frontage, N. Eucalyptus Avenue will be improved as shown in the following cross section:



South of the Proposed Project's frontage, and south of the Modesto Irrigation District (MID) canal, N. Eucalyptus Avenue will be improved as shown in the following cross-section:

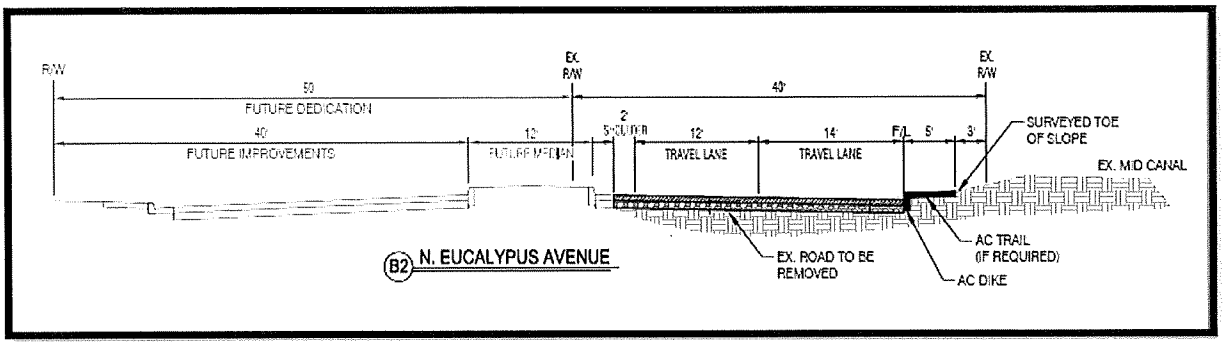
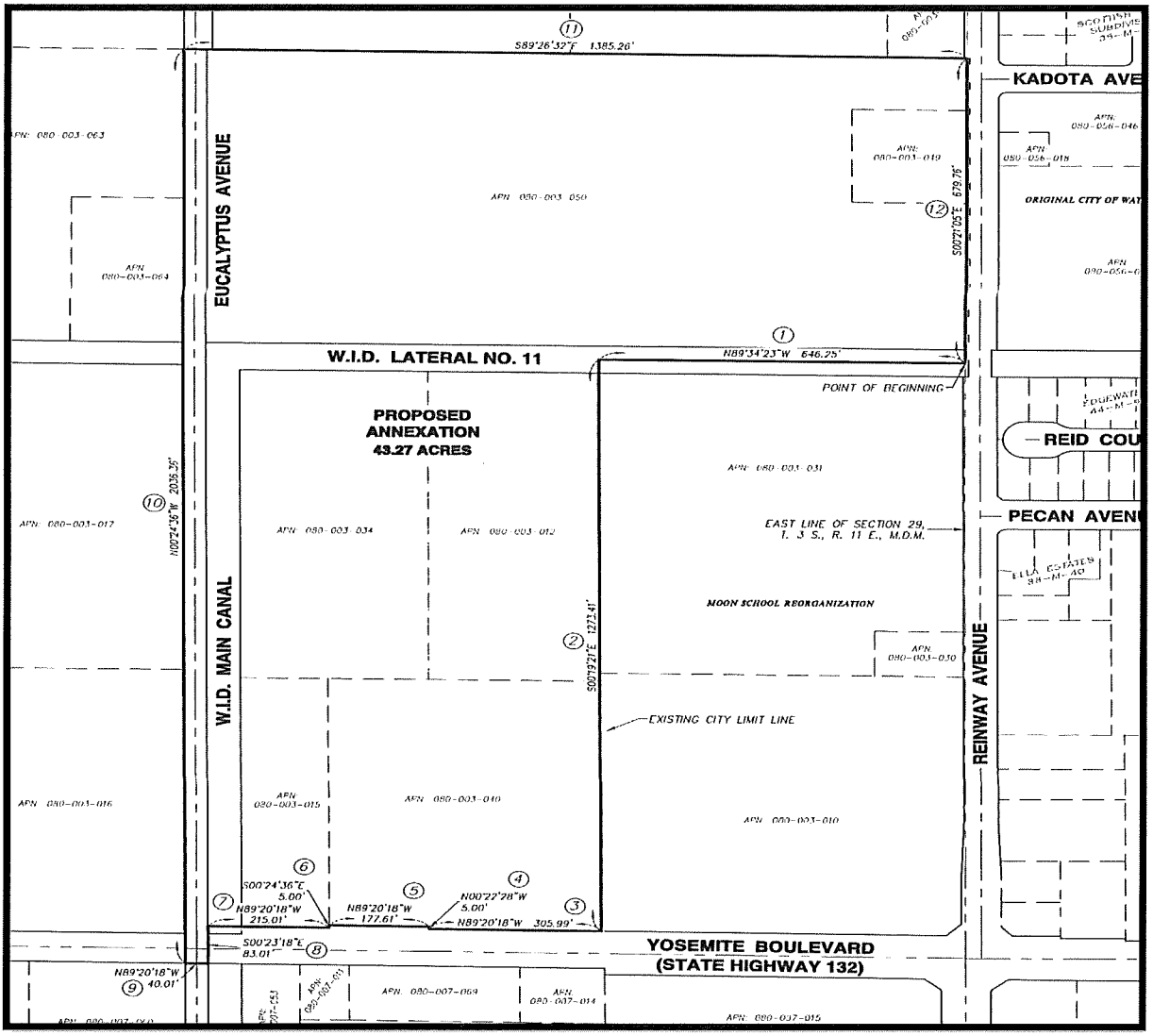


Figure 1 – Annexation Area Exhibit



11. Other Public Agencies Whose Approval is Required

The Stanislaus Local Agency Formation Commission (LAFCo) will review and consider the annexation request included as part of the Proposed Project.

For any roadway or intersection improvements located at the intersection of Eucalyptus Avenue and State Highway 132, Encroachment Permits from Caltrans, District 10, will be required as long as the roadway/intersection work is located within Caltrans right-of-way.

12. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1?

In accordance with Public Resources Code Section 21080.3.1, notification letters were sent to tribal representatives of California Native American tribes that have requested to be notified of projects within the project area for the City of Waterford. Tribal representatives were advised of the Proposed Project and invited to request formal consultation with the City of Waterford regarding the Proposed Project within thirty (30) days of receiving the notification letters. On March 8, 2024, notification letters were sent to representatives of the following tribes –

(1) Southern Sierra Miwuk Nation
(2) Tule River Indian Tribe
(3) Wuksachi Indian Tribe/Eshom Valley Band
(4) Calaveras Band of Mi-Wuk Indians
(5) Chicken Ranch Rancheria of Me-Wuk Indians
(6) Nashville Enterprise Miwok-Maidu-Nishinam Tribe
(7) Northern Valley Yokut/Ohlone Tribe

As of the preparation of this Initial Study/Mitigated Negative Declaration, more than thirty (30) days following the City's transmittal of notification letters, no tribal representatives requested consultation. No tribal cultural resources have been identified associated with the Proposed Project site.

Figure 2 – Waterford Sphere of Influence

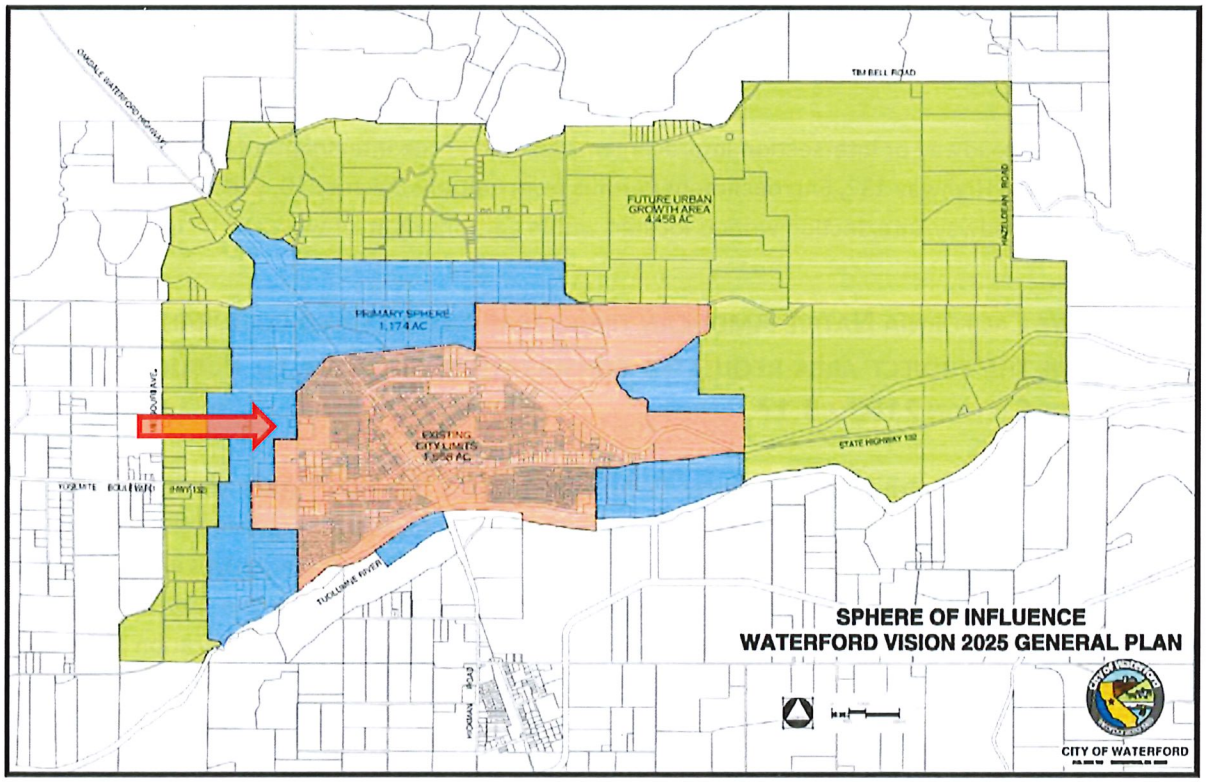


Figure 3 – Existing General Plan

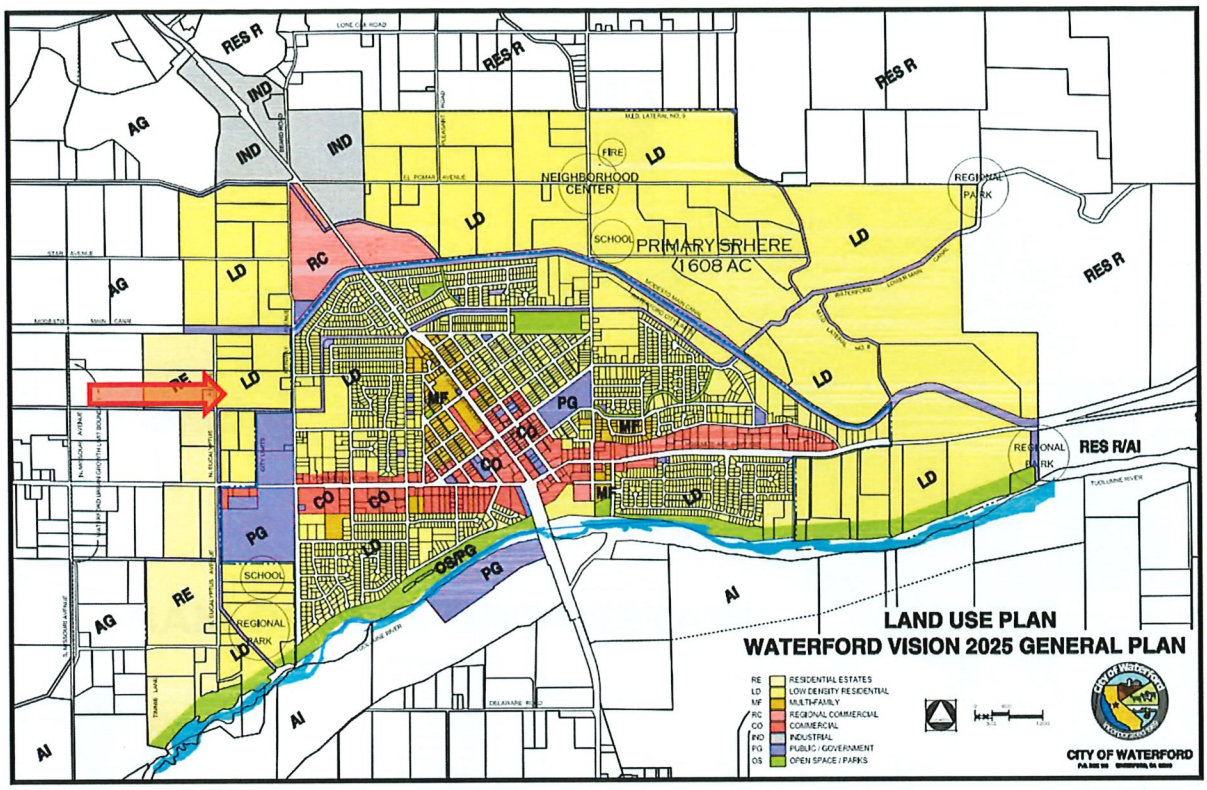


Figure 4 – Existing Zoning

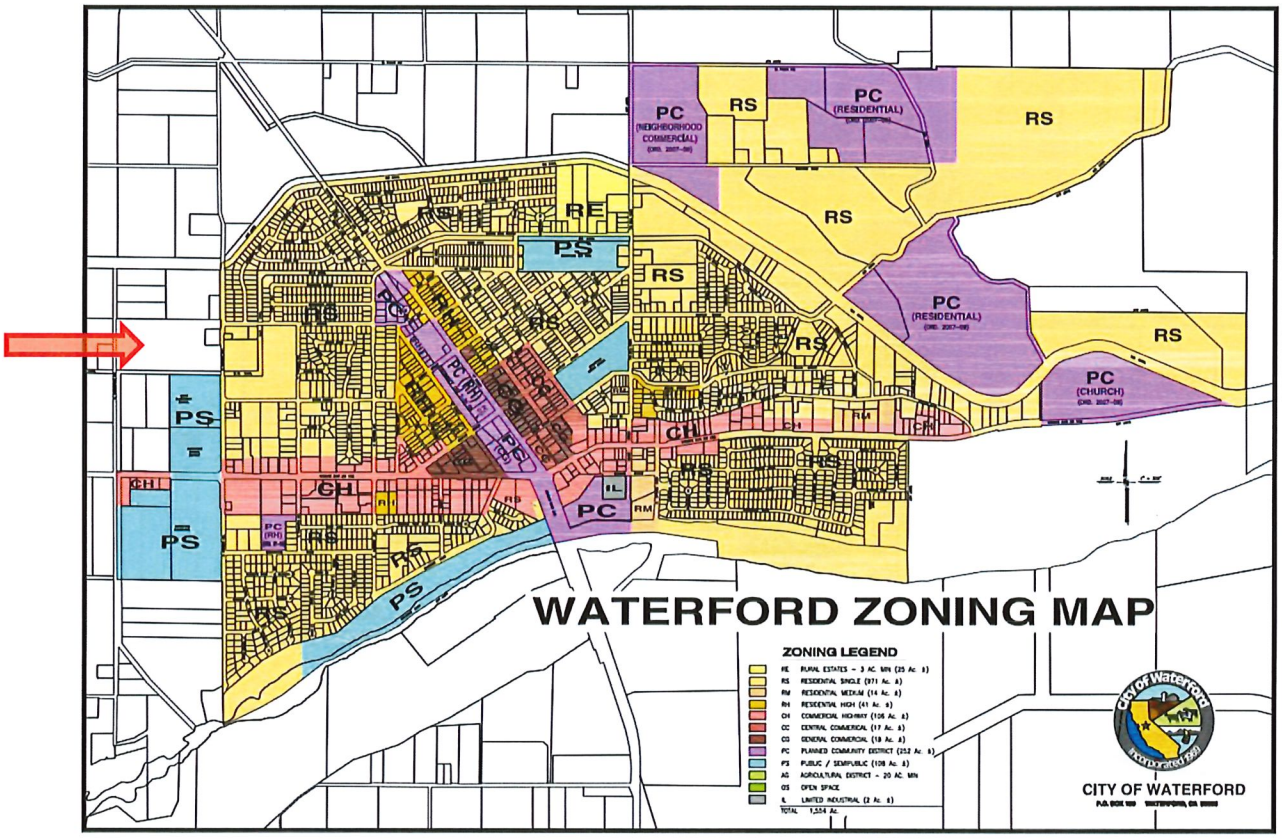


Figure 5 – Proposed Pre-Zoning

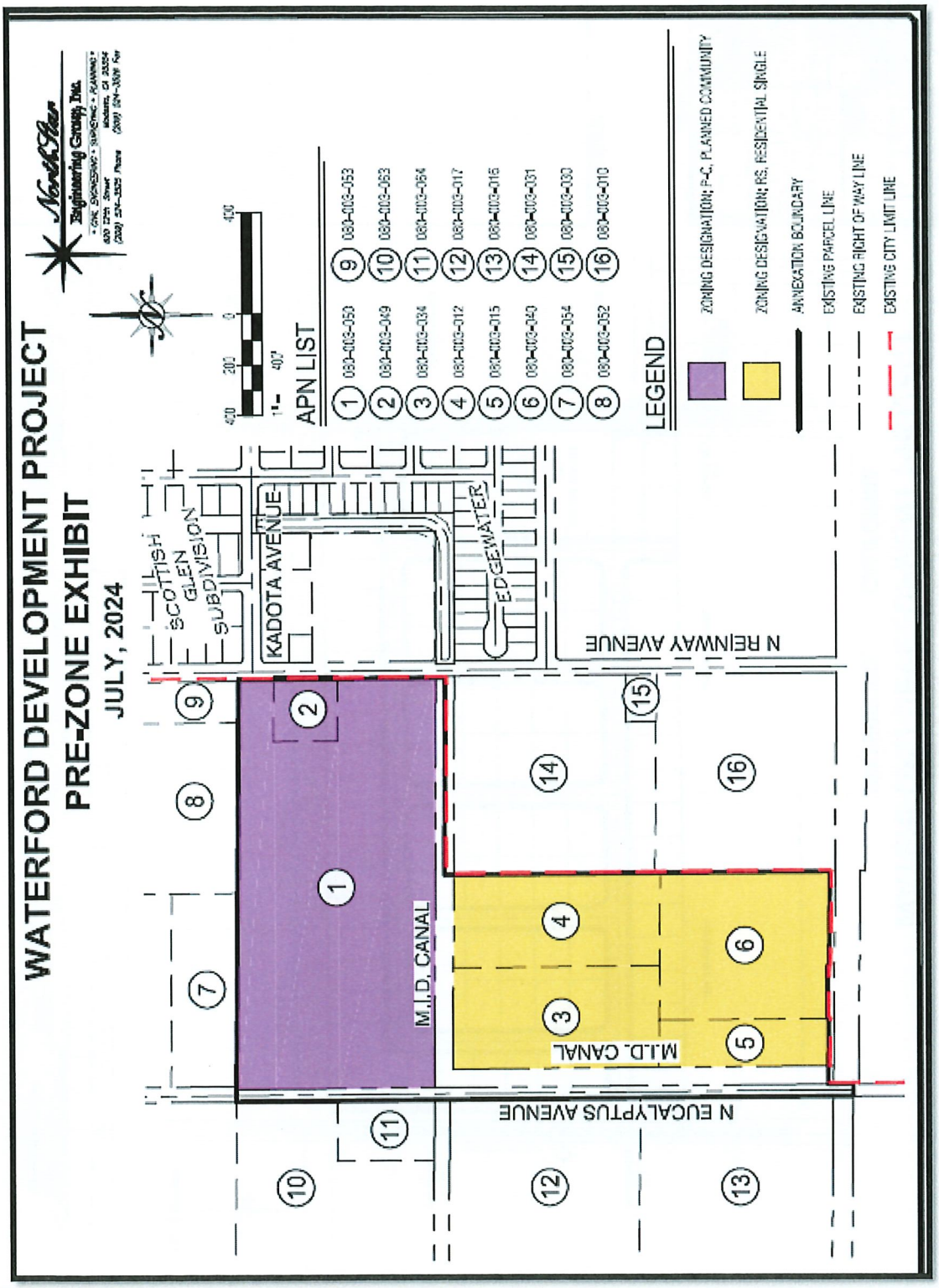
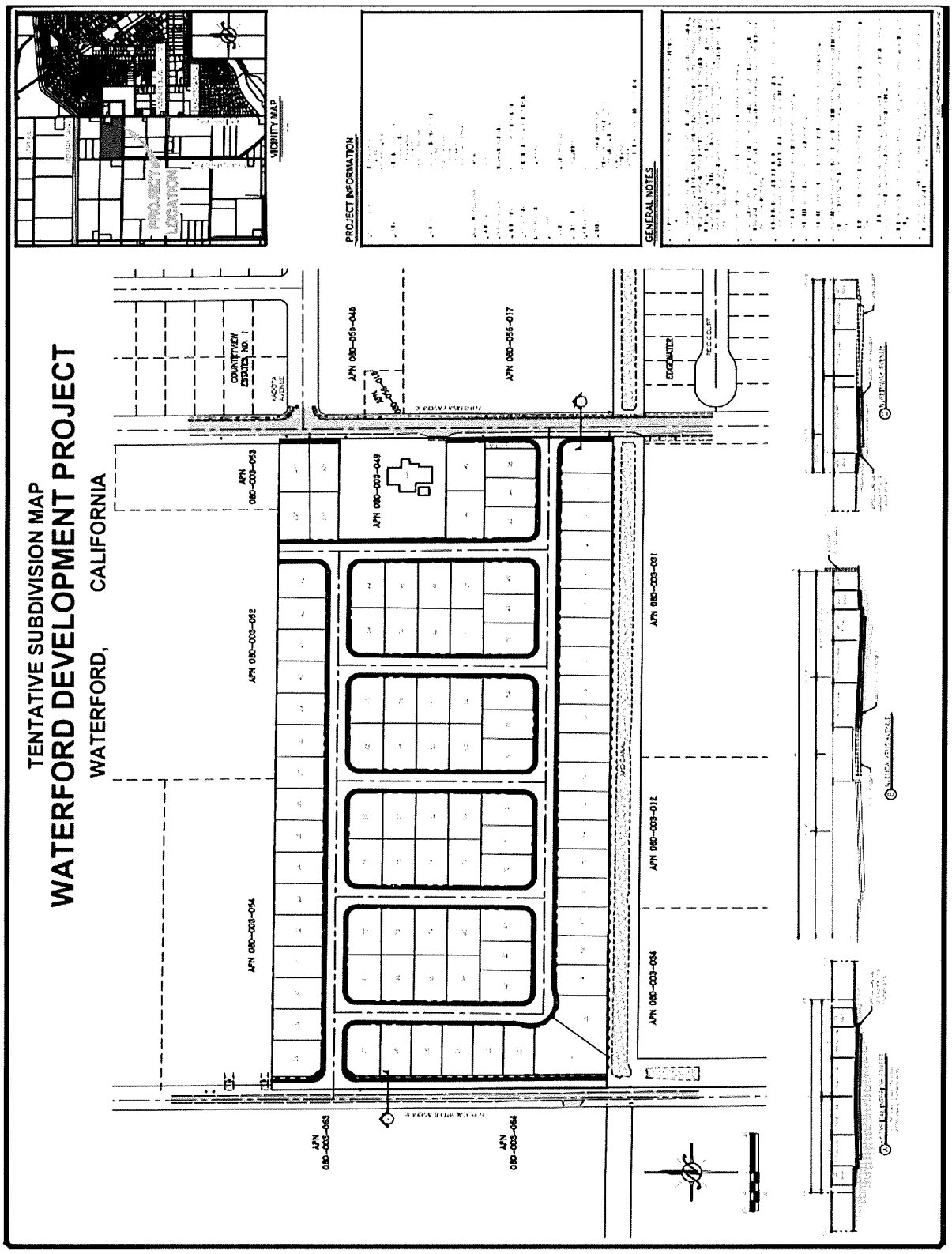


Figure 6 – Tentative Subdivision Map



13. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

14. LEAD AGENCY DETERMINATION:

On the basis of this initial evaluation:

	I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
X	I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the Project Proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	The Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Mark Niskanen, Planning Manager	**Date**

SECTION 2.0 EVALUATION INSTRUCTIONS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

INITIAL STUDY CHECKLIST

This section of the Initial Study incorporates the most current Appendix "G" Environmental Checklist Form, contained in the CEQA Guidelines.

1. AESTHETICS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?			X	
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project have a substantial adverse effect on a scenic vista?*
b. *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a state scenic highway?*

Within the City of Waterford, most views are of the surrounding urban development. Much like other areas located within the San Joaquin Valley, surrounding views typically include agricultural and grazing lands interrupted by agricultural buildings and trees. Apart from views to the south of the Tuolumne River corridor, the Waterford area has been largely defined by its immediate agricultural surroundings. The Sierra Nevada Mountains may be visible from some parts of the built-up community and views of expansive agricultural fields are visible from the urban fringes of the City.

The Project site is similarly characterized by surrounding agricultural land uses while abutting existing residential development and is contiguous to public and semi-public uses, e.g., Waterford Unified School District school site. The Proposed Project would be a natural, uniform extension of the surrounding environment and due to the lack of scenic vistas and scenic resources in the vicinity, the Proposed Project would have minor impact on such resources. Thus, the Proposed Project will have a **Less Than Significant Impact**.

c. *Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

The Project site sits just outside of the city limits and functions as an almond orchard; the visual character of the area is a combination of non-urbanized and urbanized area. Urban development, including the recently constructed Edgewater subdivision, is within the Project's immediate area. The addition of this Project would continue the urban growth of the west side of Waterford. Further, the Proposed Project would be conditioned to make improvements to public infrastructure thereby providing greater access to the area for general public access to the surrounding area. The Proposed Project is consistent with the City of Waterford's General Plan Land Use designation and consistent with the city's zoning for the area. The Proposed Project will not degrade the existing visual character or quality of public views. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

While exterior street lighting and lights from adjacent public/government and residential areas already exist near the Project site, development of the Proposed Project would create new sources of light typical of urban development found near the Project site. The new source of lighting generated by the Proposed Project would include lights from inside and outside homes, entrance lighting, accent lights and streetlights typical of single-family residential neighborhoods. The proposed lighting would be directed, oriented, and shielded to prevent light from shining onto adjacent properties. Little to no light exists on the project site under current conditions as the site is utilized for agriculture. Once developed, new light sources will be similar to those of the surrounding uses and would not adversely affect day or nighttime views in the area. Further, all future development under the Proposed Project would have to comply with Section 16.11.090 of the Waterford Municipal Code, which ensures that lighting improvements would be consistent with the City's improvement standards and in compliance with the policies and procedures of the department of Public Works and the City Engineer. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

2. AGRICULTURE AND FORESTRY RESOURCES: WOULD THE PROJECT:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?		X		
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X	
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?			X	
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			X	

IMPACT ANALYSIS

a. *Would the project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

As discussed in the Project Description above, the Proposed Project is multifaceted consisting of an annexation, pre-zone, and a tentative subdivision map with a principal objective to allow for the development of ninety-eight (98) single-family residential lots on a single parcel 19.2-acres in size, located in the northwest portion of Waterford's Sphere of Influence. Due to the additional parcels included in the annexation component of the Proposed Project, there are varying types of land and soil types included within the bounds of the Proposed Project. The entirety of the proposed annexation area equals 43.27-acres in sum, while the area proposed for new development consists of the Project site to be subdivided and developed totals 19.2-acres in size.

According to the California Department of Conservation – 2020 Farmland Mapping and Monitoring Program (Stanislaus County North), the farmland contained within the boundaries of the Proposed Project include Prime Farmland, Urban and Built-Up Land, Unique Farmland, and Rural Residential Land. A portion of the Proposed Project contains Prime Farmland.

The City's Vision 2025 General Plan Update Program Environmental Impact Report (EIR) evaluated the conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance to a non-agricultural use. The Vision 2025 General Plan determined that while the conversion of this farmland to a non-agricultural use would be significant, it also determined that mitigation was not feasible, thereby concluding to a Significant and Unavoidable Impact. The Proposed Project has been deemed to be consistent with the City's Vision 2025 General Plan and therefore, this impact is considered to be consistent with findings of the Vision 2025 General Plan EIR.

However, the Proposed Project also consists of an annexation request to the City of Waterford. Annexations are reviewed and considered by the Stanislaus Local Agency Formation Commission, or LAFCo. In 2019, the Stanislaus LAFCo Board amended Policy 22 – Agricultural Preservation Policy, which requires a Plan For Agricultural Preservation for annexation requests. Additionally, Policy 22 encourages the following:

1. Removal of agricultural lands from the existing sphere of influence in order to offset, in whole or in part, a proposed sphere of influence expansion or direction.
2. An adopted policy or condition requiring agricultural mitigation at a ratio of at least 1:1. This can be achieved by acquisition and dedication of agricultural land, development rights and/or conservation easements to permanently protect agricultural land, or payment of in-lieu fees to an established, qualified, mitigation program to fully fund the acquisition and maintenance of such agricultural land, development rights of easements, consistent with Section B-2 of Policy 22.
3. A voter approved urban growth boundary designed to limit the extent to which urban development can occur during a specified period of time.

As noted above, the Proposed Project will result in the loss of farmland, of which will be converted to a non-agricultural use. As such, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporation**. Mitigation Measure AG-1, provided in detail below, will require the Developer and/or Project Proponent to comply with Stanislaus LAFCO Policy 22 to mitigate impacts to the conversion of Prime Farmland to a non-agricultural use.

b. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

Each parcel included in the Proposed Project has a current zoning designation of General AG 10 Acre (General Agriculture 10 Acre) within Stanislaus County. The Stanislaus County Local Agency Formation Commission (LAFCO) will require the Plan Area be pre-zoned by the City of Waterford in conjunction with the proposed annexation. The City's pre-zoning will follow the land use designation intent of the General Plan Land Use Map (Low-Density Residential), as such the site will be zoned Residential Single (RS) and Planned Community (PC) The pre-zoning would go into effect upon annexation into the City of Waterford. Therefore, the Proposed Project will have a **Less Than Significant Impact.**

c. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

The Proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. The Proposed Project would result in the annexation of the Project site from Stanislaus County into the City of Waterford, prezoning the site for residential use. The City of Waterford General Plan has not designated the Project site or surrounding areas as Forest Land, Timberland, or timberland zoned for Timberland Production. The Project site has historically been utilized for agricultural use. Therefore, the Proposed Project would have a **Less Than Significant Impact**.

d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use at the site. With regard to loss of forest land or conversion of forest land to a non-forest use, the Proposed Project would have **No Impact**.

e. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

The Project site is partially developed and partially within existing agricultural uses. The Proposed Project will convert farmland to a non-agricultural use, which is consistent with the City's Vision 2025 General Plan. The land use designation of the Project site is Low Density Residential (LD) and the Vision 2025 General Plan contemplated urban development within the Project site. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

The following mitigation measures shall be incorporated into the Proposed Project:

Mitigation Measure Ag.--1: Prior to the filing of an annexation request to the Stanislaus LAFCo, the Developer and/or Project Proponent shall provide to the City of Waterford Planning Department a Plan for Agricultural Preservation which shall include written evidence of compliance with Stanislaus LAFCo Policy 22.

3. AIR QUALITY -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?		X		
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

REGULATORY SETTING

The Proposed Project is located within the San Joaquin Valley Air Basin (SJVAB). The San Joaquin Valley Air Pollution Control District (SJVAPCD), which includes Stanislaus County, has jurisdiction over most air quality matters in the Air Basin.

The Federal and State governments have adopted ambient air quality standards (AAQS) for the primary air pollutants of concern, known as "criteria" air pollutants. Air quality is managed by the SJVAPCD to attain these standards. Primary standards are established to protect the public health; secondary standards are established to protect the public welfare. The attainment statuses of the SJVAB for Stanislaus County with respect to the applicable AAQS are shown in the table below.

The SJVAB is considered non-attainment for ozone and particulate matter (PM10 and PM2.5), because the AAQS for the pollutants are sometimes exceeded. The SJVAB is in Attainment/Unclassified for carbon monoxide, but select areas are required to abide by adopted carbon monoxide maintenance plans.

The California Air Resources Board (CARB) through the Air Toxics Program is responsible for the identification and control of exposure to air toxics, and notification of people that are subject to significant air toxic exposure. A principal air toxic is diesel particulate matter, which is a component of diesel engine exhaust.

The SJVAPCD has adopted regulations establishing control over air pollutant emissions associated with land development and related activities. These regulations include:

Regulation VIII (Fugitive Dust Rules)
Rule 4101 (Visible Emissions)
Rule 9510 (Indirect Source Review)

SAN JOAQUIN VALLEY FEDERAL AND STATE AAQS ATTAINMENT STATUS

Pollutant	Designation / Classification	
	Federal Standards[a]	State Standards[b]
Ozone, 1-hour	No Federal standard[f]	Nonattainment / Severe
Ozone, 8-hour	Nonattainment / Extreme[e]	Nonattainment
PM10	Attainment[c]	Nonattainment
PM2.5	Nonattainment[d]	Nonattainment
Carbon Monoxide	Attainment / Unclassified	Attainment / Unclassified
Nitrogen Dioxide	Attainment / Unclassified	Attainment
Sulfur Dioxide	Attainment / Unclassified	Attainment
Lead (particulate)	No designation/Classification	Attainment
Hydrogen Sulfide	No Federal standard	Unclassified
Sulfates	No Federal standard	Attainment
Visibility-Reducing Particles	No Federal standard	Unclassified
Vinyl Chloride	No Federal standard	Attainment

[a]See 40 CFR Part 81
[b]See CCR Title 17 Sections 60200-60210
[c]On September 25, 2008, EPA redesignated the San Joaquin Valley to Attainment for the PM10 National AAQS and approved the PM10 Maintenance Plan
[d]The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 on November 13, 2009 (effective December 14, 2009).
[e]Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved reclassification of the Valley to extreme nonattainment in the Federal Register on May 2010 (effective June 4, 2010).
[f]Effective June 15, 2005, the EPA revoked the Federal 1-hour ozone standard, including associated designations and classifications. EPA has previously classified the SJV as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

The SJVAPCD has adopted a CEQA impact analysis guideline titled *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI). The GAMAQI is utilized in the following air quality impact analysis where applicable. The GAMAQI establishes impact significance thresholds for the non-attainment pollutant PM10 and precursors to the non-attainment pollutant ozone: reactive organic gases (ROG) and oxides of nitrogen (NOx).

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (tpy)	*Emissions (tpy)*	*Emissions (tpy)*
CO	100	100	100
NO_x	10	10	10
ROG	10	10	10
SO_x	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Projects that do not generate emissions in excess of these thresholds are considered to have less than significant air quality impacts. Furthermore, within the GAMAQI, the SJVAPCD has established and outlined a three-tiered approach to determining significance related to a project's quantified ozone precursor emissions. Each tier or level requires a different degree of complexity of emissions calculation and modeling to determine air quality significance. The three tiers established to date (from least significant to most significant) are: *Small Project Analysis Level (SPAL), Cursory Analysis Level (CAL), and Full Analysis Level (FAL)*. In each of the tiers, the SJVAPCD has pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds. Table 1 of the GAMAQI, dated November 13, 2020, includes the threshold for single-family residential projects as resulting in less than 155 dwelling units and less than 800 Average Daily One-Way Trips for all fleet types (except Heavy-Heavy Duty Trucks (HHDT)).

In accordance with Table 1 of the GAMAQI, while the Proposed Project consists of ninety-eight (98) single-family dwelling units, well less than the established threshold of 155 dwelling units, the Proposed Project has been determined to exceed the 800 daily trips threshold required to qualify for Small Project Analysis Level (SPAL), as indicated in the Transportation Impact Study, dated May 2024, prepared by Wood Rogers (990 daily trips for subdivision; 704 daily trips for annexation area).

The California Emissions Estimator Model (CALEEMOD) was used to estimate both construction and operational emissions from the Proposed Project. A detailed report of the complete CALEEMOD results is shown in Appendix A of this document. The table below shows the maximum project construction emissions in a calendar year, the annual operational emissions, and the SJVAPCD Significance Thresholds.

SJVAPCD Significance Thresholds and Proposed Project Emissions

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
SJVAPCD Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Construction Emissions	0.65	1.62	2.07	< 0.005	0.14	0.09
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*
Operational Emissions	1.64	0.79	5.77	0.04	1.11	0.39
Above Threshold?	*No*	*No*	*No*	*No*	*No*	*No*

IMPACT ANALYSIS

a. *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

SJVAPCD has attainment plans for ozone and particulate matter, while the State has a CO attainment plan. As indicated in the table above, construction and operational emissions will not exceed the applicable SJVAPCD significance threshold for any criteria pollutant.

Per the letter received from the SJVAPCD, dated January 5, 2024, regarding the Air Impact assessment, the District has determined that the Proposed Project's mitigated baseline emissions for construction and operation will be less than two (2) tons of NO_x per year and two (2) tons of PM10 per year. Further, the District has determined that the Proposed Project complies with the emission reduction requirements of Rule 9510, and, as such, is exempt from the general mitigation requirements and off-site emission reduction fees pursuant to District Rule 9510. Since the Proposed Project's emissions are estimated to be well below the respective SJVAPCD significance thresholds, the Proposed Project will be consistent with the adopted reduction plans for ozone, particulate matter, and CO. Thus, the Proposed Project will have a **Less Than Significant Impact** related to air quality plans.

b. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?*

The Proposed Project would not generate operational emissions above SJVAPCD established significance threshold; the significance thresholds are applied to evaluate regional impacts of project-specific emissions of air pollutants. Regional impacts of a project can be characterized in terms of total annual emissions of criteria pollutants and their impact on SJVAPCD's ability to reach attainment of criteria pollutant standards. As such, the Proposed Project will not result in a considerable

contribution to a significant cumulative air quality impact in the Air Basin. Consequently, the Proposed Project impacts related to cumulative emissions will have a **Less Than Significant Impact**.

c. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Sensitive Receptors, as defined in the Guide for Assessing and Mitigating Air Quality Impacts, include residences, schools, parks and playgrounds, day care centers, nursing homes, and hospitals (SJVAPCD March 2015). Potential sensitive receptors near the Proposed Project site include the single-family residences to the northeast and east, the populace of Richard M Moon Primary School and Lucille Whitehead Intermediate School to the south, as well as residents of the Space in the Shade Mobile Home Park to the south, and the ranch homes to the north and to the west. However, as noted, Project construction and operational emissions would be below SJVAPCD significance threshold for criteria pollutants. Further, implementation of applicable SJVAPCD rules and regulations would further reduce the emissions that could potentially reach any potential sensitive receptors in proximity to the Proposed Project.

According to the CALEEMOD analysis for the Proposed Project, construction activities would generate approximately 198 pounds of exhaust $PM_{2.5}$ for the estimated twelve-month construction period, or approximately 0.47 pounds per day. This amount is readily dissipated and likely would not be concentrated such that nearby sensitive receptors would be affected. Construction impacts would cease at the completion of the Proposed Project, and the length of time nearby properties experiencing exposure would be relatively short. Additionally, per the CALEEMOD analysis, Project operations would generate markedly less emissions. Consequently, neither Project construction nor Project operations would generate particulate matter emissions in quantities that would present a significant health risk to nearby properties. Further, assumptions utilized in the CALEEMOD analysis provided mitigation measures to curb the impact to surrounding receptors by limiting any heavy-duty diesel vehicle idling, and ensuring exposed surfaces are watered on a regular basis.

Therefore, implementation of the Proposed Project will not be anticipated to result in an increase in exposure of sensitive receptors to localized concentrations of criteria pollutants that would exceed the relevant standards or thresholds established by the SJVAPCD. Thus, implementation of the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporated**.

d. *Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

In part, the Proposed Project consists of a Vesting Tentative Subdivision Map to allow for the subdivision of approximately 19.2 acres into ninety-eight (98) single-family residential lots. As such, residential development typically does not generate substantial odors that would affect nearby land uses or a substantial number of people, nor would the Proposed Project generate substantial amounts of any other emissions such as TACs. The Proposed Project will have a **Less Than Significant Impact** related to odors or other emissions.

MITIGATION MEASURES:

The following mitigation measures shall be incorporated into the Proposed Project:

Mitigation Measure Air-1: Prior to the commencement of construction activities for each phase of construction, the Project Proponent shall prepare and submit a Dust Control Plan that meets all of the applicable requirements of APCD Rule 8021, Section 6.3.

4. BIOLOGICAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
c) 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?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

The following analysis is largely based upon a Biological Assessment, dated March 15, 2023, prepared by Moore Biological Consultants (Appendix B). The Biological Assessment evaluated the 19-acre proposed development site, or the boundary in which the proposed Tentative Subdivision Map has identified. For the remainder of the Project site, the City's Vision 2025 General Plan and EIR were evaluated.

IMPACT ANALYSIS

a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*

For the Proposed Project, a Biological Assessment was completed by Moore Biological Consultants and as a part of the Biological Assessment, a field survey was conducted on January 12, 2023. The survey consisted of observations of surrounding land uses, general habitat types, and plant and wildlife species. Additionally, a search was conducted via California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2023). This information was used to identify wildlife and plant species that have been documented in the Project vicinity or which have the potential to occur based on suitable habitat and geographical distribution.

The Biological Assessment determined that the grasslands found were highly disturbed; tree species adjacent the Project site were primarily ornamental species used for landscaping; only common bird species were observed; due to lack of a suitable habitat, only common reptiles are expected to occur; no special-status plants were observed in the Project site. Intensive farming and surrounding development have substantially modified natural habitats in the Project vicinity. Further, the Project site does not provide suitable foraging habitat for Swainson's hawk, and the trees found on-site are too small for nesting. There is no suitable nesting habitat for tricolored blackbird in or adjacent to the Project site. The Project site does not provide suitable denning habitat for San Joaquin kit fox. Finally, the Northern California legless lizard is not expected to occur in the Project site due to the presence of compacted soils from decades of orchard farming. In sum, the Project site is not hospitable for many different types of special species and due to a lack of suitable habitat, it is unlikely that special-status plants and special-status wildlife species occur in the Project site.

As noted above, the remainder of the Project site was not included as part of the Biological Assessment. As such, to determine potential impacts to biological resources, the City's Vision 2025 General Plan EIR was reviewed. A review of Page 109 of the Vision 2025 General Plan EIR states, *"As part of the city's development review program, individual development projects are typically required to prepare biological studies to evaluate the project's impact on biological resources. As a result of these studies, specific project level mitigation measures are required as part of the project's conditions of approval. Detailed development project impacts cannot be determined at this "policy level" document until specific development proposals are available for review."*

Based on a review of the Biological Assessment and the City's Vision 2025 General Plan EIR, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporation**. The specific mitigation measures are provided below.

The following discussion is an analysis for criteria (b) and (c):

b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

c. *Would the project 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?*

Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrological criteria defined by the U.S. Army Corps of Engineers. These wetlands include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, springs, emergent marshes, riparian wetlands and seasonal wetlands. Wetlands provide critical habitat components, such as nest sites and reliable sources of water for a wide variety of wildlife species. There exists no potential wetlands or areas in the Project site that meet the technical criteria of wetlands (i.e., presence of hydrophytic vegetation, hydric soils, and wetland hydrology).

The Modesto Irrigation District (MID) concrete-lined lateral situated just south of the site is considered a potential jurisdictional Water of the U.S. due to its hydrologic connectivity with the Tuolumne River. However, this lateral is outside of the Project site boundary and will not be impacted or disturbed by the Proposed Project. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

The Project site may have provided habitat for wildlife species of some kind at some time in the past; however, intensive farming and surrounding development have substantially modified the natural habitat in the greater Project vicinity. The on-site habitats which do exist are biologically unremarkable. For example, there are no riparian habitats, sensitive natural communities, wildlife movement corridors, or native wildlife nursery sites in the Project area.

Due to a lack of suitable habitat, it is unlikely that special-status wildlife species will occur in the Project site. For example, Swainson's Hawk and other special-status birds are not expected to nest in the Project site due to the small size of the orchard trees and ongoing disturbance from agricultural activities. Further, the Project site is not in a designated critical habitat of federally listed species. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

e. *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

As previously discussed, the Project site presently functions as an almond orchard, so there exist numerous trees on the Project site. Although the Project site currently sits outside the city limits, the Project site will be annexed into the City of Waterford. Consequently, upon annexation, the Proposed Project will be required to adhere to the regulations and standards spelled out in the City of Waterford's Tree Ordinance, found in the Waterford Municipal Code, Chapter 12.20 – Trees, as it relates to the removal and replacement of trees. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Proposed Project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other local, regional, or State Habitat Conservation Plan as none currently exists within the City of Waterford. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

The following mitigation measure shall be incorporated into the Proposed Project:

Mitigation Measure Bio-1: Pre-construction surveys for nesting Swainson's hawks within 0.25 miles of the Project site are conservatively recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction using criteria set forth by CDFW (CDFG, 1994) and the Swainson's Hawk Technical Advisory Committee (SWHTAC, 2000).

Mitigation Measure Bio-2: Trees in the site could be used by birds protected by the Migratory Bird Treaty Act of 1918 or Fish and Game Coder of California. If vegetation removal or construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

Mitigation Measure Bio-3: Prior to the approval of any development project within the Project site that does not include the proposed Tentative Subdivision Map, the Developer and/or Project Proponent shall prepare a Biological Assessment. This Biological Assessment shall be submitted to the City's Planning Department for their review and evaluation of said development project.

5. CULTURAL RESOURCES -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			X	
c) Disturb any human remains, including those interred outside of formal cemeteries?			X	

IMPACT ANALYSIS

a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*

The Project site is not known to contain any historical resource as defined in Section 15064.5 of the CEQA Guidelines. According to a review of the California Office of Historic Preservation (www.ohp.parks.ca.gov) that are no structures identified on either the National Register or State Register of Historic Places near or on the Project site or surrounding area. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

The following discussion is an analysis for criteria (b) and (c):

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?*

c. *Would the project disturb any human remains, including those interred outside of dedicated cemeteries?*

Although there are no formal cemeteries or Native American burial grounds known to exist on or near the Project site, there is a potential that construction activities could inadvertently disturb or uncover human remains. The City of Waterford's Vision 2025 General Plan Update Program EIR echoes this sentiment by acknowledging the potential for damaging or disturbing cultural resources as open land is developed. In accordance with State Law and Policy SD-2.1b of the City's Vision 2025 General Plan, in the event of an inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the Project site shall cease and the contractor shall contact the appropriate agency.

The Stanislaus County Coroner shall be notified, and the Coroner shall then determine whether the remains are Native American or otherwise. If Native American human remains are discovered, the

City shall work with local Native American representatives to ensure that the remains and any associated artifact(s) are treated in a respectful and dignified manner. Thus, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

6. ENERGY -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?			X	

IMPACT ANALYSIS

a. *Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

Fuel consumed by construction equipment would be the primary energy resource expended over the course of build out of the Proposed Project. For heavy-duty construction equipment, horsepower and load factor were assumed using default data from the CalEEMod Model. Fuel use associated with construction vehicle trips generated by construction of the Proposed Project was also estimated. Trips generated by the Proposed Project include construction worker trips, haul trucks trips for material transport, and vendor trips for construction material deliveries. Fuel use from these vehicles traveling to the Project site was based on (1) the projected number of trips the construction associated with the Proposed Project would generate (CalEEMod default values), (2) default average trip distance by land use in CalEEMod, and (3) fuel efficiencies estimated in the ARB 2017 Emissions Factors model.

California Code of Regulations Title 13, Motor Vehicles, Section 2449(d)(2), Idling, limits idling times of construction vehicles to no more than five (5) minutes, thereby precluding unnecessary and wasteful consumption of fuel because of unproductive idling of construction vehicles and equipment. In addition, the energy consumption for construction activities would not be ongoing as they would be limited to the duration of construction associated with the Proposed Project.

The Proposed Project's anticipated annual energy consumption is approximately 859,890 kilowatt-hours and 1,656,299 therms of natural gas*. The Proposed Project would be required to comply with the California Energy Code regulating energy efficiency of homes. Therefore, the Proposed Project would have a **Less Than Significant Impact**.

* Emissions for the Proposed Project were calculated using the CalEEMod Output files Version 2022.1.1.23. Refer to Appendix A for modeling results and assumptions.

b. *Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?*

State and local authorities regulate energy use and consumption. These regulations at the State level are intended to reduce energy use and greenhouse gas (GHG) emissions. These include, among others, Assembly Bill (AB) 1493 – Light-Duty Vehicle Standards; California Code of Regulations Title 24, Part 6 – Energy Efficiency Standards; and California Code of Regulations Title 24, Part 6 and 11 – California Energy Code and Green Building Standards. The Proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Therefore, the Proposed Project would have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

7. GEOLOGY AND SOILS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) 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 off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) 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?			X	
e) 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?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		

IMPACT ANALYSIS

The following discussion is an analysis for criteria (*a.1, a.2, a.3 and a.4*):

a.1. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake, 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?*

a.2. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

a.3. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*

a.4. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*

Based on a review of the City's Vision 2025 General Plan EIR, the City of Waterford is not located within an earthquake fault zone, as designated by the Alquist-Priolo Earthquake Fault Zone Act (California Geological Survey 2008) and the Project site is located in an area traditionally characterized by relatively low seismic activity. Further, the Proposed Project is not located within the current Alquist-Priolo Earthquake Fault Zone and there are no known active faults located in the immediate area. The nearest active fault is the Ortigalita fault in the western portion of Stanislaus County, which is approximately 30 miles west of the City of Waterford. The last known activity from the Ortigalita Fault was approximately more than 10,000 years ago.

Although there are no specific liquefaction hazard areas identified in the City of Waterford, the potential for liquefaction is recognized in the Waterford General Plan Environmental Impact Report (EIR). Liquefaction occurs when loose, water-saturated sediments lose strength and fail during strong ground shaking. Although no specific liquefaction hazard areas have been identified within the City of Waterford, this potential is recognized throughout the San Joaquin Valley.

Using the United States Department of Agriculture Natural Resources Conservation Service soil survey, an analysis of the soils onsite was performed. Soils located within the Project site to be subdivided and developed consist of Hanford fine sandy loam and Madera sandy loam, which are considered well-drained and moderately well drained soils respectively. These represent a low risk for liquefaction and a low risk of seismic-related ground failure.

Lastly, landslides usually occur in locations with steep slopes and unstable soils. The Project site is located in a general area where no major geologic landforms exist, and the topography is essentially flat and level. The existing conditions, when considered individually and in conjunction with one another, clearly illustrate that the Proposed Project, directly or indirectly, will not cause substantial adverse effects, including the risk of loss, injury, or death. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project result in substantial soil erosion or the loss of topsoil?*

The potential for grading and earth moving activities during construction resulting in erosion or the loss of topsoil could be a potentially significant impact. Exposed soils entrained in stormwater runoff

and transported off the Project site can be potentially significant. Per the City's Vision 2025 General Plan EIR, soil erosion from water runoff is minimal due to the relatively flat terrain of the Project site and surrounding vicinity. However, if precautions are not taken or preventative measures are not in place, soil can be lost due to wind erosion. The Proposed Project is required to implement a Stormwater Pollution Prevention Plan (SWPPP) as well as implementation of Best Management Practices related to stormwater runoff. As a result, the Proposed Project will have a **Less Than Significant Impact**.

c. *Would the project be located on a geologic unit or soil that is unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

The topography of the Proposed Project area is relatively flat, with little to no slope. On or off-site landslide potential is minimal. As a Standard Condition of Approval, the Project Proponent will be required to prepare and submit a Geotechnical Report as part of the Improvement Plan and Final Map process. The Geotechnical Report will include analysis of the site and provide recommendations for the structures proposed as part of the buildout of the Proposed Project. Thus, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?*

Based on an examination of the Soils Maps found on the United States Department of Agriculture (USDA) website (https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx) the Proposed Project features Hanford Fine Sandy Loam (HbA) and Madera Sandy Loam (MdA). According to the City's Vision 2025 General Plan EIR, concentrations of expansive soils are known to exist in the developable area of the City and its urban expansion area. Implementation of the Uniform Building Code reduces the risk of buildings or structures on expansive soils to a less than significant level. The Proposed Project will be required to adhere to the Uniform Building Code as well as the California Building Code. As a result of the soil conditions found on the project site in conjunction with adherence to both the Uniform and California Building Code, risk to life or property is not substantial. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

e. *Would the project 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?*

The Proposed Project will not be installing septic tanks or an alternative wastewater disposal system. Rather, the Proposed Project will connect to the City of Waterford's domestic wastewater system and will be served by City sewer infrastructure. Therefore, the Proposed Project will have **No Impact**.

f. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

According to the City's Vision 2025 General Plan EIR, due to the nature of the area in and around the City of Waterford, it is not likely that any paleontological resources exist in the Project site or surrounding area. There are no unique geologic features within the City's urban area or the urban expansion area. However, the 2016 Stanislaus County General Plan Draft EIR (Figure 3.6-5 General Paleontological Sensitivity Map of Stanislaus County) identifies the City of Waterford in a high paleontological sensitivity zone. Therefore, it is possible that paleontological resources could be accidentally discovered during excavations or other related construction activities associated with development of the Project site. Directly or indirectly destroying a unique paleontological site is considered a significant, adverse environmental impact and must be avoided. Therefore, the Proposed Project will have a **Less Than Significant Impact with Mitigation.**

Mitigation Measures:

The following mitigation measure shall be incorporated into the Proposed Project:

Mitigation Measure Geo-1: Should paleontological resources be encountered on the Project site, all ground disturbing activities in the area shall stop. A qualified paleontologist shall be contacted to assess the discovery. Mitigation may include monitoring, recording the fossil locality, data recovery and analysis, and a final report. Upon completion of the assessment, a report documenting methods, findings, and recommendations shall be prepared and submitted to the City of Waterford for review, and (if paleontological materials are recovered) a paleontological repository, such as the University of California Museum of Paleontology.

8. GREENHOUSE GAS EMISSIONS – WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation*	*Less Than Significant Impact*	*No Impact*
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

REGULATORY SETTING:

California Air Resources Board (CARB) is responsible for the coordination and oversight of state and local air pollution control programs in California. California has numerous regulations aimed at reducing the State's GHG emissions. These initiatives are summarized below:

Assembly Bill 1943

Assembly Bill (AB) 1943 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would reach 22 percent reduction from 2009 levels by 2012 and 30 percent by 2016. The Advanced Clean Cars program coordinates the goals of the Low Emission Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs and would provide major reductions in GHG emissions. By 2025, when rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels.

Executive Order S-3-05

In 2005, the governor issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent below 1990 levels (California Environmental Protection Agency [CalEPA]). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA 2006). The 2006 CAT Report identified a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty

truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc. In April 2015 the governor issued EO B-30-15, calling for a new target of 40 percent below 1990 levels by 2030.

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05) and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. California is on track to meet or exceed the current target of reducing GHG emission to 1990 levels by 2020, as established by AB 32.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in California Environmental Quality Act (CEQA) documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

CARB Resolution 07-54

CARB Resolution 07-54 establishes 25,000 MT of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005 percent of California's total inventory of GHG emissions for 2004.

Senate Bill 375

Senate Bill (SB) 375, signed into law in September 2008, builds on AB 32 by requiring CARB to develop regional GHG reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035; these regional targets will help achieve the goals of AB 32 and the Scoping Plan through changed land use patterns and improved transportation systems. The Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) adopted a Sustainable Community Strategies in July 2013 that meets greenhouse gas reduction targets. The *Plan Bay Area* is the SCS document for the Bay Area, which is an integrated long-range plan that discusses climate protection, housing, healthy and safe communities, open space and agricultural preservation, equitable access, economic vitality, and transportation system effectiveness within the San Francisco Bay Area. The document is updated every four years and most recently, the update, *Plan Bay Area 2040* was adopted on July 26, 2017.

Executive Order S-13-08

Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of tis population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the "...first statewide, multi-sector, region-specific, and information-based climate change adaption strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Senate Bill 2X

In April 2011, the governor signed SB2X requiring California to generate 33 percent of its electricity from renewable energy by 2020.

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill 32 (SB 32) into law, which requires the State to further reduce GHGs to 40 percent below 1990 levels by 2030. SB 32 is an extension of AB 32. The other provisions of AB 32 remain unchanged. CARB adopted the 2017 Climate Change Scoping Plan Update on December 14, 2017, for achieving California's 2030 greenhouse gas target.

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*
b. *Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

A consequence of the Proposed Project will be the generation of short-term and long-term Greenhouse Gas emissions. In the short-term, construction related activities will be the main driver of GHG emissions through site preparation, grading, heavy-duty construction vehicles, equipment hauling, and motor vehicles going to and from the project site. The level of emissions resulting from construction activities will vary day-to-day dependent on the level of intensity each day.

Although not originally intended to reduce GHGs, California Code of Regulations (CCR) Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. Since then, Title 24 has been amended with recognition that energy efficient buildings require less

electricity and reduce fuel consumption, which in turn decreases GHG emissions. The current Title 24 standards were adopted in response to the requirements of Assembly Bill (AB) 32. Specifically, new development projects within California, after January 1, 2011, are subject to mandatory planning and design, energy efficiency, water efficiency and conservation, material conservation and resources efficiency, and environmental quality measures of the California Green Building Standards (CALGreen) Code (California Code of Regulations, Title 24, Part 11). As such, it is anticipated that the Proposed Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment or conflict with any plan, policy, or regulations adopted for the purpose of reducing the emissions of greenhouse gases.

The Proposed Project is consistent with the City of Waterford's General Plan Goals and Policies which ensure compliance with the emission reduction strategies employed by the City of Waterford, which by default, support City-wide efforts to meet statewide emission reduction goals consistent with Assembly Bill (AB) 32, the Global Warming Solutions Act. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

9. *HAZARDS AND HAZARDOUS MATERIALS -- Would the project:*

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) 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?			X	
e) For a project located within an **airport** land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?			X	

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

b. *Would the project 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?*

The Proposed Project is primarily centered around the development and subdivision of 19.2-acres into a ninety-eight (98) residential lot subdivision. The residential development will not pose a significant hazard to the public or environment through the routine transport, use or disposal of hazardous materials. Construction may include the use of hazardous materials given that construction activities involve the use of heavy equipment, which uses marginal amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. Should the release of hazardous materials occur, or if hazardous materials need to be used, transported, or disposed of, the Project Proponent must comply with all applicable Federal, State, and local policies and regulations related to hazardous materials.

The operational phase of the Proposed Project will be made up of residential uses. The types of hazardous materials that would be associated with the Proposed Project are those typical of residential developments: household cleaners, landscape maintenance, soaps, pesticides, etc. It is not expected that the Proposed Project would routinely transport, use, or dispose of hazardous materials other than those typical of residential uses and such materials would not be of the type or quantity that would pose a significant hazard to the Public.

A potential accidental release of standard fuels, solvents, or other chemicals encountered during typical construction of a residential subdivision is always a possibility. Should an accidental hazardous release occur or should the Proposed Project encounter hazardous soils, existing regulations for handling hazardous materials require coordination with the California Department of Toxic Substances Control for an appropriate plan of action, which can include studies or testing to determine the nature and extent of contamination, as well as handling and proper disposal. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

The Project site is located within one-quarter mile of an existing school, the Waterford Unified School District's Richard M. Moon Primary School. However, as discussed previously, the Proposed Project includes the development of ninety-eight (98) single-family residential lots. Thus, the Proposed Project will not emit hazardous emissions or handle hazardous or acutely hazardous materials or substances. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project be located on a site 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?*

The Proposed Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to California Government Code §65962.5. A review of the State hazardous material

site databases* found one record near the project site: Leaking Underground Storage Tank (LUST) Cleanup Site—Ashlock Farms, 509 N. Reinway; case reported 7/30/1992 and closed 7/10/1996.

An online search was also conducted on the Department of Toxic Substances Control (DTSC) website. It was discovered that there was one record found: Richard Moon Elementary School. The eight-acre site is located adjacent to the southern boundary of the existing Richard Moon Elementary School. The site was historically used for agricultural purposes, including an orchard from at least 1957 through to 1980, and row crops from the late 1980s. Three structures were located in the southeastern portion of the subject site. The site was investigated for CAM-17 metals, organo-chlorine pesticides, and PCBs. Due to the date of construction of the on-site structures, the site was also investigated for lead impacted soils from the potential leaching of lead-based paint application(s). Investigation activities identified the presence of elevated levels of lead as high as 316 mg/kg in the area of the northeast structure. A Supplemental Site Investigation (SSI) was developed to evaluate the elevated levels of lead. The SSI found no additional soil samples with lead above the DTSC screening level of 255 mg/kg. On November 3, 2005, DTSC approved the Supplemental Site Investigation report with a no further action determination. As a result of existing conditions in concert with the DTSC SSI report, the Proposed Project would not create a hazard to the public or the environment; therefore, the Proposed Project will have a **Less Than Significant Impact**.

e. *For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

In order to determine if the Proposed Project is within an airport land use plan, the Stanislaus County Airport Land Use Compatibility Plan (Stanislaus County ALUCP, 2016) was consulted. The Proposed Project is not located within the vicinity of any private or public airport and the Project site is not within two (2) miles of the Stanislaus County Modesto City-County Airport, which is the closest airport to the Project site, located 10.4 miles to the west. As a result, the Proposed Project will have **No Impact**.

The following discussion is an analysis for criteria (f) and (g):

f. *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

g. *Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Included in the City's Vision 2025 General Plan are Goals and Policies for the City to maintain the Emergency Operations Plan in accordance with State and Federal rule and regulations. The purpose of the Emergency Operations Plan is to provide emergency planning/organization and response. The document deals with emergency management, law enforcement, traffic control, fire, medical, rescue,

* https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609900380

radiological material, and shelter. The implementation of the Proposed Project will not interfere with these Plans and the Proposed Project would be required to keep emergency routes free of traffic impediments resulting from project construction and operation. Additionally, the Proposed Project would be required to comply with the City's General Plan policies; the project would undergo review by the City's Building and Fire authorities to ensure construction plans for roadway modifications and to establish the proposed roadways and driveways meet all ordinance and California Building Code requirements for emergency access.

The public roadway system, owned and maintained by the city, is critical for providing emergency access and evacuation to and through the city. The Proposed Project would not prevent or inhibit the ability of local roadways to continue to accommodate emergency response and evacuation activities. The Proposed Project will make improvements to the existing infrastructure including N. Eucalyptus Avenue which will be widened to accommodate a portion of the future 92-foot wide right of way per the City's General Plan. Further, N. Reinway Avenue will be widened to 60 feet along the Proposed Project frontage to complete the ultimate section of the roadway.

The Project site currently operates as an almond orchard with varied uses neighboring the property including single-family residential properties to the east and northeast, Public uses to the south; the neighboring properties to the north and west are used for agriculture purposes some with existing estate homes. The Valley's long, dry summers and extensive vegetation make for a fire season that extends from late spring to early fall. Irrigated agricultural land, however, is less susceptible to wildland fires than grazing areas. Although the Proposed Project would not create a huge risk of wildland fire given the existing agriculture use, the Project will add ninety-eight (98) new single-family dwellings. The current Project site would be developed and would increase demand for fire protection services.

The Proposed Project, and other projects that are undertaken in a manner that is consistent with the policies and standards of the City of Waterford General Plan, and that comply with all appropriate federal, state and local Uniform Building Code (UBC) construction, Uniform Fire Code (UFC), OSHA or State Department of Health Services regulations will not result in the creation of a significant adverse physical impact from hazardous conditions in the City of Waterford. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

10. HYDROLOGY AND WATER QUALITY -- Would the project:

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

IMPACT ANALYSIS

a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Construction activities associated with the Proposed Project would cause disturbance of soil during excavation work, which could adversely affect water quality. Contaminants from construction vehicles, equipment, and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving waters during development. Any construction related activities, not limited to grading, which would result in the disturbance of one (1) acre or more would require compliance with the Regional Water Quality Control Board General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activity.

The 19.2-acre site of the Proposed Project to be subdivided would be subject to the provisions of a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential adverse impacts on surface water quality through the Project construction phase. Also, new development is required to adopt Best Management Practices (BMPs) to minimize grading and control runoff, which pollutes storm drains and can eventually lead to the pollution of groundwater sources.

Operation of the Proposed Project could also be a source of various stormwater pollutants. Pollutants associated with the proposed residential development may include those associated with vehicle parking and landscaping, not limited to oil and grease, but also organic compounds such as pesticides, trash and debris.

In an effort to minimize the impact to water quality, the Proposed Project would be required to include Low-Impact Development (LID) design measures and a Stormwater Facility Operation and Maintenance Plan must be prepared to ensure that stormwater control measures are inspected, maintained and funded for the life of the Proposed Project. Finally, the Proposed Project will be required to adhere to the City's Vision 2025 General Plan Goals and Policies, the Waterford Municipal Code, and adopted sewer, wastewater treatment, water and storm drain master plans. As a result, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

Groundwater is a primary source of water used to supply water throughout the state of California—approximately 30% of total agricultural and urban use. This water supply strategy has worked fairly well over the last 100 years for many Central Valley communities because it has been able to meet water needs at relatively low capital and operational costs. Unfortunately, over time, this has led to declining groundwater tables. While the state of California has taken action to overt unsustainable groundwater pumping and the county of Stanislaus has acted by limiting the number of new wells being constructed in non-incorporated areas, greater management of groundwater is required. To that aim, the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) is the management entity for the Modesto Groundwater Subbasin. Because the City of Waterford sits within the Modesto Subbasin, the City of Waterford is now participating in the STRGBA, and the City will continue participation in the STRGBA to effectively manage their groundwater. Additionally, the City of Waterford has prepared and must maintain an Urban Water Management Plan; the plan reflects

the urban growth area of the City and has identified the future water resources necessary to support that growth. A Water System Master Plan has also been prepared for the City that identifies the strategy for developing these water resources as the population of the City continues its growth towards the Urban Expansion Area.

According to the United States Census Bureau, the population for the City of Waterford in 2022 was 9,335 people and had an average of 3.78 persons per household. Per the City of Waterford, the estimated water consumption for the Proposed Project would be approximately 78,400 gallons per day; this would result in approximately 87.82-acre feet per year for the Proposed Project.

The City of Waterford relies on groundwater exclusively; the City does not currently use surface water as a resource. The City owns and operates six (6) water production wells, with an additional two (2) in the River Pointe system. The total production capacity for the systems is 2,875 GPM and 1,800 GPM, respectively.

The Waterford region is situated on a large underground aquifer; ground water in the area recharges from deep percolation rainfall and irrigation water, seepage from the rivers, underflow from the Sierra Nevada foothills, and upward flow from the formations that underlie the Mehrten Formations. According to the City of Waterford Vision 2025 General Plan EIR, total average withdrawals from the groundwater basin is about 313,000 acre-feet per year and the average total recharge, likewise, is about 313,000 acre-feet per year. Overall, the Modesto groundwater basin is in a quasi-equilibrium state according to the River Ranch Project Evaluation of Groundwater Impacts.

Although the Proposed Project would utilize ground water for domestic purposes, the amount of water used is not considered significant and would not substantially lower the groundwater table of the aquifer or interfere substantially with the recharge of the underground aquifer. Additionally, the Proposed Project would pay its fair share of installation of improvements and pay all development fees related to water service. The Proposed Project would not impede sustainable groundwater management of the subbasin. Therefore, the Proposed Project would have a **Less Than Significant Impact**.

c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

   i. *Result in substantial on- or offsite erosion or siltation;*
   ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;*
   iii. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or*
   iv. *Impede or redirect flood flows?*

The Project site is located approximately one (1) mile north of the Tuolumne River; no alteration of a stream or river is proposed. Thus, the Proposed Project will not alter the course of any stream or river. The Proposed Project will be required to adhere to construction and operation-phase stormwater requirements via a SWPPP and Stormwater Control Plan (SCP) and would ensure that development of the Proposed Project would not result in substantial erosion or siltation on or off-site. There the Proposed Project will have a **Less Than Significant Impact.**

d. *Would the project be located in flood hazard, tsunami, or seiche zones, or risk release of pollutants due to project inundation?*

The Proposed Project is not located adjacent to the ocean or other large body of water; the city of Waterford is not at risk from tsunami due to its inland location. The project site, therefore, is not susceptible to flooding or seiches, and as a result, the Proposed Project would not result in a risk of pollutant release during a flood hazard, tsunami or seiche event. Therefore, the project will have a **Less Than Significant Impact**.

e. *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

The Proposed Project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. Ther Proposed Project is consistent with the Central Valley Regional Water Quality Control Board (RWQCB). The Proposed Project will comply with all applicable rules and regulations regarding water quality and groundwater management. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

11. LAND USE AND PLANNING - Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Physically divide an established community?			X	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

IMPACT ANALYSIS

a. *Would the project physically divide an established community?*

The Proposed Project is located adjacent to the City of Waterford City Limits and includes development of residential uses, similar to the uses found east, northeast and southeast of the Project site. To the west of the Project site exists agricultural land. The Proposed Project will not physically divide any of the established, surrounding communities and uses and the Proposed Project will construct roadways that are publicly accessible. Thus, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project 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?*

The Proposed Project would not conflict with or cause a significant environmental conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Proposed Project is centered around subdividing and developing a ninety-eight (98) single-family residential, low-density residential subdivision on an approximately 19.2-acre Project site in addition to the annexation of 43.27-acres within the City's SOI. The City of Waterford's Vision 2025 General Plan land use diagram designates the Project site as Low-Density Residential. Properties within the Project site will carry prezoning designations consistent with the City's General Plan land use designation. The Proposed Project will not conflict with any City of Waterford General Plan policy; therefore, the Proposed Project will not cause a significant environmental conflict with any land use plan, policy, or regulation since it would be consistent with land use designation standards. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

12. MINERAL RESOURCES -- WOULD THE PROJECT RESULT IN:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*
b. *Would the project 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?*

Due to the fact that there are no mineral resources in the region of commercial value, there are no lands designated on the City of Waterford's General Plan Land Use Map for mineral resource recovery. Further, based on a review of the City's Vision 2025 General Plan, the Proposed Project is not located within a site known to contain mineral resources of regional or statewide value, nor is it located on a mineral resource recovery site. The Proposed Project site and surrounding area are absent of any mineral extraction activities. Public Resources Code Section 2762(a) requires that local governments establish mineral resource management policies within their General Plan if any mineral resources of statewide or regional significance are designated within their jurisdiction. According to the City of Waterford's Vision 2025 General Plan, no such areas have been designated or established within the City of Waterford. As a result, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

13. NOISE -- WOULD THE PROJECT RESULT IN:

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

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. *Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
b. *Would the project result in generation of excessive ground borne vibration or ground borne noise levels?*

Development of the Proposed Project will result in a periodic increase of ambient noise levels, primarily due to the activity of construction and the use of construction equipment. However, as a Standard Condition of Approval, construction activities as part of the Proposed Project must occur between the times established by the City's Noise Ordinance (Chapter 8.22 of the Waterford Municipal Code). Further, ambient noise originating from construction activities will be diminished upon completion of the Proposed Project construction phase. Additionally, residential developments do not typically generate excessive ground borne vibration or noise levels.

Further, the Vision 2025 General Plan Noise Element establishes noise level standards within the City of Waterford. Noise levels within the Project site will increase by the addition of new residents of the Proposed Project; however, the Proposed Project and the operational phase will be required to comply with these noise level standards, and therefore, will not result in a permanent increase in ambient noise levels. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

The Project site is not located within the vicinity of a private airstrip, an airport land use plan, and is not located within two (2) miles of a public airport or public use airport. Therefore, the Proposed Project will have **No Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

14. POPULATION AND HOUSING -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Induce substantial 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)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			X	

IMPACT ANALYSIS

a. *Would the project induce substantial population growth in one area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

The Proposed Project would not induce substantial unplanned population growth in the area, either directly or indirectly. The Proposed Project consists of the mapping and development of ninety-eight (98) single-family residential lots on land that would be annexed into the City as a part of the Proposed Project. Per the City's 2014-2023 Housing Element of its Vision 2025 General Plan, the average household size is approximately 3.52 persons per household. As such, the Proposed Project will result in a population increase of approximately 729 residents. The City of Waterford's current population (2023) is 9,042 residents*. Thus, an increase of 729 residents, because of the Proposed Project, represents just over an eight (8) percent increase to the City's overall population and does not represent a substantial inducement of population growth. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

The Project site's existing land use is row crops with irrigation structures traversing the property from east to west and the Project site to be developed surrounds an existing homesite on the north, south, and west. This existing home and homesite will not be displaced. The Proposed Project will develop ninety-eight (98) single-family residential lots and thus would not displace a substantial number of existing people or housing and would not necessitate the construction of replacement housing elsewhere. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

* dof.ca.gov

MITIGATION MEASURES:

Mitigation is not required for this topic.

15. ***PUBLIC SERVICES -- Would the project:***

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?			X	
d) Parks?			X	
e) Other public facilities?			X	

IMPACT ANALYSIS

a. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 fire protection?*

Fire protection in the City of Waterford is contracted through and provided by Stanislaus Consolidated Fire Protection District (SCFPD). The Waterford SCFPD Station 24 is located at 129 E Street in downtown Waterford. This station is 7,600 sq. ft. and was built in 2017. This station houses one (1) Type 1 (one) Engine, one (1) Type 3 (three) Brush Rig, one (1) water rescue boat, and one (1) OES Type 1 (one) Engine. This station's water rescue boat covers Modesto reservoir, Turlock lake, and a large portion of the Tuolumne river. The station is staffed around the clock, 24 hours a day, seven (7) days a week with three (3) full-time personnel. While the City of Waterford's General Plan expresses some concern of maintaining adequate response time at full buildout, the marginal growth resulting from the Proposed Project would not hinder nor cause significant impacts to Fire protection, service, or response times. In addition, the Proposed Project will pay the applicable impact fees and special assessments required by the SCFPD at the time of Building Permit issuance. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 police protection?*

The Project site is located within the City's Primary Sphere of Influence and will be annexed into the City of Waterford. In July of 1998, the City of Waterford entered into an agreement with the County of Stanislaus to provide law enforcement services for the City of Waterford; Waterford Police Department became Waterford Police Services. Both full-time and extra-help employees of the Stanislaus County Sheriff's Department staff Waterford's Police Services. Of the eleven (11) positions assigned to the City of Waterford, one (1) sergeant, seven (7) Deputy Sheriffs, and two (2) administrative positions are fully funded by the City. The Waterford Police Services station is located at 115 E Street, approximately 1.25 miles east of the Project site. While the Proposed Project may result in the need for additional police staff, the Waterford Police Services facility is adequate in size to accommodate additional officers, and within a distance that would allow the Sheriff's Department to maintain acceptable response times. The Proposed Project will not warrant the need for new or physically altered police facilities to maintain acceptable service ratios and meet performance objectives. Further, as a standard Condition of Approval, the Proposed Project will be required to pay the applicable Capital Facilities Fees (CFF) which includes a specific allocation for Police services; payment of these fees are intended to offset or mitigate any impacts associated with the Proposed Project. Therefore, the Proposed Project would have a **Less Than Significant Impact**.

c. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 schools?*

The Waterford Unified School District (WUSD) is a Pre-K-12 district made up of five (5) schools with a TK-12 enrollment of around 1,840 students. WUSD has a broad scope of education offerings, from Preschool through Adult Education, and is the regional provider of Special Education grade seven (7) through adult. WUSD is home to Sentinel High School, a continuation school that provides students the opportunity to recover credits to complete their graduation requirements. The Sentinel office also manages the Waterford Adult Education Center, which offers a variety of career and technical training. Further, WUSD sponsors Connecting Water Charter School, a home school charter serving 2,100 students in a seven-county geographical region.

According to the City's Vision 2025 General Plan, the City has limited jurisdiction with respect to the location decisions of the local school districts; however, the City is committed to supporting school districts in their efforts to expand facilities to meet growth demands. As part of the general plan and annexation process, the WUSD has prepared a comprehensive master plan in order to determine the projected district need for new facilities. The school district has identified the need for an additional seven (7) or eight (8) schools based on a forecast population of 30,000. Given the City's current population in conjunction with the Proposed Project, ultimately resulting in the construction of

ninety-eight (98) new single-family residences, an incremental increase in population will occur. This result could impact demand for school services within the WUSD. Based on this increase, the Proposed Project was referred to the WUSD for review and comment. On May 14, 2024, the WUSD provided the City with a letter summarizing their review of the Proposed Project. The WUSD stated that the Proposed Project would affect the WUSD and said impacts would need to be mitigated through the payment of State mandated impact fees. Prior to the issuance of a Building Permit, it is standard protocol for the City to require written documentation that said school impact fees have been paid.

As provided in the Government Code, payment of these fees constitutes adequate mitigation of impacts to the provision of school facilities. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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 parks?*

The Proposed Project will result in a new residential subdivision and result in an increase in population. As a new subdivision, the Proposed Project is subject to the payment of CFFs and the Quimby Act. Thus, to offset any potential impacts, the Proposed Project shall be subject to Park Facility Impact Fees and the Quimby Act, whose funding goes towards the acquisition and development of park space. Thus, the Proposed Project will have a **Less Than Significant Impact**.

e. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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* other public facilities*?*

The marginal population increase generated by the Proposed Project would result in an incremental increase in use of public facilities; this impact would be negligible. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

16. RECREATION -- WOULD THE PROJECT:

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

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a) and (b):

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Development of the Proposed Project will increase the use of existing neighborhood and regional parks and other recreational facilities. As a result, the Proposed Project will be required to contribute Capital Facilities Fee (CFF) funds. These CFF funds will be used to develop park facilities that meet the City's park standards. The Proposed Project does not require the construction of recreational facilities. Thus, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

17. TRANSPORTATION/TRAFFIC -- WOULD THE PROJECT:

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

The following analysis is based upon review of the Waterford Annexation and Subdivision Project Transportation Impact Study, dated May 2024, prepared by Wood Rodgers. For more detail, refer to Appendix D of this Initial Study.

IMPACT ANALYSIS

a. *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

The City of Waterford's Vision 2025 General Plan Transportation and Circulation Element states that all major intersections should maintain a Level of Service (LOS) D or better for two-hour peak periods (AM and PM). The Transportation Impact Study referenced above analyzed the Proposed Project's impact to LOS at the following intersections:

- North Reinway Avenue and Primary School Ingress Driveway;
- North Reinway Avenue and Pecan Avenue;
- North Reinway Avenue and Primary School Egress Driveway;
- North Reinway Avenue and Yosemite Boulevard; and,
- Eucalyptus Avenue and Yosemite Boulevard.

Table 4-2 of the Transportation Impact Study concluded that the Proposed Project would result in LOS D or better at all of the above intersections and is therefore consistent with the Vision 2025 General Plan LOS standard.

b. *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?*

The following is based upon a review of Section 8.3 of the Transportation Impact Study.

The estimated Project Study Area VMT of 47.7 VMT per resident is approximately 15% lower than the Replica data based existing average baseline City VMT of 47.8 VMT per resident. In addition, the Project is consistent with existing land uses in the Project Study Area and would not significantly alter travel patterns in the area.

The California Office of Planning and Research (OPR) guidance states that typically, a Project may be assumed to have a less than significant VMT impact if the Project site's VMT per resident is at least 15% below the City or regional average. However, the OPR Technical Advisory also states that in more rural areas, VMT significance thresholds may be best determined on a case-by-case basis, and clustered small town/city development may have substantial VMT benefits comparted to isolated rural development.

Due to the relatively rural nature of the Project area, small geographic footprint of the City, and lack of transit and multi-modal facilities, it is likely infeasible for new development within the City to meet the 15% below average threshold. As such, reasonable expectations for new development within the City would be to not exceed the City's average VMT per Resident. As noted above, the Proposed Project does not exceed the City's average VMT per Resident and will therefore have a **Less Than Significant Impact.**

c. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

The Proposed Project will include roadway and intersection improvements, particularly to Eucalyptus Avenue, in accordance with City standards and specifications. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

d. *Would the project result in inadequate emergency access?*

The Proposed Project has been reviewed by Stanislaus Consolidated Fire Protection District (District) and no comments were provided. The Proposed Project provides access to North Reinway Avenue and Eucalyptus Avenue. In addition, as new development occurs within the proposed annexation area, these developments will be reviewed by the District to ensure adequate emergency access is being provided. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

18. TRIBAL CULTURAL RESOURCES -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code Section 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)?			X	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?			X	

Effective July 1, 2015, Assembly Bill 52 (AB 52) amended CEQA to mandate consultation with California Native American tribes during the CEQA process to determine whether or not the Proposed Project may have a significant impact on a Tribal Cultural Resource. Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes. Section 21074(a) of the Public Resource Code defines Tribal Cultural Resources for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or

c. 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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria A and B also meet the definition of a Historical Resource under CEQA (see Section 5 of this document), a Tribal Cultural Resource may also require additional (and separate) consideration as a Historical Resource. Tribal Cultural Resources may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their Tribal Cultural Resources and heritage, AB 52 requires that CEQA lead agencies carry out consultation with tribes at the commencement of the CEQA process to identify Tribal Cultural Resources. Furthermore, because a significant effect on a Tribal Cultural Resource is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures. Consultation is concluded when either the lead agency and tribes agree to appropriate mitigation measures to mitigate or avoid a significant effect, if a significant effect exists, or when a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached, whereby the lead agency uses its best judgement in requiring mitigation measures that avoid or minimize impact to the greatest extent feasible.

IMPACT ANALYSIS

a. *Would the project cause a significant adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 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:*

    1. *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)?*
    2. *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 Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?*

Tribal Cultural Resources (TCRs) consider the value of a resource to tribal cultural tradition, heritage, and identity to establish potential mitigation options for TCRs, and to recognize that California Native American tribes have expertise concerning their tribal history and tribal practices.

Assembly Bill (AB) 52 requires lead agencies to conduct formal consultations with California Native American tribes during the CEQA process to identify TRCs that may be subject to significant impacts by a project. Where a project may have a significant impact on a tribal resource, the lead agency's environmental document must discuss the impact and whether feasible alternatives or mitigation

measures could avoid or substantially lessen the impact. This consultation requirement applies only if the tribes have sent written requests for notification of projects to lead agencies.

While the City of Waterford has not received any written request for notification of projects in accordance with AB 52, the City of Waterford provided a notice of the Proposed Project pursuant to PRC § 21080.3.1 to seven (7) separate Tribes who have been identified as possible interested parties by the Native American Heritage Commission. On March 6, 2024, the City of Waterford sent letters to the following:

(1) Southern Sierra Miwuk Nation
(2) Tule River Indian Tribe
(3) Wuksachi Indian Tribe/Eshom Valley Band
(4) Calaveras Band of Mi-Wuk Indians
(5) Chicken Ranch Rancheria of Me-Wuk Indians
(6) Nashville Enterprise Miwok-Maidu-Nishinam Tribe
(7) Northern Valley Yokut/Ohlone Tribe

To date, no Tribes have responded with a request for consultation or with any Project related comments. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

19. UTILITIES AND SERVICE SYSTEMS -- WOULD THE PROJECT:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider that 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?			X	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?			X	

IMPACT ANALYSIS

a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?*

The Proposed Project will be within the City limits upon annexation, and will be required to connect to water, stormwater, solid waste, and wastewater services. For the lands proposed to be developed under the proposed TSM, a looped water system will be installed and an eight (8) inch main will be installed in N. Eucalyptus. The looped system will also connect to the existing water main located in

N. Reinway Avenue. Wastewater will be conveyed via a gravity system within the Proposed Project along with a wastewater pump station located in Lot A. Wastewater will be pumped through a six (6) inch force main south to N. Reinway Avenue approximately 2,470 linear feet to an existing manhole located at the intersection of N. Reinway Avenue and Washington Road. The Proposed Project will not require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. *Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?*

It is estimated that the Proposed Project will have sufficient water supplies available to serve the Project site presently and on into the future upon connecting to City services. It is also anticipated that the City of Waterford will have sufficient water supplies available to serve the Project from existing resources. According to the City of Waterford's Water Master Plan (April 2016), current population capacity of the water system will sufficiently meet current demands until additional storage and conservation are implemented. As noted above, the increase in population resulting from the Proposed Project will not result in exceeding the City's water capacity nor require additional water supply outside of which is already provided to the City of Waterford. As a result, the Proposed Project will have a **Less Than Significant Impact**.

c. *Would the project result in a determination by the wastewater treatment provider that 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?*

Per the City's Municipal Service Review (July 2007), the City of Waterford's wastewater treatment system currently operates and maintains a wastewater collection, treatment, and disposal system with a capacity of one million gallons per day (mgd). The Proposed Project is not expected to exceed the capacity of the City's Wastewater Treatment Plant. Any future improvements to the City's existing facilities that are required as a result of the new development will be funded from applicable fees and charges as a result of new construction. The Project Proponent will be required to pay the fees and charges at the time the proposed residences connect to the sewer system.

For the Proposed Project, sewer will be conveyed via a new gravity system within the proposed streets to a sanitary sewer pump station which will be located on Lot A. Sewer will be pumped through a six (6) inch force main south to north Reinway Avenue approximately 2,470 feet to an existing manhole located at the intersection of north Reinway Avenue and Washington Road. As a result, the Proposed Project will have a **Less Than Significant Impact**.

The following discussion is an analysis for criteria (d) and (e):

d. *Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

e. *Would the project comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?*

The City of Waterford is served by the Stanislaus County Solid Waste facility, Fink Road Sanitary Landfill, for solid waste disposal services. As a result, solid waste generated by the Proposed Project will be collected and transported to the County Solid Waste facility for processing. The complex is located at 400 Fink Road, Crows Land, CA and is a 219-acre disposal site. It is not anticipated that the Proposed Project will have a significant impact as it relates to the capacity of the County Solid Waste facility. Further, the Proposed Project would comply with federal, state, and local statutes related to solid waste and would not cause waste providers to be out of compliance with applicable statues and regulations. As such, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

20. WILDFIRE -- Would the project:

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
If located in or near State 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?			X	
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?			X	
c) Require the installation 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?			X	
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?			X	

IMPACT ANALYSIS

The following discussion is an analysis for criteria (a), (b), (c), and (d):

a. *Would the project* substantially impair an adopted emergency response plan or emergency evacuation plan?
b. *Would the project 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. *Would the project require the installation 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. *Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

The Proposed Project and Project site are not located in or near a State Responsibility Area (SRA) or lands classified as Very High Fire Hazard Severity Zone (VHFHSZ) (CalFire). The Proposed Project will result in the construction of a new ninety-eight (98) lot subdivision to be annexed into the City of

Waterford. Therefore, the Proposed Project will not expose people or structures to a significant risk involving wildfires nor exacerbate the risk of wildfire. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

MITIGATION MEASURES:

Mitigation is not required for this topic.

21. MANDATORY FINDINGS OF SIGNIFICANCE --

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
a) Does the project 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?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

IMPACT ANALYSIS

a. *Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, 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?*

The analysis conducted in this Initial Study results in a determination that the Proposed Project, with incorporation of mitigation measures, will have a less than significant effect on the environment. The potential for impacts due to implementation of the Proposed Project will be less than significant with the incorporation of the mitigation measures discussed in this analysis. Accordingly, the Proposed Project will involve no potential for significant impacts through the degradation of the quality of the environment, the reduction in the habitat or population of fish or wildlife, including endangered plants or animals, the elimination of a plant or animal community or example of a major period of California history or prehistory. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in the connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

CEQA Guidelines Section 15064(h) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The Proposed Project, in part, would include the development of a new residential subdivision and associated infrastructure to connect the subdivision to the City of Waterford. The Project site was anticipated for urbanization with the development of the City's General Plan. Therefore, implementation of the Proposed Project would not result in significant cumulative impacts and all potential impacts would be reduced to less than significant through the implementation of mitigation measures and basic regulatory requirements incorporated into the Proposed Project's design. Therefore, the Proposed Project will have a **Less Than Significant Impact**.

c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

The analysis conducted in this Initial Study results in a determination that the Proposed Project would have a less than substantial adverse effect on human beings, either directly or indirectly. Therefore, the Proposed Project will have a **Less Than Significant Impact with Mitigation Incorporated**.

REFERENCES

In accordance with Section 15063(a)(3) of the CEQA Guidelines, the following expert opinion, technical studies, and substantial evidence has been referenced and/or cited in the discussion included in the Initial Study Checklist:

- City of Waterford Vision 2025 General Plan and associated Environmental Impact Report (EIR), dated June 21, 2007.

- City of Waterford Municipal Code, Title 17 (Zoning).

- CalEEMod Results, dated May 20, 2024.

- Waterford Development Project Biological Assessment, dated March 15, 2023, prepared by Moore Biological Consultants.

- Waterford Annexation and Subdivision Project Transportation Impact Study, dated May 2024, prepared by Wood Rodgers.

- Stanislaus County Zoning Ordinance.

- California Department of Conservation 2020 Farmland Mapping and Monitoring Program.

- San Joaquin Valley Air Pollution Control District Letter, dated January 5, 0224.

- United States Department of Agriculture (USDA) website and soils maps.

- Stanislaus County Airport Land Use Commission Plan, dated 2016.

Appendix A

Air Quality Modeling Results

Fahmy Subdivision - Waterford Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Fahmy Subdivision - Waterford
Construction Start Date	11/5/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	29.2
Location	37.64298363349694, -120.77658983979765
County	Stanislaus
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2223
EDFZ	15
Electric Utility	Modesto Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.23

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

Single Family Housing	98.0	Dwelling Unit	19.2	191,100	1,147,860	—	311	New Residential Subdivision

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-12	Sweep Paved Roads
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

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.	1.53	60.0	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
Mit.	1.53	60.0	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.07	0.05	6,772
Mit.	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.07	0.05	6,772
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	3.53	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.15	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
Mit.	1.22	3.53	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.15	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.22	0.65	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383
Mit.	0.22	0.65	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	1.53	1.30	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
2026	0.97	60.0	7.16	10.7	0.01	0.32	0.11	0.43	0.29	0.03	0.32	—	1,631	1,631	0.06	0.02	0.45	1,638
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.06	0.02	6,772
2025	3.89	3.28	29.8	29.1	0.06	1.23	3.74	4.98	1.14	1.46	2.60	—	6,745	6,745	0.27	0.07	0.05	6,770
2026	1.44	1.22	10.3	14.4	0.03	0.38	0.33	0.71	0.35	0.08	0.43	—	2,883	2,883	0.11	0.07	0.04	2,905
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.19	1.86	1.72	< 0.005	0.08	0.31	0.39	0.07	0.15	0.22	—	321	321	0.01	< 0.005	0.02	322

2025	1.22	1.03	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.14	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
2026	0.31	3.53	2.17	3.09	0.01	0.08	0.06	0.15	0.08	0.02	0.09	—	585	585	0.02	0.01	0.13	590
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.04	0.34	0.31	< 0.005	0.01	0.06	0.07	0.01	0.03	0.04	—	53.1	53.1	< 0.005	< 0.005	< 0.005	53.3
2025	0.22	0.19	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383
2026	0.06	0.65	0.40	0.56	< 0.005	0.02	0.01	0.03	0.01	< 0.005	0.02	—	96.9	96.9	< 0.005	< 0.005	0.02	97.6

2.3. Construction Emissions by Year, Mitigated

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	1.53	1.30	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
2026	0.97	60.0	7.16	10.7	0.01	0.32	0.11	0.43	0.29	0.03	0.32	—	1,631	1,631	0.06	0.02	0.45	1,638
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.06	0.02	6,772
2025	3.89	3.28	29.8	29.1	0.06	1.23	3.74	4.98	1.14	1.46	2.60	—	6,745	6,745	0.27	0.07	0.05	6,770
2026	1.44	1.22	10.3	14.4	0.03	0.38	0.33	0.71	0.35	0.08	0.43	—	2,883	2,883	0.11	0.07	0.04	2,905
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.19	1.86	1.72	< 0.005	0.08	0.31	0.39	0.07	0.15	0.22	—	321	321	0.01	< 0.005	0.02	322
2025	1.22	1.03	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.14	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
2026	0.31	3.53	2.17	3.09	0.01	0.08	0.06	0.15	0.08	0.02	0.09	—	585	585	0.02	0.01	0.13	590
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.04	0.04	0.34	0.31	< 0.005	0.01	0.06	0.07	0.01	0.03	0.04	—	53.1	53.1	< 0.005	< 0.005	< 0.005	53.3
2025	0.22	0.19	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383

2026	0.06	0.65	0.40	0.56	< 0.005	0.02	0.01	0.03	0.01	< 0.005	0.02	—	96.9	96.9	< 0.005	< 0.005	0.02	97.6

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.	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,915	10,501	8.25	0.32	23.0	10,825
Mit.	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,895	10,481	8.25	0.32	23.0	10,805
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,446	10,032	8.30	0.34	1.93	10,344
Mit.	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,426	10,012	8.29	0.34	1.93	10,324
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,645	8,818	6.32	0.32	10.5	9,083
Mit.	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,625	8,798	6.32	0.32	10.5	9,063
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,431	1,460	1.05	0.05	1.74	1,504
Mit.	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,428	1,457	1.05	0.05	1.74	1,500

% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%

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	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974
Area	5.54	7.39	1.23	28.0	0.08	3.23	—	3.23	3.11	—	3.11	533	1,047	1,579	2.51	< 0.005	—	1,643
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290
Total	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,915	10,501	8.25	0.32	23.0	10,825
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Area	5.02	6.90	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290
Total	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,446	10,032	8.30	0.34	1.93	10,344

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.77	3.51	3.37	23.7	0.05	0.05	4.65	4.70	0.05	1.18	1.23	—	5,398	5,398	0.28	0.29	9.13	5,501
Area	1.38	5.22	0.29	7.79	0.02	0.73	—	0.73	0.70	—	0.70	120	239	359	0.56	< 0.005	—	373
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290
Total	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,645	8,818	6.32	0.32	10.5	9,083
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911
Area	0.25	0.95	0.05	1.42	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	39.6	59.4	0.09	< 0.005	—	61.8
Energy	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	274	274	0.02	< 0.005	—	275
Water	—	—	—	—	—	—	—	—	—	—	—	1.24	10.1	11.3	0.13	< 0.005	—	15.4
Waste	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23
Vegetation	—	0.04	0.04	—	0.03	0.06	0.06	0.11	0.02	0.02	0.03	—	214	214	—	—	—	214
Total	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,431	1,460	1.05	0.05	1.74	1,504

2.6. Operations Emissions by Sector, Mitigated

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	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974

Area	5.54	7.39	1.23	28.0	0.08	3.23	—	3.23	3.11	—	3.11	533	1,047	1,579	2.51	< 0.005	—	1,643
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290
Total	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,895	10,481	8.25	0.32	23.0	10,805
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Area	5.02	6.90	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290
Total	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,426	10,012	8.29	0.34	1.93	10,324
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.77	3.51	3.37	23.7	0.05	0.05	4.65	4.70	0.05	1.18	1.23	—	5,398	5,398	0.28	0.29	9.13	5,501
Area	1.38	5.22	0.29	7.79	0.02	0.73	—	0.73	0.70	—	0.70	120	239	359	0.56	< 0.005	—	373
Energy	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,657	1,657	0.12	0.01	—	1,663
Water	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Waste	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Vegetation	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	1,290	1,290	—	—	—	1,290

Total	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,625	8,798	6.32	0.32	10.5	9,063
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911
Area	0.25	0.95	0.05	1.42	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	39.6	59.4	0.09	< 0.005	—	61.8
Energy	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	274	274	0.02	< 0.005	—	275
Water	—	—	—	—	—	—	—	—	—	—	—	1.24	6.79	8.03	0.13	< 0.005	—	12.1
Waste	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23
Vegetation	—	0.04	0.04	—	0.03	0.06	0.06	0.11	0.02	0.02	0.03	—	214	214	—	—	—	214
Total	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,428	1,457	1.05	0.05	1.74	1,500

3. Construction Emissions Details

3.1. Site Preparation (2024) - 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	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movemen:	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—

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	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146
Dust From Material Movemen:	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
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	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen:	—	—	—	—	—	—	0.04	0.04	—	0.02	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.07	0.79	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	131	131	0.01	0.01	0.02	132
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	0.01	3.75

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	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
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

3.2. Site Preparation (2024) - Mitigated

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	4.34	3.65	36.0	32.9	0.05	1.60	—	1.60	1.47	—	1.47	—	5,296	5,296	0.21	0.04	—	5,314
Dust From Material Movemen:	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
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	0.12	0.10	0.99	0.90	< 0.005	0.04	—	0.04	0.04	—	0.04	—	145	145	0.01	< 0.005	—	146

Dust From Material Movemen:	—	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
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	0.18	0.16	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movemen:	—	—	—	—	—	—	0.04	0.04	—	0.02	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.07	0.79	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	131	131	0.01	0.01	0.02	132
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	0.01	3.75
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	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
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 (2024) - 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	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movemen:	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.09	0.87	0.77	< 0.005	0.04	—	0.04	0.03	—	0.03	—	168	168	0.01	< 0.005	—	168
Dust From Material Movemen:	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
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	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.8	27.8	< 0.005	< 0.005	—	27.9

Dust From Material Movemen:	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	0.90	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	149	149	0.01	0.01	0.02	151
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.91	3.91	< 0.005	< 0.005	0.01	3.97
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	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Grading (2024) - Mitigated

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	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movemen:	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.09	0.87	0.77	< 0.005	0.04	—	0.04	0.03	—	0.03	—	168	168	0.01	< 0.005	—	168
Dust From Material Movemen:	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
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	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.8	27.8	< 0.005	< 0.005	—	27.9
Dust From Material Movemen:	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.08	0.90	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	149	149	0.01	0.01	0.02	151
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.91	3.91	< 0.005	< 0.005	0.01	3.97
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	—	0.65	0.65	< 0.005	< 0.005	< 0.005	0.66
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. 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	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622

Dust From Material Movemen:	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.22	0.19	1.74	1.66	< 0.005	0.07	—	0.07	0.07	—	0.07	—	387	387	0.02	< 0.005	—	389
Dust From Material Movemen:	—	—	—	—	—	—	0.21	0.21	—	0.08	0.08	—	—	—	—	—	—	—
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	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	64.1	64.1	< 0.005	< 0.005	—	64.4
Dust From Material Movemen:	—	—	—	—	—	—	0.04	0.04	—	0.02	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.83	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	146	146	0.01	0.01	0.02	148
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.84	8.84	< 0.005	< 0.005	0.02	8.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.46	1.46	< 0.005	< 0.005	< 0.005	1.49
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

3.6. Grading (2025) - Mitigated

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	3.80	3.20	29.7	28.3	0.06	1.23	—	1.23	1.14	—	1.14	—	6,599	6,599	0.27	0.05	—	6,622
Dust From Material Movemen:	—	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
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	0.22	0.19	1.74	1.66	< 0.005	0.07	—	0.07	0.07	—	0.07	—	387	387	0.02	< 0.005	—	389

Dust From Material Movemen:	—	—	—	—	—	—	0.21	0.21	—	0.08	0.08	—	—	—	—	—	—	—
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	0.04	0.03	0.32	0.30	< 0.005	0.01	—	0.01	0.01	—	0.01	—	64.1	64.1	< 0.005	< 0.005	—	64.4
Dust From Material Movemen:	—	—	—	—	—	—	0.04	0.04	—	0.02	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	0.83	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	146	146	0.01	0.01	0.02	148
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.84	8.84	< 0.005	< 0.005	0.02	8.98
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.46	1.46	< 0.005	< 0.005	< 0.005	1.49
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

3.7. 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	0.88	0.74	6.85	8.55	0.02	0.28	—	0.28	0.26	—	0.26	—	1,572	1,572	0.06	0.01	—	1,577
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	0.16	0.13	1.25	1.56	< 0.005	0.05	—	0.05	0.05	—	0.05	—	260	260	0.01	< 0.005	—	261
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	0.17	0.16	0.10	1.90	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	289	289	0.01	0.01	1.15	294
Vendor	0.01	0.01	0.32	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	237	237	< 0.005	0.03	0.64	248
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	0.16	0.14	0.13	1.46	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	258	258	0.01	0.01	0.03	261
Vendor	0.01	0.01	0.34	0.12	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	237	237	< 0.005	0.03	0.02	248
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	0.10	0.10	0.07	0.99	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	174	174	0.01	0.01	0.33	177
Vendor	0.01	0.01	0.22	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	156	156	< 0.005	0.02	0.18	163
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	0.02	0.02	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.8	28.8	< 0.005	< 0.005	0.05	29.3
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.03	26.9
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

3.8. Building Construction (2025) - Mitigated

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	0.88	0.74	6.85	8.55	0.02	0.28	—	0.28	0.26	—	0.26	—	1,572	1,572	0.06	0.01	—	1,577
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	0.16	0.13	1.25	1.56	< 0.005	0.05	—	0.05	0.05	—	0.05	—	260	260	0.01	< 0.005	—	261
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	0.17	0.16	0.10	1.90	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	289	289	0.01	0.01	1.15	294
Vendor	0.01	0.01	0.32	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	237	237	< 0.005	0.03	0.64	248
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	0.16	0.14	0.13	1.46	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	258	258	0.01	0.01	0.03	261

Vendor	0.01	0.01	0.34	0.12	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	237	237	< 0.005	0.03	0.02	248
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	0.10	0.10	0.07	0.99	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	174	174	0.01	0.01	0.33	177
Vendor	0.01	0.01	0.22	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	156	156	< 0.005	0.02	0.18	163
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	0.02	0.02	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	28.8	28.8	< 0.005	< 0.005	0.05	29.3
Vendor	< 0.005	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.7	25.7	< 0.005	< 0.005	0.03	26.9
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. Building Construction (2026) - 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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	0.22	0.18	1.66	2.18	< 0.005	0.06	—	0.06	0.06	—	0.06	—	403	403	0.02	< 0.005	—	405

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	0.04	0.03	0.30	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.8	66.8	< 0.005	< 0.005	—	67.0
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	0.15	0.14	0.11	1.34	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	252	252	0.01	0.01	0.03	256
Vendor	0.01	0.01	0.33	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	233	233	< 0.005	0.03	0.01	244
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	0.03	0.02	0.02	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.08	44.5
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.2	39.2	< 0.005	0.01	0.04	41.0
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	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.25	7.25	< 0.005	< 0.005	0.01	7.36
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.49	6.49	< 0.005	< 0.005	0.01	6.79
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

3.10. Building Construction (2026) - Mitigated

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	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
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	0.22	0.18	1.66	2.18	< 0.005	0.06	—	0.06	0.06	—	0.06	—	403	403	0.02	< 0.005	—	405
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	0.04	0.03	0.30	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	66.8	66.8	< 0.005	< 0.005	—	67.0
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	0.15	0.14	0.11	1.34	0.00	0.00	0.27	0.27	0.00	0.06	0.06	—	252	252	0.01	0.01	0.03	256
Vendor	0.01	0.01	0.33	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	233	233	< 0.005	0.03	0.01	244
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	0.03	0.02	0.02	0.23	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	43.8	43.8	< 0.005	< 0.005	0.08	44.5
Vendor	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	39.2	39.2	< 0.005	0.01	0.04	41.0
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	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.25	7.25	< 0.005	< 0.005	0.01	7.36
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.49	6.49	< 0.005	< 0.005	0.01	6.79
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

3.11. Paving (2026) - 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	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.07	0.06	0.04	0.75	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	120	120	< 0.005	< 0.005	0.45	122
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.57	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	107	107	< 0.005	< 0.005	0.01	109
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.06	6.06	< 0.005	< 0.005	0.01	6.16
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.00	1.00	< 0.005	< 0.005	< 0.005	1.02
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

3.12. Paving (2026) - Mitigated

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	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	—	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.07	0.06	0.04	0.75	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	120	120	< 0.005	< 0.005	0.45	122
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.57	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	107	107	< 0.005	< 0.005	0.01	109
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	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.06	6.06	< 0.005	< 0.005	0.01	6.16
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.00	1.00	< 0.005	< 0.005	< 0.005	1.02
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

3.13. Architectural Coating (2026) - 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	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	59.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	3.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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	0.35	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.6	56.6	< 0.005	< 0.005	0.21	57.5
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.90
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	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
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

3.14. Architectural Coating (2026) - Mitigated

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	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	—	59.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	—	3.28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	—	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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	0.35	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	56.6	56.6	< 0.005	< 0.005	0.21	57.5
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	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.85	2.85	< 0.005	< 0.005	< 0.005	2.90
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	—	0.47	0.47	< 0.005	< 0.005	< 0.005	0.48
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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974
Total	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Total	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911
Total	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974
Total	4.23	3.98	3.18	27.8	0.06	0.05	4.85	4.90	0.05	1.23	1.28	—	5,860	5,860	0.26	0.29	21.6	5,974
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Total	3.82	3.55	3.65	24.4	0.05	0.05	4.85	4.90	0.05	1.23	1.28	—	5,406	5,406	0.31	0.31	0.56	5,508
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911
Total	0.69	0.64	0.61	4.32	0.01	0.01	0.85	0.86	0.01	0.22	0.22	—	894	894	0.05	0.05	1.51	911

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	186	186	0.01	< 0.005	—	187
Total	—	—	—	—	—	—	—	—	—	—	—	—	186	186	0.01	< 0.005	—	187

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,126	1,126	0.08	0.01	—	1,131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	186	186	0.01	< 0.005	—	187
Total	—	—	—	—	—	—	—	—	—	—	—	—	186	186	0.01	< 0.005	—	187

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Total	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Total	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.9	87.9	0.01	< 0.005	—	88.1
Total	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.9	87.9	0.01	< 0.005	—	88.1

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Total	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Total	0.05	0.02	0.42	0.18	< 0.005	0.03	—	0.03	0.03	—	0.03	—	531	531	0.05	< 0.005	—	532
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.9	87.9	0.01	< 0.005	—	88.1
Total	0.01	< 0.005	0.08	0.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	87.9	87.9	0.01	< 0.005	—	88.1

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	5.02	2.48	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Consumer Products	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.52	0.49	0.05	5.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.9	14.9	< 0.005	< 0.005	—	14.9
Total	5.54	7.39	1.23	28.0	0.08	3.23	—	3.23	3.11	—	3.11	533	1,047	1,579	2.51	< 0.005	—	1,643
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	5.02	2.48	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Consumer Products	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.02	6.90	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.21	0.10	0.05	0.92	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	38.4	58.2	0.09	< 0.005	—	60.5

Consum Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.04	< 0.005	0.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Total	0.25	0.95	0.05	1.42	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	39.6	59.4	0.09	< 0.005	—	61.8

4.3.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	5.02	2.48	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Consumer Products	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.52	0.49	0.05	5.56	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.9	14.9	< 0.005	< 0.005	—	14.9
Total	5.54	7.39	1.23	28.0	0.08	3.23	—	3.23	3.11	—	3.11	533	1,047	1,579	2.51	< 0.005	—	1,643
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	5.02	2.48	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628

Consumer	—	4.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.02	6.90	1.17	22.5	0.08	3.22	—	3.22	3.11	—	3.11	533	1,032	1,564	2.51	< 0.005	—	1,628
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.21	0.10	0.05	0.92	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	38.4	58.2	0.09	< 0.005	—	60.5
Consumer Products	—	0.75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	0.04	< 0.005	0.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Total	0.25	0.95	0.05	1.42	< 0.005	0.13	—	0.13	0.13	—	0.13	19.8	39.6	59.4	0.09	< 0.005	—	61.8

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Total	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Total	—	—	—	—	—	—	—	—	—	—	—	7.50	60.9	68.4	0.77	0.02	—	93.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.24	10.1	11.3	0.13	< 0.005	—	15.4
Total	—	—	—	—	—	—	—	—	—	—	—	1.24	10.1	11.3	0.13	< 0.005	—	15.4

4.4.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Total	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Total	—	—	—	—	—	—	—	—	—	—	—	7.50	41.0	48.5	0.77	0.02	—	73.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	1.24	6.79	8.03	0.13	< 0.005	—	12.1
Total	—	—	—	—	—	—	—	—	—	—	—	1.24	6.79	8.03	0.13	< 0.005	—	12.1

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6
Total	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6

4.5.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Total	—	—	—	—	—	—	—	—	—	—	—	45.9	0.00	45.9	4.58	0.00	—	160
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6
Total	—	—	—	—	—	—	—	—	—	—	—	7.59	0.00	7.59	0.76	0.00	—	26.6

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23

4.6.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.37	1.37
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.23	0.23

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cropland	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cropland	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9

Total	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cropland	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8	—	—	—	10.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8	—	—	—	10.8

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Total	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Total	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	42.8	42.8	—	—	—	42.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	42.8	42.8	—	—	—	42.8

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Subtotal	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
Subtotal	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	967	967	—	—	—	967
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Subtotal	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
Subtotal	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	967	967	—	—	—	967
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	0.04	< 0.005	—	0.02	0.05	0.05	0.10	0.01	0.01	0.03	—	57.2	57.2	—	—	—	57.2
Subtotal	—	0.04	< 0.005	—	0.02	0.05	0.05	0.10	0.01	0.01	0.03	—	57.2	57.2	—	—	—	57.2
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	103	103	—	—	—	103
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	103	103	—	—	—	103
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.04	—	0.01	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	—	—	—	—	—
Subtotal	—	—	0.04	—	0.01	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.04	0.04	—	0.03	0.06	0.06	0.11	0.02	0.02	0.03	—	160	160	—	—	—	160

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Cropland	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cropland	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	64.9	64.9	—	—	—	64.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cropland	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8	—	—	—	10.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	10.8	10.8	—	—	—	10.8

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Total	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Total	—	—	—	—	—	—	—	—	—	—	—	—	259	259	—	—	—	259
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Broadleaf Forest	—	—	—	—	—	—	—	—	—	—	—	—	42.8	42.8	—	—	—	42.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	42.8	42.8	—	—	—	42.8

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Subtotal	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
Subtotal	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	967	967	—	—	—	967
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sweet Almond	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Subtotal	—	0.23	0.02	—	0.09	0.28	0.28	0.55	0.07	0.07	0.15	—	346	346	—	—	—	346
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	621	621	—	—	—	621
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
Subtotal	—	—	0.20	—	0.05	0.04	0.04	0.08	0.01	0.01	0.02	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.23	0.23	—	0.14	0.31	0.31	0.63	0.09	0.09	0.17	—	967	967	—	—	—	967
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	0.04	< 0.005	—	0.02	0.05	0.05	0.10	0.01	0.01	0.03	—	57.2	57.2	—	—	—	57.2
Subtotal	—	0.04	< 0.005	—	0.02	0.05	0.05	0.10	0.01	0.01	0.03	—	57.2	57.2	—	—	—	57.2
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	—	—	—	—	—	—	—	—	—	—	103	103	—	—	—	103
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	103	103	—	—	—	103
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sweet Almond	—	—	0.04	—	0.01	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	—	—	—	—	—
Subtotal	—	—	0.04	—	0.01	0.01	0.01	0.01	< 0.005	< 0.005	< 0.005	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	0.04	0.04	—	0.03	0.06	0.06	0.11	0.02	0.02	0.03	—	160	160	—	—	—	160

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	12/4/2024	12/18/2024	5.00	10.0	—
Grading	Grading	12/19/2024	1/30/2025	5.00	30.0	—
Building Construction	Building Construction	1/31/2025	3/27/2026	5.00	300	—
Paving	Paving	3/28/2026	4/25/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	4/26/2026	5/24/2026	5.00	20.0	—

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	2.00	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	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	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	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

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	2.00	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	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	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	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

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	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	35.3	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	10.5	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—

Architectural Coating	Worker	7.06	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	10.8	LDA,LDT1,LDT2
Site Preparation	Vendor	—	7.17	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	10.8	LDA,LDT1,LDT2
Grading	Vendor	—	7.17	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	35.3	10.8	LDA,LDT1,LDT2
Building Construction	Vendor	10.5	7.17	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	10.8	LDA,LDT1,LDT2
Paving	Vendor	—	7.17	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	7.06	10.8	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	7.17	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	386,978	128,993	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	1.08

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	1.08	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	478	0.03	< 0.005
2025	0.00	478	0.03	< 0.005
2026	0.00	478	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
Single Family Housing	925	935	838	333,632	6,712	6,783	6,079	2,420,411

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	925	935	838	333,632	6,712	6,783	6,079	2,420,411

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	49
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	49
Conventional Wood Stoves	0
Catalytic Wood Stoves	5
Non-Catalytic Wood Stoves	5
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	49
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	49
Conventional Wood Stoves	0
Catalytic Wood Stoves	5
Non-Catalytic Wood Stoves	5
Pellet Wood Stoves	0

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)
386977.5	128,993	0.00	0.00	—

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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)
Single Family Housing	859,890	478	0.0330	0.0040	1,656,299

5.11.2. Mitigated

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)
Single Family Housing	859,890	478	0.0330	0.0040	1,656,299

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	3,911,986	19,376,569

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	3,911,986	10,657,200

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	85.1	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	85.1	—

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
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

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

5.15.2. Mitigated

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
Cropland	Entisols	19.2	0.00

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
Cropland	Entisols	19.2	0.00

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
Broadleaf Forest	19.2	0.00

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
Broadleaf Forest	19.2	0.00

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
Sweet Almond	-2,550	6,734,575	8,149

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
Sweet Almond	-2,550	6,734,575	8,149

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	24.1	annual days of extreme heat
Extreme Precipitation	2.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
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	2	2	2	2
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	2	2	3	2
Drought	1	2	3	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	2	1	3

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	2	1	3	2
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	2	2	3	2
Drought	1	1	4	1
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	2	1	3

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

6.4.1. Temperature and Extreme Heat

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
D-3: Install Drought Resistant Landscaping	Water Conservation	—	1.00	1.00
MH-23: Landscape with Climate Considerations	Improved Ecosystem Health, Water Conservation	—	1.00	—

6.4.2. Drought

User Selected Measures	Co-Benefits Achieved	Exposure Reduction	Sensitivity Reduction	Adaptive Capacity Increase
D-3: Install Drought Resistant Landscaping	Water Conservation	—	1.00	1.00
MH-23: Landscape with Climate Considerations	Improved Ecosystem Health, Water Conservation	—	1.00	—

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	70.5
AQ-PM	55.0
AQ-DPM	17.4
Drinking Water	99.6

Lead Risk Housing	51.7
Pesticides	93.4
Toxic Releases	44.1
Traffic	10.6
Effect Indicators	—
CleanUp Sites	25.6
Groundwater	94.9
Haz Waste Facilities/Generators	0.00
Impaired Water Bodies	72.2
Solid Waste	76.8
Sensitive Population	—
Asthma	58.9
Cardio-vascular	76.4
Low Birth Weights	73.5
Socioeconomic Factor Indicators	—
Education	87.0
Housing	41.9
Linguistic	55.6
Poverty	66.7
Unemployment	—

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	27.02425253
Employed	4.786346721

Median HI	29.32118568
Education	—
Bachelor's or higher	22.22507378
High school enrollment	12.22892339
Preschool enrollment	40.22841011
Transportation	—
Auto Access	63.41588605
Active commuting	38.94520724
Social	—
2-parent households	28.10214295
Voting	50.19889645
Neighborhood	—
Alcohol availability	58.03926601
Park access	16.23251636
Retail density	8.007185936
Supermarket access	51.31528295
Tree canopy	72.39830617
Housing	—
Homeownership	65.75131528
Housing habitability	45.22006929
Low-inc homeowner severe housing cost burden	46.32362376
Low-inc renter severe housing cost burden	54.92108302
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	36.50712178
Arthritis	0.0
Asthma ER Admissions	67.0

High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	10.6
Cognitively Disabled	19.2
Physically Disabled	52.4
Heart Attack ER Admissions	23.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	77.3
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	53.3
Elderly	68.4
English Speaking	52.2
Foreign-born	36.7

Outdoor Workers	4.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	84.7
Traffic Density	7.7
Traffic Access	0.0
Other Indices	—
Hardship	87.0
Other Decision Support	—
2016 Voting	59.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	18.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved
CCD-1: Consult Pre-existing Community Knowledge/Priorities	Social Equity
IE-4: Inclusive Community Meetings	Social Equity
A-5: Public Disclosure of Project Commitments	Social Equity
CE-1: Create a Construction Plan with Community Input	Social Equity

CE-2: Ensure Active Modes Access During Construction	Energy and Fuel Savings, Enhanced Pedestrian or Traffic Safety, Improved Public Health, Social Equity, VMT Reductions
IC-2: Adopt Design Standards	Improved Air Quality, Social Equity

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
Land Use	Actual size of property is 19.2 acres and proposed are 98 single-family residential lots.
Construction: Construction Phases	The existing land is used for row crops. It will likely take less than the suggested amount of time to complete the demolition portion of the project.
Construction: Dust From Material Movement	—

Fahmy Subdivision - Waterford Quarterly Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Fahmy Subdivision - Waterford
Construction Start Date	11/5/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	29.2
Location	37.64298363349694, -120.77658983979765
County	Stanislaus
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2223
EDFZ	15
Electric Utility	Modesto Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.23

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

Single Family Housing	98.0	Dwelling Unit	19.2	191,100	1,147,860	—	311	New Residential Subdivision

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-12	Sweep Paved Roads
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions

2.1.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (ton/quarter) and GHGs (MT/quarter)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Q1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.15	1.39	1.41	< 0.005	0.06	0.16	0.22	0.05	0.07	0.12	—	270	270	0.01	< 0.005	< 0.005	271
Mit.	0.18	0.15	1.39	1.41	< 0.005	0.06	0.16	0.22	0.05	0.07	0.12	—	270	270	0.01	< 0.005	< 0.005	271
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Q2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.05	0.45	0.62	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	111	111	< 0.005	< 0.005	0.04	112
Mit.	0.06	0.05	0.45	0.62	< 0.005	0.02	0.01	0.03	0.02	< 0.005	0.02	—	111	111	< 0.005	< 0.005	0.04	112
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Q3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.05	0.04	0.35	0.49	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.02	—	86.2	86.2	< 0.005	< 0.005	0.05	86.9
Mit.	0.05	0.04	0.35	0.49	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.02	—	86.2	86.2	< 0.005	< 0.005	0.05	86.9
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Q4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.59	0.80	< 0.005	0.02	0.02	0.04	0.02	< 0.005	0.03	—	144	144	0.01	< 0.005	0.02	146
Mit.	0.08	0.07	0.59	0.80	< 0.005	0.02	0.02	0.04	0.02	< 0.005	0.03	—	144	144	0.01	< 0.005	0.02	146
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Q5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.10	0.08	0.69	0.94	< 0.005	0.03	0.02	0.05	0.02	0.01	0.03	—	170	170	0.01	< 0.005	< 0.005	172
Mit.	0.10	0.08	0.69	0.94	< 0.005	0.03	0.02	0.05	0.02	0.01	0.03	—	170	170	0.01	< 0.005	< 0.005	172
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Q6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.04	0.63	0.26	0.37	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	61.9	61.9	< 0.005	< 0.005	0.01	62.4
Mit.	0.04	0.63	0.26	0.37	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	61.9	61.9	< 0.005	< 0.005	0.01	62.4
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Quarterly (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.12	0.60	0.96	0.88	< 0.005	0.04	0.07	0.07	0.04	0.04	0.04	—	180	180	0.01	< 0.005	0.05	180
Mit.	0.12	0.60	0.96	0.88	< 0.005	0.04	0.07	0.07	0.04	0.04	0.04	—	180	180	0.01	< 0.005	0.05	180
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.1.2. Construction Quarters

Quarter	Start Date	End Date	Length (days)
Q1	12/4/2024	3/4/2025	91

Q2	3/5/2025	6/3/2025	91
Q3	6/4/2025	9/2/2025	91
Q4	9/3/2025	12/2/2025	91
Q5	12/3/2025	3/3/2026	91
Q6	3/4/2026	5/24/2026	82

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (ton/quarter) and GHGs (MT/quarter)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Quarterly	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.41	0.20	1.44	0.01	0.05	0.23	0.28	0.04	0.06	0.10	7.16	358	365	0.26	0.01	0.43	376
Mit.	0.24	0.41	0.20	1.44	0.01	0.05	0.23	0.28	0.04	0.06	0.10	7.16	357	364	0.26	0.01	0.43	375
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%

Fahmy Subdivision - Waterford Summary Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Fahmy Subdivision - Waterford
Construction Start Date	11/5/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.10
Precipitation (days)	29.2
Location	37.64298363349694, -120.77658983979765
County	Stanislaus
City	Unincorporated
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2223
EDFZ	15
Electric Utility	Modesto Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.23

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

Single Family Housing	98.0	Dwelling Unit	19.2	191,100	1,147,860	—	311	New Residential Subdivision

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-12	Sweep Paved Roads
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

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.	1.53	60.0	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
Mit.	1.53	60.0	10.9	15.1	0.03	0.44	0.33	0.77	0.40	0.08	0.48	—	2,924	2,924	0.12	0.07	1.80	2,948
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.07	0.05	6,772
Mit.	4.42	3.72	36.0	33.7	0.06	1.60	7.80	9.40	1.47	3.97	5.44	—	6,747	6,747	0.28	0.07	0.05	6,772
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	3.53	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.15	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
Mit.	1.22	3.53	8.89	11.3	0.02	0.36	0.43	0.79	0.33	0.15	0.47	—	2,298	2,298	0.09	0.05	0.52	2,314
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.22	0.65	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383
Mit.	0.22	0.65	1.62	2.07	< 0.005	0.07	0.08	0.14	0.06	0.03	0.09	—	380	380	0.01	0.01	0.09	383
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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.	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,915	10,501	8.25	0.32	23.0	10,825
Mit.	9.82	11.6	5.06	56.0	0.28	3.62	5.16	8.79	3.28	1.32	4.60	586	9,895	10,481	8.25	0.32	23.0	10,805
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,446	10,032	8.30	0.34	1.93	10,344
Mit.	8.89	10.7	5.47	47.0	0.27	3.62	5.16	8.78	3.27	1.32	4.59	586	9,426	10,012	8.29	0.34	1.93	10,324
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,645	8,818	6.32	0.32	10.5	9,083
Mit.	5.20	8.99	4.31	31.6	0.21	1.12	4.96	6.09	0.87	1.27	2.14	173	8,625	8,798	6.32	0.32	10.5	9,063
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	—	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,431	1,460	1.05	0.05	1.74	1,504
Mit.	0.95	1.64	0.79	5.77	0.04	0.20	0.91	1.11	0.16	0.23	0.39	28.6	1,428	1,457	1.05	0.05	1.74	1,500
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	< 0.5%	< 0.5%	< 0.5%	< 0.5%	—	< 0.5%

6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

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

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	2	1	3	2
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	2	2	3	2
Drought	1	1	4	1
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	2	1	3

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.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	18.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

Appendix B

Waterford Development Project Biological Assessment, dated March 15, 2023, prepared by Moore Biological Consultants

MOORE BIOLOGICAL CONSULTANTS

March 15, 2023

Mr. Stewart Fahmy
California Land Development
331 Santa Rosa Drive
Los Gatos, CA 95032

SUBJECT: "WATERFORD DEVELOPMENT PROJECT", WATERFORD, CALIFORNIA: BIOLOGICAL ASSESSMENT

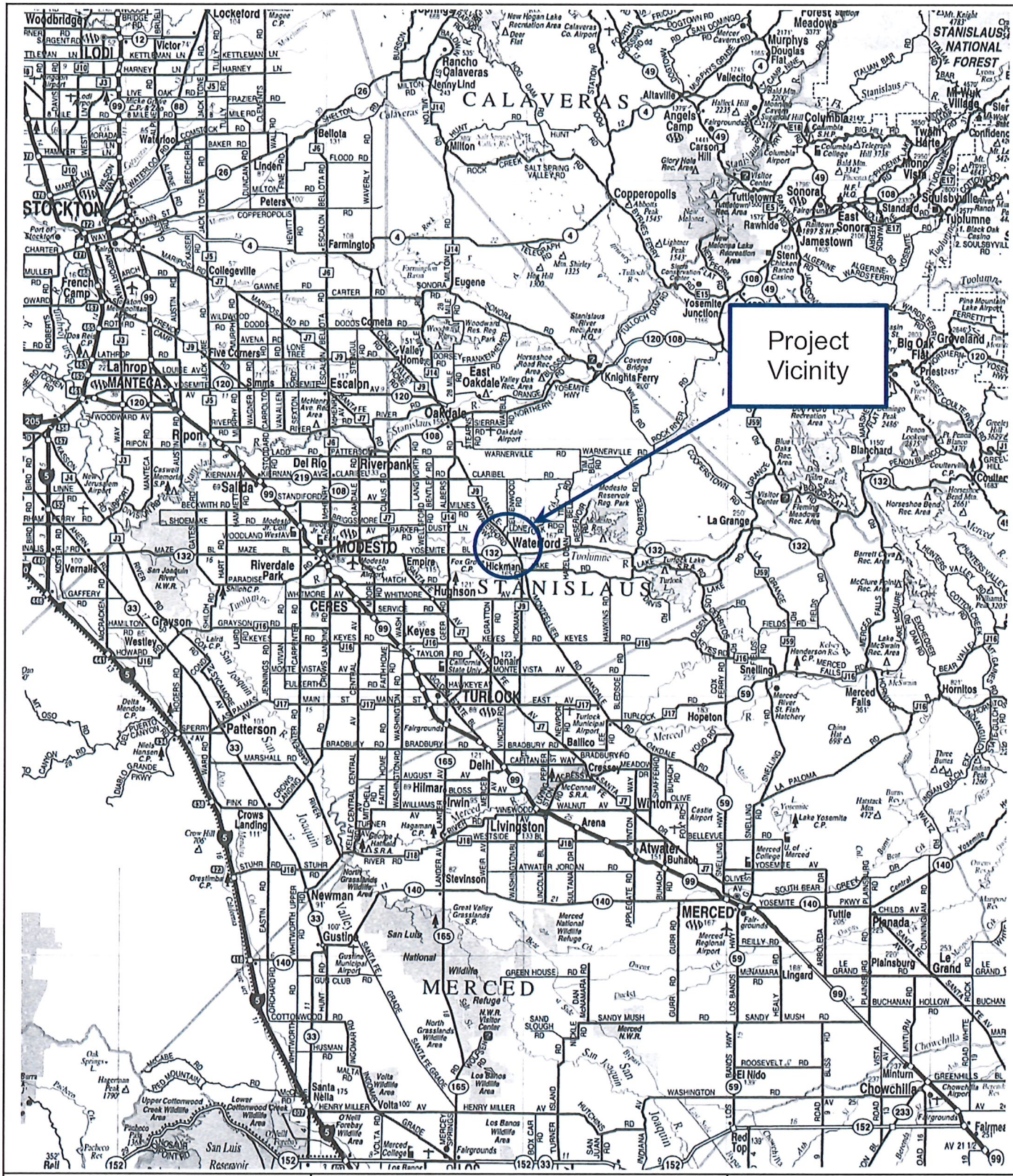
Dear Stewart:

Thank you for asking Moore Biological Consultants to prepare a Biological Assessment (BA) for this project in Waterford, in Stanislaus County, California (Figures 1 and 2 and Tentative Map in Attachment A). The purposes of the BA are to describe existing biological resources in the project site, identify potentially significant impacts to biological resources from the project, and provide recommendations for how to reduce those impacts to a less-than-significant level. The work involved reviewing databases, aerial photographs, and documents, and conducting field surveys to document vegetation communities, potentially jurisdictional Waters of the U.S. and/or wetlands, and potentially suitable habitat for or presence of special-status species. This report details the methodology and results of our investigation.

Project Overview

The proposed project is a 96-lot residential subdivision (Attachment A). Access to the site will be from North Eucalyptus Avenue on the west edge of the site and North Reinway Avenue on the east edge of the site. Water and sewer services will be provided by the City of Waterford. The project will also tie in to the City's existing storm drain system.

10330 Twin Cities Road, Suite 30 • Galt, CA 95632
(209) 745–1159 • Fax (209) 745-7513
e-mail: moorebio@softcom.net


Project Vicinity
CALAVERAS
STANISLAUS
MERCED
STOCKTON
MODESTO
TURLOCK
MERCED
Waterford
Hickman
Oakdale
Riverbank
Ripon
Escalon
Manteca
Lathrop
Lodi
Tracy
Livingston
Atwater
Winton
Gustine
Newman
Los Banos
Dos Palos
Patterson
Crows Landing
Grayson
Westley
Vernalis
Salida
Waterford
Hughson
Keyes
Ceres
Denair
Hilmar
Delhi
Stevinson
Arena
Irwin
Volta
Santa Nella
Chowchilla
El Nido
Planada
Le Grand
Lingard
Plainsburg
Tuttle
Snelling
Merced Falls
Hopeton
Ballico
Cressey
Livingston
Arena
Atwater
Buhach
Winton
Gustine
Newman
Stevinson
Irwin
Hilmar
Delhi
Volta
Santa Nella
Los Banos
Dos Palos
Patterson
Crows Landing
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Merced
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Lingard
Plainsburg
Tuttle
Snelling
Merced Falls
Chowchilla
El Nido
Minturn
Red Top
Fairmead
Groveland
Big Oak Flat
Yosemite Junction
Knights Ferry
Oakdale
Riverbank
Ripon
Escalon
Manteca
Lathrop
Lodi
Tracy
Stockton
Modesto
Turlock
Merced
Waterford
Hickman
La Grange
Copperopolis
Angels Camp
Murphys
Jamestown
Sonora
Tuolumne
Standard
Soulsbyville
Twain Harte
Mi Wuk Village
Columbia
Tuttletown
Rawhide
Knights Ferry
Oakdale
Riverbank
Ripon
Escalon
Manteca
Lathrop
Lodi
Tracy
Stockton
Modesto
Turlock
Merced
Waterford
Hickman
La Grange
Copperopolis
Angels Camp
Murphys
Jamestown
Sonora
Tuolumne
Standard
Soulsbyville
Twain Harte
Mi Wuk Village
Columbia
Tuttletown
Rawhide
Source: California State Automobile Association
Moore Biological Consultants
N
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18
Miles
FIGURE 1
PROJECT VICINITY

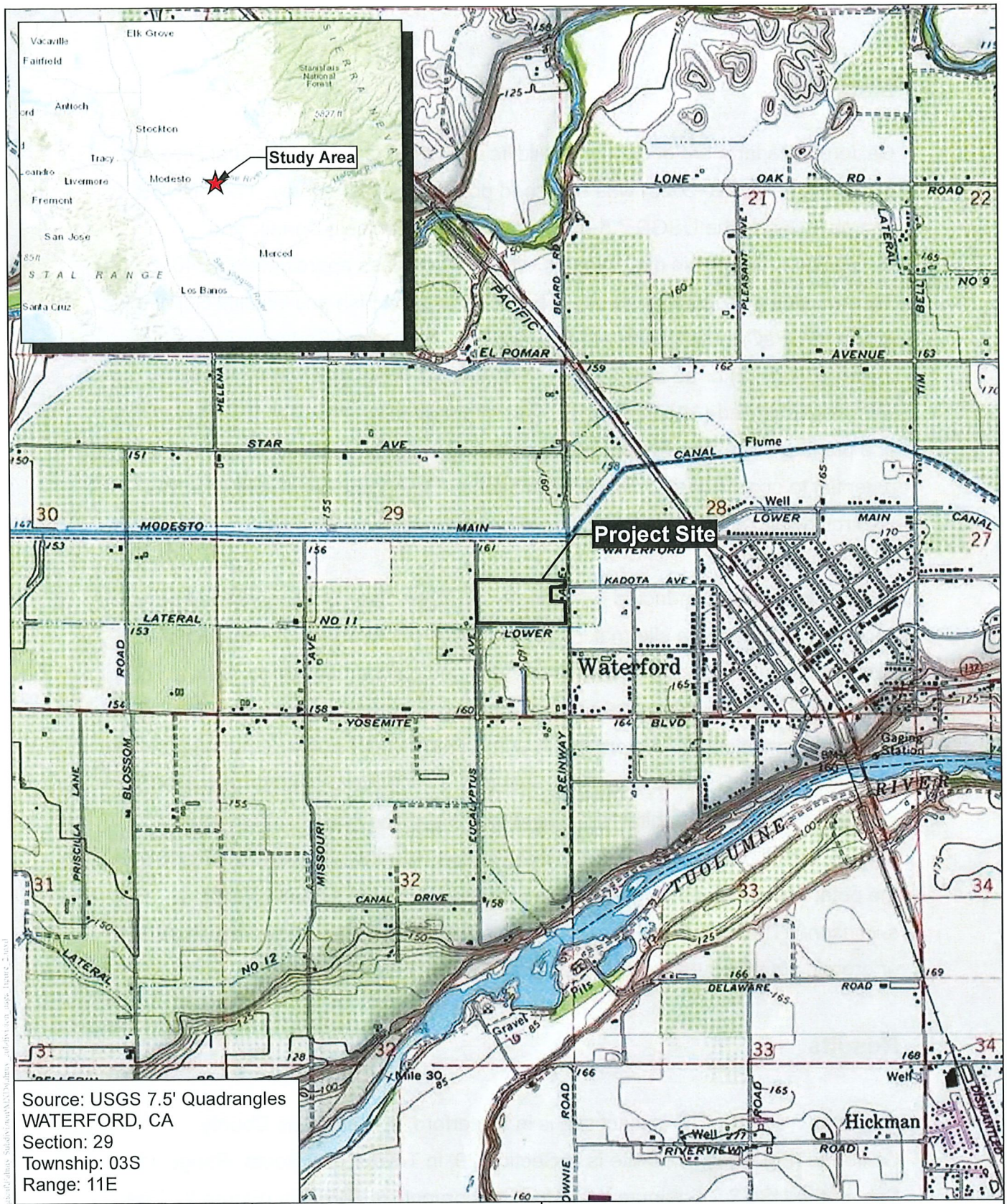

Figure 2

Moore Biological Consultants

USGS

Waterford Development Project

City of Waterford, Stanislaus County, CA

Methods

California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2023) was searched prior to the field survey. The CNDDB search included the USGS 7.5-minute Waterford, Paulsell, Denair, and Montpelier topographic quadrangles, which encompass approximately 240 square miles surrounding the site. The United States Fish and Wildlife Service (USFWS) IPaC Trust Report of Federally Threatened and Endangered species that may occur in or be affected by projects in the project's geographical area was also reviewed (Attachment B). This information was used to identify wildlife and plant species that have been documented in the project vicinity or have the potential to occur based on suitable habitat and geographical distribution. We also reviewed USFWS on-line-maps of designated critical habitat.

A field survey was conducted on January 12, 2023. The survey consisted of walking throughout the site making observations of site conditions and noting surrounding land use, general habitat types, and plant and wildlife species. The survey included an assessment of the site for the presence or absence of potentially jurisdictional Waters of the U.S. (a term that includes wetlands) as defined by the U.S. Army Corps of Engineers (ACOE, 1987; 2008), special-status species, and suitable habitat for special-status species (e.g., blue elderberry shrubs, vernal pools). Additionally, trees in and near the site were assessed for the potential use by nesting raptors, especially Swainson's hawk (*Buteo swainsoni*). The site was also searched for burrowing owls (*Athene cunicularia*) or ground squirrel burrows that could be utilized by burrowing owls.

Results

GENERAL SETTING: The project site is in Waterford, in Stanislaus County, California (Figure 1). The site is in Section 29, in Township 3 South, Range 11 East of the USGS 7.5-minute Waterford topographic quadrangle (Figure 2). The site is level and at an elevation of approximately 155 feet above mean sea level.

The entire site is an almond orchard (Figure 3 and photographs in Attachment C). An underground irrigation line runs through the site from east to west, providing water to the orchard. There is a home site fronting North Reinway Avenue adjacent to the orchards in the site that is not within the site boundary and will be surrounded on three sides by the new subdivision.

Land uses in this portion of Stanislaus County are primarily residential and agricultural (Figure 3). North Reinway Avenue borders the east edge of the site and North Eucalyptus Avenue borders the west edge of the site. A Modesto Irrigation District (MID) irrigation lateral is situated just south of the site, separated from the site by a farm road. There a few homes and an almond orchard to the north of the site.

VEGETATION: There is ruderal grassland vegetation on the floor of the orchard and along road the edges of the site; the grasslands are highly disturbed from intensive farming for decades (see photographs in Attachment C). The California annual grassland series (Sawyer and Keeler-Wolf, 1995) best describes the vegetation in the site. Ripgut brome (*Bromus diandrus*), and Bermuda grass (*Cynodon dactylon*) are the dominant grasses in the site. Other grassland species such as hairy fleabane (*Erigeron bonariensis*), prickly lettuce (*Lactuca serriola*), rose clover (*Trifolium hirtum*), and filaree (*Erodium sp.*) are intermixed with the grasses. Plant species observed in the site are listed in Table 1.

In addition to the planted almond trees, there are a few relatively small almond trees and a pecan tree straddling the north fence line that appear to be just off-site. There are several trees and shrubs in close proximity to the site, a majority of which are associated with residential subdivisions and larger home sites in the area. There are a few notable clusters of large trees in close proximity to the site. Tree species near the site are primarily ornamental species used for landscaping such as blue gum (*Eucalyptus sp.*), redwood (*Sequoia sempervirens*), ornamental pine (*Pinus sp.*), California pepper tree (*Schinus molle*), ornamental cedar (*Cedrus sp.*), various fruit trees, and other common landscape varieties.

Figure 3

Moore Biological Consultants

0 100 200

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W E
S

Map Date: 01/11/2023
Aerial Source: Google Earth (04/06/2022)

Aerial

Waterford Development Project

City of Waterford, Stanislaus County, CA

TABLE 1

PLANT SPECIES OBSERVED IN THE SITE

Avena sp.	oat
Brassica nigra	black mustard
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess brome
Capsella bursa var. pastoris	shepherd's purse
Cerastium glomeratum	mouse-eared chickweed
Cucurbita foetidissima	Buffalo gourd
Cynodon dactylon	Bermuda grass
Epilobium brachycarpum	willowherb
Erigeron bonariensis	hairy fleabane
Erodium botrys	filaree
Lactuca serriola	prickly lettuce
Lolium perenne	perennial ryegrass
Malva neglecta	common mallow
Plantago lanceolata	plantain
Raphanus sativus	wild radish
Sonchus oleraceus	common sow thistle
Sorghum halepense	Johnsongrass
Trifolium hirtum	rose clover
Vicia sp.	vetch

No blue elderberry shrubs (*Sambucus nigra ssp. caerulea*) were observed in or adjacent to the site.

WILDLIFE: Several common bird species were observed during the field survey. American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), mourning dove (*Zenaida macroura*), California scrub jay (*Aphelocoma californica*), and Brewer's blackbird (*Euphagus cyanocephalus*) are representative bird species observed in and near the site (Table 2). No special-status birds were observed during the survey.

TABLE 2

WILDLIFE SPECIES DOCUMENTED IN THE SITE

Great egret	*Casmerodius albus*
California gull	*Larus californicus*
Turkey vulture	*Cathartes aura*
Red-tailed hawk	*Buteo jamaicensis*
Red-shouldered hawk	*Buteo lineatus*
Rock dove	*Columba livia*
Mourning dove	*Zenaida macroura*
Black phoebe	*Sayornis nigricans*
California scrub jay	*Aphelocoma californica*
American crow	*Corvus brachyrhynchos*
Ruby-crowned kinglet	*Regulus calendula*
American robin	*Turdus migratorius*
Northern mockingbird	*Mimus polyglottos*
European starling	*Sturnus vulgaris*
Spotted towhee	*Pipilo maculatus*
White-crowned sparrow	*Zonotrichia leucophrys*
Brewer's blackbird	*Euphagus cyanocephalus*

The largest trees and tree clusters in parcels adjacent to the site are highly suitable for nesting raptors (see photographs in Attachment C). No large raptor stick nests were observed in trees visible from the site. However, many of the large trees have extremely dense vegetation, making it difficult to locate nests. As the survey was conducted outside of the nesting season, use of the trees near the site by nesting raptors is currently not known. The small orchard trees in the site and trees and shrubs in nearby parcels provide nesting opportunities for a variety of smaller bird species. Ground-nesting songbirds such as killdeer (*Charadrius vociferous*) may nest on the ground in the site.

A variety of mammals common to urban and agricultural areas may occur in the site. A few burrows from both Botta's pocket gopher (*Thomomys bottae*) and California ground squirrels (*Otospermophilus beecheyi*) were observed in the site, primarily located at the base of a few orchard trees; no California ground squirrels were seen during the survey. Common species such as coyote (*Canis latrans*), raccoon (*Procyon lotor*), desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), black-tailed hare (*Lepus californicus*), and Virginia opossum (*Didelphis virginiana*) may occur in the site on occasion. A number of species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis,* and *Peromyscus maniculatus*) and voles (*Microtus californicus*) also likely occur.

Due to lack of suitable habitat, only a few amphibians and reptiles are expected to occur in the site and none were seen during the survey. Common reptiles such as western fence lizard (*Sceloporus occidentalis*), Pacific chorus frog (*Pseudacris regilla*), western skink (*Eumeces skiltonianus*), and western terrestrial garter snake (*Thamnophis elegans*) may occur on the site.

WATERS OF THE U.S. AND WETLANDS: Waters of the U.S., including wetlands, are broadly defined under 33 Code of Federal Regulations (CFR) 328 to include navigable waterways, their tributaries, and adjacent wetlands. State and federal agencies regulate these habitats and Section 404 of the Clean Water Act requires that a permit be secured prior to the discharge of dredged or fill materials into any waters of the U.S., including wetlands. Some jurisdictional waters of the U.S. also fall under the jurisdiction of CDFW and/or the California Regional Water Quality Control Board (RWQCB).

"Waters of the U.S.", as defined in 33 CFR 328.4, encompasses Territorial Seas, Tidal Waters, and Non-Tidal Waters; Non-Tidal Waters includes interstate and intrastate rivers and streams, as well as their tributaries. The limit of federal jurisdiction of Non-Tidal Waters of the U.S. extends to the "ordinary high water mark" (OHWM). The OHWM is established by physical characteristics such as a

natural water line impressed on the bank, presence of shelves, destruction of terrestrial vegetation, or the presence of litter and debris.

Jurisdictional wetlands are vegetated areas that meet specific vegetation, soil, and hydrologic criteria defined by the ACOE *Wetlands Delineation Manual* and Regional Supplement (ACOE, 1987; 2008). Jurisdictional wetlands are usually adjacent to or hydrologically associated with Waters of the U.S. Isolated wetlands are outside federal jurisdiction, but may be regulated by RWQCB under the State Wetlands Program.

Jurisdictional wetlands and Waters of the U.S. include, but are not limited to, perennial and intermittent creeks and drainages, lakes, seeps, and springs; emergent marshes; riparian wetlands; and seasonal wetlands. Wetlands and Waters of the U.S. provide critical habitat components, such as nest sites and a reliable source of water, for a wide variety of wildlife species.

There are no potentially jurisdictional Waters of the U.S. in the site. There are no areas in the site that meet the technical criteria of wetlands (i.e., presence of hydrophytic vegetation, hydric soils, and wetland hydrology). The Modesto Irrigation District (MID) concrete-lined lateral situated just south of the site is a potentially jurisdictional Water of the U.S. due to its hydrologic connectivity with the Tuolumne River. This lateral is outside the project boundary and will not be impacted by the proposed project.

SPECIAL-STATUS SPECIES: Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Act or other regulations. The Federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Special-status species also include other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitats. The presence of species with legal protection under the Endangered Species Act often represents a constraint to development, particularly when the species are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a take of these species.

Special-status plants are those which are designated rare, threatened, or endangered and candidate species for listing by the USFWS. Special-status plants also include species considered rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those plant species identified on Lists 1A, 1B and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS, 2023). Finally, special-status plants may include other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on List 3 in the CNPS Inventory.

The likelihood of occurrence of listed, candidate, and other special-status species in the work areas is extremely low. Table 3 provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. This table also includes an assessment of the likelihood of occurrence of each of these species in the site. The evaluation of the potential for occurrence of each species is based on the distribution of regional occurrences (if any), habitat suitability, and field observations.

SPECIAL-STATUS PLANTS: Heartscale (*Atriplex cordulata*), subtle orache (*Atriplex subtilis*), Hoover's calycadenia (*Calycadenia hooveri*), beaked clarkia (*Clarkia rostrata*), Hoover's spurge (*Euphorbia hooveri*), Colusa grass (*Neostapfia*

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
PLANTS						
Heartscale	*Atriplex cordulata*	None	None	1B	Valley and foothill grassland, chenopod scrub; within areas with alkaline or saline soils.	Unlikely: the site does not provide suitable habitat for heartscale; no areas of alkaline or saline soils were observed. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 9 miles southwest of the site.
Subtle orache	*Atriplex subtilis*	None	None	1B	Valley and foothill grassland, in areas with alkaline soils.	Unlikely: the site does not provide suitable habitat for subtle orache; no alkaline soils were observed. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 9 miles southwest of the site.
Hoover's calycadenia	*Calycadenia hooveri*	None	None	1B	Rocky areas within valley and foothill grassland and cismontane woodlands.	Unlikely: the site does not provide suitable habitat for Hoover's calycadenia. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 6 miles southeast of the site.
Beaked clarkia	*Clarkia rostrata*	None	None	1B	Cismontane woodland and valley and foothill grassland.	Unlikely: the site does not provide suitable habitat for beaked clarkia. The nearest occurrence of beaked clarkia in the CNDDB (2023) search area is approximately 4.5 miles northwest of the site.
Hoover's spurge	*Euphorbia hooveri*	None	None	1B	Vernal pools.	Unlikely: the site does not provide suitable habitat for Hoover's spurge; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence Hoover's spurge in the CNDDB (2023) search area is approximately 6.5 miles southeast of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Colusa grass	*Neostapfia colusana*	T	E	1B	Large, deep vernal pools.	Unlikely: the site does not provide suitable habitat for Colusa grass; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of Colusa grass in the CNDDB (2023) search area is approximately 2.5 miles northwest of the site. The site is not in designated critical habitat for Colusa grass (USFWS 2005a).
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*	T	E	1B	Vernal pools.	Unlikely: the site does not provide suitable habitat for San Joaquin Valley Orcutt grass; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of this species recorded in the CNDDB (2023) search area is approximately 2.5 miles northwest of the site.
Hairy Orcutt grass	*Orcuttia pilosa*	E	E	1B	Vernal pools. Endemic to the Sacramento Valley.	Unlikely: the site does not provide suitable habitat for Hairy Orcutt grass; there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of this species recorded in the CNDDB (2023) search area is approximately 4.5 miles southeast of the site. The site is not in designated critical habitat for hairy Orcutt grass or other vernal pool plant species (USFWS 2005a).
Greene's tuctoria	*Tuctoria greenei*	E	R	1B	Vernal pools within the Central Valley.	Unlikely: the site does not provide suitable habitat for Greene's tuctoria; there are no vernal pools or seasonal wetlands in the site. The nearest occurrences of this species recorded in the CNDDB (2023) search area is approximately 2.5 miles northwest of the site.
WILDLIFE BIRDS						
Tricolored blackbird	*Agelaius tricolor*	None	T	N/A	Nests in dense brambles and emergent wetland vegetation associated with open water habitat.	Unlikely: there is no open water or patches of willows, blackberries, and emergent wetland vegetation in the site. The nearest occurrence of tricolored blackbird in the CNDDB (2023) search area is approximately 7.5 miles southeast of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Swainson's hawk	*Buteo swainsoni*	None	T	N/A	Breeds in stands of tall trees in open areas. Requires adjacent suitable foraging habitats such as grasslands or alfalfa fields supporting rodents.	Unlikely: the site does not provide suitable nesting or foraging habitat for Swainson's hawk. However, there are several large trees near the site suitable for nesting. The nearest occurrences of nesting Swainson's hawks in the CNDDB (2023) search area are approximately 7 miles north and south of the site.
Burrowing owl	*Athene cunicularia*	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Unlikely: only a few ground squirrel burrows were observed in the site, primarily located at the base of a few orchard trees. No burrowing owls were observed and none of the burrows had evidence of past or present burrowing owl activity. There are no occurrences of this species within the CNDDB (2023) search area.
MAMMALS						
San Joaquin kit fox	*Vulpes macrotis mutica*	E	T	N/A	Annual grasslands or grassy open stages with scattered shrubby vegetation.	Unlikely: the project site does not provide suitable habitat for San Joaquin kit fox. San Joaquin kit fox is not known from the area and there are no occurrences of this species in the CNDDB (2023) search area.
REPTILES & AMPHIBIANS						
California tiger salamander	*Ambystoma californiense*	T	T	N/A	Breeds in seasonal water bodies such as deep vernal pools or stock ponds. Requires small mammal burrows for summer refugia.	Unlikely: there are no potential breeding ponds in or near the site for California tiger salamander; the site is also not suitable for aestivation. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 5 miles southeast of the site. The site is not in designated critical habitat for California tiger salamander (USFWS, 2005b).
Northern California legless lizard	*Anniella pulchra*	None	SC	N/A	Sandy or loose loamy soils under sparse vegetation.	Unlikely: the site does not provide suitable habitat for Northern California legless lizard. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 10 miles southwest of the site.

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Western spadefoot	*Spea hammondii*	None	SC	N/A	Breeds and lays eggs in seasonal water bodies such as deep vernal pools or stock ponds.	Unlikely: there is no suitable aquatic habitat for western spadefoot in or near the site. The nearest occurrence of western spadefoot in the CNDDB (2023) search area is approximately 6.5 miles southeast of the site.
FISH						
Delta smelt	*Hypomesus transpacificus*	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	None: there is no aquatic habitat in the site. There are no occurrences of delta smelt recorded in the CNDDB (2023) within the search area. There is no designated critical habitat for delta smelt (USFWS, 1994) in or near the site.
Hardhead	*Mylopharodon conocephalus*	None	SC	N/A	Clear, deep pools with sand and gravel bottoms in tributaries to the San Joaquin and Sacramento River.	None: there is no aquatic habitat in the site. The nearest occurrence of hardhead in the CNDDB (2023) search area is 1 mile southeast of the site.
Central Valley steelhead	*Oncorhynchus mykiss*	T	None	N/A	Riffle and pool complexes with adequate spawning substrates within Central Valley drainages.	None: there is no aquatic habitat in the site. The nearest occurrence of Central Valley steelhead in the CNDDB (2023) search is in the Tuolumne River, approximately 1 mile southeast of the site. The Tuolumne River is designated critical habitat for Central Valley steelhead (NOAA, 2005).
INVERTEBRATES						
Conservancy fairy shrimp	*Branchinecta conservatio*	E	None	N/A	Vernal pools and seasonally inundated depressions in the Central Valley.	None: there are no vernal pools or seasonal wetlands in the site. There are no occurrences of Conservancy fairy shrimp recorded in the CNDDB (2023) search area. The site is not within designated critical habitat for any vernal pool shrimp species (USFWS, 2005a).
Vernal pool tadpole shrimp	*Lepidurus packardi*	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley.	None: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool tadpole shrimp in the CNDDB (2023) search area is approximately 6.5 miles southeast of the site. The site is not within designated critical habitat for vernal pool tadpole shrimp (USFWS, 2005a).

TABLE 3

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED IN THE GREATER PROJECT VICINITY

Common Name	Scientific Name	Federal Status[1]	State Status[1]	CNPS List[2]	Habitat	Likeliness of Occurrence in the Project Site
Vernal pool fairy shrimp	*Branchinecta lynchi*	T	None	N/A	Vernal pools and seasonally inundated depressions in the Central Valley.	None: there are no vernal pools or seasonal wetlands in the site. The nearest occurrence of vernal pool fairy shrimp in the CNDDB (2023) search area is approximately 8.5 miles southeast of the site. The site is not within designated critical habitat for vernal pool fairy shrimp (USFWS, 2005a).
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills	None: there are no blue elderberry shrubs in or adjacent to the site. The nearest occurrence of valley elderberry longhorn beetle recorded in the CNDDB (2023) search area is approximately 2 miles southwest of the site.
Crotch bumble bee	*Bombus crotchiii*	None	CE	N/A	Open grassland and scrub habitats throughout California; rarely found in the Central Valley.	Unlikely: the site does not provide suitable habitat for Crotch bumble bee; this species may fly over the site on occasion. The nearest occurrence of this species in the CNDDB (2023) search area is approximately 10 miles southwest of the site.
Monarch butterfly	*Danaus plexippus*	C	None	None	Variety of habitats in California, primarily associated with coastal environments; larvae dependent on milkweed.	Unlikely: there is no suitable habitat in the site to support monarch butterfly and no extensive areas of milkweed, in which the larvae of this species depend on, was observed in the site during the field survey. Monarch butterfly may fly over the site during its migration. There are no occurrences of this species in the CNDDB (2023) search area.

Notes:

1 T= Threatened; E = Endangered; CE= Candidate for Endangered; SC = Species of Special Concern per California Department of Fish and Wildlife; C = Candidate for Listing.

2 CNPS List 1B includes species that are rare, threatened, or endangered in California and elsewhere.

colusana), San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*), hairy Orcutt grass (*Orcuttia pilosa*), and Greene's tuctoria (*Tuctoria greenei*) are the only special-status plants identified in the CNDDB (2023) search. No additional special-status species are identified in the USFWS IPaC Trust Report (Attachment B).

Special-status plants generally occur in relatively undisturbed areas in vegetation communities such as vernal pools, marshes and swamps, seasonal wetlands, riparian scrub, and areas with unusual soils. All of the special-status plants identified in Table 3 occur in habitat types that are not present in the site. No special-status plants or potentially suitable habitat for special-status plants were observed in the site. Due to lack of suitable habitat, it is unlikely that special-status plants occur in the site.

SPECIAL-STATUS WILDLIFE: Special-status wildlife species recorded in project area in the CNDDB (2023) query include Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), California tiger salamander (*Ambystoma californiense*), northern California legless lizard (*Anniella pulchra*), western spadefoot (*Spea hammondii*), Central valley steelhead (*Oncorhynchus mykiss*), hardhead (*Mylopharodon conocephalus*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and Crotch bumble bee (*Bombus crotchii*). San Joaquin kit fox (*Vulpes macrotis mutica*), delta smelt (*Hypomesus transpacificus*), Conservancy fairy shrimp (*Branchinecta conservatio*) and monarch butterfly (*Danaus plexippus*) are not recorded in the CNDDB (2023) within the search area, but are on the USFWS IPaC Trust Report (Attachment B). Although not identified in the CNDDB (2023) search area or within the IPaC Trust Report, burrowing owl was added to Table 3 as it is known to occur in agricultural areas in Stanislaus County.

While the project site may have provided habitat for several of the special-status wildlife species listed in Table 3 at some time in the past, intensive farming and

development have substantially modified natural habitats in the greater project vicinity, including those in the site. Due to a lack of habitat, none of the special-status species identified have potential to occur in the site on more than an occasional or transitory basis.

The site does not provide suitable foraging habitat for Swainson's hawk and the on-site trees are too small for nesting. Swainson's hawk may nest in large trees near the project site. As described above, large trees visible from the site with binoculars were inspected for remnant raptor stick nests (i.e., used in previous seasons by raptors), but many of the tree canopies are dense and cannot be comprehensively inspected. A few red-shouldered hawks (a common raptor) were observed perching and flying from large trees near the site. As this survey was conducted outside of the avian nesting season, the use of trees near the site by nesting raptors is unknown. Small songbirds could potentially nest in trees in the site and trees and shrubs in close proximity to the site.

There is no suitable nesting habitat for tricolored blackbird in or adjacent to the site. The intensity of agriculture and development in and surrounding the site reduces the likelihood of burrowing owls using the site for nesting. No burrowing owls were observed during the field survey. While there are a few ground squirrel burrows in the site, none of the burrows contained evidence of past or present burrowing owl occupancy.

The orchard does not provide suitable denning habitat for San Joaquin kit fox and this species is not known from the area. No San Joaquin kit fox dens were observed in the site during the field survey.

Northern California legless lizard is not expected to occur in the site due to the presence of compacted soils from decades of orchard farming; this species is known from more natural environments not subject to disturbance. The site does not provide aquatic habitat to support California tiger salamander and western spadefoot; there are also no seasonal water bodies in or near the site for

California tiger salamander and grassland areas in and near the site are highly disturbed and do not provide suitable aestivation habitat for this species.

The site does not contain aquatic habitat to support Central Valley steelhead, delta smelt, hardhead, or other special-status fish.

No blue elderberry shrubs were observed in or near the site, precluding the potential occurrence of valley elderberry longhorn beetle. There are no vernal pools or seasonal wetlands in the site for vernal pool branchiopods (i.e., fairy and tadpole shrimp). Monarch butterfly may fly over the site during its migration, but would not be expected to utilize the site in a meaningful capacity due to a lack of suitable habitat. Crotch bumble bee may also fly over the area on occasion, but the site does not contain suitable habitat to support this species.

CRITICAL HABITAT: The site is not in designated critical habitat for federally listed vernal pool shrimp or plants (USFWS, 2005a), California tiger salamander (USFWS, 2005b), valley elderberry longhorn beetle (USFWS, 1980), delta smelt (USFWS, 1994), Central Valley steelhead (NOAA, 2005), or other federally listed species (Attachment D).

Conclusions and Recommendations

- The site is an almond orchard; on-site habitats are biologically unremarkable. There are no riparian habitats, sensitive natural communities, wildlife movement corridors, or native wildlife nursery sites in the site.

- There are no potentially jurisdictional Waters of the U.S. or wetlands were in the site. A potentially jurisdictional MID irrigation lateral just south of the site will not be disturbed by the project.

- Due to a lack of suitable habitat, it is unlikely that special-status plants occur in the site.

- Due to a lack of suitable habitat, it is unlikely that special-status wildlife species occur in the site. Swainson's hawk and other special-status birds are not expected to nest in the site due to the small size of the orchard trees and ongoing disturbance from agricultural activities.

- Pre-construction surveys for nesting Swainson's hawks within 0.25 miles of the project site are conservatively recommended if construction commences between March 1 and September 15. If active nests are found, a qualified biologist should determine the need (if any) for temporal restrictions on construction using criteria set forth by CDFW (CDFG, 1994) and the Swainson's Hawk Technical Advisory Committee (SWHTAC, 2000).

- Trees in the site could be used by birds protected by the Migratory Bird Treaty Act of 1918 or Fish and Game Coder of California. If vegetation removal or construction commences during the general avian nesting season (March 1 through July 31), a pre-construction survey for nesting birds is recommended. If active nests are found, work in the vicinity of the nests should be delayed until the young fledge.

- The site is not in designated critical habitat of federally listed species.

Please call me at (209) 745-1159 with any questions.

Sincerely,

Diane S. Moore, M.S.
Principal Biologist

References and Literature Consulted

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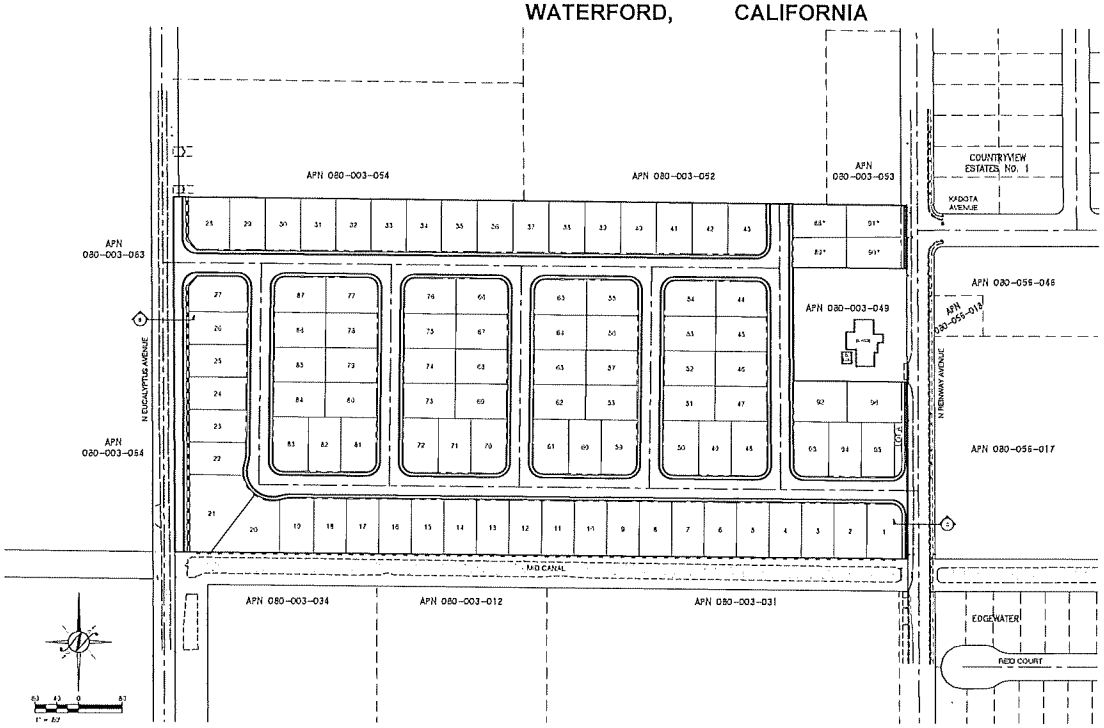
Attachment A

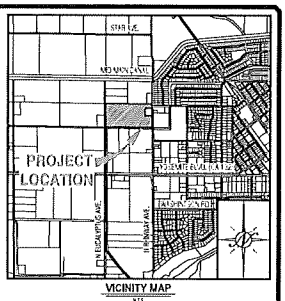
Tentative Map

TENTATIVE SUBDIVISION MAP

WATERFORD DEVELOPMENT PROJECT

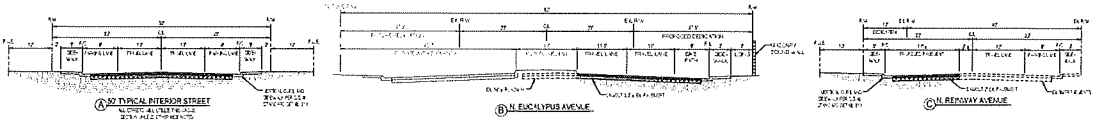
WATERFORD, CALIFORNIA





PROJECT INFORMATION

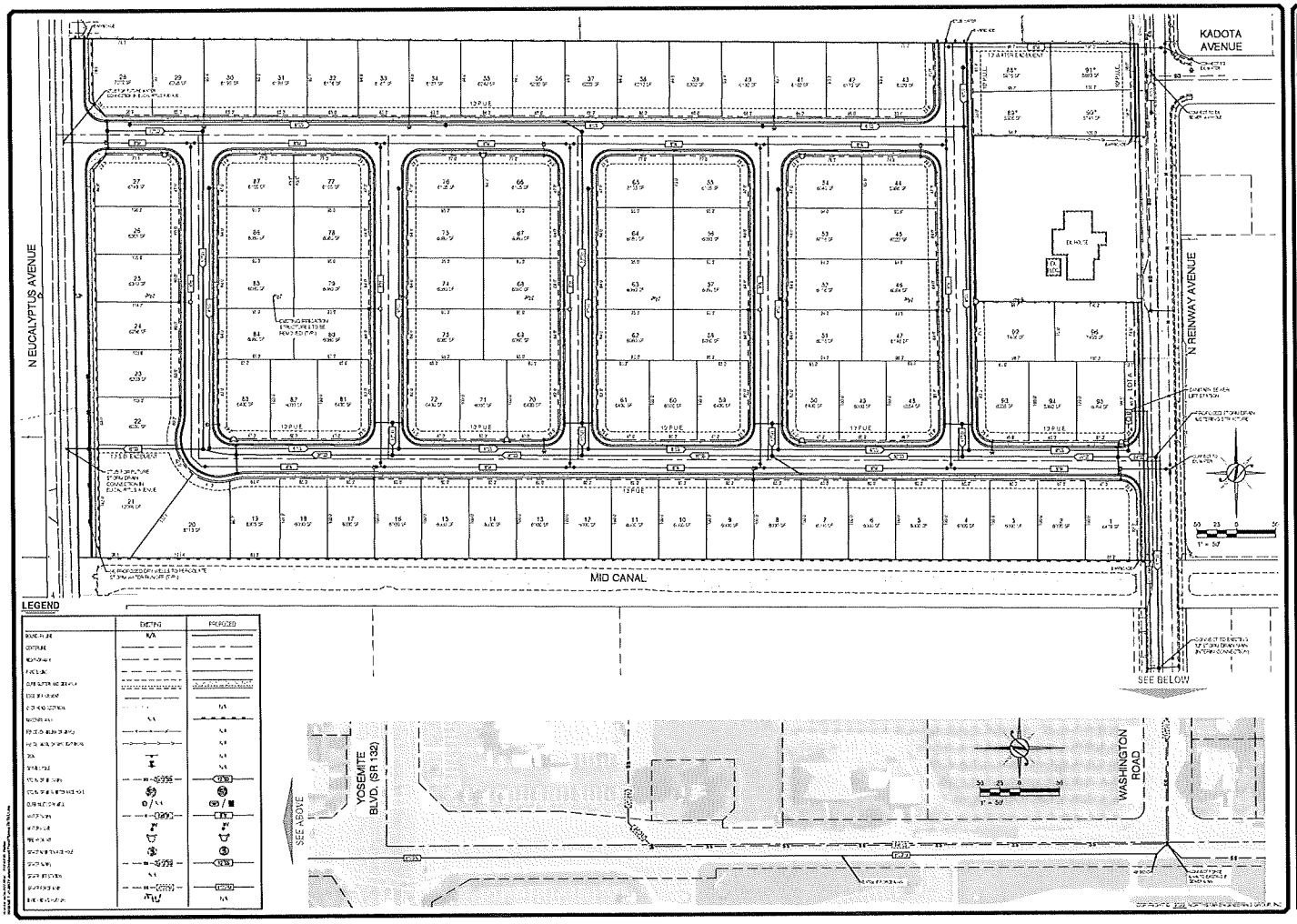
GENERAL NOTES



TENTATIVE SUBDIVISION MAP

WATERFORD DEVELOPMENT PROJECT
WATERFORD, CALIFORNIA

TM1.1



TENTATIVE SUBDIVISION MAP

WATERFORD DEVELOPMENT PROJECT
CALIFORNIA
WATERFORD,

TM2.1

Attachment B

CNDDB Summary Report

& USFWS IPaC Trust Resource Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Paulsell (3712066) OR Waterford (3712067) OR Montpelier (3712056) OR Denair (3712057))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G2	S2	1B.3
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2T3	S3	
Euphorbia hooveri Hoover's spurge	PDEUP0D150	Threatened	None	G1	S1	1B.2
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC
Myrmosula pacifica Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	

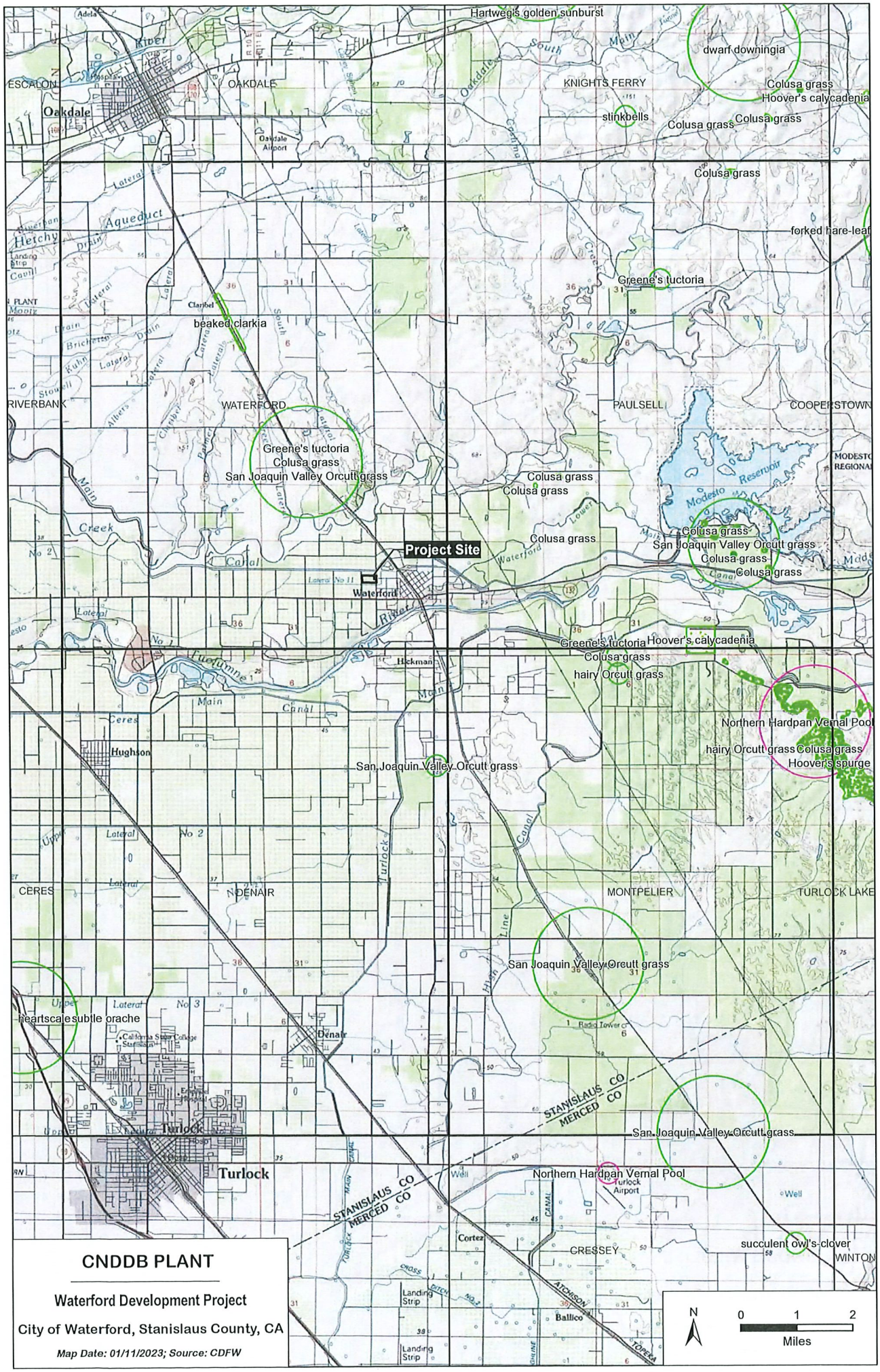
Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Orcuttia pilosa hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3S4	SSC
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1

Record Count: 24

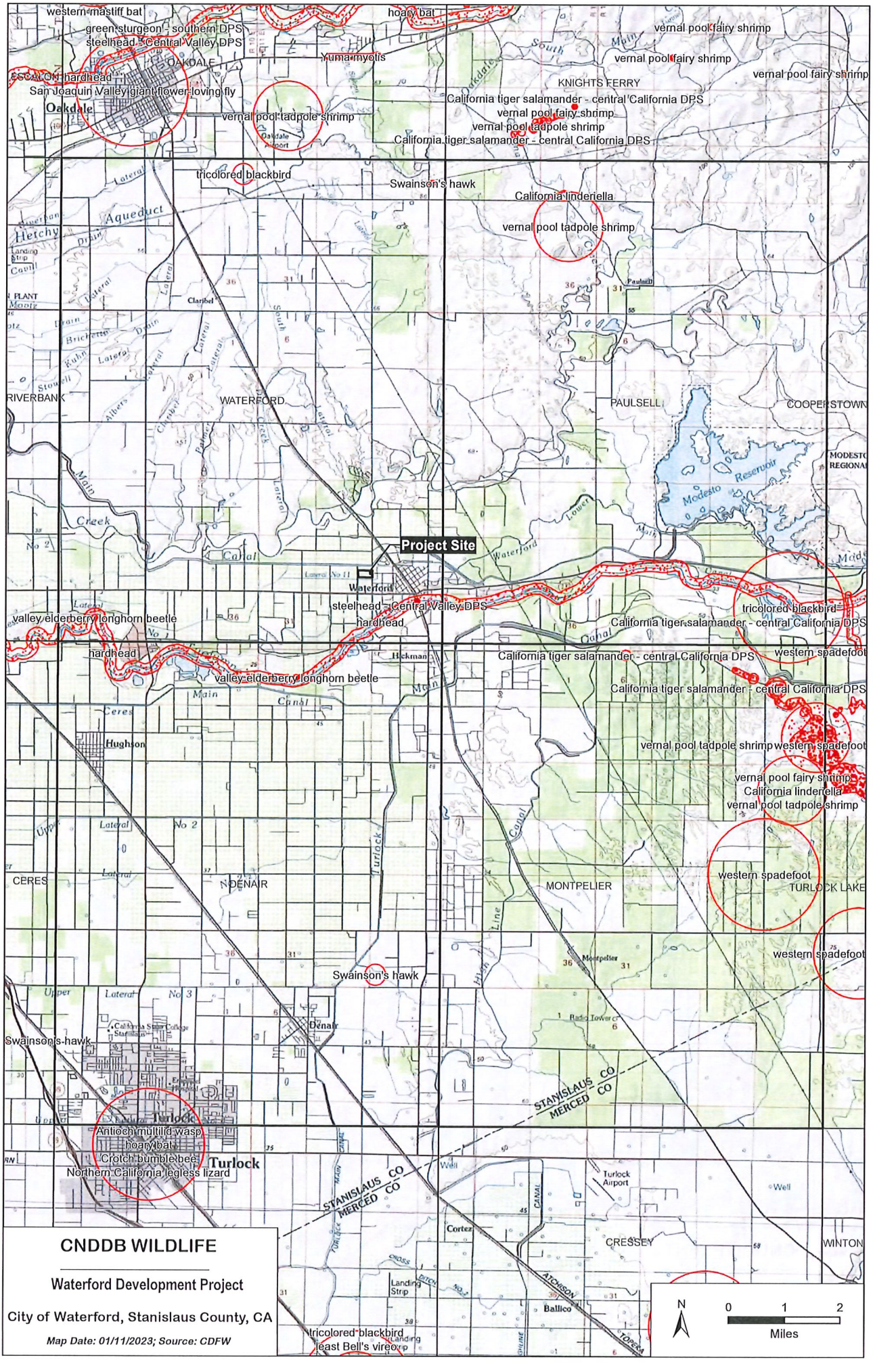


CNDDB PLANT

Waterford Development Project

City of Waterford, Stanislaus County, CA

Map Date: 01/11/2023; Source: CDFW



CNDDB WILDLIFE

Waterford Development Project

City of Waterford, Stanislaus County, CA

Map Date: 01/11/2023; Source: CDFW

IPaC **U.S. Fish & Wildlife Service**

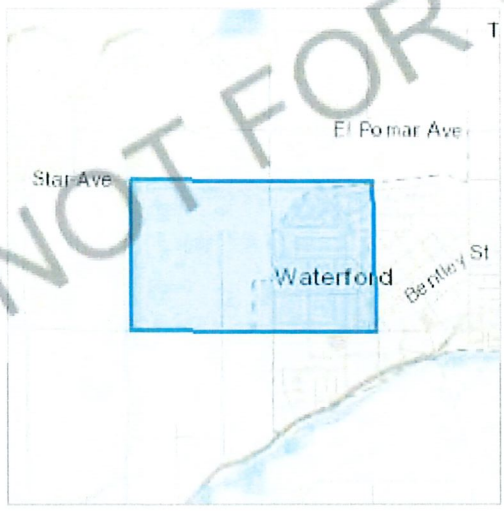
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Stanislaus County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can**only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Amphibians

NAME	STATUS
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species.Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species.Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/8246

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS

Colusa Grass Neostapfia colusana — Threatened

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/5690

Greene's Tuctoria Tuctoria greenei — Endangered

Wherever found

There is **final** critical habitat for this species.Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/1573

San Joaquin Orcutt Grass Orcuttia inaequalis Threatened
Wherever found
There is **final** critical habitat for this species.Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/5506

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your

project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher *Toxostoma redivivum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence(■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

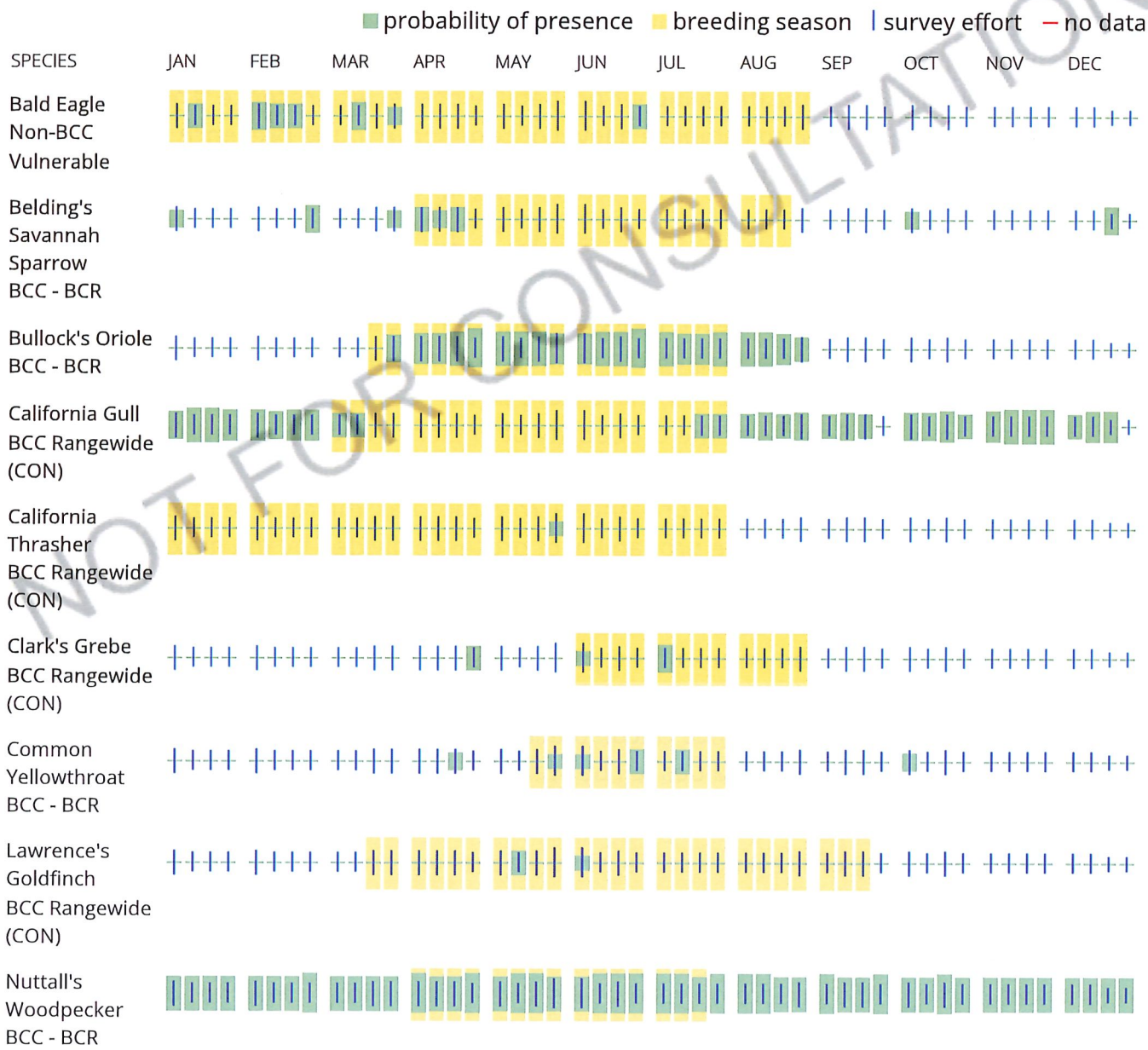
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

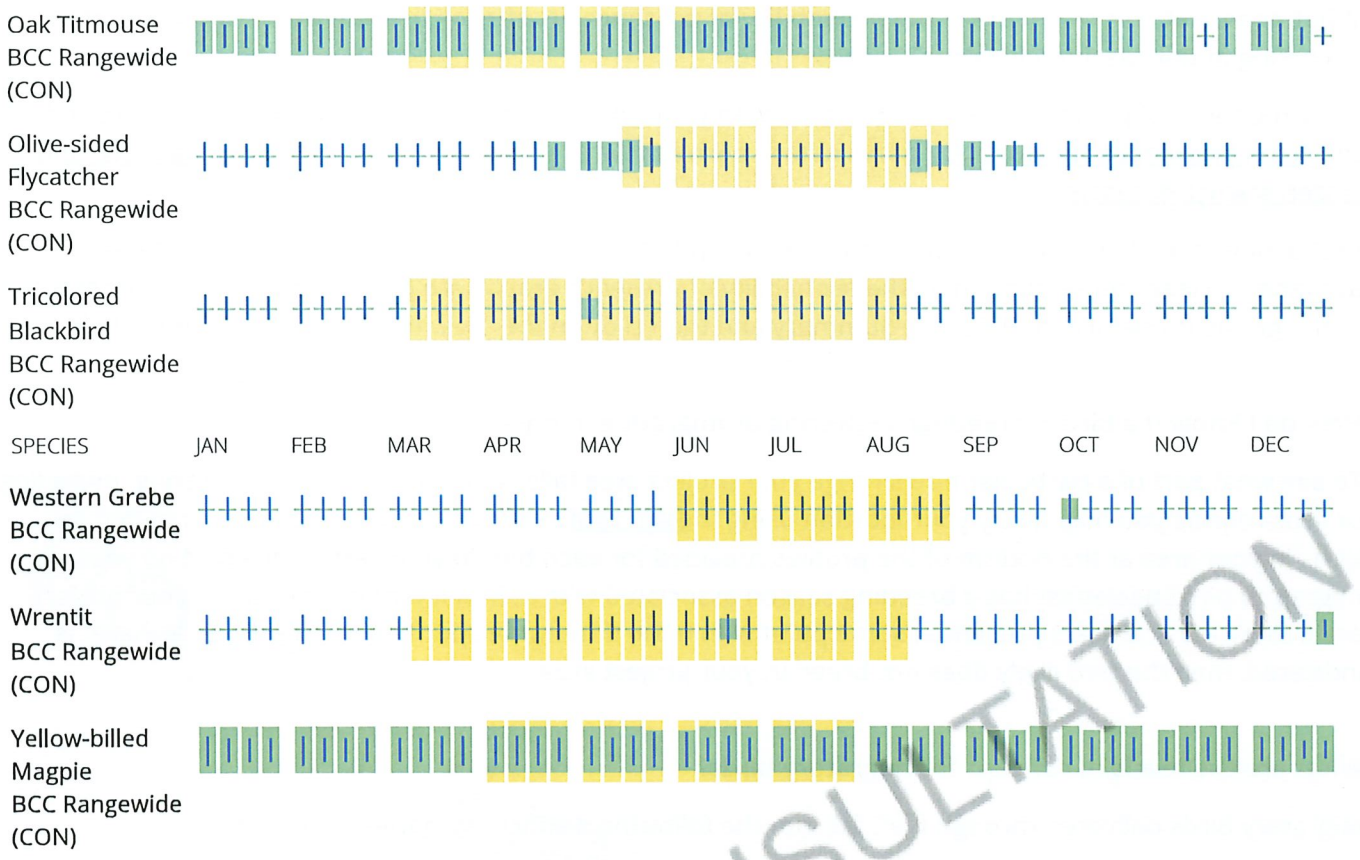
No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact

Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies.

Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment C

Photographs

Almond trees in the south part of the site, looking north from the south edge of the site; 01/12/23.

Almond trees in the central part of the site, looking north from the approximate central part of the site; 01/12/23.

Almond trees in the north part of the site, looking southwest from the north edge of the site; 01/12/23.

Underground irrigation lateral spanning across the site, looking east from the west edge of the site; 01/12/23.

West edge of the site, looking north along North Eucalyptus Avenue from the southwest corner of the site; 01/12/23.

West edge of the site, looking south along North Eucalyptus Avenue from the northwest corner of the site; 01/12/23.

North edge of the site, looking west from the northeast corner of the site; 01/12/23.

North edge of the site, looking east from the northwest corner of the site; 01/12/23.

East edge of the site, looking south along North Reinway Avenue from the northeast corner of the site; 01/12/23.

South edge of the site, looking west from the southeast corner of the site; 01/12/23.

Ground squirrel burrows at the base of an orchard tree in the northeast part of the site, looking west; 01/12/23. There are a few ground squirrels burrows in the site, but none showed evidence of burowing owl.

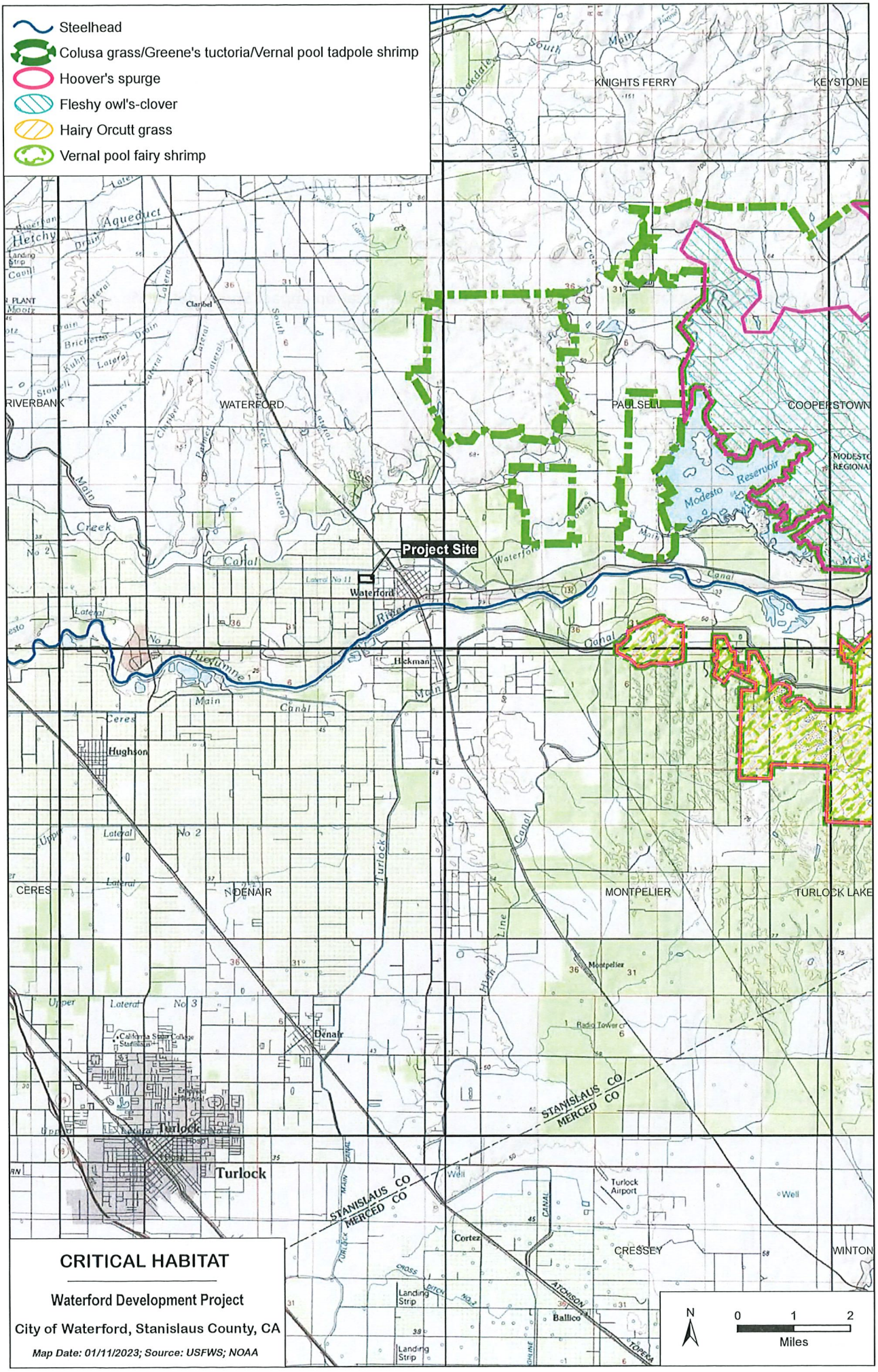
Modesto Irrigation District lateral situated just south and off-site, looking west; 01/12/23.

Cluster of large trees near the southwest corner of the site, looking northwest from the southwest corner of the site; 01/12/23.

Cluster of large trees just north of the northwest part of the site, looking northwest; 01/12/23. There are several trees suitable for nesting raptors in close proximity to the site.

Attachment D

Designated Critical Habitat



CRITICAL HABITAT

Waterford Development Project

City of Waterford, Stanislaus County, CA

Map Date: 01/11/2023; Source: USFWS; NOAA

Appendix C

Waterford Annexation and Subdivision Project Transportation Impact Study, dated May 2024, prepared by Wood Rodger

Waterford, CA

Waterford Annexation and Subdivision Project Transportation Impact Study

FINAL REPORT

Prepared For:

California Land Development

Prepared By

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

3301 C Street, Building 100-B

Sacramento, CA 95816

(916) 341-7760

May 2024

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EXECUTIVE SUMMARY

PROJECT DESCRIPTION

The Project is located on an existing lot located between Eucalyptus Avenue and North Reinway Avenue, north of Richard M. Moon Primary School, totaling approximately 19.9 acres. The current Project proposes to develop 98 single-family residential unit lots. The Project would gain access to the existing roadway network via a new roadway connection to Eucalyptus Avenue to the west and a new roadway connection to North Reinway Avenue to the east.

The Project is estimated to generate a total of 990 daily trips with 73 AM peak-hour trips and 98 PM peak-hour trips.

ANNEXATION AREA DESCRIPTION

The Project site is part of a larger Fahmy Annexation area consisting of a total of six parcels. One parcel (APN 080-003-040) is the site of the existing Mobile Home and RV Park at 11819 Yosemite Boulevard, which consists of 43 spaces which are mostly currently occupied. The other four parcels (APN 080-003-012, APN 080-003-015, APN 080-003-034, and APN 080-003-049) adjacent to the Project site are largely undeveloped and have a combined development capacity of 66 single-family dwelling units. There are no current plans to develop the other four parcels, but they may be developed at some point in the future. Analysis of future traffic generated by the Annexation area when fully developed has been incorporated into this TIS under a separate analysis scenario.

The four largely undeveloped parcels in the Annexation area are estimated to generate a total of 704 daily trips with 53 AM peak-hour trips and 68 PM peak-hour trips, when developed.

TRAFFIC OPERATIONS

All study intersections are projected to operate at acceptable LOS D or better under all study scenarios. CA MUTCD Peak Hour Signal Warrant #3 is not projected to be met under any study scenarios.

The 95th percentile queue for the southbound left at the intersection of North Reinway Avenue & Yosemite Boulevard surpasses the available storage under Existing, Existing Plus Project, and Existing Plus Project Plus Annexation conditions. With the addition of Project trips, the 95th percentile queue would increase by approximately one additional car length during the PM peak hour and less than one vehicle during the AM peak hour. With the addition of the proposed Annexation area trips, the 95th percentile queue would increase by two additional feet during the AM and PM peak hours compared to Existing Plus Project conditions. All other intersections are anticipated to be accommodated by the existing available storage for all study scenarios.

The southbound left-turn pocket length at North Reinway Avenue & Yosemite Boulevard would need to be lengthened to at least 214 feet to accommodate maximum projected queues under Existing Plus Project Plus Annexation AM peak hour conditions. The turn pocket could be lengthened to approximately 215 feet if on-street parking was restricted along the west side of North Reinway Avenue between Yosemite Boulevard and the southern Lucille Whitehead Intermediate School driveway. The North Reinway Avenue & Yosemite Boulevard intersection likely experiences high southbound queueing during the AM peak hour due to school drop-off traffic.

PROJECT SITE ACCESS AND INTERNAL CIRCULATION

Due to low projected volumes within the Project site, intersection controls for the internal residential intersections may not be necessary. Emergency vehicle access would utilize either of the two planned access points, and internal Project residential streets are projected to accommodate emergency vehicles. Project access is projected to be adequate.

EUCALYPTUS AVENUE IMPROVEMENTS

The Project would improve Eucalyptus Avenue between Yosemite Boulevard and the northern Project limits by constructing new 12-to-14-foot travel lanes (one lane each direction) with a 2-foot shoulder on the west side. The east side of Eucalyptus Avenue will have a 6-foot bike lane and 5-foot sidewalk along Project frontage, and a potential 5-foot paved concrete trail (if required) between the southern Project limits and Yosemite Boulevard.

The proposed improvements to Eucalyptus Avenue would accommodate the projected cumulative design volume of 5,700 ADT with acceptable LOS D operations.

The existing turning radii for the north leg of the Eucalyptus Avenue & Yosemite Boulevard intersection appear to be approximately 40 feet at the northeast quadrant and 35 feet at the northwest quadrant. It is recommended that the northwest quadrant of the Eucalyptus Avenue & Yosemite Boulevard intersection be modified to have a turn radius of at least 40 feet when the proposed improvements are implemented in order to accommodate delivery trucks.

POTENTIAL CUT-THROUGH TRAFFIC TO EUCALYPTUS AVENUE

The potential for traffic on North Reinway Avenue to cut-through the proposed Project local residential street to access Eucalyptus Road and avoid school-related congestion on North Reinway Avenue was analyzed. Based on a review of the proposed circulation network, it is considered unlikely that a significant amount of school trips would cut-through the Project local residential street due to the associated out-of-direction travel time. There would be at most approximately 70 vehicles (currently through trips on North Reinway Avenue) that would consider cutting through the Project local residential street to Eucalyptus Avenue during the AM peak hour school drop-off period. Even less vehicles would be projected during the school pick-up period in the afternoon. This is a relatively low amount of traffic, and so no improvements are currently recommended. However, traffic on the Project local residential road could be monitored for cut-through traffic, and if additional cut-through is observed in the future, traffic calming features such as curb bulb outs and speed humps could be considered for the Project local residential street.

PEDESTRIAN BICYCLE AND TRANSIT FACILITIES

The Project is not anticipated to cause a significant increase in pedestrian, bicycle, or transit demand in the study area that would put existing facilities over capacity. The Project would not adversely affect existing or proposed pedestrian, bicycle, or transit facilities in a way that would discourage their use.

VMT ANALYSIS

The estimated Project Study Area VMT of 47.7 VMT per resident is approximately 0.15% lower than the Replica data based existing average baseline City VMT of 47.8 VMT per resident. In addition, the Project is consistent with existing land uses in the Project Study Area and would not significantly alter travel patterns in the area. Due to the relatively rural nature of the area, small geographical footprint of the City, and lack of transit and multimodal facilities, it is likely infeasible for new development within the City of Waterford to meet a 15% below average threshold. As such, a reasonable expectation for new development within the City would be to not exceed the City's average VMT per Resident. As documented above, the Project does not exceed the City's average VMT per Resident. In addition, the Project is proposing multimodal improvements, including bike lanes and sidewalks on Eucalyptus Avenue and sidewalks on North Reinway Avenue, that would help further reduce the Project's VMT below the City average.

The four largely undeveloped parcels in the Annexation area would consist of the same land uses as the Project (single family dwelling units) and are located directly adjacent to the Project. Therefore, the Annexation area can be projected to have the same VMT per resident as the Project, 47.7 VMT per resident, which is 0.15% lower than the baseline City VMT of 47.8 VMT per resident. It is recommended that the Annexation area consider constructing multimodal improvements such as bike lanes and sidewalk, where feasible, when developed.

1 INTRODUCTION

This report has been prepared to present the results of the Transportation Impact Study (TIS) performed by Wood Rodgers, Inc. for the proposed Waterford Subdivision Project (Project) and Waterford Annexation located in Stanislaus County, adjacent to the City of Waterford (City). The Project location is shown in **Figure 1.1**. The purpose of this TIS is to address the Project's impacts under California Environmental Quality Act (CEQA) requirements and evaluate the Project's potential off-site and on-site traffic operations. The CEQA analysis considered the Project's effects on regional vehicle miles traveled (VMT), and a local traffic operations analysis was conducted to evaluate the Project's potential traffic operational deficiencies and identify improvements as needed.

1.1 PROJECT DESCRIPTION

The Project is located between Eucalyptus Avenue and North Reinway Avenue, north of Richard M. Moon Primary School. The Project site consists of one existing parcel (APN 080-003-050) that is currently used for agriculture/orchards totaling approximately 19.9 acres. The Project would gain access to the existing roadway network via a new roadway connection to Eucalyptus Avenue to the west and a new roadway connection to North Reinway Avenue to the east. The Project proposes to develop 98 single-family residential unit lots. The current Project site plan is illustrated in **Figure 1.2**.

The Project site is part of a larger Fahmy Annexation area consisting of a total of six parcels. One parcel (APN 080-003-040) is the site of the existing Mobile Home and RV Park at 11819 Yosemite Boulevard, which consists of 43 spaces which are mostly currently occupied. The other four parcels (APN 080-003-012, APN 080-003-015, APN 080-003-034, and APN 080-003-049) adjacent to the Project site are largely undeveloped and have a combined development capacity of 66 single-family dwelling units. There are no current plans to develop the other four parcels, but they may be developed at some point in the future. Analysis of future traffic generated by the Annexation area when fully developed has been incorporated into this TIS under a separate analysis scenario.

1.2 STUDY AREA

Study facilities include the intersections described below.

1.2.1 Intersections

Study intersections were selected based on the Project trip generation and distribution, as well as direction from City staff. The following five (5) existing study intersections were analyzed in this TIS:

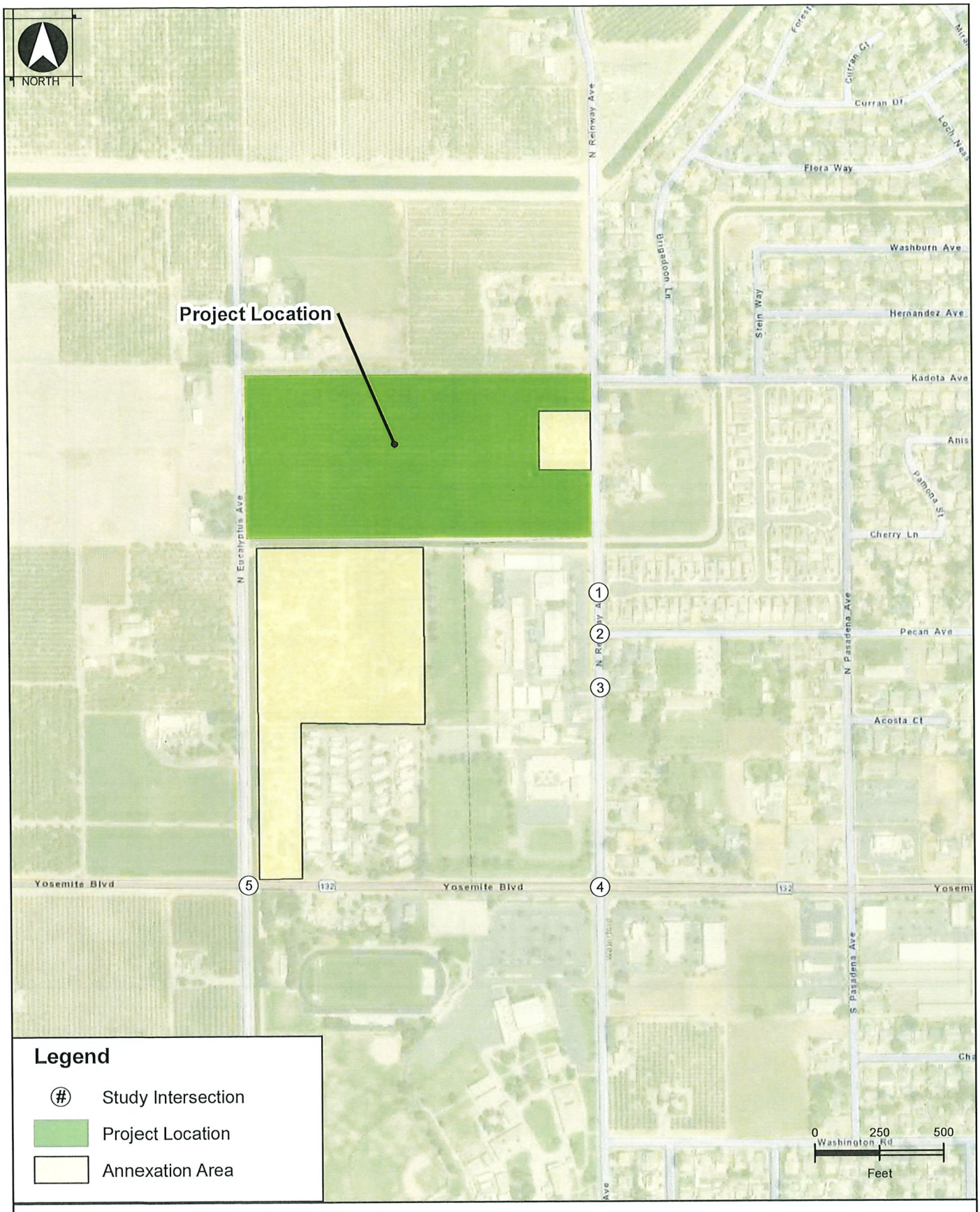
1. North Reinway Avenue & Primary School Dropoff Ingress Driveway
2. North Reinway Avenue & Pecan Avenue
3. North Reinway Avenue & Primary School Dropoff Egress Driveway
4. North Reinway Avenue & Yosemite Boulevard (State Route (SR) 132)
5. Eucalyptus Avenue & Yosemite Boulevard (SR 132)

The locations of the above study intersections are shown in **Figure 1.1**.

1.3 ANALYSIS SCENARIOS

The study facilities were evaluated under weekday AM and PM peak hour conditions for the following scenarios:

- **Existing Conditions:** Existing traffic volumes from collected traffic counts.
- **Existing Plus Project Conditions:** Existing traffic volumes plus traffic projected to be generated by the proposed Project.
- **Existing Plus Project Plus Annexation Conditions:** Existing traffic volumes plus traffic projected to be generated by the proposed Project and the Annexation area.



Project Location and Study Vicinity
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 1.1

WOOD RODGERS

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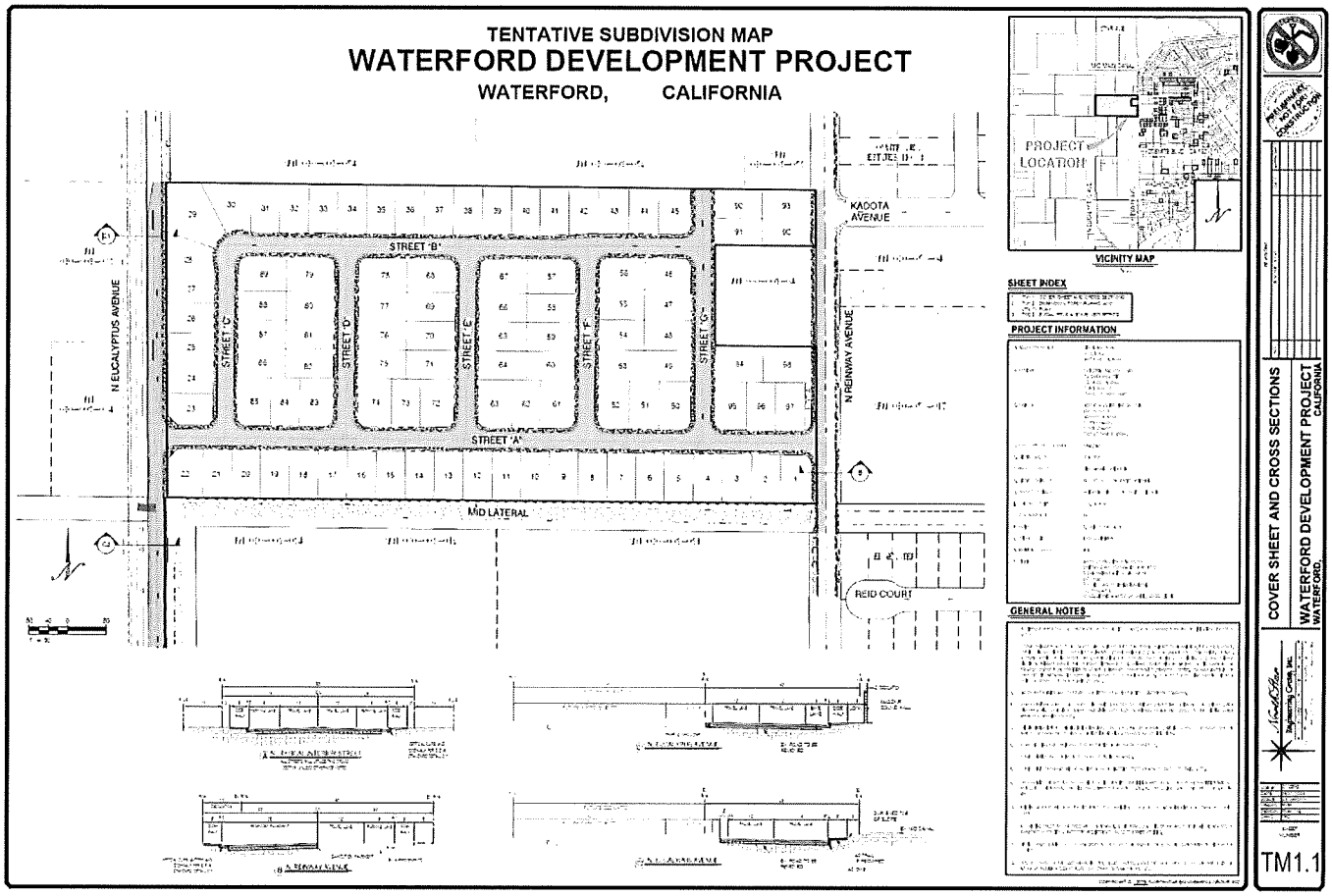
Figure 1.2: Project Site Plan



1.4 ANALYSIS METHODS

Traffic operations in this TIS have been quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. LOS "A" represents free-flow conditions with little to no delays, while LOS "F" represents jammed or grid-lock conditions.

1.4.1 Intersections

Intersection LOS has been calculated for all intersection control types using methods documented in the Transportation Research Board Publication *Highway Capacity Manual, 6th Edition* (*HCM 6*) (Transportation Research Board, 2016). The calculated intersection delays correspond to the LOS designations shown in **Table 1.1**, which were derived from Exhibits 19-8 and 20-2 of *Highway Capacity Manual, 6th Edition* (HCM 6th Edition).

Table 1.1. HCM 6th Edition Based Intersection LOS Thresholds

Level of Service	Description	Intersection Control Delay (seconds/vehicle)	
		Unsignalized	Signalized
A	Free-flow conditions with negligible to minimal delays.	delay ≤ 10.0	delay ≤ 10.0
B	Good progression with slight delays.	10.0 < delay ≤ 15.0	10.0 < delay ≤ 20.0
C	Relatively higher delays.	15.0 < delay ≤ 25.0	20.0 < delay ≤ 35.0
D	Somewhat congested conditions with longer but tolerable delays.	25.0 < delay ≤ 35.0	35.0 < delay ≤ 55.0
E	Congested conditions with significant delays.	35.0 < delay ≤ 50.0	55.0 < delay ≤ 80.0
F	Jammed or grid-lock type operating conditions.	delay > 50.0	delay > 80.0
Source: HCM 6th Edition Exhibit 19-8 and 20-2.			

HCM 6th Edition reports were generated to determine the delay and LOS at the study intersections in *Synchro 11* software.

1.4.2 Signal Warrants

California Manual on Uniform Traffic Control Devices (CA MUTCD) Peak Hour Signal Warrant #3 was used to evaluate the potential need for installation of a traffic signal at unsignalized study intersections. Peak Hour Signal Warrant #3 (70% Factor) was used for the unsignalized intersections, due to the City of Waterford currently having a population of less than 10,000.

1.5 LEVEL OF SERVICE STANDARDS

The *City of Waterford General Plan Update Vision 2025* (June 2007) Transportation and Circulation Chapter 5.4.1 Level of Service states that all major intersections should maintain LOS D or better for two-hour peak periods (AM and PM).

The study intersections along SR 132 (Yosemite Boulevard) are Caltrans facilities. Caltrans published the *Guide for the Preparation of Traffic Impact Studies* (December 2002) which states the following:

> "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS"

Based on the above, the minimum LOS standard for all Caltrans facilities was assumed to be LOS "D".

1.6 REPORT ORGANIZATION

The remainder of this report is divided into the following chapters:

- **Chapter 2: Existing Conditions** – Describes existing conditions and operations of the study area intersections, transit system, pedestrian facilities, and bicycle facilities.
- **Chapter 3: Existing Plus Project Conditions** – Describes the methods used to estimate and distribute Project generated traffic and the resulting study area operations under Existing Plus Project conditions.
- **Chapter 4: Existing Plus Project Plus Annexation Conditions** – Describes the methods used to estimate and distribute traffic generated due to the proposed Annexation and the resulting study area operations under Existing Plus Project Plus Annexation conditions.
- **Chapter 5: Queueing Analysis** – Describes the study intersection queueing operations under all study analysis scenarios.
- **Chapter 6: Project-Related Deficiencies and Recommended Improvements** – Describes the projected operational deficiencies at study area facilities and presents potential improvements.
- **Chapter 7: Project Site Access and Internal Circulation** – Describes site access and on-site circulation for the Project site for all modes of travel.
- **Chapter 8: Vehicle Miles Traveled Analysis** – Describes the Project's impact on VMT.

2 EXISTING CONDITIONS

This chapter describes the Existing roadway network, transit services, pedestrian facilities, and bicycle facilities within the study area. It also presents Existing traffic volumes at study intersections and traffic operations under Existing weekday AM and PM peak hour conditions.

2.1 EXISTING ROADWAY NETWORK

This section provides descriptions of the study area roadways.

Yosemite Boulevard (SR 132) is an east-west state highway that provides connectivity between Waterford and the City of Modesto. Within the Project area, Yosemite Boulevard is classified as a 2-lane Collector by the *City of Waterford General Plan Update Vision 2025*. The posted speed limit on SR 132 is 45 mph west of Eucalyptus Avenue, 25 mph between Eucalyptus Avenue and Pasadena Avenue, and 35 mph east of Pasadena Avenue.

Reinway Avenue is a two-lane roadway classified as a 2-Lane Collector by the *City of Waterford General Plan Update Vision 2025,* with the northern limit at El Pomar Avenue and the southern limit at the South Reinway Avenue Trailhead, north of Tuolumne River. Reinway Avenue has an existing intersection with Yosemite Boulevard (SR 132) 1,350 feet south of the proposed Project. The posted speed limit on Reinway Avenue is 25 mph.

Pecan Avenue is a two-lane local roadway. The speed limit on Pecan Avenue is assumed to be 25 mph.

Eucalyptus Avenue is a two-lane roadway classified as a 2-Lane Collector by the *City of Waterford General Plan Update Vision 2025* with the northern limit at the Modesto Irrigation District (MID) Main Canal and the southern limit 600 feet south of Canal Drive. Eucalyptus Avenue has an existing intersection with Yosemite Boulevard (SR 132) 1,350 feet south of the proposed Project. The speed limit on Eucalyptus is assumed to be 40 mph.

2.2 PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

There are currently pedestrian sidewalks on the south side of Yosemite Boulevard for approximately 650 feet west of North Reinway Avenue. Pedestrian sidewalks continue on both sides of Yosemite Boulevard to

the east of North Reinway Avenue for approximately 200 to 400 feet. North Reinway Avenue has paved sidewalks on the west side of the roadway from Richard M. Moon Primary School to the southern driveway of Waterford High School, and on the east side of the roadway from the MID Main Canal to the northern driveway of Waterford High School. Pecan Avenue has paved sidewalks for most of its length, with some gaps. Eucalyptus Avenue currently does not have pedestrian sidewalks present.

The intersection of Yosemite Boulevard & North Reinway Avenue has pedestrian curb ramps, crosswalks, and push buttons on all four legs. The intersection of Pecan Avenue & North Reinway Avenue has pedestrian crosswalks on all three legs, with ramps only on three of the four quadrants (the southwest ramp is missing). The other study intersections do not contain existing crosswalk facilities.

Existing Class 3 Bike Routes are present on North Reinway Avenue and Pecan Avenue. The study area roadways do not contain existing Class 1 or 2 bike facilities.

The City is served by the Route 50 bus route, which runs along SR 132 (Yosemite Boulevard) with stops at North Reinway Avenue and Western Avenue. Route 50 is operated by the Stanislaus Regional Transit Authority (STANRTA) and has one-hour headways from approximately 6 AM to 7 PM on weekdays and approximately 8 AM to 6 PM on weekends.

2.3 EXISTING INTERSECTION OPERATIONS

2.3.1 Existing Traffic Counts

Intersection traffic operations were evaluated for the weekday AM and PM peak hours. The AM peak hour is defined as the highest one hour of traffic flow counted between 7:00 AM and 9:00 AM on a typical weekday. The PM peak hour is defined as the highest one hour of traffic flow counted between 4:00 PM and 6:00 PM on a typical weekday. AM and PM peak hour traffic counts for the five (5) existing study intersections were collected on Tuesday, May 23, 2023. Traffic count data is provided in **Appendix A**. Note that Existing traffic counts were unable to be collected at the Primary School Dropoff Ingress Driveway (Intersection #1) during the PM peak hour due to equipment malfunction. PM volumes at this intersection were estimated based on volume balancing with adjacent intersections and the number of egress driveway movements during the same peak hour. The AM peak hour traffic counts (i.e., the school drop-off period) at the Primary School Dropoff Ingress Driveway were not affected by the equipment malfunction.

Figure 2.1 illustrates Existing intersection lane geometrics and control for the study area intersections. **Figure 2.2** depicts Existing conditions turning movements volumes for AM and PM weekday peak hours.

2.3.2 Existing Conditions Intersection Level of Service

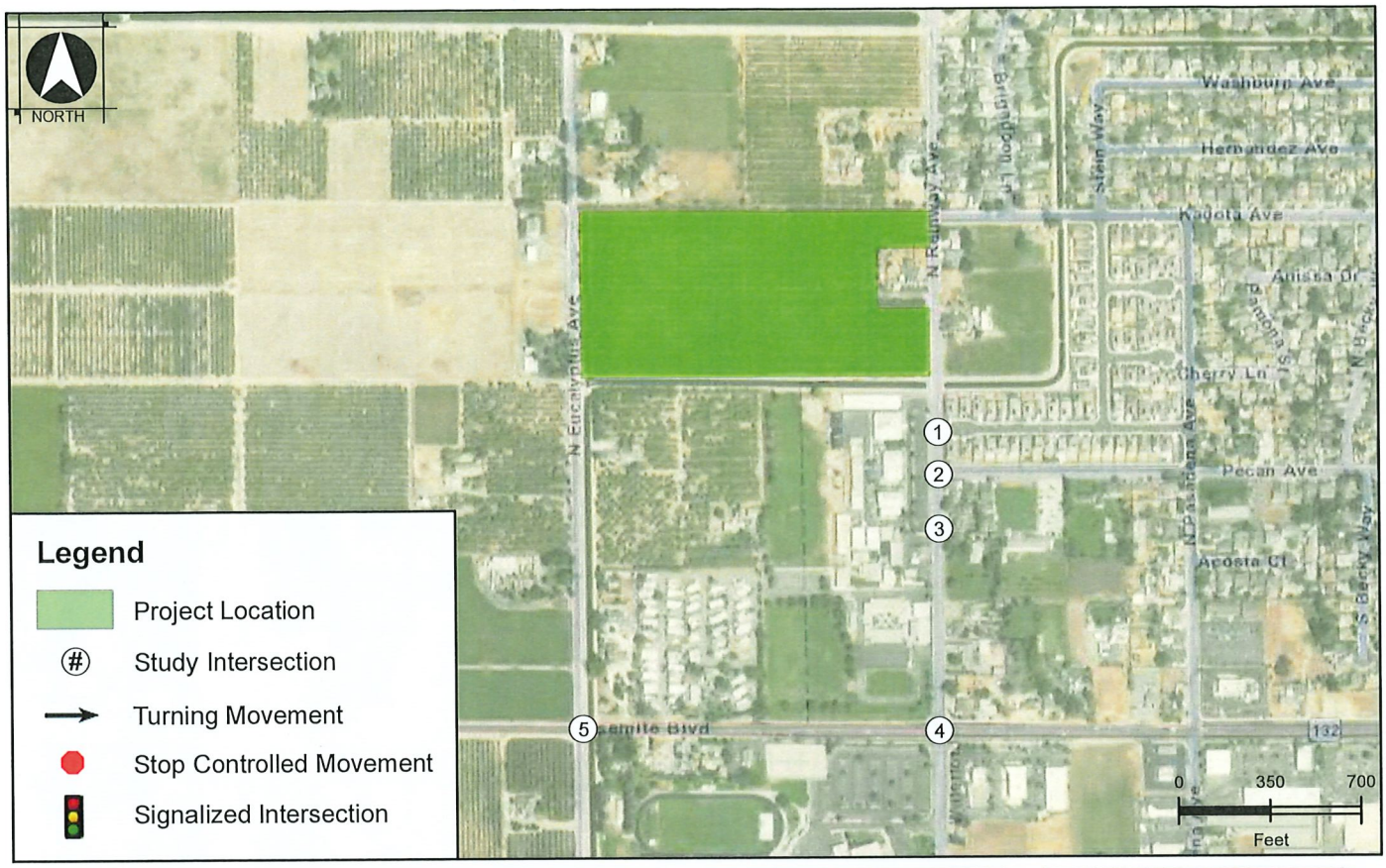
Table 2.1 presents Existing study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 2.1**) and Existing traffic volumes (illustrated in **Figure 2.2**). All study intersection traffic operations were calculated using Synchro 11 software.

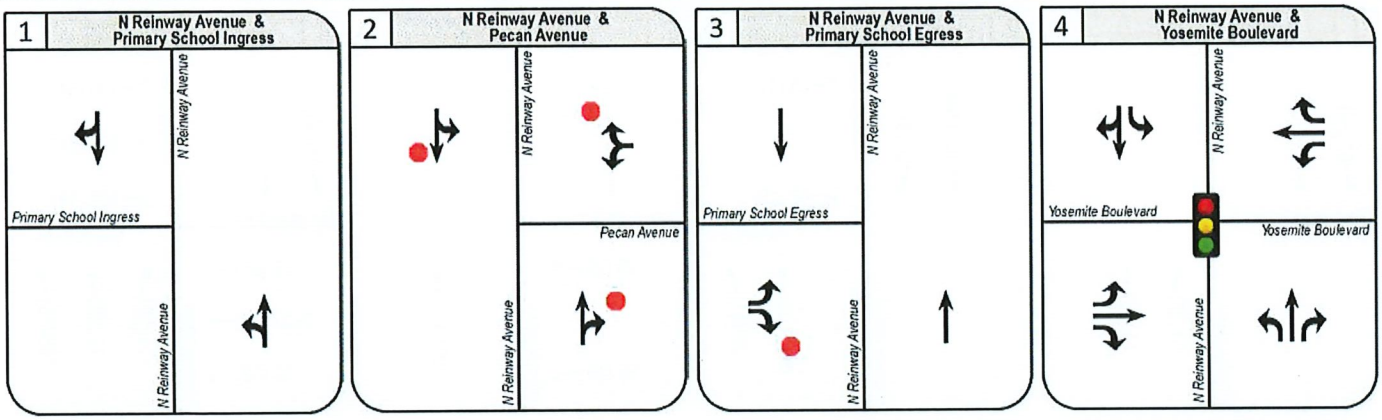
As shown in **Table 2.1**, all study intersections are currently operating at acceptable LOS conditions. HCM 6th Edition Synchro intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is currently unmet at all unsignalized study intersections. Signal warrant worksheets are provided in **Appendix C**.

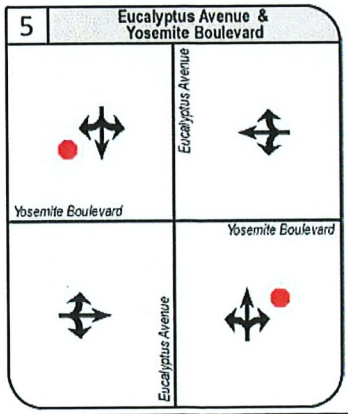
Table 2.1. Existing Intersection Operations

#	Intersection	Control Type	LOS Criteria	Peak Hour	Delay (sec/veh)[3]	LOS[4]	Wrnt Met?[4]
1	North Reinway Avenue & Primary School Ingress Driveway	OWSC[1]	D	AM	8.1	A	No
				PM	7.6	A	No
2	North Reinway Avenue & Pecan Avenue	AWSC[2]	D	AM	8.8	A	No
				PM	8.3	A	No
3	North Reinway Avenue & Primary School Egress Driveway	OWSC[1]	D	AM	11.4	B	No
				PM	11.1	B	No
4	North Reinway Avenue & Yosemite Boulevard	Signal	D	AM	27.4	C	--
				PM	13.8	B	--
5	Eucalyptus Avenue & Yosemite Boulevard	OWSC[1]	D	AM	18.6	C	No
				PM	17.6	C	No

Notes:
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For Signalized and AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3 (70%)







Existing Conditions Lane Geometrics and Control
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 2.1

WOOD RODGERS

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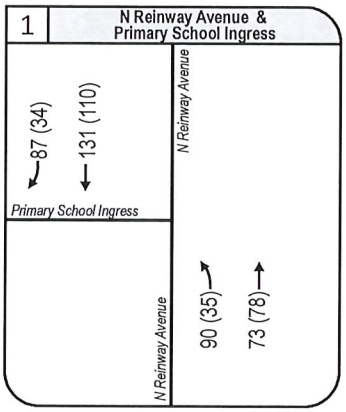
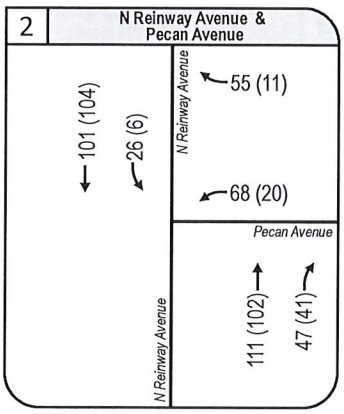
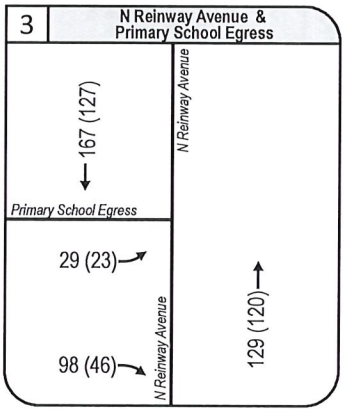
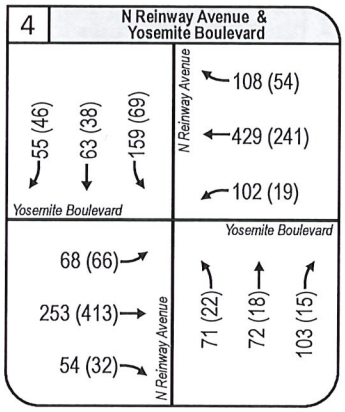
Legend

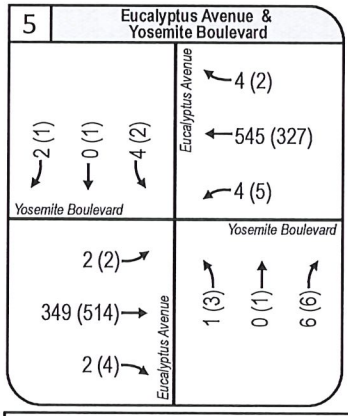
- Project Location
- (#) Study Intersection
- XX(XX) AM(PM) Peak Hour Volumes











Existing Conditions Traffic Volumes
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 2.2

WOOD RODGERS

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3 EXISTING PLUS PROJECT CONDITIONS

This chapter provides a description of the proposed Project, a discussion of the trip generation and distribution/assignment methods used to assign Project trips to study intersections, and an analysis of projected traffic operations and deficiencies under Existing Plus Project conditions.

3.1 PROJECT SITE

3.1.1 Project Site Description

The Project is located between Eucalyptus Avenue and North Reinway Avenue, north of Richard M. Moon Primary School. The Project site consists of one existing parcel (APN 080-003-050) that is currently used for agriculture/orchards totaling approximately 19.9 acres. The Project would gain access to the existing roadway network via a new roadway connection to Eucalyptus Avenue to the west and a new roadway connection to North Reinway Avenue to the east. The Project proposes to develop 98 single-family residential unit lots. The current Project site plan is illustrated in **Figure 1.2**.

The Project site is currently located in Stanislaus County and would be annexed into the City of Waterford. Current County zoning for the Project site is Agriculture.

3.2 PROJECT GENERATED TRIPS

3.2.1 Trip Generation

The trip generation data contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition,* was used to approximate the number of trips generated by the Project. The ITE land use category of Single-Family Detached Housing (ITE Code 210) was used to represent the Project. **Table 3.1** shows the Project trip generation estimate.

Table 3.1. Project Trip Generation

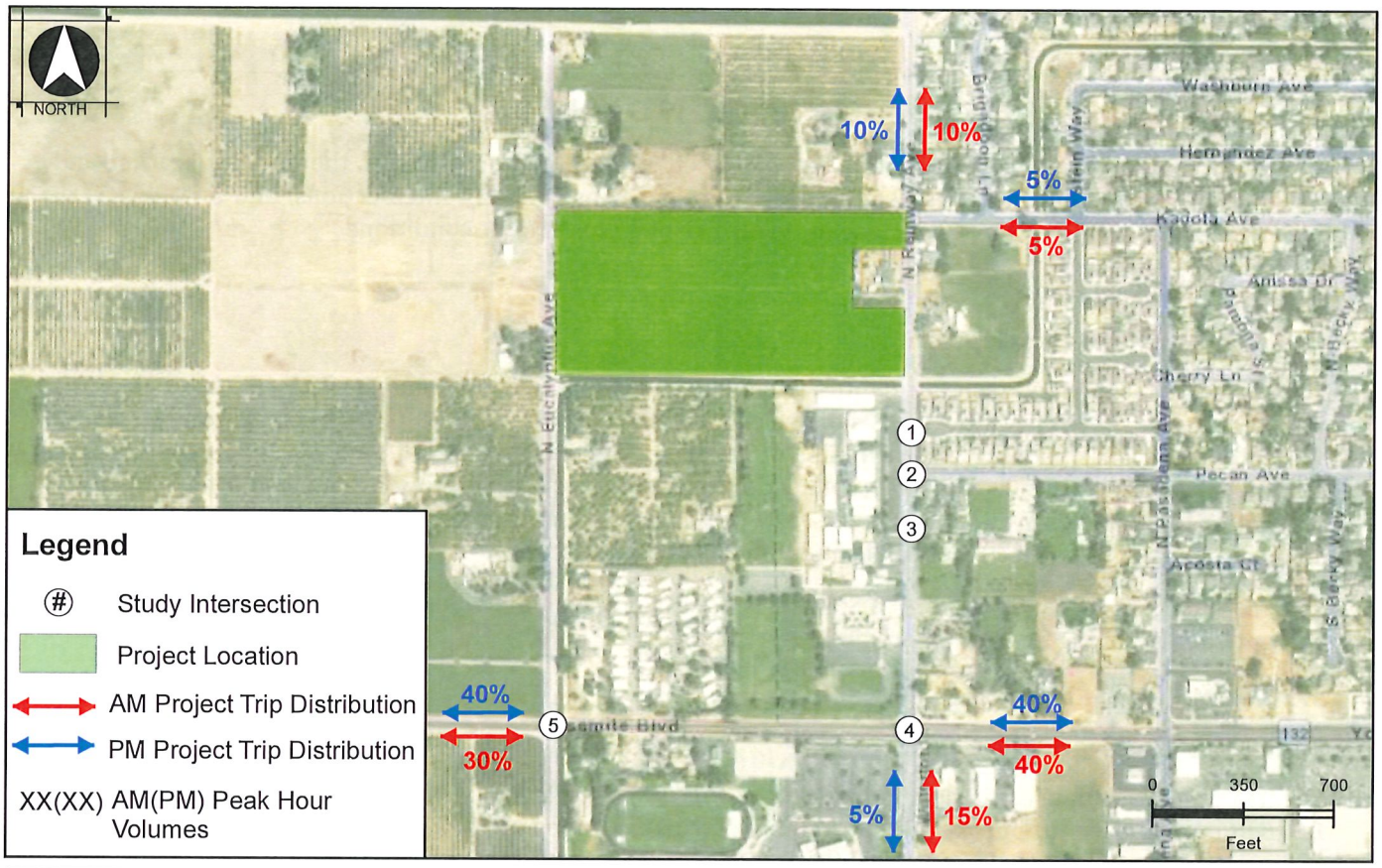
ITE Code	Land Use Category	Quantity	Units	Daily[1]	AM Peak Hour[1]			PM Peak Hour[1]		
					In	Out	Total	In	Out	Total
210	Single-Family Detached Housing	98	DU[2]	990	18	55	73	62	36	98

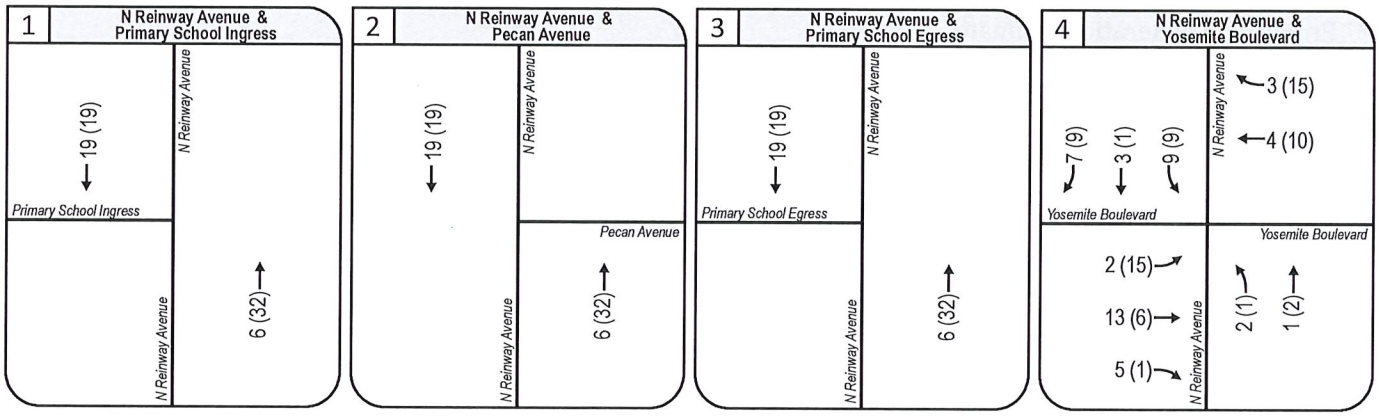
Notes:
[1]Trip rates are calculated based on ITE Trip Generation (11th Edition) fitted curve equations.
[2]DU = Dwelling Units

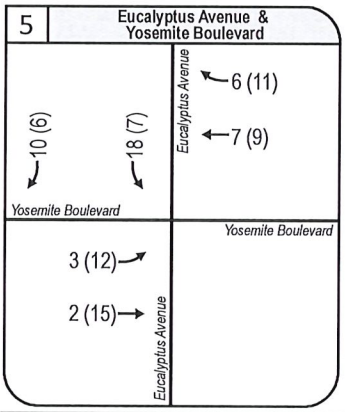
As shown in **Table 3.1**, the proposed Project is estimated to generate a total of 990 daily trips with 73 AM peak-hour trips and 98 PM peak-hour trips.

3.2.2 Trip Distribution and Assignment

The Project trip distribution was determined based on existing traffic counts and travel patterns, knowledge of the area, and engineering judgement. Project trips were projected to prefer using Eucalyptus Avenue more heavily than North Reinway Avenue during the AM peak hour in order to avoid congestion around Richard M. Moon Primary School, Lucille Whitehead Intermediate School, and Waterford High School during drop-off hours. Project trip distribution and assignment is shown in **Figure 3.1**.







Project-Only Trips and Distribution
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 3.1

WOOD RODGERS

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3.2.3 Existing Plus Project Conditions Intersection Level of Service

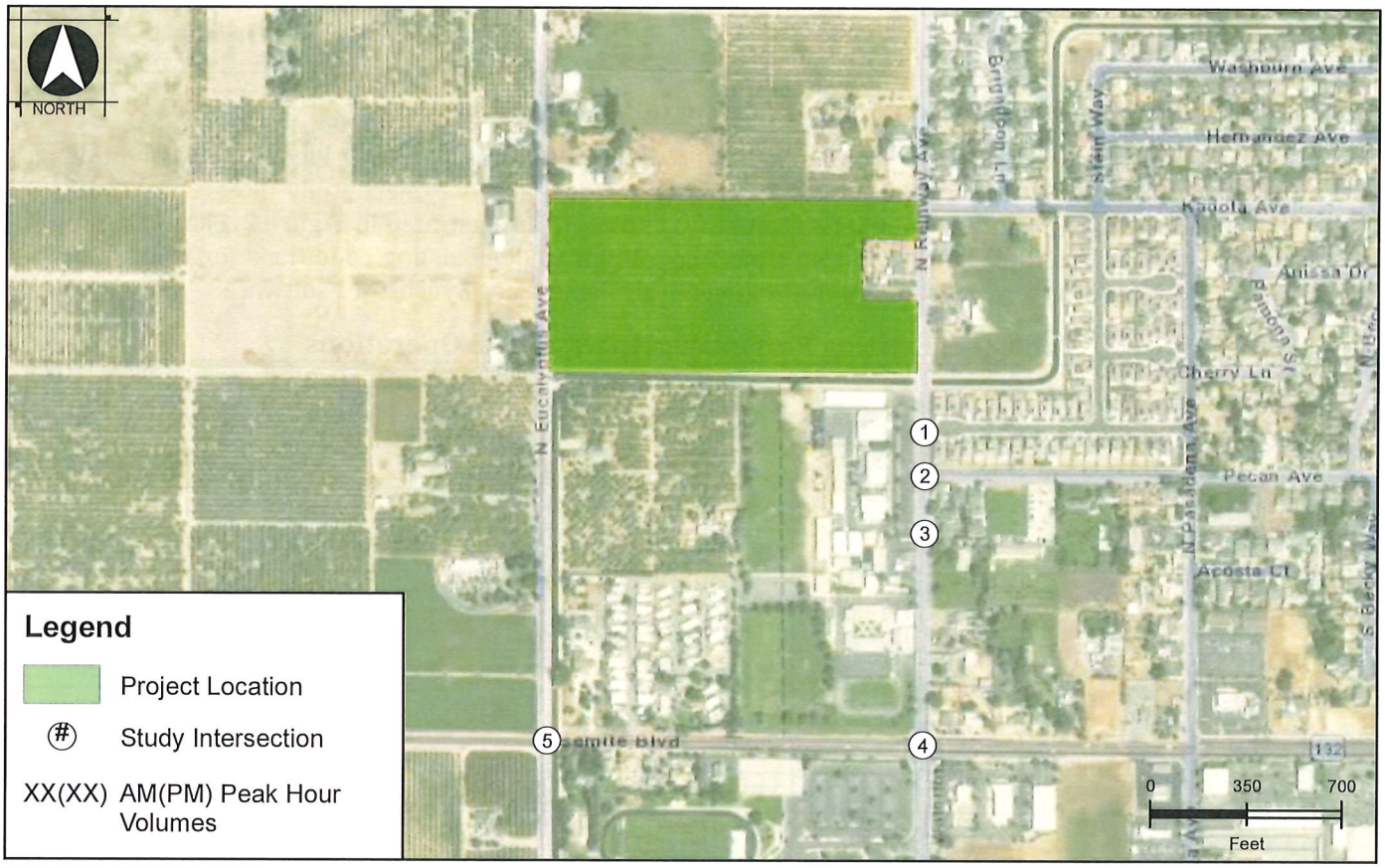
Project trips were added to Existing conditions traffic volumes to obtain Existing Plus Project conditions traffic volumes, shown in **Figure 3.2. Table 3.2** presents Existing Plus Project study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 2.1**) and Existing Plus Project traffic volumes. **Table 3.2** also shows operations under Existing conditions for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

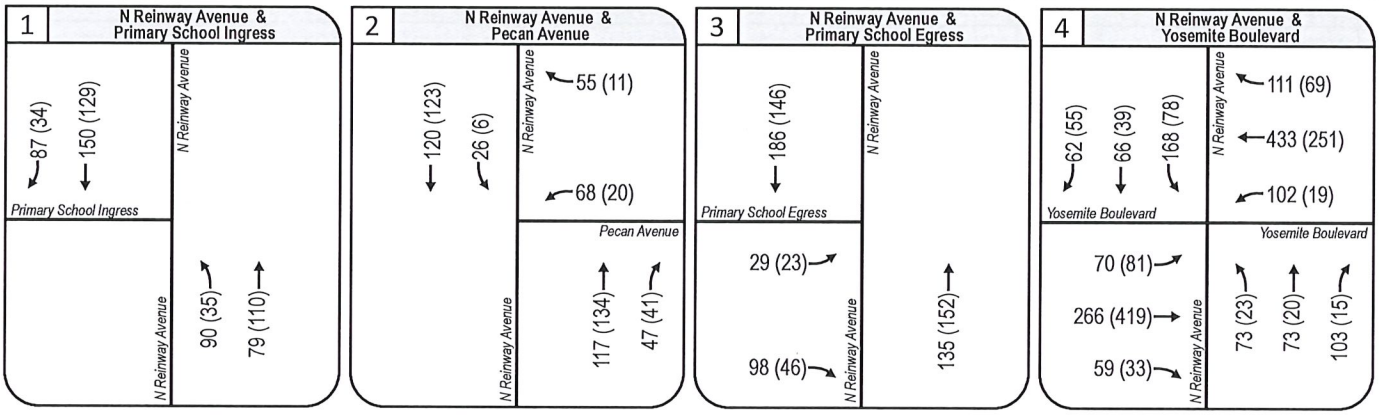
Table 3.2. Existing Plus Project Intersection Operations

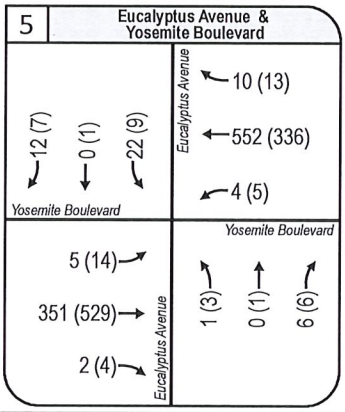
#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing Plus Project Conditions		
					Delay (S/V)[1]	LOS	Wrnt Met?[2]	Delay (S/V)[1]	LOS	Wrnt Met?[2]
1	North Reinway Avenue & Primary School Ingress Driveway	OWSC[1]	D	AM	8.1	A	No	8.2	A	No
				PM	7.6	A	No	7.8	A	No
2	North Reinway Avenue & Pecan Avenue	AWSC[2]	D	AM	8.8	A	No	8.9	A	No
				PM	8.3	A	No	8.7	A	No
3	North Reinway Avenue & Primary School Egress Driveway	OWSC[1]	D	AM	11.4	B	No	11.7	B	No
				PM	11.1	B	No	11.8	B	No
4	North Reinway Avenue & Yosemite Boulevard	Signal	D	AM	27.4	C	--	28.4	C	--
				PM	13.8	B	--	14.9	B	--
5	Eucalyptus Avenue & Yosemite Boulevard	OWSC[1]	D	AM	18.6	C	No	20.6	C	No
				PM	17.6	C	No	17.8	C	No

Notes:
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For Signalized and AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3 (70%)

As shown in **Table 3.2**, all study intersections are projected to operate at acceptable LOS conditions. HCM 6th Edition Synchro intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is projected to be unmet at all unsignalized study intersections. Signal warrant worksheets are provided in **Appendix C**.







Existing Plus Project Traffic Volumes
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 3.2

WOOD RODGERS

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4 EXISTING PLUS PROJECT PLUS ANNEXATION CONDITIONS

This chapter provides a description of the Annexation area, a discussion of the trip generation and distribution/assignment methods used to assign Annexation trips to study intersections, and an analysis of projected traffic operations and deficiencies under Existing Plus Project Plus Annexation conditions.

4.1 ANNEXATION AREA

4.1.1 Annexation Site Description

The Fahmy Annexation area totals six parcels (approximately 43 acres) that would be annexed into the City of Waterford. The Project will be located on one parcel (APN 080-003-050). One parcel (APN 080-003-040) is the site of the existing Mobile Home and RV Park at 11819 Yosemite Boulevard, which consists of 43 spaces which are mostly currently occupied. The remaining four parcels (APN 080-003-012, APN 080-003-015, APN 080-003-034, and APN 080-003-049) are largely undeveloped and currently used for agriculture/orchards and single-family dwellings, totaling approximately 12.98 acres.

Of the four largely undeveloped parcels, three parcels (APN 080-003-012, APN 080-003-015, and APN 080-003-034) are located east of Eucalyptus Avenue and have a combined development capacity of 61 single-family dwelling units with access via Eucalyptus Avenue. One parcel (APN 080-003-049) is located west of Reinway Avenue and has a development capacity of five single-family dwelling units with access via Reinway Avenue. There are no current plans to develop the four largely undeveloped parcels, but they may be developed at some point in the future. This section analyzes the future traffic generated by the four largely undeveloped parcels (Annexation area) when fully developed.

The Annexation area parcels are illustrated in **Appendix D**. In addition, the pre-zoning designation and development assumptions of each of the Annexation area parcels are included in **Appendix D**.

4.2 ANNEXATION GENERATED TRIPS

4.2.1 Trip Generation

The trip generation data contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition,* was used to approximate the number of trips that will be generated by the four undeveloped, non-Project parcels in the Annexation area when they are fully developed. The ITE land use category of Single-Family Detached Housing (ITE Code 210) was used to represent the Annexation area. **Table 4.1** shows the Annexation area trip generation estimate.

Table 4.1. Annexation Area Trip Generation

ITE Code	Land Use Category	Quantity	Units	Daily[1]	AM Peak Hour[1]			PM Peak Hour[1]		
					In	Out	Total	In	Out	Total
210	APN 080-003-012, APN 080-003-015, and APN 080-003-034: Single-Family Detached Housing	61	DU[2]	640	12	36	48	39	23	62
210	APN 080-003-049: Single-Family Detached Housing	5	DU[2]	64	1	4	5	4	2	6
Total Annexation Area Trips				**704**	**13**	**40**	**53**	**43**	**25**	**68**

Notes:
[1]Trip rates are calculated based on ITE Trip Generation (11th Edition) fitted curve equations.
[2]DU = Dwelling Units

As shown in **Table 4.1**, the Annexation area is estimated to generate a total of 704 daily trips with 53 AM peak-hour trips and 68 PM peak-hour trips.

4.2.2 Trip Distribution and Assignment

The Annexation area trip distribution was assumed to be the same as the Project distribution. The 61 homes in the three western parcels were assumed to access the local network via Eucalyptus Avenue and the five homes in the eastern parcel were assumed to access the local network via Reinway Avenue. It was conservatively assumed that the proposed Project local roadway connection between Eucalyptus Avenue and Reinway Avenue did not exist when assigning Annexation area trips in order to assign the maximum number of Annexation area trips to study area intersections. Annexation area trip distribution and assignment is shown in **Figure 4.1**.

4.2.3 Existing Plus Project Plus Annexation Conditions Intersection Level of Service

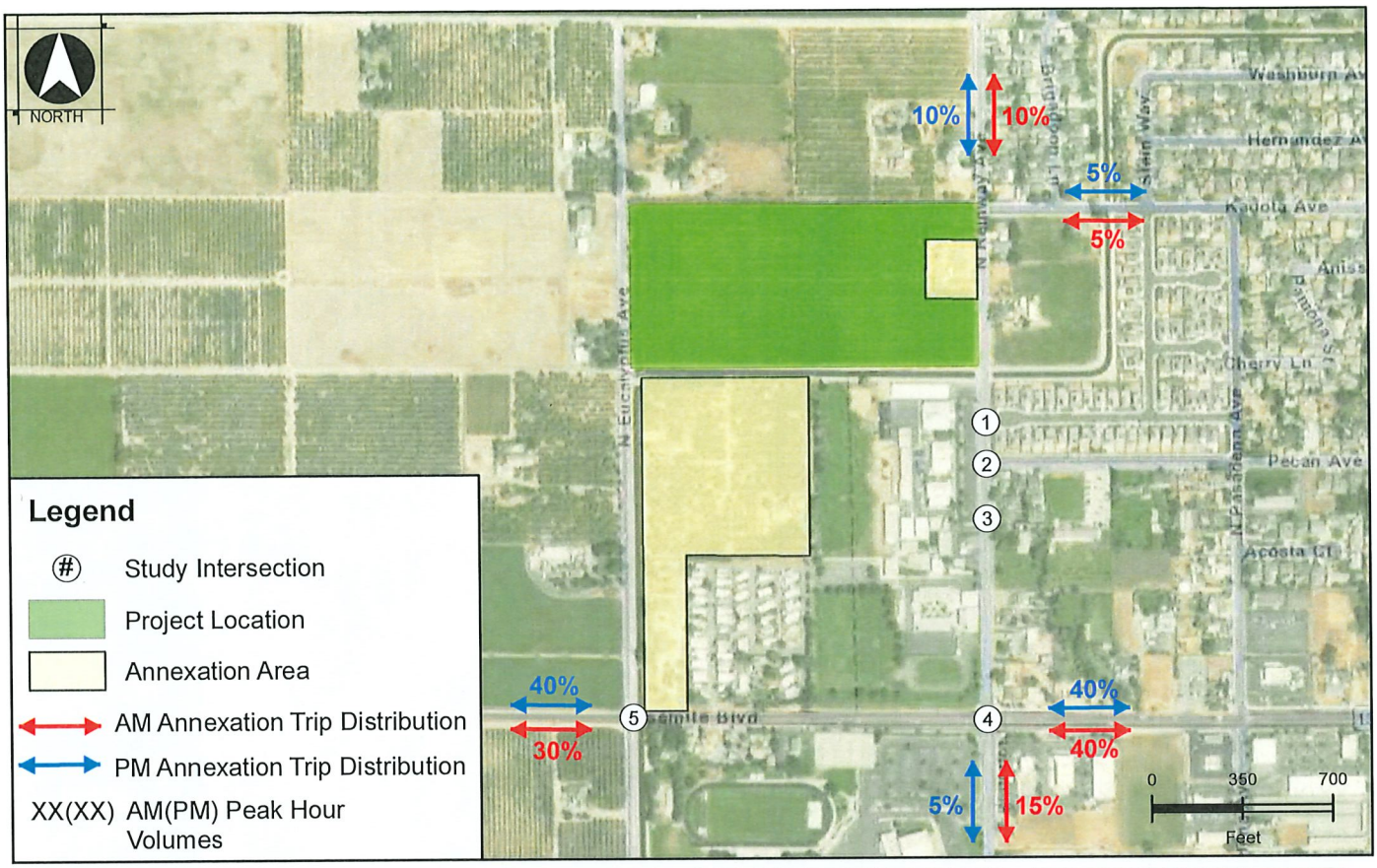
The Annexation area trips were added to Existing Plus Project conditions traffic volumes to obtain Existing Plus Project Plus Annexation conditions traffic volumes, shown in **Figure 4.2**. **Table 4.2** presents Existing Plus Project Plus Annexation study intersection traffic operations under Existing intersection lane geometrics and control (illustrated in **Figure 2.1**) and Existing Plus Project Plus Annexation traffic volumes. **Table 4.2** also shows operations under Existing conditions for comparison purposes. All study intersection traffic operations were calculated using Synchro 11 software.

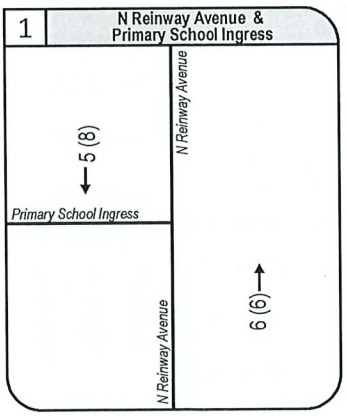
Table 4.2. Existing Plus Project Plus Annexation Intersection Operations

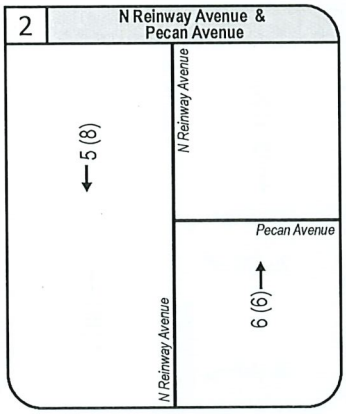
#	Intersection	Control Type	LOS Criteria	Peak Hour	Existing Conditions			Existing Plus Project Plus Annexation Conditions		
					Delay (S/V)[1]	LOS	Wrnt Met?[2]	Delay (S/V)[1]	LOS	Wrnt Met?[2]
1	North Reinway Avenue & Primary School Ingress Driveway	OWSC[1]	D	AM	8.1	A	No	8.2	A	No
				PM	7.6	A	No	7.9	A	No
2	North Reinway Avenue & Pecan Avenue	AWSC[2]	D	AM	8.8	A	No	9.0	A	No
				PM	8.3	A	No	8.9	A	No
3	North Reinway Avenue & Primary School Egress Driveway	OWSC[1]	D	AM	11.4	B	No	11.8	B	No
				PM	11.1	B	No	12.0	B	No
4	North Reinway Avenue & Yosemite Boulevard	Signal	D	AM	27.4	C	--	29.2	C	--
				PM	13.8	B	--	15.1	B	--
5	Eucalyptus Avenue & Yosemite Boulevard	OWSC[1]	D	AM	18.6	C	No	24.8	C	No
				PM	17.6	C	No	20.9	C	No

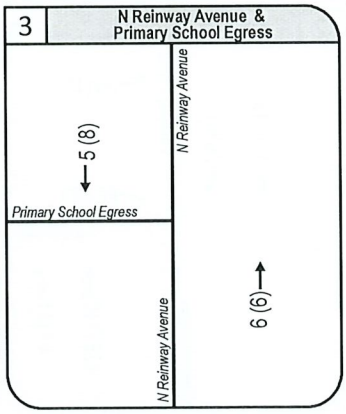
Notes:
[1] OWSC = One-Way Stop-Controlled (i.e., minor street stop-controlled)
[2] AWSC = All-Way Stop-Controlled
[3] For OWSC, the worst approach/movement delay and LOS is reported. For Signalized and AWSC intersections, average intersection delay is reported.
[4] Wrnt Met? = Peak Hour Signal Warrant #3 (70%)

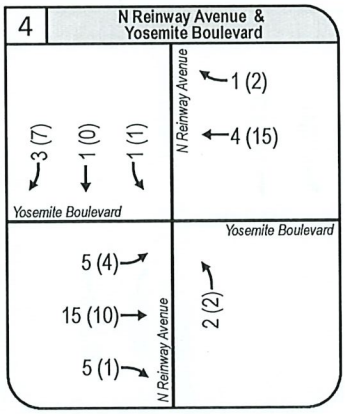
As shown in **Table 4.2**, all study intersections are projected to operate at acceptable LOS conditions. HCM 6th Edition Synchro intersection LOS output reports are included in **Appendix B**. CA MUTCD Peak Hour Signal Warrant #3 is projected to be unmet at all unsignalized study intersections. Signal warrant worksheets are provided in **Appendix C**.

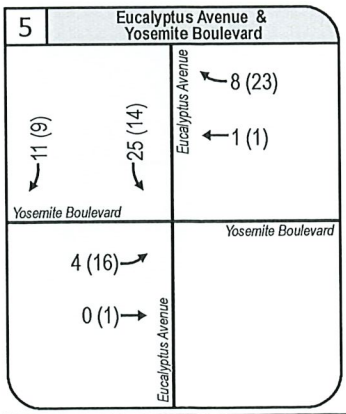












Annexation-Only Trips and Distribution
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 4.1

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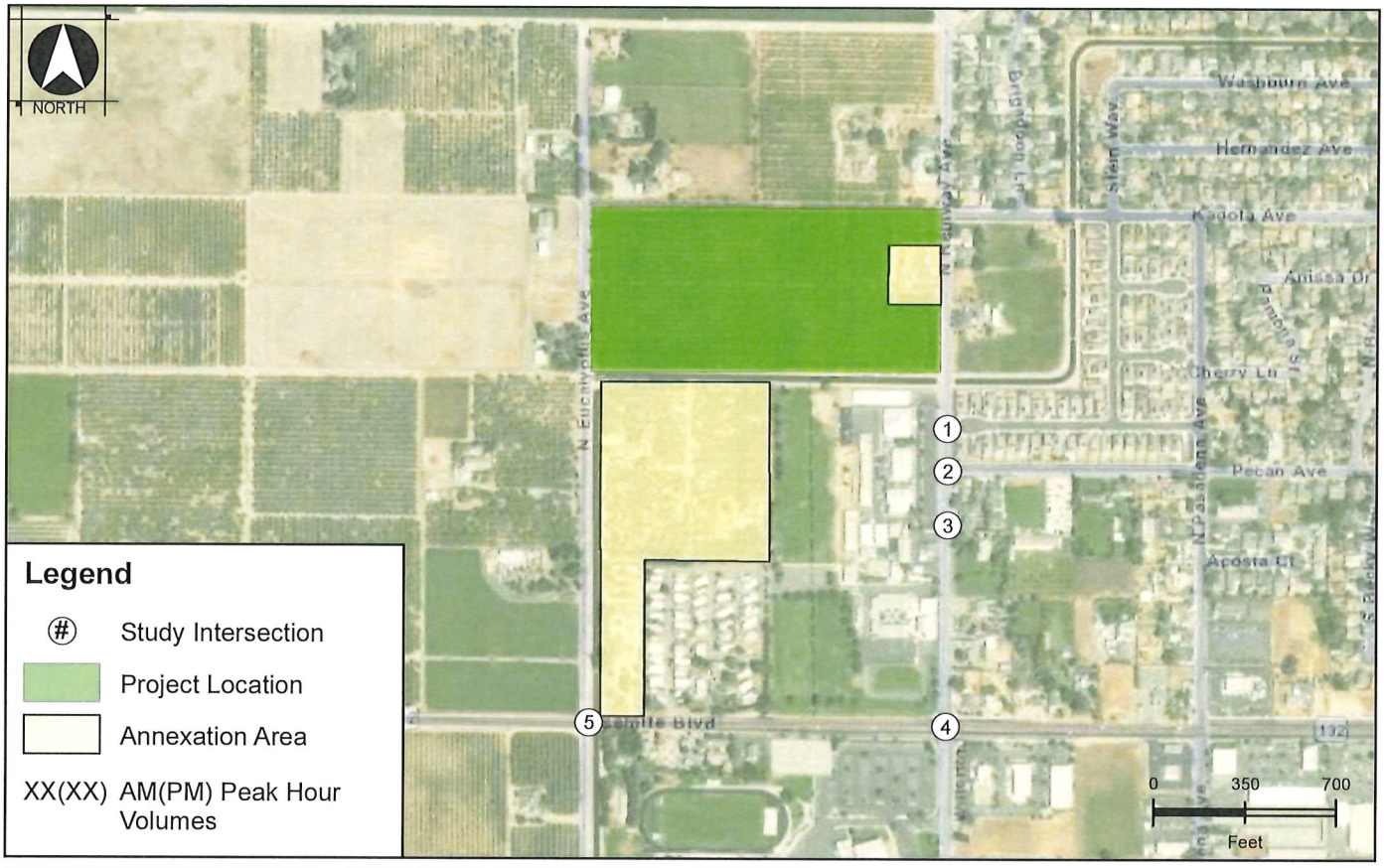

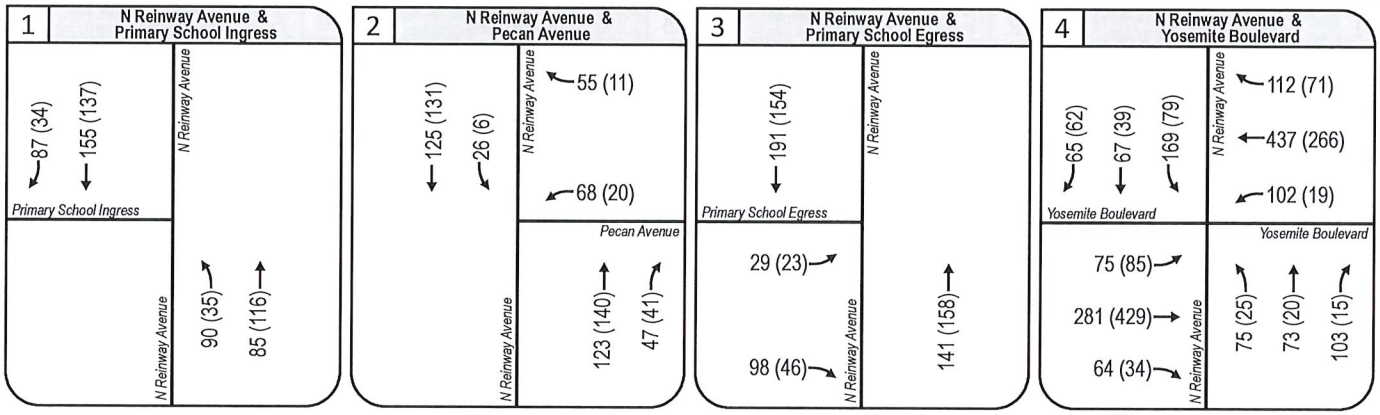

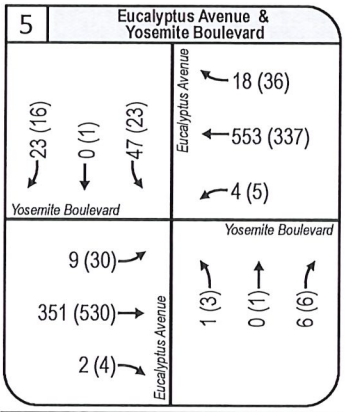

Existing Plus Project Plus Annexation Traffic Volumes
Waterford Annexation and Subdivision Project TIS
Waterford, CA
May 2024

Figure 4.2

WOOD RODGERS

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5 QUEUEING ANALYSIS

Vehicle queuing was analyzed at the study intersections for all stop-controlled movements and movements with turn pockets that the Project and Annexation area would add trips to. **Table 5.1** shows the available storage lengths and 95th percentile queues under all analysis scenarios. As shown in **Table 5.1**, the southbound left-turn movement queue at North Reinway Avenue & Yosemite Boulevard was shown to exceed storage in Existing, Existing Plus Project, and Existing Plus Project Plus Annexation conditions during AM and PM peak hours. All other 95th percentile queues are anticipated to be accommodated by the existing available storage for all study scenarios. Synchro software intersection queueing output reports are included in **Appendix B**.

Table 5.1. Queueing Analysis Results

Intersection	Movement/ Approach	Available Storage (ft)[1]	Peak Hour	95th Percentile Queue (ft)[2]		
				Existing	Existing Plus Project	Existing Plus Project Plus Annexation
#1 North Reinway Avenue & Primary School Ingress Driveway	NBL	--	AM	<20	<20	<20
			PM	<20	<20	<20
#2 North Reinway Avenue & Pecan Avenue	WB	--	AM	<20	<20	<20
			PM	<20	<20	<20
	NB	--	AM	<20	20	22
			PM	<20	26	26
	SB	--	AM	<20	<20	20
			PM	<20	<20	20
#3 North Reinway Avenue & Primary School Egress Driveway	EBL	--	AM	<20	<20	<20
			PM	<20	<20	<20
	EBR	--	AM	<20	<20	<20
			PM	<20	<20	<20
#4 North Reinway Avenue & Yosemite Boulevard	NBL	110	AM	105	107	110
			PM	39	46	51
	NBR	140	AM	<20	23	23
			PM	<20	<20	<20
	SBL	60	AM	**200**	**212**	**214**
			PM	**86**	**112**	**114**
	EBL	470	AM	101	105	110
			PM	84	114	120
	EBR	450	AM	<20	<20	<20
			PM	<20	<20	<20
	WBL	205	AM	141	141	141
			PM	31	42	42
	WBR	200	AM	<20	34	35
			PM	<20	48	51
#5 Eucalyptus Avenue & Yosemite Boulevard	NB	--	AM	<20	<20	<20
			PM	<20	<20	<20
	SBL	--	AM	<20	<20	24
			PM	<20	<20	<20

*Notes: **Bold** values indicate queue exceeds storage.*
[1] For stop-controlled movements, available storage represents the distance to the nearest cross-street.
[2] Queues reported as "<20" indicate queues are less than one vehicle length long.

6 OPERATIONAL DEFICIENCIES AND IMPROVEMENTS

All study intersections are projected to operate at acceptable LOS. CA MUTCD Peak Hour Signal Warrant #3 is not projected to be met under any study scenarios.

Based on the queueing evaluation, the 95th percentile queue for the southbound left at the intersection of North Reinway Avenue & Yosemite Boulevard surpasses the available storage under Existing conditions. With the addition of Project trips, the 95th percentile queue would increase by approximately one additional car length during the PM peak hour and less than one vehicle during the AM peak hour. With the addition of the proposed Annexation area trips, the 95th percentile queue would increase by two additional feet during the AM and PM peak hours compared to Existing Plus Project conditions. All other intersections are anticipated to be accommodated by the existing available storage for all study scenarios.

The southbound left-turn pocket length at North Reinway Avenue & Yosemite Boulevard would need to be lengthened to at least 214 feet to accommodate maximum projected queues under Existing Plus Project Plus Annexation AM peak hour conditions. The turn pocket could be lengthened to approximately 215 feet if on-street parking was restricted along the west side of North Reinway Avenue between Yosemite Boulevard and the southern Lucille Whitehead Intermediate School driveway. The North Reinway Avenue & Yosemite Boulevard intersection likely experiences high southbound queueing during the AM peak hour due to school drop-off traffic.

7 PROJECT SITE ACCESS AND PROPOSES IMPROVEMENTS

7.1 PROJECT SITE ACCESS AND INTERNAL CIRCULATION

The Project would gain access to the existing roadway network via a new roadway connection to Eucalyptus Avenue to the west and a new roadway connection to North Reinway Avenue to the east. Local residential streets would serve the homes in the Project site. Due to low projected volumes within the Project site, intersection controls for the internal residential intersections may not be necessary. Emergency vehicle access would utilize either of the two planned access points, and internal Project residential streets are projected to accommodate emergency vehicles. Project access is projected to be adequate.

Based on the *City of Waterford General Plan Update Vision 2025*, Yosemite Boulevard is designated as a truck route within the City. Truck traffic to the Project site would likely utilize North Reinway Avenue and Eucalyptus Avenue to access the site from Yosemite Boulevard. The existing turning radii for the north leg of the Eucalyptus Avenue & Yosemite Boulevard intersection appear to be approximately 40 feet at the northeast quadrant and 35 feet at the northwest quadrant. A 30-foot-long single unit delivery truck needs a turning radius of at least 29 feet, and a 40-foot-long single unit delivery truck needs a turning radius of at least 37 feet per Federal Highway Administration (FHWA) truck templates. Therefore, it is recommended that the northwest quadrant of the Eucalyptus Avenue & Yosemite Boulevard intersection be modified to have a turn radius of at least 40 feet when the proposed improvements are made to Eucalyptus Avenue as outlined in the following section.

7.2 EUCALYPTUS AVENUE IMPROVEMENTS

The Project would improve Eucalyptus Avenue between Yosemite Boulevard and the northern Project limits by constructing new 12-to-14-foot travel lanes (one lane each direction) with a 2-foot shoulder on the west side. The east side of Eucalyptus Avenue will have a 6-foot bike lane and 5-foot sidewalk along Project frontage, and a potential 5-foot paved concrete trail (if required) between the southern Project limits and Yosemite Boulevard. These improvements would be in anticipation of the future ultimate widening of Eucalyptus Avenue to 4 lanes.

Table 5.2 of the *City of Waterford General Plan Update Vision 2025* projects a cumulative year 2030 design average daily traffic (ADT) volume of 5,700 on Eucalyptus Avenue between Yosemite Boulevard and Star Avenue. The proposed 2-lane Eucalyptus Avenue with 12-to-14-foot travel lanes would function as a Minor

Collector. According to the *Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program Environmental Impact Report* (ICF International, April 2016), a Minor Collector can accommodate up to 5,900 ADT while maintaining the City's LOS target of LOS D. Therefore, the proposed improvements to Eucalyptus Avenue would accommodate the projected cumulative design volume with acceptable LOS D operations.

7.3 POTENTIAL CUT-THROUGH TRAFFIC TO EUCALYPTUS AVENUE

This section analyzes the potential for traffic on North Reinway Avenue to cut-through the proposed Project local residential street to access Eucalyptus Road and avoid school-related congestion on North Reinway Avenue.

Based on a review of the proposed circulation network, school traffic originating west of Eucalyptus Avenue and cutting through the Project local residential street would have to travel an average of approximately 3,200 feet out-of-direction. Assuming an average travel speed of 30 miles per hour, this would equate to approximately 1.2 minutes of out-of-direction travel time. Additionally, school traffic originating east of Eucalyptus Avenue and cutting through the Project local residential street would have to travel an average of approximately 4,600 feet out-of-direction. Assuming an average travel speed of 30 miles per hour, this would equate to approximately 1.75 minutes of out-of-direction travel time. Based upon the amount of additional out-of-direction travel time necessary for school traffic to use the proposed Project local residential street to access Eucalyptus Avenue, it is considered unlikely that a significant amount of school trips would cut-through the Project local residential street.

Based on existing traffic counts, there are up to approximately 200 non-school-related vehicles using North Reinway Avenue during the peak hours. Additionally, of those 200 vehicles, 35 percent travel to/from the west, and 65 percent travel to/from the east via Yosemite Boulevard. Vehicles traveling to/from the east via Yosemite Boulevard are unlikely to cut-through the Project local residential street to Eucalyptus Avenue due to the associated out-of-direction travel time. Therefore, there would be at most approximately 70 vehicles that would consider cutting through the Project local residential street to Eucalyptus Avenue during the AM peak hour school drop-off period. Even less vehicles would be projected during the school pick-up period in the afternoon. This is a relatively low amount of traffic, and so no improvements are currently recommended. However, traffic on the Project local residential road could be monitored for cut-through traffic, and if additional cut-through is observed in the future, traffic calming features such as curb bulb outs and speed humps could be considered for the Project local residential street.

7.4 PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES

Internal Project roadways and Project frontage on North Reinway Avenue and Eucalyptus Avenue would include sidewalks, providing connectivity to Richard M. Moon Primary School and Waterford High School. The Project is located directly to the north of Richard M. Moon Primary School and is within a 300-foot walk to the school entrance. The Project is within a 0.35 mile walk to Waterford High School. The Project is not anticipated to cause a significant increase in pedestrian, bicycle, or transit demand in the study area that would put existing facilities over capacity. The Project would not adversely affect existing or proposed pedestrian, bicycle, or transit facilities in a way that would discourage their use.

8 VMT ANALYSIS

Senate Bill 743 (SB 743), signed in 2013, required changes to CEQA guidelines on the measurement and identification of transportation impacts due to new projects in California. Revised CEQA Guidelines were adopted in 2018 which identified Vehicles Miles Traveled (VMT) as the most appropriate metric to evaluate transportation impacts. Statewide implementation of assessment of VMT as a metric of transportation impact occurred for all jurisdictions on July 1, 2020. The Governor's Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR Technical Advisory) (December 2018), contains technical recommendations regarding assessment of VMT, thresholds of significance, and

mitigation measures.

The City has not currently adopted VMT guidelines or thresholds. Therefore, this TIS evaluates Project VMT using recommendations and methodologies consistent with OPR Guidance.

This TIS utilizes trip generation and trip length information from the location-based services data vendor Replica. Additional information on Replica can be found here: https://replicahq.com/about/. The latest available Replica data for average Thursday daily conditions in Fall of 2022 was utilized for this analysis. All data used in this analysis was from the California-Nevada region, which means it will capture all trips that start or end within the states of California or Nevada. Replica has nation-wide data, which means all trip lengths reported from Replica are full trip lengths and are not truncated due to jurisdictional boundaries. All Replica data used in this study can be provided upon request.

8.1 Project Area Residential VMT per Resident

In order to determine Project-area residential VMT per resident, a "Project Study Area" was created in Replica directly adjacent to the Project site that contained a large number of similar residential land uses, i.e. single-family residential housing with density similar to the Project. The Project Study Area utilized in this Replica analysis is shown in **Appendix E** at the end of this report.

Replica was used to extract all existing trips and corresponding trip lengths for residents of the Project Study Area under average Thursday daily conditions. Replica was also used to extract total existing residents of the Project Study Area. The trip and resident data from Replica were used to calculate VMT per resident for the Project Study Area and is summarized in **Table 8.1**.

Table 8.1 Project Study Area VMT per Resident Data

Project Study Area Metrics	Value
Existing Residents	1,270
Average Daily Trips by Residents	5,369
Average Daily Vehicle-Miles Traveled by Residents[1]	60,574
VMT Per Resident	**47.7**

Notes:
All vales are based on average Thursday daily conditions (Fall of 2022) data obtained from Replica.
[1]Calculated by summing all resident trip lengths reported by Replica.

As shown in **Table 8.1**, it can be generally assumed that the Project Study Area would generate a VMT of approximately 47.7 VMT per resident based on existing travel characteristics of land uses in the Project Study Area and Replica data.

8.2 City Existing Baseline Residential VMT per Resident

Existing average baseline City VMT per resident was calculated using Replica data to maintain consistency between the methods used to calculate Project Study Area VMT and City VMT.

Replica was used to extract all existing trips and corresponding trip lengths for residents of the City under average Thursday daily year 2022 conditions. Replica was also used to extract total existing residents of the City. The trip and resident data from Replica were used to calculate VMT per resident for the City of Waterford and is summarized in **Table 8.2.**

Table 8.2 City of Waterford VMT per Resident Data

City Metrics	Value
Existing Residents	9,150
Average Daily Trips by Residents	34,327
Average Daily Vehicle-Miles Traveled by Residents[1]	437,063
VMT Per Resident	**47.8**

Notes:
All vales are based on average Thursday daily conditions (Fall of 2021) data obtained from Replica.
[1]Calculated by summing all resident trip lengths reported by Replica.

As shown in **Table 8.2**, the existing average baseline City VMT is approximately 47.8 VMT per resident based on the average year 2022 Fall Thursday Replica data.

8.3 VMT Screening Finding

The estimated Project Study Area VMT of 47.7 VMT per resident is approximately 0.15% lower than the Replica data based existing average baseline City VMT of 47.8 VMT per resident. In addition, the Project is consistent with existing land uses in the Project Study Area and would not significantly alter travel patterns in the area.

OPR guidance state that typically, a project may be assumed to have a less-than-significant VMT impact if the project site's VMT per resident is at least 15% below the City or regional average VMT per Resident. However, the OPR Technical Advisory also states that in more rural areas, VMT significance thresholds may be best determined on a case-by-case basis, and clustered small town/city development may have substantial VMT benefits compared to isolated rural development.

Due to the relatively rural nature of the area, small geographical footprint of the City, and lack of transit and multimodal facilities, it is likely infeasible for new development within the City of Waterford to meet the 15% below average threshold. As such, a reasonable expectation for new development within the City would be to not exceed the City's average VMT per Resident. As documented above, the Project does not exceed the City's average VMT per Resident. In addition, the Project is proposing multimodal improvements, including bike lanes and sidewalks on Eucalyptus Avenue and sidewalks on North Reinway Avenue, that would help further reduce the Project's VMT below the City average.

8.4 Annexation Area VMT

The four largely undeveloped parcels in the Annexation area would consist of the same land uses as the Project (single family dwelling units) and are located directly adjacent to the Project. Therefore, the Annexation area can be projected to have the same VMT per resident as the Project, 47.7 VMT per resident, which is 0.15% lower than the baseline City VMT of 47.8 VMT per resident.

Due to the relatively rural nature of the area, small geographical footprint of the City, and lack of transit and multimodal facilities, it is likely infeasible for new development within the City of Waterford to meet the 15% below average threshold. As such, a reasonable expectation for new development within the City would be to not exceed the City's average VMT per Resident. As documented above, the Annexation area is not projected to exceed the City's average VMT per Resident. It is recommended that the Annexation area consider constructing multimodal improvements such as bike lanes and sidewalk, where feasible, when developed.

Appendix A

Traffic Counts

Prepared by National Data & Surveying Services

Reinway Ave & Richard M Moon Primary School Dropoff Dwy

Peak Hour Turning Movement Count

ID: 23-090061-001
City: Waterford

Day: Tuesday
Date: 5/23/2023

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NONE	NONE
05:45 PM - 06:45 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Reinway Ave)

AM	87	131	0	1	75	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Richard M Moon Primary School Dropoff Dwy)

AM	NOON	PM
175	0	0
0	0	0
1	0	0
0	0	0
0	0	0

AM NOON PM

WESTBOUND (Richard M Moon Primary School Dropoff Dwy)

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

PM NOON AM

NORTHBOUND (Reinway Ave)

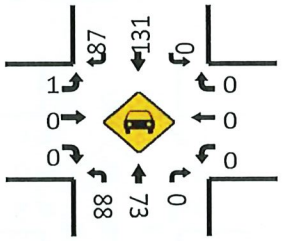
PM	0	0	0	0	PM
NOON	0	0	0	0	NOON
AM	133	2	88	73	AM

CONTROL

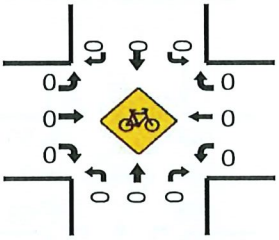
No Control

TEV	383	0	0
	AM	NOON	PM
PHF	0.80		

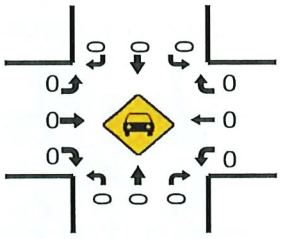
Totals (AM)



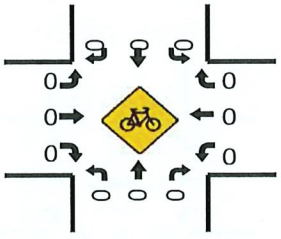
Total Bikes (AM)



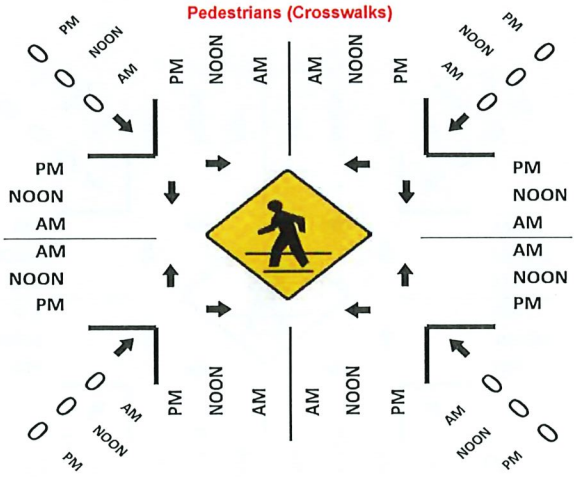
Totals (NOON)



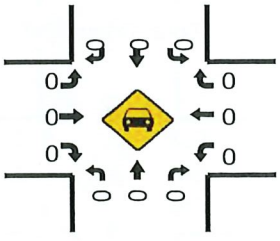
Total Bikes (NOON)



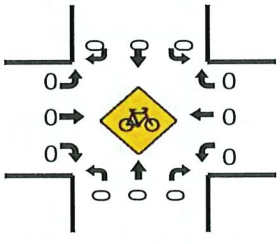
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Reinway Ave & Pecan Ave

Peak Hour Turning Movement Count

ID: 23-090061-002
City: Waterford

Day: Tuesday
Date: 5/23/2023

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Reinway Ave)

	L	T	R	U	Total	
AM	0	101	25	1	167	AM
NOON	0	0	0	0	0	NOON
PM	0	104	6	0	113	PM

EASTBOUND (Pecan Ave)

	L	T	R	U	Total	
AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

WESTBOUND (Pecan Ave)

	L	T	R	U	Total	
PM	11	0	55	0	66	PM
NOON	0	0	0	0	0	NOON
AM	20	0	68	0	88	AM

NORTHBOUND (Reinway Ave)

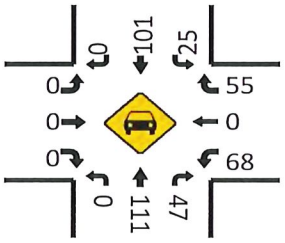
	L	T	R	U	Total	
PM	124	0	0	102	41	PM
NOON	0	0	0	0	0	NOON
AM	169	0	0	111	47	AM

CONTROL

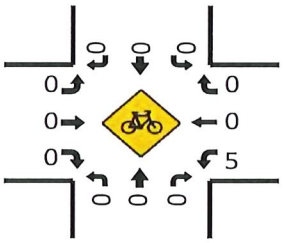
3-Way Stop (NB/SB/WB)

TEV	408	0	284
	AM	NOON	PM
PHF	0.78		0.65

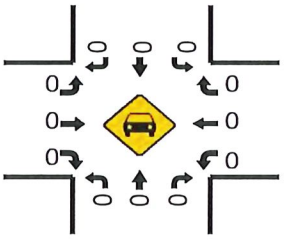
Totals (AM)



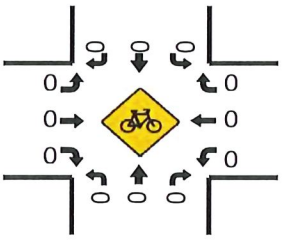
Total Bikes (AM)



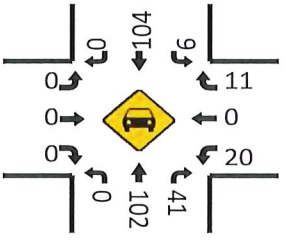
Totals (NOON)



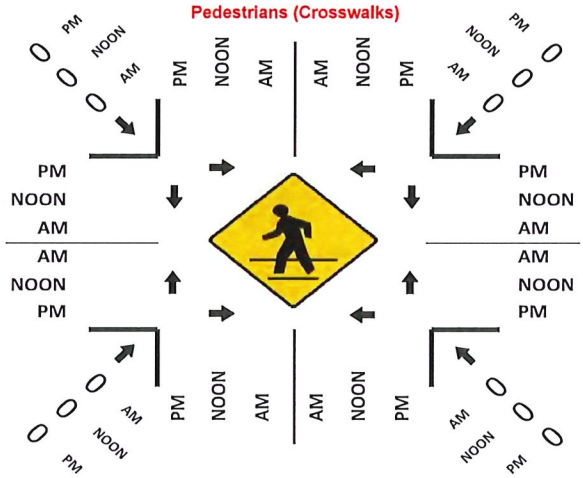
Total Bikes (NOON)



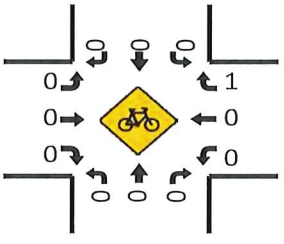
Totals (PM)



Pedestrians (Crosswalks)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Reinway Ave & Richard M Moon Primary School Drop off Exit

Peak Hour Turning Movement Count

ID: 23-090061-003
City: Waterford

Day: Tuesday
Date: 5/23/2023

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 06:00 PM

SOUTHBOUND – Reinway Ave

	Right	Through	Left	U-Turn	Departing
AM	0	167	0	0	158
NOON	0	0	0	0	0
PM	1	125	1	0	143
Bikes	0	1	0	0	

EASTBOUND – Richard M Moon Primary School Drop off Exit

	AM	NOON	PM	Bikes
Departing	0	0	1	
U-Turn	0	0	0	0
Left	29	0	23	0
Through	0	0	0	1
Right	98	0	46	0

WESTBOUND – Richard M Moon Primary School Drop off Exit

	PM	NOON	AM	Bikes
Right	0	0	0	0
Through	0	0	0	0
Left	0	0	0	0
U-Turn	0	0	0	0
Departing	1	0	0	

NORTHBOUND – Reinway Ave

	Departing	U-Turn	Left	Through	Right
Bikes		0	0	1	0
PM	171	0	0	120	0
NOON	0	0	0	0	0
AM	265	0	0	129	0

CONTROL

1-Way Stop (EB)

	AM	NOON	PM
TEV	423	0	316
PHF	0.76		0.66

Totals (AM)

Approach	Left	Through	Right	U-Turn
Southbound	0	167	0	0
Eastbound	29	0	98	
Westbound	0	0	0	0
Northbound	0	129	0	0

Totals (NOON)

Approach	Left	Through	Right	U-Turn
Southbound	0	0	0	0
Eastbound	0	0	0	
Westbound	0	0	0	0
Northbound	0	0	0	0

Totals (PM)

Approach	Left	Through	Right	U-Turn
Southbound	1	125	1	0
Eastbound	23	0	46	
Westbound	0	0	0	0
Northbound	0	120	0	0

Total Bikes (AM)

Approach	Left	Through	Right	U-Turn
Southbound	0	5	0	0
Eastbound	0	0	0	
Westbound	0	0	0	0
Northbound	0	0	0	

Total Bikes (NOON)

All movements: 0

Total Bikes (PM)

All movements: 0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg	0	0	0
South leg	0	0	0
East leg	0	0	0
West leg	0	0	0

Prepared by National Data & Surveying Services

Reinway Ave & SR 132

Peak Hour Turning Movement Count

ID: 23-090061-004
City: Waterford

Day: Tuesday
Date: 5/23/2023

PEAK HOURS: 07:15 AM - 08:15 AM; NONE; 05:00 PM - 06:00 PM

COUNT PERIODS: 7:00 AM - 09:00 AM; NONE; 4:00 PM - 06:00 PM

SOUTHBOUND (Reinway Ave)

AM	55	63	159	0	248	AM
NOON	0	0	0	0	0	NOON
PM	46	38	69	0	138	PM

EASTBOUND (SR 132)

AM	NOON	PM	
555	0	309	
0	0	0	0
68	0	66	1
253	0	413	1
54	0	32	1

WESTBOUND (SR 132)

PM	NOON	AM	
54	0	108	1
241	0	429	1
19	0	102	1
0	0	0	0
497	0	515	

NORTHBOUND (Reinway Ave)

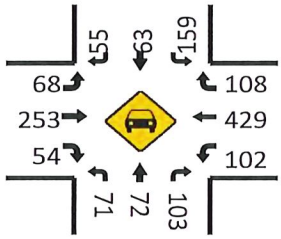
PM	89	0	22	18	15	PM
NOON	0	0	0	0	0	NOON
AM	219	0	71	72	103	AM

0.5 0.5 1 0 — 0 1 1 1

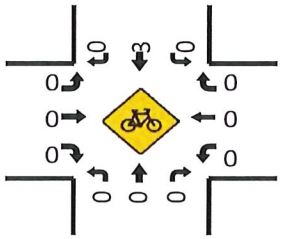
CONTROL: Signalized

TEV	1537 AM	0 NOON	1033 PM
PHF	0.77		0.84

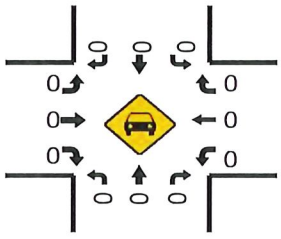
Totals (AM)



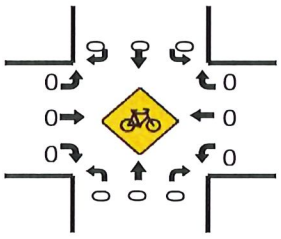
Total Bikes (AM)



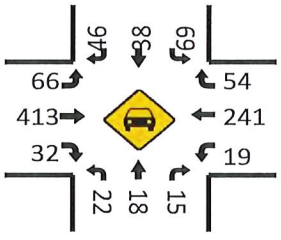
Totals (NOON)



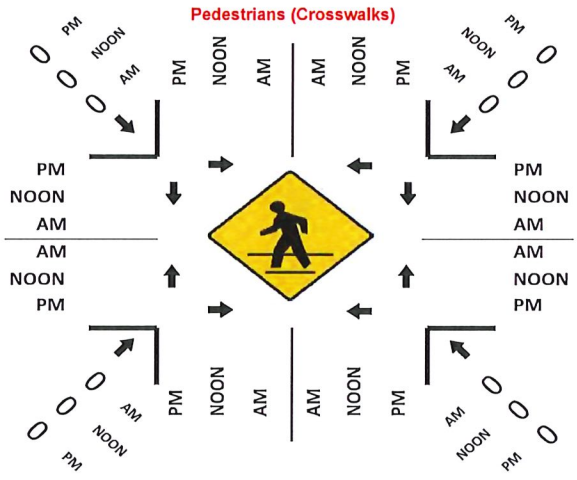
Total Bikes (NOON)



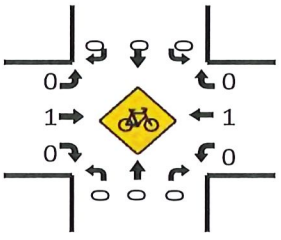
Totals (PM)



Pedestrians (Crosswalks)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Eucalyptus Ave & SR 132

Peak Hour Turning Movement Count

ID: 23-090061-005
City: Waterford

Day: Tuesday
Date: 5/23/2023

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	4:00 PM - 06:00 PM

SOUTHBOUND (Eucalyptus Ave)

AM	2	0	4	0	6	AM
NOON	0	0	0	0	0	NOON
PM	1	1	2	0	5	PM

EASTBOUND (SR 132)

AM	NOON	PM	
548	0	331	⇦
0	0	0	↶ 0
2	0	2	↰ 0
349	0	514	→ 1
2	0	4	↱ 0
AM	NOON	PM	

WESTBOUND (SR 132)

PM	NOON	AM	
2	0	4	0 ↱
327	0	545	1 ←
5	0	4	0 ↰
0	0	0	0 ↶
522	0	359	⇨
PM	NOON	AM	

NORTHBOUND (Eucalyptus Ave)

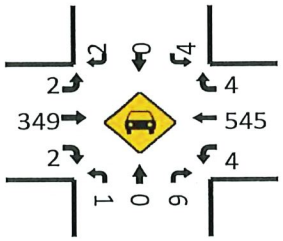
PM	10	0	3	1	6	PM
NOON	0	0	0	0	0	NOON
AM	6	0	1	0	6	AM

CONTROL

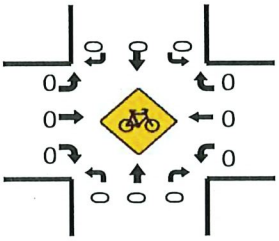
2-Way Stop (NB/SB)

TEV	919 AM	0 NOON	868 PM
PHF	0.92		0.91

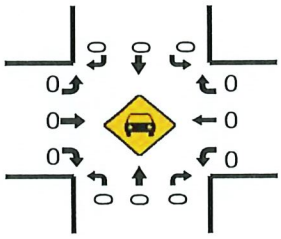
Totals (AM)



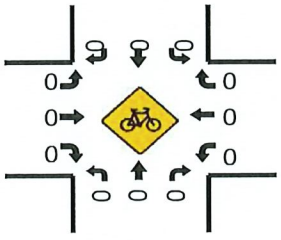
Total Bikes (AM)



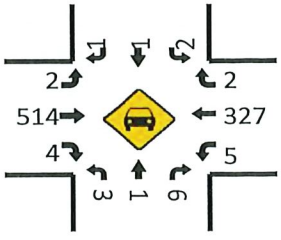
Totals (NOON)



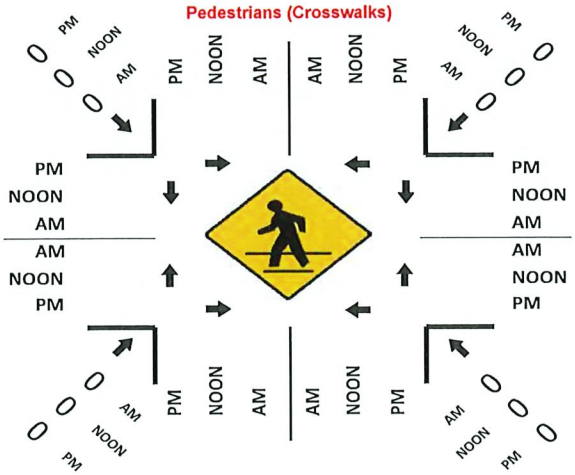
Total Bikes (NOON)



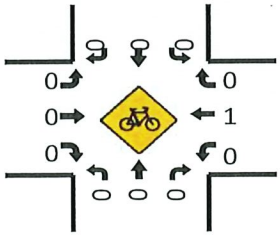
Totals (PM)



Pedestrians (Crosswalks)



Total Bikes (PM)



Appendix B

Synchro HCM 6th Edition LOS and Queueing Reports

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	90	73	131	87
Future Vol, veh/h	0	0	90	73	131	87
Conflicting Peds, #/hr	0	10	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	113	91	164	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	237	281	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	802	1282	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	788	1272	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	4.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1272	-	-	-	-
HCM Lane V/C Ratio	0.088	-	-	-	-
HCM Control Delay (s)	8.1	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	55	111	47	26	101
Future Vol, veh/h	68	55	111	47	26	101
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	71	142	60	33	129
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.8	8.7	8.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	20%
Vol Thru, %	70%	0%	80%
Vol Right, %	30%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	158	123	127
LT Vol	0	68	26
Through Vol	111	0	101
RT Vol	47	55	0
Lane Flow Rate	203	158	163
Geometry Grp	1	1	1
Degree of Util (X)	0.243	0.201	0.207
Departure Headway (Hd)	4.316	4.591	4.568
Convergence, Y/N	Yes	Yes	Yes
Cap	833	782	786
Service Time	2.341	2.62	2.595
HCM Lane V/C Ratio	0.244	0.202	0.207
HCM Control Delay	8.7	8.8	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.7	0.8

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	98	0	129	167	0
Future Vol, veh/h	29	98	0	129	167	0
Conflicting Peds, #/hr	12	2	60	0	0	60
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	129	0	170	220	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	402	222	-	0	-	0
Stage 1	220	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	604	818	0	-	-	0
Stage 1	817	-	0	-	-	0
Stage 2	849	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	604	816	-	-	-	-
Mov Cap-2 Maneuver	604	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	849	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	604	816	-
HCM Lane V/C Ratio	-	0.063	0.158	-
HCM Control Delay (s)	-	11.4	10.2	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	88	329	70	132	557	140	92	94	134	206	153
v/c Ratio	0.58	0.48	0.11	0.68	0.72	0.20	0.59	0.28	0.34	0.74	0.33
Control Delay	64.6	30.6	2.6	64.8	35.6	6.2	64.6	39.4	7.7	60.3	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	30.6	2.6	64.8	35.6	6.2	64.6	39.4	7.7	60.3	27.0
Queue Length 50th (ft)	59	172	0	87	325	4	61	54	0	134	64
Queue Length 95th (ft)	101	251	6	141	450	31	105	91	24	200	107
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	361	874	777	270	779	711	270	836	769	361	824
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.38	0.09	0.49	0.72	0.20	0.34	0.11	0.17	0.57	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	253	54	102	429	108	71	72	103	159	63	55
Future Volume (veh/h)	68	253	54	102	429	108	71	72	103	159	63	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	329	70	132	557	140	92	94	134	206	82	71
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	561	474	166	617	518	118	423	356	246	260	225
Arrive On Green	0.06	0.30	0.30	0.09	0.33	0.33	0.07	0.23	0.23	0.14	0.30	0.30
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	873	756
Grp Volume(v), veh/h	88	329	70	132	557	140	92	94	134	206	0	153
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	0	1629
Q Serve(g_s), s	3.7	11.2	2.4	5.5	21.4	4.9	3.8	3.1	5.4	8.5	0.0	5.5
Cycle Q Clear(g_c), s	3.7	11.2	2.4	5.5	21.4	4.9	3.8	3.1	5.4	8.5	0.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	113	561	474	166	617	518	118	423	356	246	0	486
V/C Ratio(X)	0.78	0.59	0.15	0.79	0.90	0.27	0.78	0.22	0.38	0.84	0.00	0.31
Avail Cap(c_a), veh/h	474	1145	967	355	1020	857	355	1095	920	474	0	954
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.7	22.4	19.3	33.4	24.1	18.5	34.5	23.7	24.6	31.6	0.0	20.4
Incr Delay (d2), s/veh	4.2	0.4	0.1	3.2	4.1	0.1	4.1	0.1	0.2	2.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	4.8	0.9	2.5	9.7	1.8	1.8	1.3	2.0	3.8	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	22.7	19.3	36.6	28.2	18.6	38.6	23.8	24.8	34.4	0.0	20.6
LnGrp LOS	D	C	B	D	C	B	D	C	C	C	A	C
Approach Vol, veh/h		487			829			320			359	
Approach Delay, s/veh		25.2			27.9			28.5			28.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	28.5	9.0	26.6	8.8	30.8	14.4	21.2
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	15.0	46.0	15.0	* 44	20.0	41.0	20.0	* 44
Max Q Clear Time (g_c+I1), s	7.5	13.2	5.8	7.5	5.7	23.4	10.5	7.4
Green Ext Time (p_c), s	0.0	0.8	0.0	0.4	0.0	1.4	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	349	2	4	545	4	1	0	6	4	0	2
Future Vol, veh/h	2	349	2	4	545	4	1	0	6	4	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	379	2	4	592	4	1	0	7	4	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	596	0	0	381	0	0	987	988	380	990	987	594
Stage 1	-	-	-	-	-	-	384	384	-	602	602	-
Stage 2	-	-	-	-	-	-	603	604	-	388	385	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	980	-	-	1177	-	-	226	247	667	225	247	505
Stage 1	-	-	-	-	-	-	639	611	-	486	489	-
Stage 2	-	-	-	-	-	-	486	488	-	636	611	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	980	-	-	1177	-	-	224	245	667	221	245	505
Mov Cap-2 Maneuver	-	-	-	-	-	-	224	245	-	221	245	-
Stage 1	-	-	-	-	-	-	637	609	-	485	487	-
Stage 2	-	-	-	-	-	-	481	486	-	628	609	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	12	18.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	520	980	-	-	1177	-	-	272
HCM Lane V/C Ratio	0.015	0.002	-	-	0.004	-	-	0.024
HCM Control Delay (s)	12	8.7	0	-	8.1	0	-	18.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	35	78	110	34
Future Vol, veh/h	0	0	35	78	110	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	53	118	167	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	193	219	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	849	1350	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	849	1350	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1350	-	-	-	-
HCM Lane V/C Ratio	0.039	-	-	-	-
HCM Control Delay (s)	7.8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	11	102	41	6	104
Future Vol, veh/h	20	11	102	41	6	104
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	17	157	63	9	160
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8	8.3	8.3
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	65%	5%
Vol Thru, %	71%	0%	95%
Vol Right, %	29%	35%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	143	31	110
LT Vol	0	20	6
Through Vol	102	0	104
RT Vol	41	11	0
Lane Flow Rate	220	48	169
Geometry Grp	1	1	1
Degree of Util (X)	0.243	0.062	0.197
Departure Headway (Hd)	3.972	4.676	4.195
Convergence, Y/N	Yes	Yes	Yes
Cap	891	771	844
Service Time	2.053	2.676	2.276
HCM Lane V/C Ratio	0.247	0.062	0.2
HCM Control Delay	8.3	8	8.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.2	0.7

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	46	0	120	127	0
Future Vol, veh/h	23	46	0	120	127	0
Conflicting Peds, #/hr	3	0	14	0	0	14
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	70	0	182	192	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	377	192	-	0	-	0
Stage 1	192	-	-	-	-	-
Stage 2	185	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	625	850	0	-	-	0
Stage 1	841	-	0	-	-	0
Stage 2	847	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	625	850	-	-	-	-
Mov Cap-2 Maneuver	625	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	847	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	625	850	-
HCM Lane V/C Ratio	-	0.056	0.082	-
HCM Control Delay (s)	-	11.1	9.6	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.2	0.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	492	38	23	287	64	26	21	18	82	100
v/c Ratio	0.43	0.44	0.04	0.20	0.30	0.08	0.22	0.11	0.09	0.44	0.32
Control Delay	42.0	15.6	5.9	42.3	17.5	10.0	42.3	30.7	1.7	41.9	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	15.6	5.9	42.3	17.5	10.0	42.3	30.7	1.7	41.9	23.0
Queue Length 50th (ft)	30	95	0	9	75	5	10	8	0	31	24
Queue Length 95th (ft)	92	365	18	39	217	38	43	28	1	94	70
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	1195	1409	1181	1195	1409	1166	1195	1765	1460	1195	1598
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.35	0.03	0.02	0.20	0.05	0.02	0.01	0.01	0.07	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	413	32	19	241	54	22	18	15	69	38	46
Future Volume (veh/h)	66	413	32	19	241	54	22	18	15	69	38	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	492	38	23	287	64	26	21	18	82	45	55
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	604	501	41	534	441	45	186	156	110	104	127
Arrive On Green	0.06	0.32	0.32	0.02	0.29	0.29	0.03	0.10	0.10	0.06	0.14	0.14
Sat Flow, veh/h	1781	1870	1552	1781	1870	1546	1781	1870	1570	1781	764	934
Grp Volume(v), veh/h	79	492	38	23	287	64	26	21	18	82	0	100
Grp Sat Flow(s),veh/h/ln	1781	1870	1552	1781	1870	1546	1781	1870	1570	1781	0	1698
Q Serve(g_s), s	1.6	8.9	0.6	0.5	4.8	1.1	0.5	0.4	0.4	1.7	0.0	2.0
Cycle Q Clear(g_c), s	1.6	8.9	0.6	0.5	4.8	1.1	0.5	0.4	0.4	1.7	0.0	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	107	604	501	41	534	441	45	186	156	110	0	230
V/C Ratio(X)	0.74	0.81	0.08	0.57	0.54	0.15	0.58	0.11	0.12	0.75	0.00	0.43
Avail Cap(c_a), veh/h	2415	2840	2356	2415	2586	2138	2415	4006	3364	2415	0	3637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	11.5	8.7	17.8	11.1	9.8	17.8	15.1	15.1	17.0	0.0	14.6
Incr Delay (d2), s/veh	3.7	1.0	0.0	4.5	0.3	0.1	4.2	0.1	0.1	3.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.4	0.2	0.2	1.5	0.3	0.2	0.1	0.1	0.7	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	12.5	8.7	22.4	11.4	9.9	22.0	15.2	15.3	20.8	0.0	15.1
LnGrp LOS	C	B	A	C	B	A	C	B	B	C	A	B
Approach Vol, veh/h		609			374			65			182	
Approach Delay, s/veh		13.3			11.8			17.9			17.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	17.9	4.9	9.2	6.2	16.5	6.3	7.9
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	50.0	56.0	50.0	* 79	50.0	51.0	50.0	* 79
Max Q Clear Time (g_c+I1), s	2.5	10.9	2.5	4.0	3.6	6.8	3.7	2.4
Green Ext Time (p_c), s	0.0	0.8	0.0	0.3	0.0	0.6	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	514	4	5	327	2	3	1	6	2	1	1
Future Vol, veh/h	2	514	4	5	327	2	3	1	6	2	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	565	4	5	359	2	3	1	7	2	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	361	0	0	569	0	0	942	942	567	945	943	360
Stage 1	-	-	-	-	-	-	571	571	-	370	370	-
Stage 2	-	-	-	-	-	-	371	371	-	575	573	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1198	-	-	1003	-	-	243	263	523	242	263	684
Stage 1	-	-	-	-	-	-	506	505	-	650	620	-
Stage 2	-	-	-	-	-	-	649	620	-	503	504	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1198	-	-	1003	-	-	240	261	523	237	261	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	261	-	237	261	-
Stage 1	-	-	-	-	-	-	505	504	-	649	616	-
Stage 2	-	-	-	-	-	-	643	616	-	495	503	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	15.3	17.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	360	1198	-	-	1003	-	-	291
HCM Lane V/C Ratio	0.031	0.002	-	-	0.005	-	-	0.015
HCM Control Delay (s)	15.3	8	0	-	8.6	0	-	17.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	90	79	150	87
Future Vol, veh/h	0	0	90	79	150	87
Conflicting Peds, #/hr	0	10	8	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	113	99	188	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	261	305	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	778	1256	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	765	1246	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	4.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1246	-	-	-	-
HCM Lane V/C Ratio	0.09	-	-	-	-
HCM Control Delay (s)	8.2	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	55	117	47	26	120
Future Vol, veh/h	68	55	117	47	26	120
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	71	150	60	33	154
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	8.9	9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	18%
Vol Thru, %	71%	0%	82%
Vol Right, %	29%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	164	123	146
LT Vol	0	68	26
Through Vol	117	0	120
RT Vol	47	55	0
Lane Flow Rate	210	158	187
Geometry Grp	1	1	1
Degree of Util (X)	0.254	0.204	0.238
Departure Headway (Hd)	4.355	4.661	4.578
Convergence, Y/N	Yes	Yes	Yes
Cap	824	770	784
Service Time	2.382	2.695	2.606
HCM Lane V/C Ratio	0.255	0.205	0.239
HCM Control Delay	8.9	8.9	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.8	0.9

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	98	0	135	186	0
Future Vol, veh/h	29	98	0	135	186	0
Conflicting Peds, #/hr	12	2	60	0	0	60
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	129	0	178	245	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	435	247	-	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	190	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	578	792	0	-	-	0
Stage 1	796	-	0	-	-	0
Stage 2	842	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	578	790	-	-	-	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	578	790	-
HCM Lane V/C Ratio	-	0.066	0.163	-
HCM Control Delay (s)	-	11.7	10.4	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	91	345	77	132	562	144	95	95	134	218	167
v/c Ratio	0.59	0.51	0.12	0.68	0.73	0.20	0.60	0.29	0.35	0.74	0.39
Control Delay	64.8	31.3	3.4	64.9	36.2	6.6	64.6	40.1	7.9	59.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	31.3	3.4	64.9	36.2	6.6	64.6	40.1	7.9	59.4	28.2
Queue Length 50th (ft)	61	183	0	88	332	5	64	56	0	141	71
Queue Length 95th (ft)	105	264	10	141	457	34	107	91	23	212	116
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	357	864	770	267	770	705	267	826	762	357	812
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.40	0.10	0.49	0.73	0.20	0.36	0.12	0.18	0.61	0.21

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	266	59	102	433	111	73	73	103	168	66	62
Future Volume (veh/h)	70	266	59	102	433	111	73	73	103	168	66	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	345	77	132	562	144	95	95	134	218	86	81
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	558	472	175	620	520	122	418	351	258	250	236
Arrive On Green	0.07	0.30	0.30	0.10	0.33	0.33	0.07	0.22	0.22	0.14	0.30	0.30
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	834	786
Grp Volume(v), veh/h	91	345	77	132	562	144	95	95	134	218	0	167
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	0	1620
Q Serve(g_s), s	3.9	12.3	2.8	5.6	22.3	5.2	4.1	3.2	5.6	9.2	0.0	6.2
Cycle Q Clear(g_c), s	3.9	12.3	2.8	5.6	22.3	5.2	4.1	3.2	5.6	9.2	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	117	558	472	175	620	520	122	418	351	258	0	486
V/C Ratio(X)	0.78	0.62	0.16	0.75	0.91	0.28	0.78	0.23	0.38	0.85	0.00	0.34
Avail Cap(c_a), veh/h	460	1110	937	345	989	831	345	1062	892	460	0	919
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	23.4	20.0	34.0	24.8	19.1	35.5	24.6	25.5	32.3	0.0	21.2
Incr Delay (d2), s/veh	4.1	0.4	0.1	2.5	5.2	0.1	4.0	0.1	0.3	2.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	5.3	1.0	2.5	10.3	1.9	1.9	1.4	2.1	4.1	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	23.8	20.1	36.5	30.0	19.2	39.5	24.7	25.8	35.3	0.0	21.3
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	A	C
Approach Vol, veh/h		513			838			324			385	
Approach Delay, s/veh		26.1			29.1			29.5			29.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	29.1	9.3	27.4	9.1	31.7	15.2	21.5
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	15.0	46.0	15.0	* 44	20.0	41.0	20.0	* 44
Max Q Clear Time (g_c+I1), s	7.6	14.3	6.1	8.2	5.9	24.3	11.2	7.6
Green Ext Time (p_c), s	0.0	0.8	0.0	0.4	0.0	1.4	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	351	2	4	552	10	1	0	6	22	0	12
Future Vol, veh/h	5	351	2	4	552	10	1	0	6	22	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	382	2	4	600	11	1	0	7	24	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	611	0	0	384	0	0	1013	1012	383	1011	1008	606
Stage 1	-	-	-	-	-	-	393	393	-	614	614	-
Stage 2	-	-	-	-	-	-	620	619	-	397	394	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	968	-	-	1174	-	-	217	239	664	218	240	497
Stage 1	-	-	-	-	-	-	632	606	-	479	483	-
Stage 2	-	-	-	-	-	-	476	480	-	629	605	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	968	-	-	1174	-	-	209	236	664	214	237	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	236	-	214	237	-
Stage 1	-	-	-	-	-	-	628	602	-	476	481	-
Stage 2	-	-	-	-	-	-	461	478	-	618	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	12.2	20.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	506	968	-	-	1174	-	-	268
HCM Lane V/C Ratio	0.015	0.006	-	-	0.004	-	-	0.138
HCM Control Delay (s)	12.2	8.7	0	-	8.1	0	-	20.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	35	110	129	34
Future Vol, veh/h	0	0	35	110	129	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	53	167	195	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	221	247	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	819	1319	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	819	1319	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1319	-	-	-	-
HCM Lane V/C Ratio	0.04	-	-	-	-
HCM Control Delay (s)	7.8	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	11	134	41	6	123
Future Vol, veh/h	20	11	134	41	6	123
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	17	206	63	9	189
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.9	8.6
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	65%	5%
Vol Thru, %	77%	0%	95%
Vol Right, %	23%	35%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	175	31	129
LT Vol	0	20	6
Through Vol	134	0	123
RT Vol	41	11	0
Lane Flow Rate	269	48	198
Geometry Grp	1	1	1
Degree of Util (X)	0.301	0.064	0.233
Departure Headway (Hd)	4.026	4.845	4.229
Convergence, Y/N	Yes	Yes	Yes
Cap	878	744	836
Service Time	2.12	2.845	2.328
HCM Lane V/C Ratio	0.306	0.065	0.237
HCM Control Delay	8.9	8.2	8.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.2	0.9

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	46	0	152	146	0
Future Vol, veh/h	23	46	0	152	146	0
Conflicting Peds, #/hr	3	0	14	0	0	14
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	70	0	230	221	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	454	221	-	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	564	819	0	-	-	0
Stage 1	816	-	0	-	-	0
Stage 2	806	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	564	819	-	-	-	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	806	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	564	819	-
HCM Lane V/C Ratio	-	0.062	0.085	-
HCM Control Delay (s)	-	11.8	9.8	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.2	0.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	96	499	39	23	299	82	27	24	18	93	111
v/c Ratio	0.50	0.43	0.04	0.21	0.32	0.10	0.24	0.13	0.09	0.50	0.43
Control Delay	47.3	14.8	5.5	47.5	17.8	10.3	47.4	35.5	1.3	47.4	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	14.8	5.5	47.5	17.8	10.3	47.4	35.5	1.3	47.4	28.8
Queue Length 50th (ft)	42	101	0	10	84	9	12	11	0	41	36
Queue Length 95th (ft)	114	373	18	42	233	48	46	34	1	112	84
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	1103	1301	1093	1103	1301	1082	1103	1741	1440	1103	1567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.38	0.04	0.02	0.23	0.08	0.02	0.01	0.01	0.08	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	419	33	19	251	69	23	20	15	78	39	55
Future Volume (veh/h)	81	419	33	19	251	69	23	20	15	78	39	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	96	499	39	23	299	82	27	24	18	93	46	65
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	770	639	40	684	566	45	170	142	118	92	130
Arrive On Green	0.07	0.41	0.41	0.02	0.37	0.37	0.03	0.09	0.09	0.07	0.13	0.13
Sat Flow, veh/h	1781	1870	1552	1781	1870	1547	1781	1870	1568	1781	700	988
Grp Volume(v), veh/h	96	499	39	23	299	82	27	24	18	93	0	111
Grp Sat Flow(s),veh/h/ln	1781	1870	1552	1781	1870	1547	1781	1870	1568	1781	0	1688
Q Serve(g_s), s	2.4	9.5	0.7	0.6	5.4	1.6	0.7	0.5	0.5	2.3	0.0	2.7
Cycle Q Clear(g_c), s	2.4	9.5	0.7	0.6	5.4	1.6	0.7	0.5	0.5	2.3	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.59
Lane Grp Cap(c), veh/h	122	770	639	40	684	566	45	170	142	118	0	222
V/C Ratio(X)	0.79	0.65	0.06	0.58	0.44	0.14	0.59	0.14	0.13	0.79	0.00	0.50
Avail Cap(c_a), veh/h	1999	2351	1951	1999	2141	1772	1999	3317	2780	1999	0	2994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	10.5	7.9	21.6	10.7	9.5	21.5	18.7	18.6	20.5	0.0	18.0
Incr Delay (d2), s/veh	4.1	1.8	0.1	4.9	0.9	0.2	4.5	0.1	0.1	4.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.9	0.2	0.3	1.8	0.5	0.3	0.2	0.2	1.0	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	12.3	8.0	26.5	11.5	9.7	26.0	18.8	18.8	24.7	0.0	18.6
LnGrp LOS	C	B	A	C	B	A	C	B	B	C	A	B
Approach Vol, veh/h		634			404			69			204	
Approach Delay, s/veh		13.9			12.0			21.6			21.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	24.3	5.1	10.1	7.1	22.3	7.0	8.2
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	50.0	56.0	50.0	* 79	50.0	51.0	50.0	* 79
Max Q Clear Time (g_c+I1), s	2.6	11.5	2.7	4.7	4.4	7.4	4.3	2.5
Green Ext Time (p_c), s	0.0	6.7	0.0	0.3	0.0	4.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	529	4	5	336	13	3	1	6	9	1	7
Future Vol, veh/h	14	529	4	5	336	13	3	1	6	9	1	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	581	4	5	369	14	3	1	7	10	1	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	383	0	0	585	0	0	1004	1006	583	1003	1001	376
Stage 1	-	-	-	-	-	-	613	613	-	386	386	-
Stage 2	-	-	-	-	-	-	391	393	-	617	615	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1175	-	-	990	-	-	220	241	512	221	243	670
Stage 1	-	-	-	-	-	-	480	483	-	637	610	-
Stage 2	-	-	-	-	-	-	633	606	-	477	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1175	-	-	990	-	-	213	235	512	213	237	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	235	-	213	237	-
Stage 1	-	-	-	-	-	-	471	474	-	625	606	-
Stage 2	-	-	-	-	-	-	621	602	-	461	473	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	16.2	17.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	1175	-	-	990	-	-	299
HCM Lane V/C Ratio	0.033	0.013	-	-	0.006	-	-	0.062
HCM Control Delay (s)	16.2	8.1	0	-	8.7	0	-	17.8
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	90	85	155	87
Future Vol, veh/h	0	0	90	85	155	87
Conflicting Peds, #/hr	0	10	8	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	113	106	194	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	267	311	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	772	1249	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	759	1239	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1239	-	-	-	-
HCM Lane V/C Ratio	0.091	-	-	-	-
HCM Control Delay (s)	8.2	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	55	123	47	26	125
Future Vol, veh/h	68	55	123	47	26	125
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	71	158	60	33	160
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9	9	9.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	55%	17%
Vol Thru, %	72%	0%	83%
Vol Right, %	28%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	123	151
LT Vol	0	68	26
Through Vol	123	0	125
RT Vol	47	55	0
Lane Flow Rate	218	158	194
Geometry Grp	1	1	1
Degree of Util (X)	0.265	0.206	0.247
Departure Headway (Hd)	4.372	4.695	4.588
Convergence, Y/N	Yes	Yes	Yes
Cap	822	763	782
Service Time	2.401	2.731	2.619
HCM Lane V/C Ratio	0.265	0.207	0.248
HCM Control Delay	9	9	9.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.1	0.8	1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	98	0	141	191	0
Future Vol, veh/h	29	98	0	141	191	0
Conflicting Peds, #/hr	12	2	60	0	0	60
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	129	0	186	251	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	449	253	-	0	-	0
Stage 1	251	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	568	786	0	-	-	0
Stage 1	791	-	0	-	-	0
Stage 2	835	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	568	785	-	-	-	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	835	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	568	785	-
HCM Lane V/C Ratio	-	0.067	0.164	-
HCM Control Delay (s)	-	11.8	10.5	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	97	365	83	132	568	145	97	95	134	219	171
v/c Ratio	0.62	0.52	0.13	0.69	0.76	0.21	0.62	0.30	0.35	0.76	0.40
Control Delay	65.8	31.3	4.2	66.7	38.4	6.8	65.8	40.5	7.9	61.5	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	31.3	4.2	66.7	38.4	6.8	65.8	40.5	7.9	61.5	28.9
Queue Length 50th (ft)	65	197	0	88	339	6	65	57	0	142	73
Queue Length 95th (ft)	110	280	13	141	467	35	110	92	23	214	121
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	344	833	746	258	743	685	258	797	740	344	783
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.44	0.11	0.51	0.76	0.21	0.38	0.12	0.18	0.64	0.22

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	281	64	102	437	112	75	73	103	169	67	65
Future Volume (veh/h)	75	281	64	102	437	112	75	73	103	169	67	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	365	83	132	568	145	97	95	134	219	87	84
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	572	483	174	624	524	124	415	348	258	244	236
Arrive On Green	0.07	0.31	0.31	0.10	0.33	0.33	0.07	0.22	0.22	0.14	0.30	0.30
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	822	794
Grp Volume(v), veh/h	97	365	83	132	568	145	97	95	134	219	0	171
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1870	1571	1781	0	1616
Q Serve(g_s), s	4.2	13.3	3.0	5.7	23.0	5.4	4.2	3.3	5.7	9.5	0.0	6.6
Cycle Q Clear(g_c), s	4.2	13.3	3.0	5.7	23.0	5.4	4.2	3.3	5.7	9.5	0.0	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	124	572	483	174	624	524	124	415	348	258	0	480
V/C Ratio(X)	0.78	0.64	0.17	0.76	0.91	0.28	0.78	0.23	0.38	0.85	0.00	0.36
Avail Cap(c_a), veh/h	450	1087	918	337	968	813	337	1039	873	450	0	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.2	23.7	20.1	34.8	25.2	19.4	36.2	25.3	26.2	33.0	0.0	21.9
Incr Delay (d2), s/veh	3.9	0.4	0.1	2.5	6.1	0.1	4.0	0.1	0.3	3.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	5.8	1.1	2.6	10.8	1.9	2.0	1.5	0.0	4.2	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	24.2	20.2	37.3	31.3	19.5	40.2	25.4	26.5	36.0	0.0	22.1
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	A	C
Approach Vol, veh/h		545			845			326			390	
Approach Delay, s/veh		26.4			30.2			30.2			29.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	30.2	9.5	27.7	9.5	32.4	15.5	21.8
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	15.0	46.0	15.0	* 44	20.0	41.0	20.0	* 44
Max Q Clear Time (g_c+I1), s	7.7	15.3	6.2	8.6	6.2	25.0	11.5	7.7
Green Ext Time (p_c), s	0.0	0.9	0.0	0.5	0.0	1.4	0.1	0.3

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	351	2	4	553	18	1	0	6	47	0	23
Future Vol, veh/h	9	351	2	4	553	18	1	0	6	47	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	382	2	4	601	20	1	0	7	51	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	621	0	0	384	0	0	1035	1032	383	1026	1023	611
Stage 1	-	-	-	-	-	-	403	403	-	619	619	-
Stage 2	-	-	-	-	-	-	632	629	-	407	404	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	960	-	-	1174	-	-	210	233	664	213	236	494
Stage 1	-	-	-	-	-	-	624	600	-	476	480	-
Stage 2	-	-	-	-	-	-	468	475	-	621	599	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	960	-	-	1174	-	-	197	229	664	208	232	494
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	229	-	208	232	-
Stage 1	-	-	-	-	-	-	616	592	-	470	478	-
Stage 2	-	-	-	-	-	-	442	473	-	607	591	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	12.4	24.8
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	496	960	-	-	1174	-	-	257
HCM Lane V/C Ratio	0.015	0.01	-	-	0.004	-	-	0.296
HCM Control Delay (s)	12.4	8.8	0	-	8.1	0	-	24.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	1.2

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	35	116	137	34
Future Vol, veh/h	0	0	35	116	137	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	53	176	208	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	234	260	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	805	1304	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	805	1304	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1304	-	-	-	-
HCM Lane V/C Ratio	0.041	-	-	-	-
HCM Control Delay (s)	7.9	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	11	140	41	6	131
Future Vol, veh/h	20	11	140	41	6	131
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	17	215	63	9	202
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	9	8.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	65%	4%
Vol Thru, %	77%	0%	96%
Vol Right, %	23%	35%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	181	31	137
LT Vol	0	20	6
Through Vol	140	0	131
RT Vol	41	11	0
Lane Flow Rate	278	48	211
Geometry Grp	1	1	1
Degree of Util (X)	0.312	0.065	0.254
Departure Headway (Hd)	4.144	4.891	4.339
Convergence, Y/N	Yes	Yes	Yes
Cap	872	735	833
Service Time	2.144	2.901	2.339
HCM Lane V/C Ratio	0.319	0.065	0.253
HCM Control Delay	9	8.2	8.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.2	1

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	46	0	158	154	0
Future Vol, veh/h	23	46	0	158	154	0
Conflicting Peds, #/hr	3	0	14	0	0	14
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	70	0	239	233	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	475	233	-	0	-	0
Stage 1	233	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	548	806	0	-	-	0
Stage 1	806	-	0	-	-	0
Stage 2	798	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	548	806	-	-	-	-
Mov Cap-2 Maneuver	548	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	798	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	548	806	-
HCM Lane V/C Ratio	-	0.064	0.086	-
HCM Control Delay (s)	-	12	9.9	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.2	0.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	511	40	23	317	85	30	24	18	94	120
v/c Ratio	0.52	0.44	0.04	0.22	0.34	0.11	0.26	0.13	0.09	0.51	0.46
Control Delay	48.4	15.0	5.6	48.6	18.2	10.8	48.8	36.2	1.3	48.6	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	15.0	5.6	48.6	18.2	10.8	48.8	36.2	1.3	48.6	29.6
Queue Length 50th (ft)	46	108	0	11	93	10	14	11	0	43	40
Queue Length 95th (ft)	120	385	18	42	249	51	51	34	0	114	90
Internal Link Dist (ft)		1317			3935			2233			652
Turn Bay Length (ft)	470		450	205		200	100		140	60	
Base Capacity (vph)	1084	1278	1075	1084	1278	1063	1084	1726	1429	1084	1544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.04	0.02	0.25	0.08	0.03	0.01	0.01	0.09	0.08

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	429	34	19	266	71	25	20	15	79	39	62
Future Volume (veh/h)	85	429	34	19	266	71	25	20	15	79	39	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	101	511	40	23	317	85	30	24	18	94	46	74
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	782	649	40	688	569	49	170	143	120	84	135
Arrive On Green	0.07	0.42	0.42	0.02	0.37	0.37	0.03	0.09	0.09	0.07	0.13	0.13
Sat Flow, veh/h	1781	1870	1552	1781	1870	1548	1781	1870	1568	1781	644	1036
Grp Volume(v), veh/h	101	511	40	23	317	85	30	24	18	94	0	120
Grp Sat Flow(s),veh/h/ln	1781	1870	1552	1781	1870	1548	1781	1870	1568	1781	0	1679
Q Serve(g_s), s	2.5	9.9	0.7	0.6	5.8	1.7	0.8	0.5	0.5	2.4	0.0	3.0
Cycle Q Clear(g_c), s	2.5	9.9	0.7	0.6	5.8	1.7	0.8	0.5	0.5	2.4	0.0	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.62
Lane Grp Cap(c), veh/h	129	782	649	40	688	569	49	170	143	120	0	219
V/C Ratio(X)	0.78	0.65	0.06	0.58	0.46	0.15	0.61	0.14	0.13	0.78	0.00	0.55
Avail Cap(c_a), veh/h	1965	2311	1918	1965	2105	1741	1965	3260	2733	1965	0	2927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	10.6	7.9	21.9	10.9	9.6	21.8	19.0	18.9	20.8	0.0	18.4
Incr Delay (d2), s/veh	3.9	1.8	0.1	4.9	0.9	0.2	4.4	0.1	0.1	4.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.0	0.2	0.3	2.0	0.5	0.4	0.2	0.2	1.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	12.4	8.0	26.9	11.9	9.8	26.2	19.1	19.1	25.0	0.0	19.2
LnGrp LOS	C	B	A	C	B	A	C	B	B	C	A	B
Approach Vol, veh/h		652			425			72			214	
Approach Delay, s/veh		14.0			12.3			22.0			21.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	24.9	5.3	10.1	7.3	22.7	7.0	8.3
Change Period (Y+Rc), s	4.0	6.0	4.0	* 4.2	4.0	6.0	4.0	* 4.2
Max Green Setting (Gmax), s	50.0	56.0	50.0	* 79	50.0	51.0	50.0	* 79
Max Q Clear Time (g_c+I1), s	2.6	11.9	2.8	5.0	4.5	7.8	4.4	2.5
Green Ext Time (p_c), s	0.0	6.9	0.0	0.3	0.0	4.6	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	530	4	5	337	36	3	1	6	23	1	16
Future Vol, veh/h	30	530	4	5	337	36	3	1	6	23	1	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	582	4	5	370	40	3	1	7	25	1	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	410	0	0	586	0	0	1060	1070	584	1054	1052	390
Stage 1	-	-	-	-	-	-	650	650	-	400	400	-
Stage 2	-	-	-	-	-	-	410	420	-	654	652	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1149	-	-	989	-	-	202	221	512	204	227	658
Stage 1	-	-	-	-	-	-	458	465	-	626	602	-
Stage 2	-	-	-	-	-	-	619	589	-	456	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1149	-	-	989	-	-	188	210	512	193	216	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	210	-	193	216	-
Stage 1	-	-	-	-	-	-	438	445	-	599	598	-
Stage 2	-	-	-	-	-	-	597	585	-	430	444	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	17.1	20.9
HCM LOS			C	C

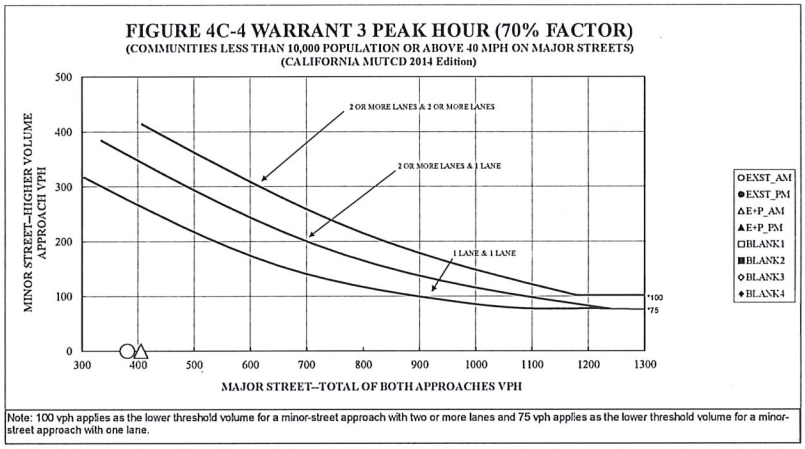
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	1149	-	-	989	-	-	270
HCM Lane V/C Ratio	0.036	0.029	-	-	0.006	-	-	0.163
HCM Control Delay (s)	17.1	8.2	0	-	8.7	0	-	20.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6

Appendix C

Signal Warrant Worksheets

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	381	0	NO
EXST_PM	257	0	NO
E+P_AM	405	0	NO
E+P_PM	34	0	NO
BLANK1	0	0	
BLANK2	0	0	
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: June 26, 2023 Intersection No.: 1

Intersection: **N Reinway Ave & Primary School Ingress**

Number of lanes on MAJOR street: 1

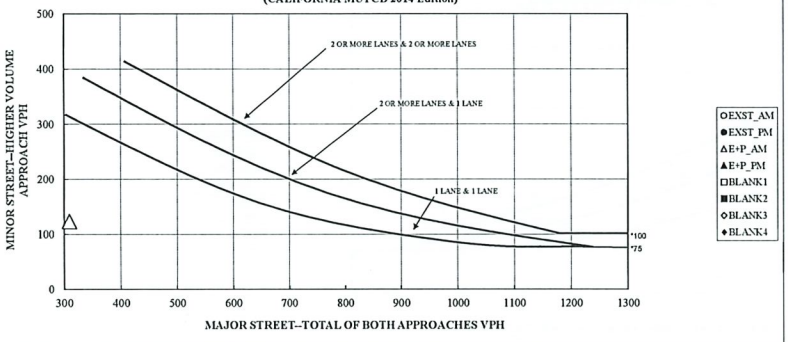
Number of lanes on MINOR street: 1

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)
(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)
(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	285	123	NO
EXST_PM	253	31	NO
E+P_AM	309	123	NO
E+P_PM	287	31	NO
BLANK1	0	0	
BLANK2	0	0	
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: **June 26, 2023** Intersection No.: **2**

Intersection: **N Reinway Ave & Pecan Ave**

Number of lanes on MAJOR street: **1**

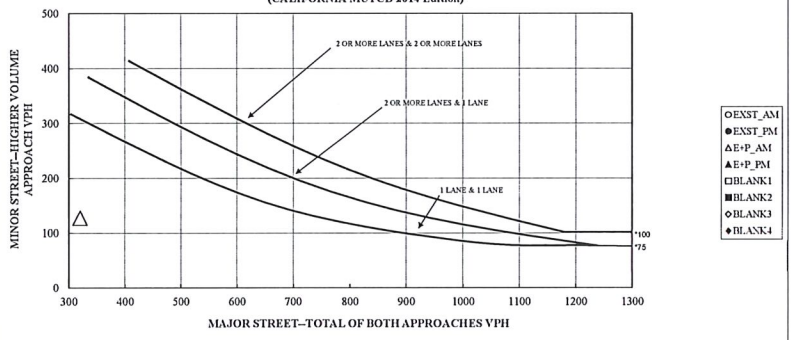
Number of lanes on MINOR street: **1**

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)
(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)
(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES)		WARRANT MET?
	MAJOR	MINOR	
EXST_AM	296	127	NO
EXST_PM	247	69	NO
E+P_AM	320	127	NO
E+P_PM	281	69	NO
BLANK1	0	0	
BLANK2	0	0	
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: June 26, 2023 Intersection No.: 3

Intersection: **N Reinway Ave & Primary School Egress**

Number of lanes on MAJOR street: 1

Number of lanes on MINOR street: 2

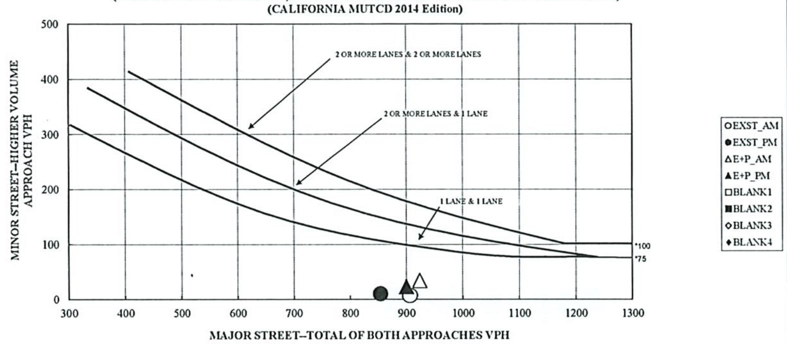
WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

CA SIGNAL WARRANT 3 ANALYSIS

SCENARIOS: "AM/PM PEAK HOUR" CONDITIONS

FIGURE 4C-4 WARRANT 3 PEAK HOUR (70% FACTOR)

(COMMUNITIES LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREETS)
(CALIFORNIA MUTCD 2014 Edition)



Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

SCENARIO	APPROACH(ES) MAJOR	APPROACH(ES) MINOR	WARRANT MET?
EXST_AM	906	7	NO
EXST_PM	854	10	NO
E+P_AM	923	34	NO
E+P_PM	900	23	NO
BLANK1	0	0	
BLANK2	0	0	
BLANK3	0	0	
BLANK4	0	0	

Note: Major approach is the total of both approaches. Minor approach is the highest of both approaches.

Date: June 26, 2023

Intersection No.: 5

Intersection: **Eucalyptus Ave & SR 132**

Number of lanes on MAJOR street: 1

Number of lanes on MINOR street: 1

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Appendix D

Annexation Area Exhibit and Development Assumptions

Fahmy Annexation, Prezone, and TSM Application
Application File No. 2022-0001
City of Waterford

Draft Project Description

Overview

The Proposed Project consists of the Pre-Zone and annexation of approximately 43.27-acres to the City of Waterford, and the subdivision of 19.2 acres of the 43.27-acre annexation area into 98 single-family residential lots. No new development is proposed for the remaining 24.07 acres.

Below, this Project Description is organized to describe the actions of the Annexation and Prezone followed by the actions of the Tentative Subdivision Map.

Annexation and Pre-Zone:

The Project site is currently within Stanislaus County, and within the City of Waterford's Primary Sphere of Influence (SOI). The Proposed Project would result in the annexation of six (6) legal parcels into the City of Waterford, identified as the following Assessor Parcel Numbers (APN):

- 080-003-050;
- 080-003-012;
- 080-003-015;
- 080-003-034;
- 080-003-040; and,
- 080-003-049.

A majority of the proposed annexation area is undeveloped, containing a few estate homes and a Mobile Home and RV Park. The Mobile Home and RV Park is located at 11819 Yosemite Boulevard on APN No. 080-003-040 and consists of forty-three (43) spaces available for occupancy, most of which are currently occupied.

The proposed annexation area is contiguous with the existing City limits along the eastern and southern boundary. It is bounded by Reinway Avenue the east, SR 132 to the south, WID Main Canal and Eucalyptus Avenue to the west, and the northern property line of the property to be subdivided, APN 080-003-049 to the North, and is approximately 43.27-acres. Figure 1, Annexation Area Exhibit, illustrates the Proposed Project's total annexation boundary.

In terms of the pre-zoning designation of each of the parcels described above, the table below depicts each parcel (identified by APN), its respective General Plan land use designation, followed by development assumptions based upon land use designations defined in the City's General Plan.

Table 1 – Pre-Zone Designations and Development Assumptions

APN No.	Acres	2025 General Plan Land Use Designation	Pre-Zone Designation	Development Capacity* (# of residential units)
080-003-012	4.93	Low Density Residential (LD)	RS, Residential Single	25
080-003-015	1.98	LD	RS	10
080-003-034	5.12	LD	RS	26
080-003-040	6.15	LD	RS	43 (Space in the Shade Mobile Home and RV Park
080-003-049	0.95	LD	RS	5
080-003-050	19.13	LD	RS	98
N/A (right-of-way, MID Canal)	5.01	-	-	-
Total	**43.27**	**-**	**-**	**207**

Notes:
*Development capacity is based upon average Density per 2025 General Plan LD land use designation: 5 dwelling units per gross acre.

As depicted above, development capacity within the proposed annexation area is assumed to be 207 single-family residential units, 43 of which exist within the Mobile Home and RV Park and 98 proposed as part of the Proposed Project. It is important to note that in terms of new development, 98 single-family residential units are proposed at this time.

Tentative Subdivision Map

As noted previously, the Proposed Project also consists of a Tentative Subdivision Map to allow for the subdivision of approximately 19.2-acres into ninety-eight (98) single-family residential lots and a parcel set aside for a sanitary sewer pump station. Sewer will be pumped through a six (6) inch force main south along N. Reinway Avenue approximately 2,470 feet to an existing manhole located at the intersection of N. Reinway Avenue and Washington Road.

Storm drainage runoff will be conveyed via a gravity system to the future storm drainage trunk main in N. Eucalyptus Avenue. Stormwater will be discharged through a metering structure and overflow pipe to the existing twelve (12) inch storm drainage line in N. Reinway Avenue. The proposed discharge to N. Reinway Avenue will be metered to discharge at the pre-development flow condition so as not to inundate

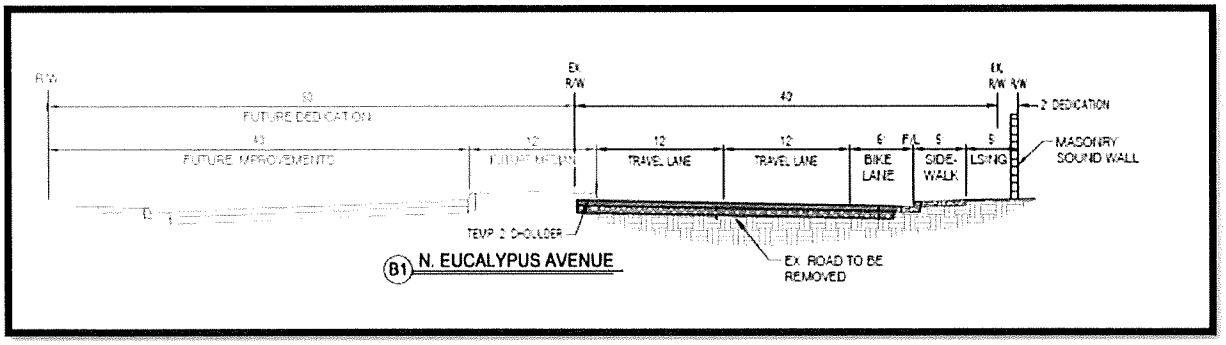
downstream stormwater systems. Stagnant water in the proposed pipe network will empty via underground percolation system along N. Eucalyptus Avenue implementing either a series of Drywells or French Drain system(s).

A looped water system will be installed in the proposed roadways. An eight (8) inch main will be installed in N. Eucalyptus Avenue along the Project frontage for future extension. The water system will have two (2) connection points to the existing water main within N. Reinway Avenue from the Project's entrance, and through an easement on lots ninety (90) and ninety-three (93). A water line will be installed within the stub street to the north for future connection.

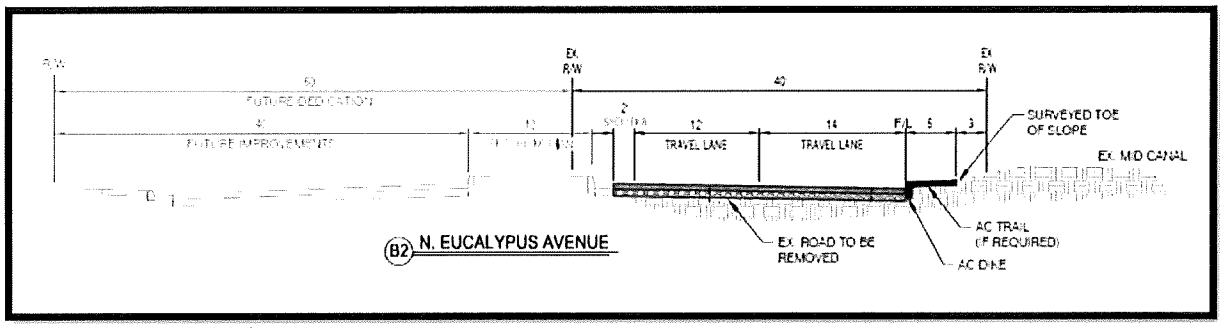
Physical development of the individual lots is not proposed at this time, but it can be assumed that future development within the Project site will conform to the City's Zoning Ordinance, including Section 17.20 General Residential Districts. Ultimately, the Proposed Project will consist of uses consistent with the City's Zoning Ordinance, and specifically, permitted uses within the Residential Single (RS) Zone.

Typical lot size of new parcels created as part of the Proposed Project are approximately 6,000 square feet in size. Primary access to the Project site will be provided via N. Reinway Avenue, N. Eucalyptus Avenue, and proposed "Street A".

Along the Proposed Project's frontage, N. Eucalyptus Avenue will be improved as shown in the following cross section:

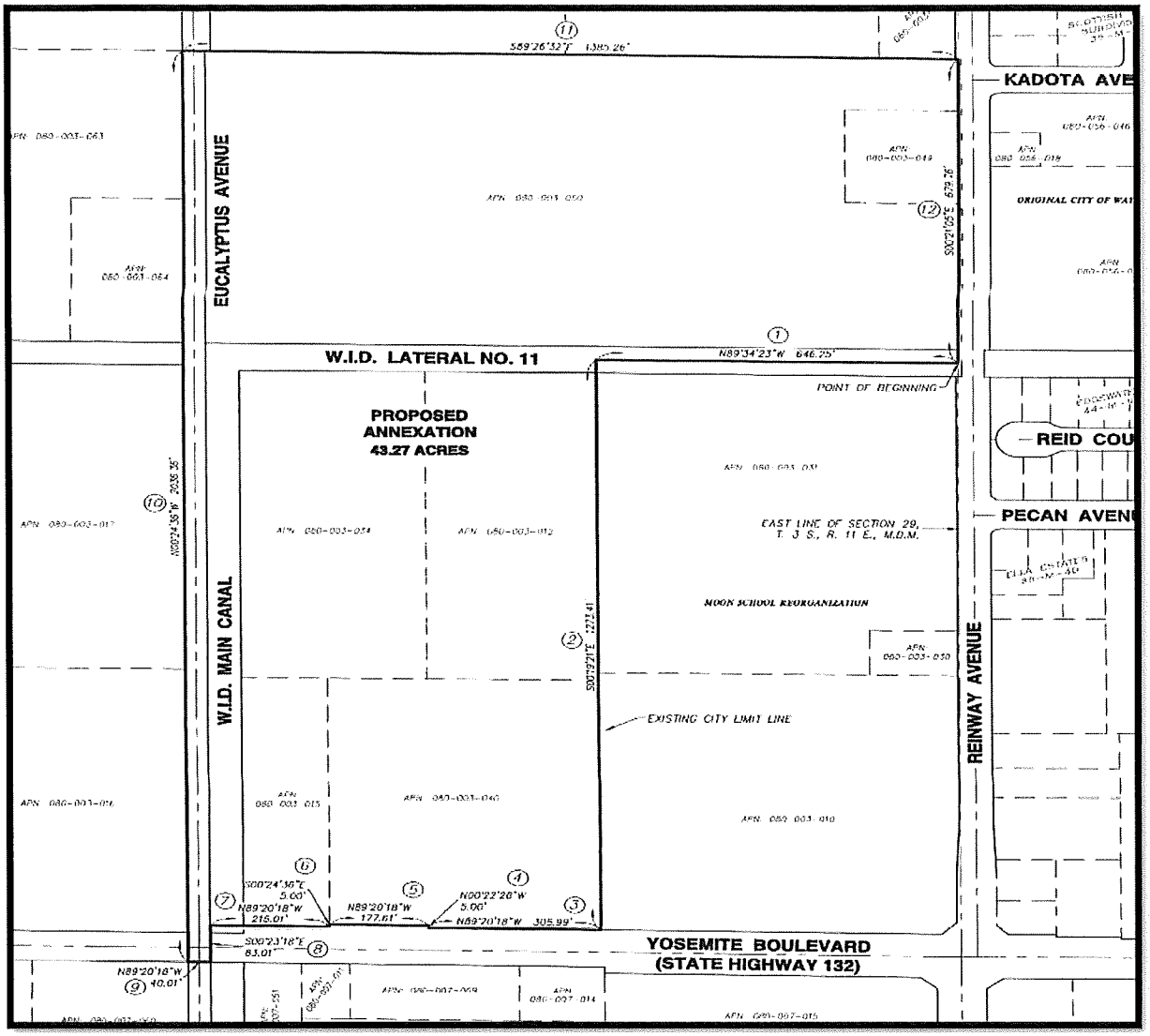


South of the Proposed Project's frontage, and south of the Modesto Irrigation District (MID) canal, N. Eucalyptus Avenue will be improved as shown in the following cross section:



B2 N. EUCALYPUS AVENUE

Figure 1 – Annexation Area Exhibit



Appendix E

Project Study Area for Project VMT per Resident Calculation

Project Study Area for Project VMT per Resident Calculation